LIBRARIES
UNIVERSITY OF WISCONSIN–MADISON

The United States miller. Fourteenth Year 1889

Milwaukee, Wisconsin: [s.n.], 1889

https://digital.library.wisc.edu/1711.dl/LTQI2UYUL6BDI9E

Based on date of publication, this material is presumed to be in the public domain.

For information on re-use, see
http://digital.library.wisc.edu/1711.dl/Copyright

The libraries provide public access to a wide range of material, including online exhibits, digitized collections, archival finding aids, our catalog, online articles, and a growing range of materials in many media.

When possible, we provide rights information in catalog records, finding aids, and other metadata that accompanies collections or items. However, it is always the user's obligation to evaluate copyright and rights issues in light of their own use.

728 State Street | Madison, Wisconsin 53706 | library.wisc.edu

TS
2120
"U5
1889-91, complete

1876. 1889.

The United States MILLER

Devoted to Flour, Grain, Milling, Manufacturing and Commercial Interests.

Fourteenth Year.—No. 1. MILWAUKEE, JANUARY, 1889. Subscription Price, $1.00 Per Year.

OUR LONDON LETTER.

Retirement of a Prominent English Engineer.—Decision in an Important Milling Cause.—Description with Illustration of a Valuable Weighing and Mixing Machine, Etc., Etc.

[Our Correspondent's letter arrived too late for publication in our December number, and we therefore omit the first part of it referring to trade conditions.]

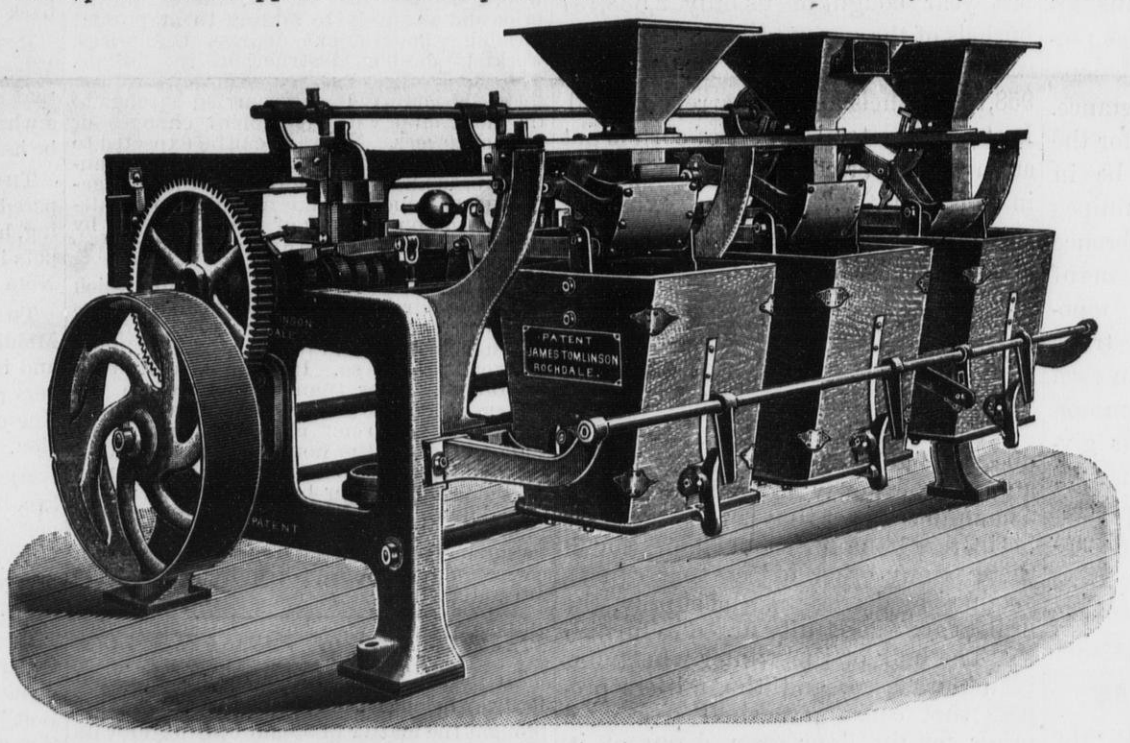
* * * * * * *

Mr. J. Harrison Carter of 82 Mark Lane E. C. has retired from business as milling engineer and is succeeded by Messrs. E. R. and F. Turner of Ipswich who during the past 12 years have manufactured the greater part of his machinery, having purchased his stock and Interest. Mr. Carter who is one of the most gentlemenly men in the milling trade, now intends to give most of his time to politics and no doubt we shall soon see him a Member of Parliament.

Mr. Justice Mathew delivered judgment in the case of Nunden, Armfield & Co. *v.* Marriage, Neave & Co., for the plaintiffs on the claim and counter-claim with costs. The points raised in the defense were all decided in favor of the plaintiffs (milling engineers.) The plaintiffs sought to recover from the defendants the balance due upon anaccount of machinery supplied and for work done in the defendants mill. The claim was resisted by the defendants, who set up an answer, and then filed a counter-claim by which they insisted that the plaintiffs were liable to them in respect of large damages in consequence of defects in the machinery supplied. The case was one of great interest and the week's fight was spoken of during the time it lasted and for nine days after, on every corn market.

As promised in my last letter, annexed will be found a description of the New Wheat Weigher and Mixing Machine, that was erected at the Deptford Bridge Flour Mills, Greenwich, during last October. These mills are very conveniently situated for flour manufacture, being connected with the river Thames by a tidal dock. The wheat is unloaded by means of a grain elevator direct from the barges to one of the twenty-one bins in the silo and after having been mixed with other varieties by the Wheat Weigher and Mixer is cleaned in the wheat cleaning department adjoining, after which process it is reduced to flour and offal in the roller mill proper The Deptford Bridge Flour Mills have under one roof two distinct roller plants, together having a capacity of a little over 1000 barrels of flour per day and the whole block of buildings present a pleasing appearance. Structurally the building is arranged so as to minimize the risk of fire so far as possible, the roller mill proper, wheat cleaning department and silo being separated by thick fire proof walls, and having no communication with each other; except, by the iron galleries outside the building communicating on each floor. The silo which has only lately been finished is found to work most satisfactorily and, as mentioned in my last letter has 23 bins with hoppered bottoms. The Wheat Weigher and Mixer, which was patented in August 1884, by W. J. D. Thomlinson, engineer of the Soho Iron Works, Rochdale, is placed immediately under the bins, to enable the wheat to be spouted direct into the machine.

The machine has ten weighing hoppers and a capacity of 750 bushels per hour. The illustration shows a machine with three receiving hoppers, but is of the same principle and construction as those with more hoppers. The hoppers or scale receptacles are suspended from weighing levers, and the various qualities of grain are conveyed separately from their respective bins to the weighing hoppers or to as many as may be required. The feeding shoots conveying the grain to the scale hoppers below (see illustration) are provided with valves which are kept open by means of levers. The frame of the machine supports a revolving shaft, which imparts movement to a rocking shaft on which are fingers that vibrate to and fro. When any one of the scale hoppers has received the specific weight of grain and descends, its lever frame interposes a part between the corresponding vibrating finger and the locking catch, whereby the latter is knocked off a bar which by this means becomes disengaged. The valve at the bottom of the shoot supplying the scale hopper is closed by the downward movement of the scale hopper. When all the scale hoppers have been loaded with the correct weight of wheat —each one of which can be varied to any proportion, the scale hoppers unload themselves simultaneously. On the main-driving shaft is a pinion, which drives a spur-wheel fixed on a shaft above. (See illustration.) This latter shaft revolves inside a hollow shaft, upon which are fixed the necessary cams to lift the wheat weighing receptacles into position after they have been discharged, and to withdraw the arc-valves from over the delivery spouts of the feed spouts. The hollow shaft is brought into gear with a rachet wheel fixed on the driving-shaft, when the detention fingers have released a bar which does not take place until all the weighing hoppers have received their proper quantity of wheat, so that until the proper quantity of wheat is in each receptacle the hollow shaft remains at rest. The wheat is discharged from the wheat scales simultaneously by cams also fixed on the revolving shaft, which by an arrangement of levers press open the catches at the bottom of the hoppers and allows the wheat to fall into a large hoppered spout, which carries it to the bin below the machine.



TOMLINSON'S WHEAT WEIGHER AND MIXER.

L. Maygrove.

BRITISH GRAIN IMPORTS.

Sir James Caird called attention to a remarkable recent instance of the smoothness of the operation of trade under neutral conditions. During the eleven months of 1888 ending on November 30, Great Britain imported a little more than sixty-seven million hundredweight of wheat and flour. In the corresponding eleven months of 1887 the foreign supply was practically the same. Only, the growers of the great bulk of the import in the two years happened to be different. Forty-nine million hundredweight came in the earlier period from North and South America, and in the later twenty-nine millions. Most of the missing twenty millions of 1888 had been furnished in 1887 by the United States, from which this year less than half the supply of 1887 has emanated. Eastern Europe has made good the American deficiency, and especially Russia. An increase of fifteen million hundredweight has come from Russia, which has sent four times as much as in the corresponding eleven months.

The transfer represents a vast loss to the United States, and a proportionally greater gain to the Russian Empire. Much of the price paid by Englishmen for the grain and flour is like a windfall to the Russian farmer. The surplus of his harvest would have been of little monetary value to him if left in his own country. Probably by its mere presence it would have considerably lowered the market price of that required for home consumption. In addition to the agricultural profit is the profit or profits to a crowd of interests employed in the change of hands, and of nationalities, undergone by the wheat in transit. That which Russia has been acquiring in these incidental ways has been, there can be no doubt, abstracted, more or less, from the United States. Circumstances might be imagined in which the shifting of the British wheat supply would have no such effect. If the United States had suddenly turned capital, labor and acreage to some new purpose, the with drawal of the foreign custom for twenty million hundredweight of wheat would not matter. So, again, if the American population and demand for food had risen, as sooner or later it will, to the level of the extreme production of the native soil, the modification in the course of British food imports would imply a benefit to the Union rather than the reverse. Nothing of the kind can be suggested to explain the alteration in the source of British bread. So much English money simply has been going into Russia instead of West American pockets; and America simply is so much the poorer for the phenomenon. That is all matter of course, for which the chances of seasons are accountable. Western America had this past year comparatively meagre harvests, and Russia, by a coincidence fortunate for her even more than for Great Britain, enjoyed splendid weather and enormous crops. The more curiously pleasant, though perfectly natural, result for the British consumer is that, amidst the extraordinary market permutations and vicissitudes, he has been enabled to eat his loaf at the same price within a fraction that he ate it

BUY YOUR BOLTING AND WIRE CLOTH
AT FIRST HAND AND GET THE BEST IN QUALITY & PRICE
OUR SPECIALTIES GENUINE DUFOUR BOLTING CLOTH, PAT. METALIC FASTENED WIRE CLOTH BINDING. ALL WORK GUARANTEED.
EDW. P. ALLIS & CO., RELIANCE WORKS MILWAUKEE, WIS.
Write for a copy of our new Bolting Cloth Order Book.

last year. He has not been in the least conscious, unless he were engaged in the preparation of agricultural statistics, that Russia, and no longer America, has been growing this staple grain.

Several agencies join in enabling the British consumer thus to preserve a placid indifference to the ultimate choice among the candidates for the office of his wheat grower. In the first place, his wealth is concerned. No set of foreign farmers and dealers has any doubt of his solvency. He goes round the world's markets with ready cash, or equivalent credit, and has but to select without fear of demur. He is not merely a good, but a known customer. All the farming interests on the earth grow with an eye to his possible advent as a buyer, and facilitate his arrangements. On his part he has provided himself with the best equipment for annihilating space and distance. Whether the cornfields which for the time have caught his preference be in India, Bessarabia, Tennessee, Winnipeg or Chili, makes little or no difference to him. He is prepared with means of transport which minimize the topographical dissimilarities. Free trade has imparted to British traffic in corn as automatic a flow as the common sense of the commercial States has given to exchanges in the money market. As bullion by a self-adjusting process passes, wherever it is wanted and valued, so corn passes, whenever it is wanted, into British ports.—*London Times.*

A CORN PALACE TO GO TO PARIS.

The New York *Times* says that "the plan for a corn exhibit at the Paris Exposition is receiving a good deal of attention on the New York Produce Exchange, where designs for the 'corn palace' to be shown at the exposition have been displayed for some days. The supervision of the exhibit will be under the control of the agricultural department of the American commission, although it is expected to raise the $30,000 estimated to be needed to meet the expenses by subscriptions. The exhibit will include a pavilion, the roof, columns and chimney of which will be built of the corn fodder, and the interior and exterior will be covered with the corn-stalk and ear. A good deal of mosaic work with corn grains of varied colors and a number of figures and emblems, all in corn, will be shown. Photographs of Corn Exchanges in this country and big maps showing the corn-growing districts of the country will be included in the display. From an American kitchen, equipped with American ranges, cooks will distribute free of charge all the known preparations of corn as an article of food in the shape of bread, mush, puddings, etc. A competent man will deliver short lectures every hour on the uses of corn, the way of preparing and cooking it, and its general healthfulness as an article of diet. Pamphlets setting forth the same facts in English, French and German will also be distributed. For the exhibit the promoters say that the use of corn as food is hardly appreciated at all in Europe, and that if the possibilities of the grain were understood exports of it from this country would quickly be increased many fold. To introduce corn to the people of Europe is the great object of the exhibitors, who say that Germany last year bought of us only 2,638,137 bushels of the grain and 403 barrels of cornmeal, while France took only 1,958,750 bushels and 60 barrels of meal. Last year the total export of corn is put at only 1.70 per cent. of the production in this country." For the exhibit a space with eighty feet of frontage is said to have been secured.

THE MILLERS' COMBINE.

The *St. Louis Post Dispatch* of Jan. 5, contained the following editorial:

"The flour mills have been reduced to half capacity under the operation of the newly formed flour trust. The millers assert that this is not done to increase the price of flour, but if there is any other object that can be obtained by decreasing the supply, the millers are respectfully urged to furnish it. The bulk of the winter wheat has been purchased, and the millers propose that consumers shall pay good prices for the flour ground out of it. This is sad news for the poor people who must have bread."

To this Alex. H. Smith the well-known St. Louis miller makes the following reply which will no doubt make good reading for editors of such dailies as desire to give the public the plain truth:

To the Editor of the Post-Dispatch:

Refering to your editorial allusion to flour mills Saturday, I beg to state that there are other reasons than the desire to increase the price of flour for limiting the production to half the average capacity of the mills temporarily.

First, "because the stocks of flour on hand are the largest on record, having increased 191,000 barrels since December 1, being 65,900 barrels more than one year ago, and 77,440 barrels more than on January 1, 1887, when the stock aggregated 2,025,000 barrels." (Quotation from *Bradstreet* printed in your commercial column of Saturday.)

Please note that the 191,000 barrels increase for December was made under the reduced capacity of mills which you assume threatens to increase the price of bread, the mills of the whole country having been under agreement to not exceed half capacity from November 19 to December 31, and many of them being wholly idle during that period, notwithstanding which the records show that the stock of flour largely increased, and the reduction has consequently been continued for January.

Second, because, notwithstanding the considerable decline in wheat within that period named, which has been followed by flour prices as reference to your daily reports, show the cost price of flour is not yet cheap enough to attract export orders, and with milling capacity largely exceeding domestic demand the only remedy was the one adopted to reduce the manufacture to near the requirements of the only trade open to us.

As a matter of fact the action you criticise (doubtless without due consideration) has reduced the price of flour by first diminishing the demand for wheat and consequently bringing the cost down. You say that "the wheat bas been bought," but we say it is not wholly or even generally owned by millers. Have you forgotten the "September corner" and that under the modern system of speculation the visible supply is usually owned and used by manipulators?

If the wheat is out of farmers hands and millers in self-defense take united action to bring the price of the raw material and the manufactured article into their proper and reasonable positions, are they therefore to have the stigma of "trust" attached to their avoidance of destruction?

The market records prove the assertion that so far the action of the millers has reduced prices. With an admitted deficiency in the last winter wheat crop and nearly a failure of the spring wheat crop, full milling would deplete the supply, increasing its price and as surely by adding to at present unsalable flour stocks depress the prices, working double destruction to millers, whereas, by the conservative policy forced on them, the country may be carried through to the next crop without violent changes or extreme prices. No trade can be expected to deliberately commit "harikari." No manufacturer is under any moral or other obligation to continue to make and pile up unsaleable goods on penalty of being charged by the newspapers with running a "trust" or oppressing the poor.

This is simply an economic question which is open to fair discussion, and the newspapers should treat it as such in a spirit of fairness. If the facts are found to be as herein stated, tell your readers so. If flour is really considerably cheaper than it was before the millers made the move complained of, tell them so, and do not mislead them by the catch phrases of the hour. They know that the wholesale price of extra fancy flour in St. Louis at $4.75 per barrel is not dear and they know that if it was saleable at any profit the mills would not reduce their manfacture. This is not a defense, but simply a correction; no defense is required if the facts are stated.

STEAM HEATING OF PASSENGER CARS.

To the Chicago, Milwaukee & St. Paul Railway belongs the credit for first having brought the matter of steam heating of cars into general notice; to that company belongs the credit of being the first western road which has brought its experiments to a successful issue, and to that company the traveling public will be indebted for its taking the initiative in equipping its principal through trains with this comfort-producing and life-saving apparatus.

In order to explain the manner in which the cars are heated, the following is furnished by Mr. George Gibbs, Mechanical Engineer of the Chicago, Milwaukee & St. Paul Railway:

The steam is taken direct from the locomotive boiler through pressure regulating and safety valves, which allow low pressure steam only to pass back to the cars, through the main train supply pipe, and thence to the heating pipes in each car.

The direct supply pipe is carried through the top of the cars, and flexible connections made over the center of the platforms by means of automatic couplings and hose. By this construction, complete immunity from danger of scalding in case of accident is secured; the reducing and safety valves making over pressure impossible, and the automatic couplings on top of cars allowing harmless escape of the steam, and instantly breaking connection to locomotive.

The direct train pipe is tapped in each car by a branch pipe, which communicates with radiator piping along the sides for heating surface. In addition to this, provision is made for properly ventilating cars by an arrangement in each of "indirect heating" radiators, very similar to stacks in the cellars of houses heated by steam, so that the motion of the train forces in large volumes of heated fresh air.

This feature in connection with a device used for automatically regulating the temperature to a fixed point, say 70 degrees, assures the highest attainable degree of comfort in a changeable winter climate.

TRADE NOTES.

THE Milwaukee Bag Company report business GOOD. Their goods and prices meet the wants of millers and grain dealers.

BURNHAM BROS., York, Pa., report the demand for water-wheels already good. Their's, is an old firm and their wheels are well-known.

THE Prinz & Rau Manufacturing Company report a strong demand for their special machinery, not only from millers, but from brewers and maltsters. See their adv. on back page.

B. H. & J. Sanford, of Sheboygan Falls, Wis., manufacturers of water-wheels believe that they can convince anyone wanting a a wheel that they make as good a one as can be had and for a reasonable price.

THE Goodyear Rubber Company are prepared to supply anything in the way of belting, hose and rubber goods. They have depots in Milwaukee, Minneapolis and St. Paul. Note their adv. and write to them.

THE annaul banquet of the Geo. T. Smith Middlings Purfier Co., to its officers, agents and invited guests at Jackson, Mich., was a very pleasant affair, and passed off without a single unpleasant feature to mark the occasion.

MESSRS. EDW. P. ALLIS & Co., of Milwaukee, have recently received an immense importation of bolting cloth of the best brand known to the trade. Their works are kept pretty busy, especially their engine department.

THE Bradford Mill Company, Cincinnati, O., report business good. The demands upon them for their celebrated "Dunlap Bolt" keep one department of their institution more than busy. Millers should have their latest catalogue on hand for reference.

IN their advertisement on the back page of this paper the Superlative Purifier Company publish a letter from Homer Baldwin, of Youngstown, O. Millers' generally know Mr. Baldwin to be one of the most expert millers in this or any other country, and his views carry great weight with them. Read the letter.

S. HOWES, of Silver Creek, N. Y., finds it necessary to run his works to full capacity to supply the demand for his "Eureka" machines. By the way, Mr. Howes was recently the recipient of a present of an elegant easy chair from his employes. Mr. Howes annual presents to his employes are in the shape of substantials which prove of physical benefit to them.

SPECIAL NOTICE.

WE will furnish any one in the United States or Dominion of Canada, for one year, with THE UNITED STATES MILLER and *The Northwestern Miller*, for $3.25; including "50 novels," $3.75.

THE C., I., St. L. & C. Ry. (Kankakee Line) is the best line to Cincinnati, Richmond, Va., Newport News, Washington, Baltimore, Chattanooga, Atlanta, Savannah, Charleston, Jacksonville, St. Augustine, Thomasville, Pensacola, Mobile, New Orleans, and all points in the South and South-east.

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.
OFFICE, No. 124 GRAND AVENUE, MILWAUKEE.

SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.

To American subscribers, postage prepaid..... $1.00
To Canadian subscribers, postage prepaid..... 1.00
Foreign subscriptions..... 1.25

All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.

Bills for advertising will be sent monthly, unless otherwise agreed upon.

For estimates for advertising, address the UNITED STATES MILLER.

[Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE, JANUARY, 1889.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. *You will thereby oblige not only this paper, but the advertisers.*

MILWAUKEE AMUSEMENTS.

ACADEMY OF MUSIC—First-class theatrical entertainments every evening. Matinees Wednesdays, Saturdays and Sundays, at 2 p. m.

STANDARD THEATER (South-side)—Every evening; matinees Saturdays and Sundays, at 2 p. m.

GRAND AVENUE THEATER AND MUSEUM—Open daily from 10 a. m. to 10 p. m.

STADT THEATER (German)—Wednesday and Sunday evenings.

PEOPLE'S THEATER—Choice variety performances every evening; matinees Tuesdays, Fridays and Sundays, at 2 30 p. m.

PUBLIC MUSEUM, Exposition Building—Open daily; admission free.

LAYTON ART GALERY—Open daily. Free admission Tuesday, Thursday and Saturday.

WITH this number the UNITED STATES MILLER enters the fourteenth year of its existence and resumes its former size of page. This edition contains but eight pages. We shall increase the number of pages as rapidly as we can do so in justice to ourselves. We shall maintain a very large circulation, and do not doubt but our efforts in that direction will prove entirely satisfactory to all advertisers. We shall publish a paper of interest and value to the trade in all its branches, and we may add here that we will pay considerable attention to appropriate illustrations.

HARVESTING is progressing in Australia and the Argentine Republic. The former has no wheat for export and the latter will it is anticipated have about 8,000,000 bushels of wheat for export by March 1.

A CONVENTION of winter wheat millers will be held in Indianapolis, Tuesday, Feb. 5, 1889. A large attendance is desired and expected. Matters of great importance to the trade in general will be discussed and acted upon.

THE "50 NOVELS" advertised in another place as a premium with the U. S. MILLER make unquestionably the best premium ever offered. We have filled orders for them from all over the country. We may not be able to keep this offer open long.

THE Holiday number of the *Journal de la Meunerie*, Paris, France, is the largest yet produced. It contains considerably over a hundred pages and is well illustrated and full of good technical as well as appropriate miscellaneous reading matter.

THE cotton bagging trust died according to appointment Jan. 1. The members of the trust admit that they made some money but not as much as they expected to, as outsiders owned a large amount of bagging which was placed on the Market.

EDW. P. ALLIS & Co. have just issued a very neat and convenient little pamphlet, containing price lists of the celebrated Dufour bolting cloths and wire cloths, with suitable blanks for ordering, which they will be glad to send to all millers requesting a copy.

THE Farmer's Annual State Convention will meet in Madison, Wis., Feb. 5, 6, 7 and 8, in the Assembly Chamber. The railroads have made special excursion rates of half fare to Madison from all parts of the State for this occasion. All residents of the State are invited to attend.

THE Canadians want letter postage reduced to two cents per ounce and England wants ocean postage reduced to two cents. That postal rates everywhere should be reduced to the lowest point possible consistent with the expense of carrying and distributing the mails is generally admitted.

The New York Commercial and Shipping List of late date says:

THE all but enthusiastic confidence with which merchants generally regard business prospects for the incoming year is significant. The stagnation in the wheat export trade is the saddest and most noteworthy exception. Speculative booms have driven into other channels, and other countries are reapiug the advantage of it.

HAVE you a wife, daughter or sweetheart? If so, send $1.10 for a copy of *The Ladies' Home Companion* and THE UNITED STATES MILLER. Both papers for one year for $1.00. The former is published twice a month, and is a beautiful 16-page paper. Address THE U. S. MILLER, Milwaukee, Wis.

THE Minneapolis *Tribune* gives a glowing account of the extent of the flour industry in Minneapolis and the number of people benefited thereby. Milwaukee cannot make quite such an extensive showing in flour manufacture, but when it comes to beer, leather and iron, we can give "The Twin" odds.

THE electric-sugar-refining process has proved a gigantic fraud and something like a million of American and English dollars have gone to enrich the shrewd fraud-workers. This is another expensive lesson to persons who put their money into processes so secret that the inventors do not dare to patent them. Will the Keeley motor also prove to be a fraud on gullible investors?

A ST. LOUIS dispatch says;

"The Western Millers' Association's report which is now in print, makes wheat on hand, 1,900,000 bushels more than last year, and 180,000 barrels more flour. The acreage of Missouri is 100, condition 100; Illinois, acreage 98, condition, 101; Kansas, acreage 144, condition, 100. The other four states were from 94 to 98 in acreage and average conditisn. Of wheat in farmers' hands, Missouri reports larger, three states report about the same and three states smaller." Another and more specific dispatch reports that the above statement of stocks of wheat and flour is from 154 mills.

THE Holiday number of *The Northwestern Miller* came duly to hand and we believe the most sanguine expectations bred by the representations of the publishers are more than realized. It is better in many respects than any previous Holiday editions. Both mill furnishers, millers and brokers are well represented in its columns. It should be seen to be appreciated. The price is fifty cents per copy. It can be obtained by addressing the publishers at Minneapolis, Minn.

THE Supreme Court ot the United States Jan 21, rendered an opinion in the important patent case of the Bate Refrigeration Company, appellant, vs. George Hammand & Co., appeal from the circuit court of the United States from the district of Massachusetts. The supreme court through Justice Blatchford holds that the lifetime of an American patent first taken out in a foreign country does not expire until the extreme limit of time for which an extension of patent may be secured in the foreign country.

THE February installment of the Lincoln History in *The Century Magazine*, contains chapters of peculiar interest, describing (1) the events leading up to the final removal of General McClellan, (2) the financial measures undertaken by Mr. Chase and advocated by Mr. Lincoln for carrying on the war, (3) the relations between President Lincoln and Secretaries Seward and Chase, including the incident of the simultaneous resignation of the two Secretaries, and the manner in which Mr. Lincoln averted a political catastrophe.

IF you are about to build write to the UNITED STATES MILLER for a copy of "Brean's House Plans," and enclose fifty cents in stamps. It will help you!

THE publisher of *The Milling Sphere* writes us that his publication has twice been burned out recently, but that his journal will be out shortly in good shape.

WE will send the UNITED STATES MILLER and *American Miller* to any address in the United States or Canada for one year for $1.50, or both papers and "50 novel" premiums for $1.75.

THE *Popular Science Quarterly* has an able article on "Trusts" by Prof. Theo. W. Dwight, warden of Columbia College Law School in which he gives a decided opinion against the competence of our legislatures, whether national or state, to prohibit trusts. The article is well worth the careful study of legislators who are intent upon securing popularity with the public by making a legislative crusade against trusts. If trusts cannot be prevented or regulated by legislative enactments it is the business of the legislator to find it out before butting his head against an unpassable legal barrier.

IN summing up the business disasters in the United States in 1888 *Bradstreet's* says:

The total number of failures in the United States for the calendar year 1888 is 10,587, against 9,740 in 1887, an increase of 9.7 per cent., but there is no particular significance to be attached to the gain. For three years preceeding that ended December 31, 1888, there has be a decrease in the total annual number of failures. In 1884 the year of financial panic at New York, the total number of failures was 11,620. The decrease in the total in 1885 was 4⅓ per cent., in 1886 it was 4.9 per cent., and in 1887 it was 7.8 per cent. From 1884 to 1887 the decrease was 1,376 failures, or 11.8 per cent. Hence the increase of 847 failures in the calendar just ended can convey no special significance, the aggregate amounting to about the same total as was recorded in 1886, at which time the total was 10,568, or 19 less than the year just ended.

WM. F. COCHRANE of Escanaba, Mich., was killed in a railroad accident Jan. 20, 1889. The name of Cochrane is familiar to millers generally and especially to members of the Miller's National Association who expended over $90,000 in defending his suit for patent infringements against millers. After his defeat in that suit he, in a measure dropped out of sight and there was not much heard of him in the trade papers until the announcement briefly made about a year ago that he was about to introduce a new milling system. With this object in view a company was organized and a very extensive plant at Escanaba, Mich., was about completed. Lieut. Gov. McDonald also a stockholder in the Cochrane Company was also killed. The accident was sudden and awful in its results.

THE thirteenth annual statement of the Miller's National Insurance Company, Chicago, Ill., was issued Jan. 1. It shows a net cash surplus of $241.255. 52; deposit notes subject to assessment $1.123.377.; amount at risk $8.497.933; total losses paid during year 1888, $111. 836.49; total losses since organization paid $896.088.01.

In his report Sec'y W. L. Barnum says:

The total assessments levied for losses and expenses during the past year amount in all to ten per cent of the Deposit Notes, or one-half the Board Rates, equal to an annual cash dividend of fifty per cent in any other company. The interest received from our Permanent Fund, and the profit made on short grain insurance and on cash policies, has enabled us to do this.

The only loss claim is one which we believe we are justified in resisting. While the management of this Company would not take advantage of any mere technicality to avoid the payment of any just claims, they consider it their duty to protect the policyholders against against assessments for those which are illegal and unjust, as well as those which are absolutely fraudulent.

FROM some observations in the editorial columns of *The Milling World*, an outsider might think that the banquet at the Plankinton House given by Milwaukeeans in honor of the millers attending the December meeting here, was a sort of "high-toned drunk." It is needless to say that the editor of the above-named journal was not present or he certainly would not have made any unpleasant reflections in his paper. The banquet was as decorous as any ever given anywhere, and it was a matter of remark that so little wine was drank. We are sorry that the Buffalo editor was not present on that occasion, and still more so that he should have been so falsely informed of the facts in the case. Milwaukee is noted for its hospitality, but does not deem it necessary to show it by providing an unseemly flow of liquid refreshments on such an occasion. The editorial insinuations of the *Milling World* are certainly insulting to not only the givers of the banquet, but to those who partook thereof.

THE figures given by *The Northwestern Miller* Holiday number showing that there are less than 600 flour mills in this country that have a capacity of 200 bbls. per day or over will set many minds to thinking. We have given that subject a good deal of study and do not hesitate to say that the number as given by *The Northwestern Miller* is approximately correct. We think however that the list could be cut down to about 500 (if all the facts were positively known) and be nearer the proper mark still.

It has been customary for editors of milling papers to write flippantly on the subject of organizations having any positive influence. As a contemporary puts it, in an article before us, "A hundred millers cannot control 20,000 millers." Is it true?

Was it not nearer the truth when a prominent miller said at the recent convention: "Gentlemen—If 100 of our large spring wheat millers and 200 large winter wheat millers will com-

bine for the purpose of regulating production they can dictate the price of wheat and flour to the world in nine years out of ten."

The export trade looks almost entirely to the big mills for its supply and foreign buyers, notwithstanding all arguments to the contrary, will look to the United States to supply its shortages for many years to come. Any success that the big millers may secure by combinations or mutual understandings will also be of benefit to the owners of *good* small mills. It also must not be forgotten that there is a great number of old style mills that have long been idle and in the future will serve only as monuments of the good they have done in times past.

NEWS ITEMS OF ALL SORTS.

THE REIST MILLING CO., Hamburg, N.Y., has made an assignment.

BURNED, Jan. 15, C. Mykolasnek's flour mill at Colby, Wis. Loss about $5,000; partially insured.

AT Fergus, Ont., Jan. 18, James Wilson's oat-meal mill was burned. Loss $15,000; insurance light.

AT St. Thomas, Ont., Jan. 13, May Bro.s' flouring mill was burned. Loss $12,000; insurance $6,700.

AT Shippenburg, Pa., Jan. 4, an incendiary fire destoyed the flour mill of Geo. H. Dykeman. Loss $15,000.

THE Minn. & North elevator at Kent, Minn. was destroyed by fire Jan. 16, with 20,000 bushels of wheat. Loss $33,000.

THE new flouring mill of Johnson & Gale, at LaValle, Wis., was destroyed by fire, Jan. 4. The loss was $15,000; insurance $10,000.

NEAR Picton, Ont., Dec. 20, Hallowell's mills were burned. Loss $5,000; no insurance. There were 1,500 bushels of grain, belonging to farmers in the mills.

AT Wells, N.Y., Nov. 23, Andrew Deming's steam mill was totally destroyed by fire. The mill had not been running lately, and the fire is believed to be of incendiary origin. Loss not reported.

ARTICLES of incorporation were filed at Madison, Wis., Jan. 21, by the Oseola Mills Company, T. C. Ladd, G. B. Hillskotter and H. B. Dike. They will do a general milling business with a capital of $50,000.

B. J. PANTA writes us from Wedron, Ill., as follows: "I remodeled my mill last fall to a full roller process, Barnard & Leas' system, 24 barrels capacity, water power. It is a custom mill; am running day and night and cannot keep up with orders. I shall have to enlarge next year. I am my own miller.

THE D. Keefer Milling Company of Covington, Ky., assigned January 7, to B. F. Graziana; the assets are supposed to be $75,000 to $100,000, while the liabilities are estimated at $100,000 to $150,000. The death of Keefer, president of the company, Jan. 4, and the filing of this suit by the First National Bank for $63,000 caused the assignment.

AT Fayette, Mo., Jan. 10, the Fayette City Mill, owned by J. H. Armstrong & Son, was burned at 8 p. m. The building was a four-story frame and was valued at 15,000, and was insured in the Millers' National Mutual for $6,000, and the contents for $1,000 in the same company. Five hundred sacks of flour and 2,000 bushels of wheat burned in the building.

NEAR Madison, Dak., Jan. 10, the Madison flour mill and Creamery were burned. Loss $30,000; no insurance. The mill was located a mile from the city, and before the engine could get there the fire was beyond control There was but little stock on hand, most of their flour being in their warehouse. The safe and books were saved; everything else is a total loss.

THE water was turned into the the canal Jan. 1, and once more Augusta's (Georgia mills are ready to run. The banks of the canal were washed away in September last by the freshet, and the work of repairing them has just been completed. Eleven cotton mills, beside a number of other industries, have been shut down, throwing out of employment over five thousand employes.

THE J. B. Alfree Co., of Indianapolis, Ind., have received orders for complete short-system corn-meal outfits, including their Keystone four-high corn-meal, as follows: James A. Clark & Co., Cumberland, Maryland; Darnell & Dawson, Kokomo, Ind.; Thomas Heaton, Adams, Ind.; Lavelle Lacy & Billhemer, Washington, Ind.; J. L. Green & Co., Vincennes, Ind.; Wilder Moore & Co., Union City, Tenn.; W. L. Jennings, Oakford, Ind.

CHARLES W. Seefield, dealer in grain at St. Charles, Minn., has failed, and his property has been attached by G. W. Vandusen & Co. for $7,000. He operated nineteen elevators and warehouses on the Winona & St. Peter and Dakota Central Railways, and also flour mills at Arlington, Dak., and at St. Charles, Minn. His liabilities are said to be over $100,000, chiefly due in Chicago and St. Louis. Latest telegrams indicate that he is in Winnipeg, Man., where he will stay until the excitement blows over a little.

THE great paper-making firm of the Kimberly & Clark Company, Appleton, Wis., has contracted with the Stilwell & Bierce Manufacturing Company of Dayton, O., for twenty-one water-wheels of an aggregate horse-power of 2,400, for the mammoth ground-wood and sulphate making establishment which they will erect next season at "The Cedars," three miles below Appleton. The plans of the institution are not yet thoroughly perfected. The mill will be one of the largest and most perfect in its character in the country and will cost complete about half a million dollars. The sulphate fiber will be produced by the process of the National Sulphate Boiler and Fiber Company. The institution will have an output of twenty-four tons of ground wood and twenty tons of sulphite per day.

THE representative of an English syndicate visited this country several years ago to investigate the American system of grain elevators. The object of the syndicate was to erect a number of elevators in the Argentine Republic, South America. Before concluding his visit he entered into a contract with Mr. J. A. McLennan of Chicago and Duluth, for the construction of two great elevators, of 1,000,000 bushels capacity each, at Buenos Ayres. Mr. McLennan went to work and in two months from the time he first met the representative of the syndicate he had loaded six ocean ships at Baltimore with the material for the houses, all built to pattern and ready to be put up with the greatest dispatch on reaching the port of destination. A large crew of men had been engaged at Locust Point near Baltimore, in framing the timbers which were loaded on vessels as soon as made ready and sent off to South America, with the crew of men to put them together and put in the machinery when there. Recently Mr. McLennan received a telegram from the syndicate to go ahead and get out material for a third elevator of the same capacity and work on that is now going on. It will be shipped south in a few weeks.

MILWAUKEE ITEMS.

A VEIN of natural gas has been discovered fourteen miles south of Milwaukee.

THE Bernhard Stern Milling Company, of Milwaukee, have filed articles of incorporation with a capital of $100,000. The incorporators are B. Stern, C. F. Kuehne and Henry Mueller.

A. A. L. SMITH, Edward P. Vilas and James H. Barry Jan'y 6, incorporated the Western Portland Cement Company of Milwaukee with a capital stock of $100,000, divided into 1,000 shares.

A CHAIN slipped from one of the cranes in the Reliance Works (E. P. Allis & Co.) Jan. 21, allowing a heavy piece of iron to fall on Lawrence Warzinski, a laborer. He was seriously and perhaps fatally wounded.

VARIOUS committees are meeting daily making preparations for the National Encampment to be held next summer. Milwaukee, is expected to out do all previous efforts at great entertainments on that occasion.

ON Saturday, Jan. 19, as Bernard Stern, president of the Jupiter Milling Co. was coming out of the Merchant's Exchange Bank, pickpockets robbed him of $265, which he had just checked out. Fortunately detectives were successful in arresting two of the theives on an outgoing train, and nearly all the money was recovered.

ROBERT GUY CLARKSON died suddenly at his residence, Jan. 6 1889. The deceased was a well-known flour and grain broker on Change where he was very much liked as he was of a cheerful nature and was thoroughly well informed on all matters of general interest. He was born in Toronto, Canada, Oct. 8, 1841. He was the son of Hon. Thomas Clarkson the well-known English philanthropist, who with Wilberforce, brought about the supppression of the slave trade.

A MILWAUKEE Board of Trade man recently expressed his views of "kickers" and "croakers" as follows: The kicker is a developer; the croaker is an incubus. The kicker incites to improvement; the croaker to indignation and resentment. The kicker only is heard when he is given $1 accommodations at $3 rates; the croaker would be just as noisy if he was getting $3 accommodations and paying nothing. The kicker is a lively, jovial, progressive fellow; the croacker is a dismal nuisance, who lags superfluous on the stage.

THE annual meeting of the Wisconsin Millers' Mutual Insurance Company was held at the office of the secretary, S. H. Seamans, in the New Insurance Building, January sixteenth. The reports presented showed the organization to be in a prosperous condition, over $1,000,000 more business having been done in 1888 than in 1887. Among the directors who were present were the following: John Schuette, of Manitowoc; E. W. Arndt, of Depere; S. H. Seamans, of Milwaukee; J. Howitt, of Waukesha, and S. Willy, Appleton.

L. J. PETIT and Ward Clement, who recently purchased the McGeoch packing house, will convert the plant into a mammoth storage establishment, to be known as the Milwaukee Storage and Forwarding Company, Railroad Warehouse and Steamer Docks. The property is well adapted to this purpose, with side tracks extending into the buildings, and ample dock frontage accessible by the largest vessels on the lakes. The equipment will include one of the largest and best cold storage departments in the country. The company will issue regular warehouse receipts and advance money on merchandise in store when desired, which is a new enterprise for Milwaukee and calculated to interest millers, merchants and manufacturers generally.

A MILWAUKEEAN, who resides way up on the West Side, must be credited with sharp financeering on a small scale. He generally earns his fare in the horse-cars by taking a seat next to the fare-box, and as people come in he politely takes their nickels and puts them in his pocket, and drops car tickets in the box. As tickets when purchased by the dollar's worth cost but 4 cents a piece, he is a cent ahead every time, and he says its a poor morning indeed when he dont make his fare anyhow.

FOREIGN NOTES.

LUBRICATING VIRTUES OF VARIOUS OILS.—The Italian Admiralty have recently caused to be carried out a number of experiments with a view to testing the comparative merits of castor oil and of olive oil for lubricating purposes on board ship. From the results thus obtained they have given orders that henceforth all exposed parts of machinery are to be lubricated exclusively with castor oil, while the mineral oils are to be used for cylinder and similar lubrication.

A REPORT from St. Petersburg says that the Russian Government will admit foreign sacks into Russia without the payment of duty, in order to facilitate the export of grain and flour from the Baltic, Black Sea and Sea of Azof ports. Foreign joint stock companies will be allowed to operate in the country without the imperial permission on condition that they sell only articles of foreign manufacture. Companies running steamers to Russian ports will also be allowed to operate without obtaining the imperial permission.

ELECTRIC POWER TRANSMISSION IN AUSTRIA.—The Oerlikon works propose, at Steyermuhl, to transmit by dynamos 400 h. p. over a distance of 650 yards. A 100 h. p. plant is already at work in this locality. At Innsbruck, there is now at work an Oerlikon a plant transmiting 50 h. p. over a distance of 500 yards; and other projects are in preparation. Messrs. Ganz & Co., of Buda-Pesth, are now bringing out an alternate current motor. which has the great advantage over the Tesla motor of requiring only one circuit. This motor can, therefore, be worked on any existing alternate current electric light circuit, and from experiments made with a ¼ h. p. and a 2 h. p. motor, it appears that an efficiency of 60 per cent. is attainable.

THE question of the flour syndicate continues to be much discussed, says the *Newcastle Daily Chronicle* (England), and it is now known that some millers who are important contributors to the flour production of the district have not yet joined the trust, whilst others are also outside. There is still some time before the syndicate would commence its operations, and it is possible that in that time the position may be changed. But it is worth notice that there is a larger quantity of foreign flour brought into this district than has been hitherto considered; and it is possible that the Railway Rates Bill may have some effect in minimizing the distance that flour is carried inland. The question of the desirability of the syndicate is a very interesting one, and it is possible that the projection of it may be the means of attracting the attention of millers outside this district to this part as a field for disposing of more of their produce, seeing that there are such good facilities for reaching the counties of Northumberland and Durham by sea—which means cheaply reaching them.

THE stockholders of the Milwaukee Exposition Company met on the evening of Jan. 11, and by an amusing circumstance Mr. Wm. Plankinton, the principal stockholder, ceased to be a director. Mr. Plankinton came to the meeting with 1,000 shares in his pocket, and as the voting was by share, he was quite a power when the balloting was going on, the other members present representing collectively but 754 shares. He voted in succession for the re-election of E. P. Matthews, T. L. Kelly, C. M. Cottrill and G. E. Hansen, who were elected unanimously. When his re-election was proposed Mr. Plankinton realized the delicacy of voting for himself, and so thoughtless of the result he was bringing about, recorded his vote for W. Meller. He was not a little surprised when he found that Mr. Meller was elected by a vote of 1,000 to 754, and that he had unwittingly voted himself out of office. It is surmised, however, that it was not altogether a mistake, as it is believed that Mr. Plankinton did not desire to be burdened with the office, and was perfectly content to leave the administration of affairs by the Board as elected.

FROM a communication received from Harris Brothers & Co., 6 Crosby Square, London, E. C., under date of Jan. 13, we quote as follows: "The weather is colder and more seasonable; home-grown grain, especially barley, has been in good supply, and foreign has come in freely to United Kingdom ports; some South Russian seaports and Danube still ship freely of everything, but the Azoff season is now over till spring. Wheat, since our last, has varied but little in price, though demand has been good for best reds, Californians and Australians, many millers and dealers liking to keep up stocks of such in the face or winter; and as to white wheats especially, it is argued that for 1889 Australia will do next to nothing in way of export, and that therefore United Kingdom and Continent, later on, may easily absorb all the Californians, Oregons, Wallas, and Chilians that may arrive. New crop River Plate and East Indian wheats will not arrive here in any quantity till May or June, and the United States do not appear inclined to export at present, probably preferring to wait and see how spring sowings progress with them, and how the winter wheats on the ground then look; at present our millers are using Russian and English wheats very freely, and the roller system does not call for so much white wheat admixture as the stones used to do, a point that keeps sorts, in proportion to red, at a lower price than used to be the case. Foreign flour stocks decrease in the U. K., imports being more moderate, nor does America show signs of supplying us at all freely at the moment. Maize keeps quiet, but present colder weather ought to improve demand everywhere, at same time the United States offer "forward" pretty low, say for January, new crop, at 21s., and for April-May at 20s. 6d. to 20s. 9d. C. F. & I., A. Terms. Feeding Barley, and secondary malting sorts, have ruled steady all the week at the recent decline, demand being wonderfully good everywhere. Oats have been pretty easily sold all the week at full prices, especially for commonest kinds.

UNDER the heading of "The Flour Ring" the *British Baker and Confectioner* in its January number, goes for the English millers who have entered into a combination which they trust will be of benefit to their business individually and collectively.

In another column bakers will see that between the Tweed and Humber some twenty millers have resolved to unite in a course of action that will in future prevent them cutting each other down. Every miller is to sell his flour in his own district. Whether they have consulted the bakers on this point does not appear. It would look very much as if they were counting their chickens before they are hatched. It is true in the districts mentioned the people principally bake their own bread in their kitchen side ovens. However, the baker need not be afraid. If he does not like his local miller's flour, a very common thing, there will be plenty of millers outside the district who will sell him as much flour as he likes, and as cheap as his local miller, too. It is a pretty irony on their own ability that these English millers confess to. This flour ring means that an American miller is able to send his flour all the way from Minneapolis or St. Louis, and deliver it in Yorkshire, Durham, and Northumberland cheaper than his English competitor. If these twenty millers had resolved to unite their twenty capitals in one central mill to serve this district we should have more faith in their success. It is not carriage that kills them; that is proved by the Americans. It is want of skill, business ability, and enterprise. It is a popular notion that the foreign flour is the competitor which ruins English millers. Why, we know what we are saying, and we are within the truth when we assert that more than 80 per cent. of the foreign flour imported is bought by English millers. How much of this is sold by them again as foreign flour it is difficult to say; but we should not think 20 per cent. over the mark. We know millers who make about two thousand sacks a week and sell over five thousand. Every baker must know this. If the English miller is going to protect himself by any ring, we promise him a warm time of it. We shall have something to say next month on the Merchandise Marks Act and English millers, that may not be pleasant reading for them. In the mean time, if bakers object to getting flour from the local millers, our advice is, go to the fountain head, buy direct of the foreign miller, who will be only too glad to supply you, and that with a flour not mixed and blended till it is neither fish, flesh, nor fowl.

THE C., I., St. L. & C. Ry. (Kankakee line) is the best route to Florida. Close connections in Central Union Depot, Cincinnati with through express trains of C. N. O. & T. P. Ry. Queen & Crescent Route.

AN AUTHENTIC BUYER'S GUIDE.

MILL AND ELEVATOR BUILDERS, MILL FURNISHERS, MANUFACTURERS OF AND DEALERS IN MILL AND ELEVATOR MACHINERY AND SUPPLIES.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year, cash with order. Additional lines, $1.00 each, per year.

Edw. P. Allis & Co., Milwaukee, Wis., builders of complete Flour Mills, manufacturers of Flour Mill Machinery, and dealers in Supplies of every description. [Mr.89.]

Garden City Mill Furnishing Co., Chicago, Ills., Mill Builders, manufacturers full line of Flour Mill Machinery, dealers in Mill Supplies, Bolting Cloth etc., etc. [Mr.89.]

Borden, Selleck & Co., 48 & 50 Lake st., Chicago, Ills., manufacturers of "HARRISON CONVEYOR" for Grain, Malt, etc., etc. [Mr.89.]

John C. Higgins & Son, 165 West Kinzie Street, Chicago, Ills., mfrs. of and dressers of Mill Picks. [Mr.89.]

H. P. Yale & Co., Milwaukee, Wis., Manufacturers' Agents of Engines and Boilers, New York Leather Belting Co.'s Leather Belting, Dodge Wood Pulley.

Poole & Hunt, Baltimore, Md., manufacturers of Steam Engines, Water Wheels, Flour, Corn, Paper, Saw and Cotton Mill Machinery.

W. J. Clark & Co., Salem, O., manufacturers of "SALEM" Elevator Buckets, etc.

Thornburgh & Glessner, 18—22 N. Clinton St., Chicago, Ills., manufacturers of Mill and Elevator Supplies.

R. C. McCulley, (P. O. Box 214) Lancaster, Pa., manufactures Cob Crushers, Cooper's Stoves, Castings, Patterns, etc. [Mr.89.]

B. H. & J. Sanford, Phoenix Iron Works, Sheboygan, Falls, Wis., manufacturers of the "IMPROVED WALSH DOUBLE TURBINE WATER WHEEL." [Mr.89.]

John C. Kilner, York Foundry and Engine Works, York, Neb. Mill and Elevator machinery of all kinds, Engines, Boilers, Pulleys, Shafting, etc. [Mr.89.]

The Gutta Percha and Rubber Mfg. Co., 159-161 Lake st., Chicago, Ill., Belting and Rubber Goods. [Mr.89.]

The Avery Elevator Bucket Co., sole owners and manufacturers of Seamless Steel Elevator Buckets, Wason, Lake and Dart sts., Cleveland, O. [Mr.89.]

Richmond Mfg. Co., Lockport, N. Y., manufacturers of Grain Cleaning Machinery, Bran Dusters etc. [89.Mr.]

N. Y. Belting and Packing Co., N. Y. Leather Belting Co., Goulds & Austin, Agents, 167 and 169 Lake Street, Chicago. [Apr.89.]

Weller Bros., 94 Wendell st., Chicago. M'f'rs Mill and Elevator specialties, Cups, Boots, Spouts, Steel Conveyors, Power Grain Shovels; dealers in Cotton and Rubber Belting, etc. [Apr.89.]

The Nordyke & Marmon Co., Indianapolis, Ind., Flour Mill and Mill Machinery builders, and dealers in Mill Supplies of all kinds. [May89.]

The Shields & Brown Co., 240 and 242 Randolph st., Chicago, and 143 Worth st., New York. Mfrs. of Sectional Insolated Air Coverings for steam, gas, and water pipe, etc. [May 89.]

W. G. Avery M'f'g Co., 10 Vincent st., Cleveland, O., Specialties: Avery Lever Belt Punches, Avery Seamless Elevator Buckets, Belting, Elevator Bolts, &c. [May'89.]

The H. J. Deal Specialty Co., Bucyrus, Ohio. Headquarters for Flour and Grain Testing Appliances, and Specialties for the Milling, Flour and Grain trades.

EXPORT AND MERCHANT MILLERS AND MANUFACTURERS OF WHEAT, RYE AND BUCKWHEAT FLOURS, AND CORN MEAL AND CORN PRODUCTS, (WITH NAMES OF SPECIAL "BRANDS" MADE) DESIRING CORRESPONDENCE WITH SOLID HOUSES WITH A VIEW TO TRADE.

Cards will be inserted under this head in the UNITED STATES MILLER, not exceeding three lines, paper included, for FIVE DOLLARS per year. Additional lines, $1.00 each per year.

J. B. A. Kern & Son, "Eagle Mills," Milwaukee, Wis. WHEAT FLOUR BRANDS—*Patents:* "Success," "Kern's." *Bakers:* "Triumph," "High Ground," "Eagle." RYE FLOUR BRANDS—"A Rye," "1 Rye," "Rye." [Apr.'89.]

E. Sanderson & Co., "Phoenix Mills, Milwaukee, Wis., U. S A. Manufacturers and Exporters of choice spring wheat flours. Daily capacity 1500 barrels. [Apr.'89.]

Bernhard Stern, "Jupiter Mills," Milwaukee, Wis. Roller Mill. Hard wheat *Patents.* Principal brand, "Jupiter." [Apr.'89.]

Faist, Kraus & Co., "Duluth Roller Mill," Milwaukee, Wis., Manufacturers and Exporters of choice spring wheat flours. Daily capacity 1500 barrels. [May'89.]

Russell, Andrews & Birkett, Penn Yan, N. Y. Manufacturers of roller process Rye and Buckwheat flour. Absolute purity guaranteed. *Write for prices.* [Apr.'89.]

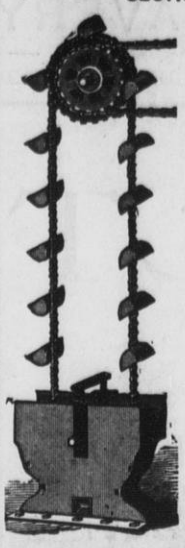
Prominent Flour, Grain and Provision Brokers, desiring correspondence with Millers of Wheat, Rye and Buckwheat Flours, and Cornmeal and Corn Products, with a view to Trade.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year. Additional lines, $1.00 each per year.

W. K. Sherwood, Flour and Grain Commission, 18 South Commercial Street, St. Louis, Mo. [Ap.89.]

L. R. Hurd, Shippers of Minnesota and Dakota Spring Wheats, Minneapolis, Minn., Possessing a thorough and practical knowledge of the *Economical and Flour Producing Qualities* of all wheats grown in the northwest, I am enabled to make purchases with special reference ts these qualities.

THE publisher of the UNITED STATES MILLER is desirous of having the names and addresses of Head Millers, Millwrights and Head Engineers in all mills having a capacity of 150 bbls. per day or more.



ROLLER and DETACHABLE

CHAIN BELTING

DETACHABLE in every Link.

Especially Designed for

Elevators, Conveyors, Drive Belts, Etc., Etc.

—— For Handling ——

GRAIN, SEEDS, EAR CORN, MALT, COTTON SEED, COAL, STONE, CLAY, PAPER-PULP, TAN-BARK, BOXES, BARRELS, ETC.

Also manufacturers of the Gregory Grain, Seed and Fruit Dryer; Meal and Flour Purifier.

Before Placing Orders

Send for Illustrated Catalogue and Prices.

THE JEFFREY MFG. CO.,

169 E. 1st Ave., COLUMBUS, O.

[Jan.89.]

1889 **New Business** 1889

Cyclopædia OF THE **MANUFACTURES** AND **PRODUCTS** OF THE **UNITED STATES**

FOR DOMESTIC and FOREIGN TRADE

Our National Staples and Specialties

Showing where ANY ARTICLE OF AMERICAN MANUFACTURE can be purchased DIRECT.

A COMPLETE REFERENCE BOOK

for Manufacturers, Wholesalers, Jobbers, Retailers, Commission, Export and Import Merchants, etc.

—PRICE, $5.00—

A Complete Cyclopædia **FOR BUYERS AND SELLERS in all Trades.** Bound in Cloth.

In Leather, $7.00.

PUBLISHED BY

THE SEEGER & GUERNSEY CO.

7 Bowling Green, New York, U. S. A.

TRADE LISTS FURNISHED.

CORRESPONDENCE SOLICITED.

AGENTS WANTED EVERYWHERE.

Manufacturers will please forward to us two copies of their latest catalogue.

GANZ & CO.

Budapest, Austria-Hungary.

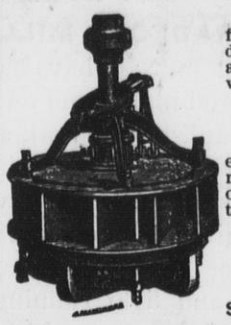
We are the first introducers of the Chilled Iron Rollers for milling purposes, and hold Letters Patent for the United States of America. For full particulars address as above.

[Mention this paper when you write to us.]

Do you wish to purchase the Best **FRENCH BURR** Vertical or Horizontal **Feed Mills** OR **Cob Crushers.**

Write to **C. C. PHILLIPS,** 20 South Broad Street Philadelphia, Pa.

Improved ✣ Walsh ✣ Double ✣ Turbine



This wheel has a perfect fitting cylinder gate and draft tube combined, and allows no water to escape when closed.

POWER GUARANTEED

equal to any wheel on the market using equal amount of water. Address for particulars,

B. H. & J. SANFORD,

Phœnix Iron Works,

Sheboygan Falls, Wis.

ENLARGED.

Rand, McNally & Co.'s

Business Atlas

1889.

NOW IN PRESS.

NEW SIZE OF PAGE, 15 x 21 INCHES.

It will contain new large scale double page maps of all important states (no cut-up maps. The entire arrangement will be new, embodying the most improved methods of indexing and reference, clearly showing the location, population and commercial advantages of over 200,000 towns in the United States, Canada and Mexico.

Descriptive circular, printed on one of the maps, worth 35 cents, sent free on application.

RAND, McNALLY & CO.,

148 Monroe Street, Chigcao.

York Sto 323 Broadway.

Situation Wanted.

A practical Stone Miller of thirty years experience, with good business qualifications and industrious habits, wants charge of a good Stone Mill by the month, or will run a mill on shares. Address, H. R. GARLICK, Menomonie, Wis.

Machinery For Sale

ONE PAIR 4-FT. MILLSTONES; new.

SEVEN PAIR 4-FT. MILLSTONES; used about three months.

ONE PAIR 9 x 18 CHILLED ROLLS; smooth.

ONE No. 1 THROOP SMUTTER AND SCOURER.

ONE 24-INCH MIDDLINGS MILL.

ONE 1000-LB. PALMER POWER SPRING HAMMER.

ADDRESS

The Filer-Stowell Co.

CREAM CITY IRON WORKS,

Milwaukee, - Wisconsin.

"TRIUMPH" CORN SHELLER

CAPACITY

2000 BUSHELS PER DAY.

Shells wet or dry corn.

CHEAPEST AND BEST SHELLER.

PAIGE MANUF'G CO.,

No. 12 Fourth St., Painesville, O.

[Please mention this paper when you write to us.]

Better THAN THE *Best*

College

IS **Charles Mayer's Commercial College,**

Grand Avenue (Public Library Building), **Milwaukee.** Established 1876.

1876, 27 pupils; 1887, 328 pupils. Telephone 1575, **Day and Evening Sessions.**

Students of either sex received at any time for full course or any special branch of study.

DEPARTMENTS: Commercial, Preparatory, Shorthand (Graham's analytical system) and Typewriting (all styles of machines), Languages, Plain, Ornamental and Round Writing.

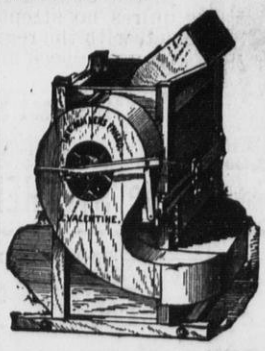
Best, Largest, Most Beautifully Equipped School of its kind. Eight teachers. Perfect Order. Liberal Terms.

☞ Address, or call, College.

☐ **Scholars from the country 20 Per Cent. Discount allowed.** Board procured. Further information, address College.

[Oct 5m.]

IMPROVED CORN SHELLER,



IT IS THE **BEST CORN SHELLER** MADE FOR MILL USE.

IT IS

Simple in Construction Almost Noiseless,

—AND—

Requires Little Power

HUNDREDS ARE IN USE.

For descriptive circular, price list, etc., Address

JACOB VALENTINE,

Gorham, Ontario Co., N. Y.

The True Short System of Milling.

A NEW BOOK JUST ISSUED BY R. JAMES ABERNATHY.

PRICE: $2.00 PER COPY, POST-PAID.

ONE COPY AND THE U. S. MILLER, $2.25.

Address, **UNITED STATES MILLER,**

MILWAUKEE, WIS.

STILL ON TOP.

Perhaps the highest compliment that could be paid the **"SALEM"** Bucket, is the fact that, during the past few years, **its shape has been so closely imitated** by other manufacturers, as to infringe our patented rights; but experience reveals **the imperfections of imitations,** and, we therefore, take it as a **further compliment** to the **"SALEM"** Bucket, that some of its old patrons who were **induced to try the imitations, have now returned to the Salem Bucket, thereby acknowledging it to be the most satisfactory.** Don't be deceived by other makes of Buckets that are claimed to be "just as good." Insist upon having the **ORIGINAL AND RELIABLE**

"SALEM" BUCKET.

All legitimate "Salem" Buckets are plainly marked with the word **"SALEM."**

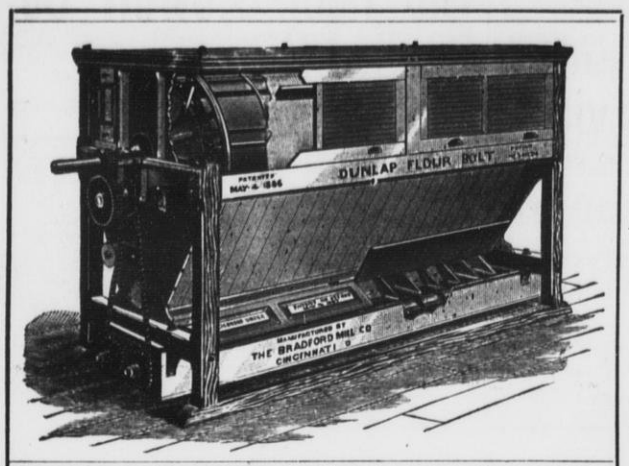
W. J. CLARK & CO., Sole Manufacturers, - SALEM, OHIO.

THORNBURGH & GLESSNER, Gen'l Agents, CHICAGO.

SPECIAL STAMPERS OF SHEET METALS.
We do Stamping and Pressing of Sheet Metals for All Classes of Work.
—ALSO SOLE MANUFACTURERS OF—
SEAMLESS STEEL BUCKETS
INSIST on having this Bucket furnished when ordering.
Ask your dealer for the Avery Pat. Seamless Steel Elev. Bucket.

We do not advertise Seamless Elevator Buckets and fill orders with "Pieced Ones"
We will make Special Prices rather than move stock to our new factory. Send for discounts.
THE AVERY STAMPING CO.,
—SUCCESSORS TO—
AVERY ELEVATOR BUCKET CO., CLEVELAND, OHIO, U. S. A.

THE
DUNLAP · BOLT
"A Great Acquisition to Milling."



The New 1500-Barrel Mill on Staten Island, N. Y., will have 52 of these Reels to do all its Bolting.

HUNGARIAN ROLLER MILL CO.,
BLOOMINGTON, ILLS., September 14th, 1888.

THE BRADFORD MILL CO., Cincinnati, Ohio.

GENTLEMEN: I have had your DUNLAP REEL in operation about 15 days and nights, and on new wheat which was very soft, and it has accomplished its work admirably; greatly exceeded my expectations. I have operated quite a variety of Reels, but have to say the DUNLAP surpasses any I have ever seen or used.

It gives me pleasure to state that its work has given entire satisfaction, and moreover, am surprised at its close separation, capacity and light running. The Dunlap Reel can certainly be considered a great acquisition to milling.

I to-day forward you, per mail, samples of material upon which your Reel is working. Yours truly,

A. G. BEOBOLD,
Head Miller Hungarian Roller Mill Co.

THE BRADFORD MILL CO.
CINCINNATI, OHIO.

PROPOSALS FOR FLOUR MILL MACHINERY.
U. S. Indian Service. Green Bay Agency, Wisconsin, Dec. 27, 1888.

Sealed proposals, indorsed "Proposals for Flour Mill Machinery" and addressed to the undersigned at Keshena, Wisconsin, will be received at this office until 1 o'clock, of Friday, Feb. 15, 1889, for furnishing and delivering at Shawano, Wis., machinery for a flour mill of a capacity of 25 to 40 barrels per day; also one 56 inch turbine water wheel. The mill is to be run by water power, and the machinery required should consist of the following, viz: One four break roller mill with elevators and scalpers complete; two double roller mills; four scalping reels and chests complete; two flour-dressing round reels; one centrifugal; one bran duster; one wheat separator; one milling separator; one scourer and polisher, and a four-foot rolling screen for finishing wheat, together with all necessary pulleys, elevators, belting, shafting, coupling, hangers, gearing and necessary iron work to place the machinery in running order.

CERTIFIED CHECKS.

Each bid must be accompanied by a certified check or draft on some U. S. depository for at least 5 per cent. of the amount of the proposal, which check or draft shall be forfeited to the United States, in case any bidder receiving an award shall fail to promptly execute a contract with good and sufficient sureties; otherwise to be returned to the bidder.

The right is reserved to reject any or all bids, or any part of any bid, if deemed for the best interests of the service. THOS. JENNINGS,
U. S. Indian Agent.
Keshena, Shawano Co., Wis.

PRIVATE · TELEGRAPHIC · CIPHER
CODE
Compiled Expressly for the use of
Millers, Flour & Grain Brokers
For Private Telegraphic Correspondence, either for Land or Cable Lines.

☞ 1888 Edition, just out, March 1, 1888, revised, amended and added to, to meet all the requirements suggested by the members of the Miller's National Association, *who use more copies of the Code than all others combined.*

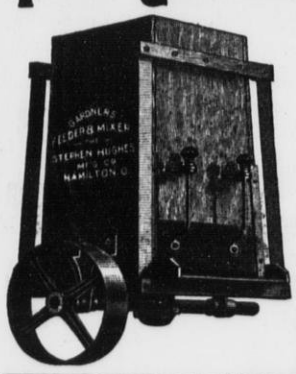
Published by the Riverside Printing Co., Milwaukee, Wis.
For terms, etc., address, stating number of Codes probably wanted,
E. HARRISON CAWKER, Milwaukee, Wis.

CAWKER'S AMERICAN
FLOUR MILL
—AND—
GRAIN ELEVATOR
DIRECTORY
Published once in two years.

Gives nearly 23,000 Addresses, P. O., County and State, Capacity, Power, System, etc.; also lists of Millwrights, Miscellaneous Mills, Millbuilders and Furnishers, Flour and Grain Dealers, Foreign Flour and Grain Importers, etc., etc.

1888-9 Edition, Issued March, 1888.
PRICE, $10 PER COPY,
post paid and registered to any part of the world. Address,
E. HARRISON CAWKER, Milwaukee, Wis.

The Gardner Flour Feeder and Mixer.



THE ECONOMIST AND MILLER'S FRIEND.
THOUSANDS NOW IN USE.

☞ *Saves the Labor of one man.* Can be quickly adjusted to feed from ten pounds to five barrels per hour. Requires no attention, and will feed any amount at which it is set, with the regularity of clock-work. It is easily set up, and requires speed of only 20 to 30 revolutions.

The Cheapest and Most Perfect Machine ever offered to the Milling Public.

Write for Circulars to
The STEPHEN HUGHES MFG. CO., Hamilton, O.

Opposite the Plankinton House,
—MANUFACTURER OF—
FINE JEWELRY
A VERY LARGE STOCK OF
Diamonds, Fine Watches, Jewelry, Silverware,
Opera Glasses, Gold Spectacles, Canes, Umbrellas, etc.
Goods warranted as represented. Prices reasonable

—ESTABLISHED 1846—
J. B. A. KERN & SON,
Merchant Millers,
Capacity 2,000 Barrels Per Day. MILWAUKEE, WIS.
Manufacturers of Choice Minnesota and Dakota Hard Wheat Flour.
RYE FLOUR
By most approved roller process, guaranteed the best and purest rye flour manufactured.
WE INVITE CORRESPONDENCE FROM CASH BUYERS.

ENGINE FOR SALE.
One 600 Horse Power Corliss Upright Compound Engine
Diameter of high pressure cylinder 28 inches, 38 inch stroke. Diameter of low pressure cylinder 56 inches, 38 inch stroke. Length of crank shaft 11 feet. Diameter of journals, 15 inches. Diameter of fly wheel, 24 feet. Weight of fly wheel, 48,000 pounds. Boiler feed pump. Engine complete, in good working order; can make from 1,000 to 1,200 bbls. of flour in 24 hours; has made a barrel of flour with 20 pounds of coal. For particulars apply to
JOHN B. A. KERN & SON,
EAGLE FLOURING MILLS, MILWAUKEE, WIS.

RAILWAY BUILDING IN 1888.

The Chicago *Railway Age* of December 28 said: "The railway mileage of the country has increased during the year by 7,120 miles of main track. Whilst this is much less than the phenomenal increase in the years 1887, 1886, 1882 and 1881, when the new mileage was respectively 13,000, 9,000, 11,560 and 9,796 miles, the record for the past year exceeds that of every other year in history with the exception of the year 1871, when 7,379 miles were added. New track was laid in all but two of the forty-seven states and territories, the exceptions being Rhode Island and Nevada."

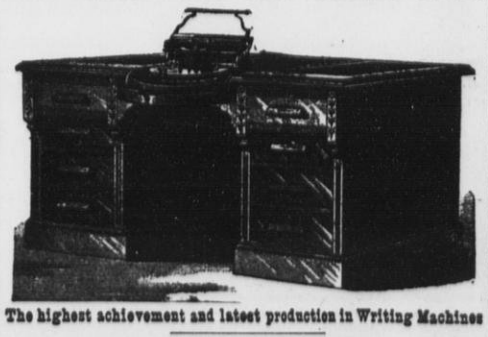
RECENT PUBLICATIONS.

Wide Awake is $2.40 a year. D. Lothrop Company, Boston.

WISCONSIN Farmers' Institutes.—From W. H. Morrison, superintendent, Madison, Wis., we have received Bulletin No. 2, Wisconsin Farmers' Institutes. It contains 346 pages, devoted principally to the proceedings of the closing institute at Madison, March 27-29, 1888. This institute was the "round-up" of a series of eighty-one meetings held during the winter of 1887-88.

THE January number is the second beautiful holiday issue of *Wide Awake*. It opens with a charming social novelty for the winter evenings, a violin recitation entitled "The Cricket Fiddler." The opening story, full of the spirit, is by Hezekiah Butterworth, entitled "Good Luck." Another Christmas story, "Such a Little Thing" is by Mrs. L. B. Walford. Mrs. Jessie Benton Fremont, has a sketch of early California, called "My Grizzly Bear." The serial stories are very readable: "Five Little Peppers Midway," by Margaret Sidney, while the Trowbridge serial, "The Adventures of David Vane and David Crane," swings along in a jolly way. "The Legend of William Tell" gives some excellent reasons for classing that popular episode of Swiss history among folk-tales. Mrs. Sallie Joy White tells in "Fire-Building" how the girls are taught to build a fire in the Boston public schools, which is exactly how a fire should be built in everybody's kitchen. Prof. Starr writes in "A Queer Bundle of Sticks" of the evidence that elephants once roamed over America. Mrs. Goddard Orpen relates the romantic incidents belonging with the famous Russian diamond, "The Orloff." "Minty-Malvina's Santa Claus," by M. E. M. Davis, is one of the best Christmas stories of the season. A very bright department has been added to the magazine called "Men and Things."

HAMMOND
TYPE-WRITER AND DROP CABINET DESK.



The highest achievement and latest production in Writing Machines

As I am receiving requests for exchanges daily from parties who have the old style type-bar machines, and as I am thus securing hundreds of second-hand Remingtons and Caligraphs at *very low prices*, I am able to offer these latter machines in many cases *as good as new* at prices that defy competition. Write and see! Yours respectfully,
P. H. Sercombe, Prop. MILWAUKEE TYPE-WRITER AGENCY.

The volume before us covers a wide field—farming, horticulture, ensilage, cattle, horses, dairying, sheep, swine and other matters relating to progressive agriculture. It is a most valuable work.

The export edition of *The Engineering and Mining Journal*, New York, issued Jan. 5, is a credit to the publisher, and speaks well also for the enterprise of American manufacturers of mining machinery and supplies who have so liberally contributed to the advertising pages. The number contains fifty-six pages, and is first-class in every respect.

To every Lover of Good Reading:

DEAR FRIEND—Mr. Will C. Turner, the well known Publisher and Managing Editor of CITY AND COUNTRY, that excellent 16 page monthly magazine published at Columbus, Ohio, has recently made an offer in connection with his publication which should certainly be accepted by you CITY AND COUNTRY has been regularly published at the rate of $1 per year, for the past seven years. Mr. Turner is anxious to increase his already large circulation within the next three months to 50,000 regular subscribers more.

To accomplish this purpose, believing that every subscriber will, at the expiration of their subscription renew, he has devised the following plan:

Every person desiring to become a subscriber to the CITY AND COUNTRY, which, by the way, contains each year *four to five continued stories, thirty to forty illustrations in each issue* and a *large amount of interesting reading*—especially so to the ladies—is requested to carefully and plainly to write out two complete copies of this letter and sign your name at the bottom. These copies must then be mailed by you to two of your friends in some other town or locality who are thereby requested to do just as you have done, viz: Write two copies and send to two of their friends, and so the work will goon and on. After mailing the two copies, the original letter which you copy from, together with a slip of writing paper, cut about the size of a postal card, with your address plainly written on one side and the address of the two to whom you have sent the copies on the other side, and 25 cents in silver or postage stamps must be enclosed in a letter and mailed to Will C. Turner, Columbus, Ohio. On the receipt of these you will be placed on the subscription list for one year, the copy for the present month will be promptly mailed, and also, which is the greatest reason why you should accept this offer, *five complete novels* in pamphlet form will be sent you by mail, post-paid, which would *regularly cost one dollar each* if bound in cloth. Do not let the opportunity pass, as Mr. Turner only proposes to let this offer stand for a short time. True, it requires some time and work to copy all this twice, but you will be most handsomely rewarded for it.

[Signed,]

OUR readers will confer a favor by writing to us giving us any item of news such as new mills, elevators, etc., or improvements in the same, or giving information of a practical nature of general interest to the trade.

THE CHICAGO MILWAUKEE AND ST. PAUL RAILWAY CO.

Fast Mail Line with Vestibuled Trains between Chicago, Milwaukee, St. Paul and Minneapolis.

Trans-Continental Route between Chicago, Council Bluffs, Omaha and the Pacific Coast.

Great National Route between Chicago, Kansas City and St. Joseph, Mo.

5700 Miles of Road reaching all principal points in Illinois, Wisconsin, Minnesota, Iowa, Missouri and Dakota.

For maps, time tables, rates of passage and freight, etc., apply to the nearest station agent of the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY, or to any Railroad Agent anywhere in the World.

ROSWELL MILLER, General Manager. A. V. H. CARPENTER, Gen'l Pass. and Tkt. Agt.

☞ For information in reference to Lands and Towns owned by the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY COMPANY, write to H. G. HAUGEN, Land Commissioner, Milwaukee, Wisconsin.

THE CHICAGO AND
NORTH-WESTERN RAILWAY.
OVER 7,000 MILES
Of steel track in Illinois, Iowa, Wisconsin, Michigan, Minnesota, Nebraska, Dakota and Wyoming, penetrates the Agricultural, Mining and Commercial Centres of the
WEST AND NORTHWEST.
The Unrivaled Equipment of the Line embraces Sumptuous Dining Cars, New Wagner and Pullman Sleepers, Superb day Coaches and
FAST VESTIBULED TRAINS
Running direct between Chicago, St. Paul and Minneapolis, Council Bluffs and Omaha, connecting for Portland, Denver, San Francisco and all Pacific Coast Points.
ONLY LINE TO THE BLACK HILLS
For Tickets, Rates, Maps, Time Tables and full information, apply to any Ticket Agent or address the Gen'l Passenger Agent, Chicago, Ill.
J. M. WHITMAN, General Manager. H. C. WICKER, Traffic Manager. E. P. WILSON, Gen'l Pass. Agt.

NOTES from the diary of tourists' commercial travelers, business men and others has revealed:
That the **Wisconsin Central** has the unqualified endorsement of all:
That the **Wisconsin Central** has to-day the most popular line between **Chicago** and **Milwaukee**, and **St. Paul Meneapolis** and the **Northwest**;
That the **Wisconsin Central** is daily adding to its admirers as the recognized **Pullman** line between **Chicago** and **Milwaukee** and **Ashland, Duluth** and **Lake Superior**;
That the **Wisconsin Central** touches the most prominent points in Wisconsin, and that it has more important business centers on its through line than any other railway to and from the **Northwest**;
That the **Wisconsin Central** has made an enviable reputation with its peerless **Dining Car Service**;
That the **Wisconsin Central** runs fast trains on which all classes of passengers are carried with commodious and distinct accomodation for all:
That the **Wiscosin Central** has representatives distributed throughout the country, who will cheerfully give any information that may be desired and that its terminal Agents are specially instructed to look after the comfort of passengers who may be routed via its line.
For detailed information, apply to your nearest Ticket Agent; or to representatives of the Wisconsin Central Company.
WM. S. MELLEN, General Manager. JAMES BARKER, Genl. Passr. &. Tkt. Agt.
LOUIS ECKSTEIN, Asst, Genl. Passr. & Tkt. Agt.
MILWAUKEE, WIS.

ALL persons desiring to reach the entire milling and grain trade of America, by circular or otherwise, should obtain a copy of CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888.
WE shall be pleased to receive from any of our readers, short, crisp, sensible letters on subjects of interest to the flour and grain trade for publication.
EXPORTING millers should write to the Riverside Printing Co., Milwaukee, Wis., for the best Flour Cable Code ever published. There are more copies of this Code in use than of ALL other flour codes published. It is simple and accurate.

ASHLAND M.L.S.&W.RY. ROUTE
THE MILWAUKEE, LAKE SHORE & WESTERN R'Y
IS THE DIRECT AND MOST POPULAR LINE AND
Through Sleeping and Parlor Car Route
FROM
CHICAGO and MILWAUKEE
TO
SHEBOYGAN, MANITOWOC, APPLETON NEW LONDON AND WAUSAU,
TO ALL THE IMPORTANT TOWNS IN THE
Gogebic, Penokee and Montreal Iron Ranges,
HURLEY, BESSEMER, IRONWOOD, WAKEFIELD AND GOGEBIC,
TO
ASHLAND, SUPERIOR and DULUTH,
To all Fox River Manufacturing Cities
AND
The Lumbering Districts of Northern Wisconsin and Michigan.
SPORTSMEN The best Fishing and Hunting in the NORTHWEST reached by the **ASHLAND ROUTE**. Send to the General Passenger and Ticket Agent for Descriptive and Illustrated Publications, Maps, Folders, Time Cards and General Information.
Milwaukee Office, 95 Wisconsin St.
H. G. FLEITH, Com. Freight Agt. F. P. REGAN, City Pass. & Tkt. Agt.
H. F. WHITCOMB, General Manager. GEO. S. MARSH, Gen'l Pass. & Tkt. Agt.
MILWAUKEE.

Milwaukee & Northern R. R.
SHORT LINE
TO
Marquette, Negaunee, Ishpeming, Hancock, Houghton, Champion, Republic, Iron Mountain, Menominee, Mich.
Marinette, Green Bay, Depere, Neenah, Menasha, Appleton, Wis.
THE TABLE OF EXPRESS TRAINS.

STATIONS.	DEPART.	ARRIVE.
Champion, Republic,	*1:35 A. M.	*3:20 A. M.
Iron Mountain, Menominee, Marinette, Green Bay, Depere,	*1:35 A. M. 3:10 P. M.	*3:20 A. M. 3:55 P. M.
Green Bay, Depere, Appleton, Menasha, Neenah,	†7:35 A. M. 7:55 A. M. 3:10 P. M.	3:55 P. M. 10:20 A. M.

*Daily. †Daily, except Monday. All other trains daily except Sunday.
Pullman Sleeping Cars are run on all night trains, and are ready for occupancy at 9:00 P. M.
New Passenger Station, Fourth Ward Park.
C. F. DUTTON, General Manager. W. B. SHEARDOWN, General Ticket Agent.

A NIGHT IN CHICAGO
—AND A—
NIGHT TRAIN
—TO—
INDIANAPOLIS.
—THE—
MONON ROUTE
LOUISVILLE, NEW ALBANY & CHICAGO RY.
HAS A TRAIN
Leaving Chicago
AT 11:40 P. M.
EVERY NIGHT (Sundays included), with THROUGH COACHES and PULLMAN SLEEPERS, ARRIVING INDIANAPOLIS at 7:30 A. M.
ADDITIONAL TRAINS leave Chicago for Indianapolis at 8:15 A. M. and 8:20 P. M.
Ask your home Agent to make your tickets read via the MONON ROUTE, so your comfort may be assured. For further information, Sleeping Car erths, etc., call at
CITY TICKET OFFICE, No. 73 CLARK ST.
—OR AT THE—
DEARBORN STATION, CHICAGO.
E. O. McCORMICK, Gen'l Pass. Agent, CHICAGO.

DO NOT DELAY YOUR SUBSCRIPTION FOR
LIPPINCOTT'S MAGAZINE,
which now stands in the front rank of monthly publications and occupies the position of
A LEADER AMONG LEADERS.
Each number contains A COMPLETE NOVEL, as well as a liberal quantity of miscellaneous matter of an interesting and instructive nature. One year's subscription gives
A LIBRARY OF 12 COMPLETE NOVELS
by American authors, together with AN ABUNDANCE OF SHORT STORIES, POEMS, ESSAYS, and matters of unusual interest to general readers, making
A VOLUME OF NEARLY 2000 PAGES.
The success of LIPPINCOTT'S stands unprecedented in the annals of Magazine publishing, and to-day its familiar title is welcomed in every hamlet, village, town, and city throughout the United States.
The best writers of the age have been secured and new features will, from time to time, be added which will give to LIPPINCOTT'S
A DISTINCTIVE PLACE OF ITS OWN.
Amélie Rives, Edgar Saltus, John Habberton, Edgar Fawcett, Captain Charles King, U.S.A., Grace King, M. Elliott Seawell, Selina Dolaro, Maurice Barrymore, Ouida, and many others will contribute to its pages for 1889. For full prospectus, address Lippincott's Magazine, Philadelphia. 25 cents single number. $3.00 per year. Send for sample copy.

CH&D CINCINNATI, HAMILTON & DAYTON R.R.
THE THROUGH CAR LINE
—FROM AND TO—
CINCINNATI
WITH THROUGH CAR SERVICE BETWEEN
CINCINNATI and INDIANAPOLIS,
CINCINNATI and TOLEDO and DETROIT,
CINCINNATI and CHICAGO,
CINCINNATI and ST. LOUIS,
CINCINNATI and DAYTON and RICHMOND,
CINCINNATI and FT. WAYNE and GRAND RAPIDS,
CINCINNATI and GREENVILLE and VAN WERT.
With THROUGH RECLINING CHAIR CAR between
CINCINNATI, DECATUR and SPRINGFIELD, ILLS. and KEOKUK, IOWA, (daily)
PARLOR CHAIR CARS ON DAY, and SLEEPERS ON NIGHT TRAINS, "YEAR 'ROUND."
Ask for Tickets via C. H. & D. R. R.
For full information, Tickets, Sleeping Car Space, &c., Inquire of or Address,
W. H Fisher, Gen'l Agt., Indianapolis, Ind. W. H. Whittlesey, Central Pass'r Agt., Dayton, O.
John Bastable, District Pass'r Agt, Toledo, O. D. B. Tracy, Northern Pass'r Agt., Detroit, Mich.
Wm. A. Wiggins, Southern Passenger Agent, Chattanooga, Tenn.
J. G. Mason, City Passenger Agent, Cincinnati, O.
Or General Passenger Agent's Office, - No. 200 W. Fourth St., Cincinnati, O.
C. C. WAITE, Vice-Pres't & Gen'l Manager. CHAS. H. ROCKWELL, Gen'l Pass'r & Ticket Agent.

THE
Chicago & Grand Trunk R'y
NIAGARA FALLS AIR LINE
Is the Shortest and Most Direct Route East.
THROUGH SLEEPING AND PARLOR CARS TO
New York, Montreal and Boston.
The Only Line running Through Sleeping Cars between
CHICAGO and PHILADELPHIA
Via NIAGARA FALLS Without Change.
Trains leave Dearborn Station at 9.05 a. m., 3.25 p. m. and 8.15 p. m. 8.15 p. m. train has elegant Pullman Sleeping Car to Detroit daily.
2nd class tickets good on all trains.
W. E. DAVIS, Gen'l Pass's & Ticket Agent, CHICAGO.
E. H. HUGHES, Gen'l Western Pass'r Agent, CHICAGO.
B. C. MEDDAUGH, Nor. Pass'r Ag't, 99 Wisconsin St., MILWAUKEE.
STEAMSHIP TICKETS
To or from Europe at lowest rates, by all lines. Cabin plans can be consulted and best accommodations secured as far in advance as desired.
Information furnished by mail or on application at office, 99 Wisconsin St., southwest cor. Broadway.
B. C. MEDDAUGH, Gen'l S. S. Agent. MILWAUKEE, WIS.

CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888, issued March 3, is meeting with much praise from all departments of the trade. While not claimed by the publisher to be perfect, it answers FULLY the requirements of the trade. It is the only list published. The demand is limited and the price (Ten Dollars per copy) is cheap, considering the labor required in compiling, printing and selling. It contains lists of flour mill and grain elevator owners, micellaneous kinds of mills such as corn, rye, oatmeal, rice and feed mills, millwrights, flour brokers and dealers in various sections of the United States and Canada, and a good list of European flour and grain importers. Kind of power used, rolls or stones, capacity and millers supposed to be worth $10,000 or *more* are indicated in thousands of cases.

If You Want the Earth, Here You Are!
THE "UNITED STATES MILLER" AND
50 Charming Complete Novels
—FOR—
ONE DOLLAR!
To Foreign Countries $2.00, (8 Shillings English.)
These Novels are printed in pamphlet form, on good paper. They would cost you in the form of "*Seaside*" or other libraries, $10.00. If you do not want to read the books yourself, divide them up among your friends. The regular subscription price of the U. S. MILLER alone is $1.00 per year, and it is worth the money. We have been able to make a good bargain with an Eastern publisher and propose to give our subscribers the benefit of it. The following is the list of novels:

A Bartered Life. By MARION HARLAND.
An Old Man's Sacrifice. By MRS. ANN S. STEPHENS.
A Wicked Girl. By MARY CECIL HAY.
A Low Marriage. By Miss MULOCK. *Illustrated.*
Under the Lilacs. By the author of "Dora Thorne."
The Strange Case of Dr. Jekyll and Mr. Hyde. By R. L. STEVENSON.
The Lawyer's Secret. By MISS M. E. BRADDON.
Fair but False. By the author of "Dora Thorne." *Illustrated.*
The Nine of Hearts. By B. L. FARJEON.
Doris's Fortune. By FLORENCE WARDEN.
A Playwright's Daughter. By MRS. ANNIE EDWARDS. *Illustrated.*
Forging the Fetters. By MRS. ALEXANDER.
The Poison of Asps. By FLORENCE MARRYAT.
Moat Grange. By MRS. HENRY WOOD.
Agatha's History. By MARGARET BLOUNT.
Out of the Sea. By CLARA AUGUSTA.
The Story of a Storm. By MRS. JANE G. AUSTIN
The Evil Genius. By M. T. CALDOR.
The Mystery at Blackwood Grange. By MAY AGNES FLEMING.
The Last of the Ruthvens. By Miss MULOCK. *Illustrated.*
The Morwick Farm Mystery. By WILKIE COLLINS. *Illustrated.*
Out of the Depths. By HUGH CONWAY.
Retribution. By MARGARET BLOUNT.
A Tale of Sin. By MRS. HENRY WOOD.
A Fortune Hunter. By ANNIE THOMAS. *Illustrated*
In Cupid's Net. By the author of "Dora Thorne."
Wedded and Parted. By the author of "Dora Thorne."
The Knightsbridge Mystery. By CHARLES READE. *Illustrated.*
Ingledew House. By the author of "Dora Thorne."
A Passive Crime. By "THE DUCHESS."
Rose Lodge. By MRS. HENRY WOOD.
A Bridge of Love. By the author of "Dora Thorne."
The Fatal Marriage. By MISS M. E. BRADDON.
A Queen Amongst Women. By the author of "Dora Thorne."
The Blatchford Bequest. By HUGH CONWAY. *Illustrated.*
The Curse of Carew. By the author of "Dora Thorne."
A Shadow on the Threshold. By MARY CECIL HAY.
The Fatal Lilies. By the author of "Dora Thorne."
Carriston's Gift. By HUGH CONWAY. *Illustrated.*
More Bitter than Death. By the author of "Dora Thorne."
Miss or Mrs.? By WILKIE COLLINS. *Illustrated.*
In the Holidays. By MARY CECIL HAY.
The Romantic Adventures of a Milkmaid. By THOMAS HARDY.
A Dead Heart. By the author of "Dora Thorne."
Dark Days. By HUGH CONWAY.
Shadows on the Snow. By B. L. FARJEON.
At the World's Mercy. By FLORENCE WARDEN.
Called Back. By HUGH CONWAY.
Mildred Trevanion. By "THE DUCHESS."
The Grey Woman. By MRS. GASKELL. *Illustrated.*

Fill out the blank below, enclose $1.00 and address plainly to
E. HARRISON CAWKER,
Publisher of the "United States Miller," Milwaukee, Wis.

$1.00. .....*1888.*
Publisher UNITED STATES MILLER, Milwaukee, Wis.
Send the UNITED STATES MILLER for one year and 50 Novels, post paid, for which find enclosed One Dollar.
Name.....
Post Office.....
County..... State.....
[Would be pleased also to have you mention any particulars about your mill or elevator, capacity Power, system, etc., and the name of HeadMiller

G. M. MANN. F. P. MANN

MILWAUKEE BAG COMPANY,

MANUFACTURERS OF

Cotton, Paper and Jute

GRAIN AND FLOUR SACKS

DEALERS IN

TWINES, CENTALS, ETC.,

TELEPHONE NO. 427.

No. 134 West Water Street, MILWAUKEE, WISCONSIN.

SCHEIRIN'S
OAK-TANNED
LEATHER
BELTING

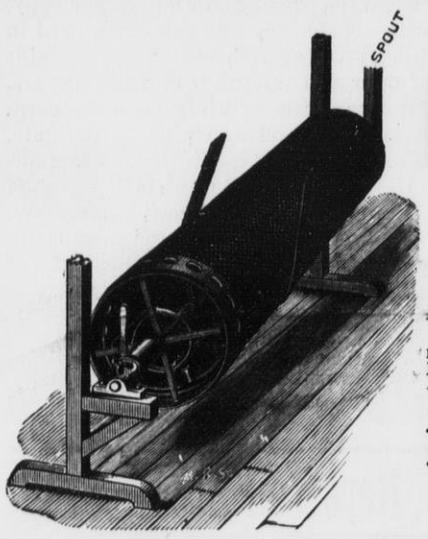
GOODYEAR RUBBER CO.
GOLD SEAL 1872 TRADE MARK

GOLD SEAL RUBBER BELTING

372 & 374 EAST WATER STREET
MILWAUKEE.

131 EAST THIRD STREET
ST. PAUL.

201 NICOLLET AVENUE
MINNEAPOLIS.



PRINZ
Patent Improved Cockle Machine.

The Most Durable, Simple and Efficient Machine for the purpose on the market.

CENTENNIAL MILLS,
EVANSVILLE, IND., June 14, 1887.

FAUSTIN PRINZ & CO., Milwaukee, Wis.

GENTLEMEN:—Enclosed please find check in payment of Cockle Machine sent us May 26, 1887. The Machine does its duty.

May 23rd, 1888.

The Cockle Machine you sold us a year ago doing its work as well now as it did in the start and has not cost us a dime for repairs yet.

Respectfully yours,
J. W. LAUBSCHER & BRO

MANUFACTURED IN FOUR SIZES.

PRINZ & RAU MFG. CO., MILWAUKEE, WIS.

Write for Descriptive Pamphlet.

[Please mention this Paper when you write.]

BURNHAM'S NEW IMPROVED STANDARD TURBINE WHEEL

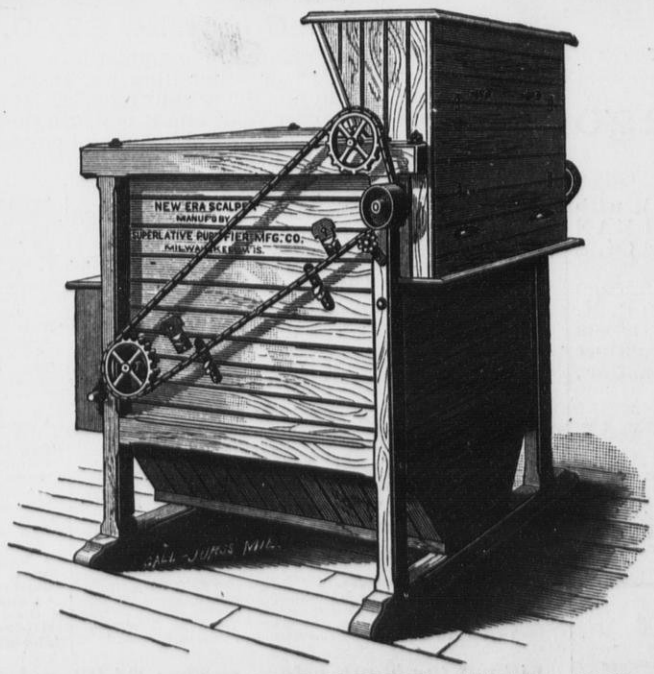
THE GREATEST SUCCESS OF THE DAY!

Read what one of the leading millers says regarding

THE NEW ERA SCALPER

One machine will handle 4 Breaks in a 75 bbl. mill, or one Break in a 500 bbl. mill.

No scouring of Bran or Middlings, or Pulverizing of Stock. Break Flour as white as any in the mill.



TESTIMONIAL.

YOUNGSTGWN, O., Dec. 7, '88.

DEAR SIRS:

In order to put in your scalpers on our 2d, 3d, 4th and 5th breaks and retain our hexagon scalpers for wheat cleaners, I was obliged to add another story to our roller room, at an expense of five times as much as the cost of the machines. Having now run the machines for thirty days, I feel satisfied with the expenditure made, as I think we are now making the nicest flour we ever made. Our 2d, 3d, 4th and 5th break flour (we make eight breaks) is as white and clean as our patent, while our flour all through is the best we ever made. Our hexagon scalpers make excellent wheat cleaners, and your machines make excellent scalpers. The two combines make excellent flour.

Respectfully yours,
HOMER BALDWIN.

For Prices, etc., address: SUPERLATIVE PURIFIER MFG. CO., MILWAUKEE, WIS.

WILLSON
Spring Whiffletree

Designed to Make the Burdens of Laboring Horses Easier, and to Keep them in Good Working Condition.

These trees will commend themselves to every owner of Laboring Horses, for the reason that the load is constantly balanced on the spring, making it impossible for the horse, harness or wagon to receive any sudden shock or jar. Some of the benefits derived from their use are as follows:

Prolongs the Life of the Horse; Prevents Sore Shoulders, Stiffness of Limbs, Reluctance in Pulling and Destruction of Harness.

☞ *Send for Catalogue and Prices.*

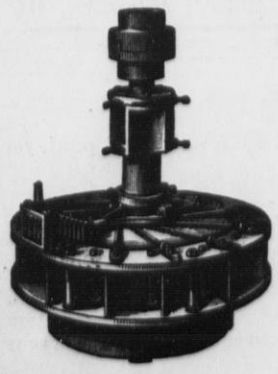
AGENTS WANTED.

THE JEFFREY MFG. CO.

169 E. 1st Ave., COLUMBUS, O., U. S. A.

[Jan. 89.]

FRATTINGER,
City Tailor
389 Broadway,
MILWAUKEE.



JAMES LEFFEL'S IMPROVED
Water Wheel

Fine New Pamphlet for 1888.

The "OLD RELIABLE" with Improvements, making it the **Most Perfect Turbine now in use**, comprising the **Largest** and the **Smallest** Wheels, under both the **Highest** and **Lowest** Heads in this country. Our new Pocket Wheel Book sent free. Address,

JAMES LEFFEL & CO., Springfield, Ohio,
and 110 Liberty St., New York City.

[Please mention this paper when you write to us.]

POOLE & HUNT'S
Leffel Turbine Water Wheel

Made of best material and in best style of workmanship.

Machine Molded Mill Gearing

From 1 to 20 feet diameter, of any desired face or pitch, molded by our own SPECIAL MACHINERY. **Shafting, Pulleys, and Hangers,** of the latest and most improved designs.

Mixers and General Outfit for Fertilizer Works.

☞ Shipping Facilities the Best in all Directions.

POOLE & HUNT, Baltimore, Md.

N. B.—Special attention given to Heavy Gearing for Pulp and Paper Mills.

[Mention this paper when you write to us.]

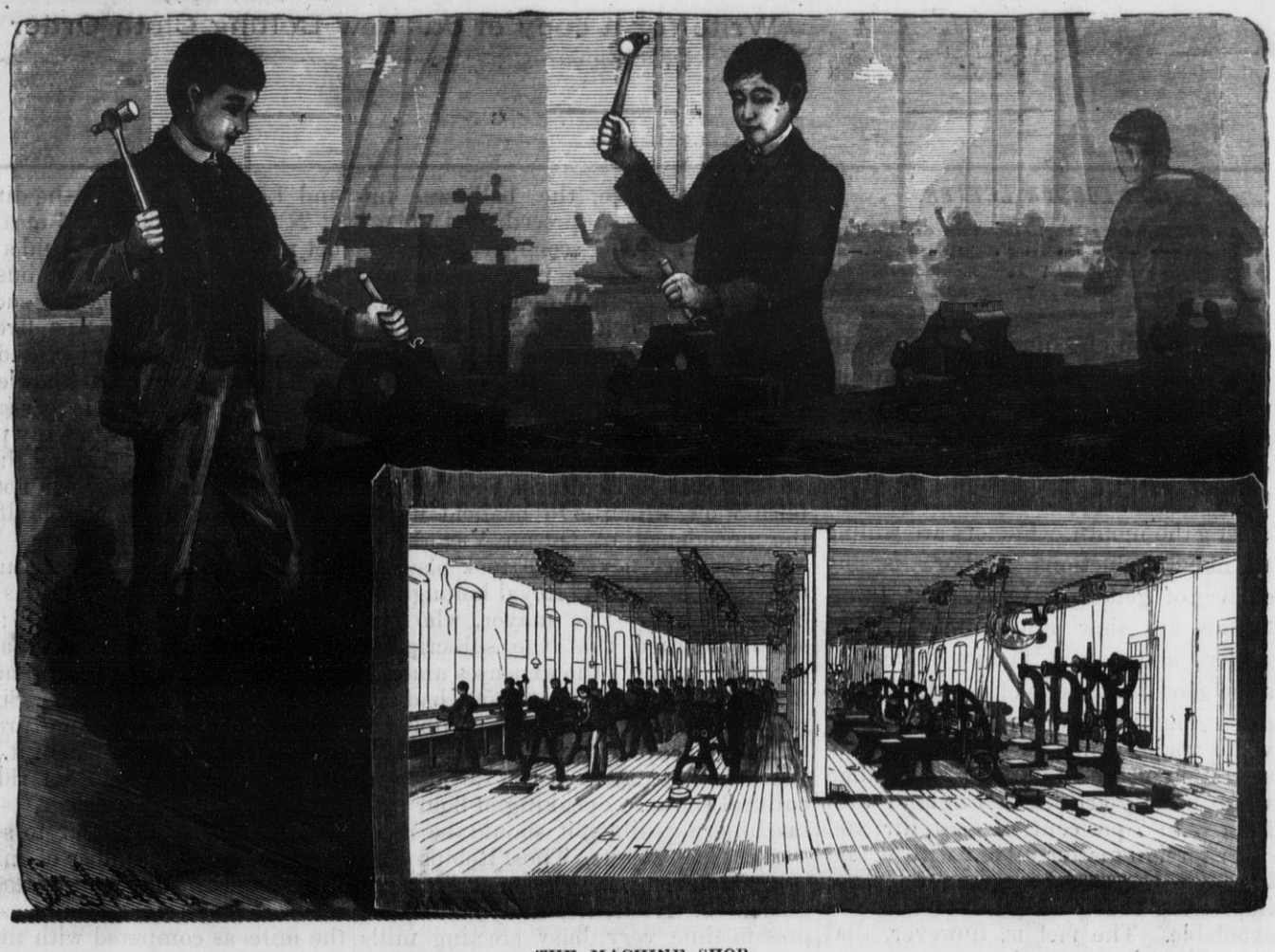
1876. 1889.

The United States MILLER

Devoted to Flour, Grain, Milling, Manufacturing and Commercial Interests.

Fourteenth Year.—No. 2. MILWAUKEE, FEBRUARY, 1889. Subscription Price, $1.00 Per Year.

THE COOKING SCHOOL.



THE MACHINE SHOP.

THE DRESSMAKING DEPARTMENT.

THE PRATT INSTITUTE FOR INDUSTRIAL EDUCATION BROOKLYN, N. Y.—THE TRADES SCHOOL.

BUY YOUR BOLTING AND WIRE CLOTH
AT FIRST HAND AND GET THE BEST IN QUALITY & PRICE
OUR SPECIALTIES GENUINE DUFOUR BOLTING CLOTH, PAT. METALIC FASTENED WIRE CLOTH BINDING. ALL WORK GUARANTEED.
EDW. P. ALLIS & CO., RELIANCE WORKS, MILWAUKEE, WIS.
Write for a copy of our new Bolting Cloth Order Book.

OUR LONDON LETTER.

Review of January Markets.—Fun on the Corn Exchange.—The Coming Jubilee Show.—An English Model Mill for Exhibition.—The Flour Ring.—Heavy Flour and Grain Exports from Hungary.

The month of January has generally been quite spring-like, instead of being the cold, frosty, seasonable winter month that was required to put life into the wheat trade, and the effect on prices has been that they have steadily fallen during the month. Factors are willing to make reductions if there is any chance of getting a buyer, but transactions are slow and difficult. The millers and wheat factors have had some good discussions of how to remove the serious impediment to the Indian wheat trade, which is now under consideration at the Indian office. Indian wheat usually arrives in England with from 3 to 7 per cent. of dust, dirt and other foreign matter mixed with it, and buyers in England have been under the impression that the admixture is unavoidable. The fact is, however, that the millers, buyers and corn trade associations in England are answerable for this adulteration. The standard on which sales are made and the grain shipped allows of 4 per cent. impurities, and the expense of railway carriage and sea freight is so heavy that shippers in India cannot afford to send a purer article. If the purchaser in England will insist on a higher standard—allowing, say only 2 per cent. of impurities—India will be ready to adopt it, as when the wheat is separated from impurities, a much higher price will be obtained for the grain on the English markets. Americans should be pleased at this reform, as it will certainly enable them to get a better price for their wheat and flour by removing a quantity of cheap grain from the English markets, which, when present, has a depressing effect on prices.

On Christmas eve. the salesmen at the various stands on Mark Lane Corn Exchange found the time hang so heavily on their hands, on account of the limited amount of business and scarcity of attendance, that they were tempted to find something to distract them from the rather melancholy pastime of comparing records of blank sales with one another. At any rate, towards the time of closing the market a foot-ball suddenly rose above the heads of the crowd that usually gathers in the center of the building, and before many seconds were over it was being propelled hither and thither by nimble feet, to which it was evidently no stranger. The worthy official who forms the tallest object on the market (with the exception of the clock tower), tried to put a stop to the game by impounding the foot-ball, but even his stalwart frame was unable to stem the torrent of athletic players who stopped his "rush," and for a little time the market was the scene of several little foot-ball scrimmages, in which the tall but good-humored representative of law and order invariably formed the central figure. At last, with some further official assistance, the ball was impounded, and the unprecedented and not altogether edifying scene terminated.

FRANCE during the past five months has been importing double its usual quantity, and with stocks in granary increased, the markets keep inactive and discouraging. The election of General Boulanger in Paris, has not, so far, had any effect on the markets.

A meeting in connection with the great Royal Agricultural Society's Jubilee Show, which is to be held under the presidency of Queen Victoria in Windsor Park next June, took place at the Guild hall of the Royal borough on Saturday last. The mayor, who presided, reported that the subscription promised towards the expenses amount to £3,125, of which £2,850 had already been received. The exhibits of milling machinery will be greater this year than is usual at the Royal Agricultural shows. Speaking of flour mill machinery exhibits, it should be mentioned that Messrs. Thos. Robinson & Sons, Ltd., the well-known milling engineers of Rochdale, who are at the present time very busy erecting mills on their improved flour milling system in Australia, France and this country, intend to have at the great Paris exhibition a model flour mill. Mr. S. Howes, of Silver Creek, N. Y., and 64 Mark Lane, London, will also have at the Paris exhibition a large show of their Eureka wheat cleaning machinery.

A FLOUR RING has been started in that part of England between the Humber and the Tweed, although the capital required has not yet been subscribed, viz.: £1,500,000. A prospectus of the scheme, marked "private and confidential," has been issued. The name given to the company is the "North-Eastern Millers, limited," and its profits are estimated at 16 per cent. on the capital of £1,500,000. These figures are arrived at by estimating a profit of two shillings per sack on all flour handled. The millers, whose names are given as directors of this enterprise, are:

Mr. R. H. Appleton, Stockton-on-Tees, who was president of the National Association a few years since; Mr. Thomas French, Stockton; Mr. Henry Leetham, York; Mr. Henry Proctor, Newcastle-on-Tyne, and Mr. Robert Scrafton, Middlesboro.

The above five gentlemen are selling their mills to the company, the understanding being, it is said, that each miller who sells his mill should take one-third of the price in shares. It will thus be seen that as these millers are both buyers and sellers, their own interests will, no doubt, be carefully looked after. A well-informed correspondent, writing from Newcastle to a London evening paper states that "The representation of a prospective profit of 2*s.* a sack, if based upon the past is a fraud—nothing less. Just look at it. A miller with an out-turn of one thousand sacks of flour a week—this is now considered as a very small mill—at 2*s.* a sack profit would make a net profit of £5,200 a year. A mill with an out-turn of 4,000 sacks a week, such as Appleton's and Leetham's (two of the directors), at at 2*s.* a sack profit, would mean £20,800 net profit in a year. Would any miller, big or little, part with his business to a syndicate if he was making such profits? If an average of the last five years is taken, I will guarantee, and I speak from intimate practical knowledge, their profits will not reach 1*s.* per sack, and I question if they can show any profit over that period at all. Taking the general average of the lot they will not show 6*d.* profit. During the last half of 1888, owing to the rapid advance in wheat, they would show a better return, but up to that period it was notorious that they were making no profits at all; and, indeed, the records of the Bankruptcy Court demonstrate that some at least experienced heavy losses. Sixteen per cent. profit upon their out-turn is therefore ridiculous on the face of it. Why are millers so anxious to get rid of their property?"

The reason is not far to seek when we consider the number of mills there are erected in the north of England on the roller system and the capacity of the mills as compared with the district they have to supply.

It should be also noted that the co-operative societies control at least 50 per cent. of the distribution of the flour. They have many mills which they work themselves, and are also erecting a large mill at Dunstan-on-Tyne, capable of producing 8,000 sacks of 280 lbs. each of flour per week when in full work. The Wholesale Co-operative Society has already been approached by the directors of the flour syndicate; but they have decided, much to the chagrin of the flouring promoters, not to sell any of their mills or take shares in the syndicate. On Saturday last a special meeting of the Wholesale Co-operative Society was held at Newcastle, to hear a paper read by Mr. D. R. Bailey, Hon. Sec. to the Northern Section on "The Great Flour Ring and Syndicate, and the position of these rings to the co-operative movement." Delegates were present from Gateshead, Chester de Street, Seaton, Delaval, Newbottle, Stockton, Hartlepool, Hilton Downs, New Delaval, Walker, Wallsend Carlisle, Consett, Newcastle, Berwick Main, Armfield Plain and Paisley. The paper condemned and denounced the Flour Syndicate in no measured terms. In the discussion that followed the societies decided that they would not only not countenance the syndicate, but whilst their mill is being constructed they will practically boycott the syndicate, by refusing as far as they possibly can, to buy flour from them. They will buy imported flour, or import their own, or arrange with outside millers. This they can easily do. W. R. Hamilton (of Chester-de-street), moved a resolution as follows: "That the formation of syndicates and rings by a few large capitalists for the monopoly of any given article of use or for consumption, is injurious to the community at large, pledging the conference to use every means to obtain for the co-operators of district, their supplies, through co-operation and wholesale organization, and requesting the committee of Co-operative Wholesale Society to forward, with all practical speed, the erection of a corn mill at Dunston-on-Tyne." This was seconded and carried unanimously. A good reason why the millers are pressing forward their prospectus, at the present time, is that they will get 50 to 100 per cent. more for their properties and good-will than they would fetch in the open market. It will pay them to have not only one-third of their valuations in trust, but one-half for a time. If a profit is shown on the first six or twelve months' working, which is possible, without American competition, they will, no doubt, take the opportunity to clear out. It is not believed, however, that any body of independent investors will be found to risk their money in the venture. Stimulated, no doubt, by the formation of the millers' syndicate, the operative millers employed in the various flour manufacturing establishments have set about the formation of a protective organization of their own. After two successful preliminary meetings, a largely attended general meeting was held at the end of last week at Stockton-on-Tees. It was resolved that the association be called the "National Operative Millers' Union." The object of this union amongst the operative millers is "defense, not defiance," which became necessary by the action of promoters of the "Flour Ring."

I must not conclude this letter without drawing the attention of American millers to the flour exportation from Fiume, which, in consequence of the abundant harvest in Hungary, attained last year the unprecedented figure of nearly 1,250,000 double centners as against 755,986 in 1887. The largest quantity, namely 873,200 double centners, was shipped to Great Britain, and showed an increase of 301,800 double centners in comparison with the previous year. The quantity sent to France also increased from 88,771 to 152,975 double centners, and the remainder was dispatched to Spain, Holland, Belgium, Portugal and Brazil.

L. MAYGROVE.

ATTRACTIVENESS, cleanliness and convenience, are important factors conducive to health and happiness in all shops and factories. It is only from the healthful, contented man, that we have a right to expect good work. No one can be happy or retain good health who is obliged to operate the ill-designed, back-breaking machinery in some of the filthy places I call to mind; but thanks to progress, such machines and shops are a long way in the minority, and let us hope the time is not far distant when they will disappear entirely.

If I had the ruling of affairs I would have the workshop as attractive as the flowers of June; as enticing as the fruits at the "Harvest Feast;" I would have the tools as convenient as the "Magician's Wand," and the "Cup of Knowledge" more fascinating and exhilarating than the wine-cup. Work should be a pastime—the workman's life like unto one long holiday.—T. P. Farmer in *The American Machinist*.

SPECIAL NOTICE.

WE will furnish any one in the United States or Dominion of Canada, for one year, with THE UNITED STATES MILLER and *The Northwestern Miller*, for $3.25; including "50 novels," $3.75.

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.

OFFICE, NO. 124 GRAND AVENUE, MILWAUKEE.

SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.

To American subscribers, postage prepaid..... $1.00
To Canadian subscribers, postage prepaid..... 1.00
Foreign subscriptions..... 1.25

All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.

Bills for advertising will be sent monthly, unless otherwise agreed upon.

For estimates for advertising, address the UNITED STATES MILLER.

[Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE, FEBRUARY, 1889.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. *You will thereby oblige not only this paper, but the advertisers.*

MILWAUKEE AMUSEMENTS.

ACADEMY OF MUSIC—First-class theatrical entertainments every evening. Matinees Wednesdays, Saturdays and Sundays, at 2 p. m.

STANDARD THEATER (South-side)—Every evening; matinees Saturdays and Sundays, at 2 p. m.

GRAND AVENUE THEATER AND MUSEUM—Open daily from 10 a. m. to 10 p. m.

STADT THEATER (German)—Wednesday and Sunday evenings.

PEOPLE'S THEATER—Choice variety performances every evening; matinees Tuesdays, Fridays and Sundays, at 2 30 p, m.

PUBLIC MUSEUM, Exposition Building—Open daily; admission free.

LAYTON ART GALERY—Open daily. Free admission Tuesday, Thursday and Saturday.

UNDER date of Feb. 20, we are authorized to state that "The Spring Wheat Millers' Association of the United States" represent a daily capacity of 55,600 bbls.

IF you are about to build write to the UNITED STATES MILLER for a copy of "Brean's House Plans," and enclose fifty cents in stamps. It will help you

THE *Baker's Helper* is the title of a neat journal published in Chicago by The Chapman & Smith Co. It is printed in both German and English. It is published monthly and the subscription price is $1.00 per year.

BRO. REIFSNIDER, of *The St. Louis Miller*, is now reported to be the owner of a full-fledged flour mill at Eldorado Springs, Mo. That it may turn out good, broad bran, and a clean, clear product, and bring in lots of shekels, is the worst wish we have for "Eli."

HAVE you a wife, daughter or sweetheart? If so, send $1.10 for a copy of *The Ladies' Home Companion* and THE UNITED STATES MILLER. Both papers for one year for $1.10. The former is published twice a month, and is a beautiful 16-page paper. Address THE U. S. MILLER, Milwaukee, Wis.

THE Nebraska legislature is trying to pass a "bucket-shop bill; The New York legislature are trying to pass a bill prohibiting dealing in grain futures; Nevada is trying to establish state lotteries, and Montana has legalized "faro" and "draw-poker." In the meantime the Supreme Court of New York has handed down a decision legalizing "bucket-shops." And still we are not all happy.

THE President has approved the act to enlarge the powers and duties of the Department of Agriculture, and to create an executive department to be known as the Department of Agriculture. This is evidently a wise act, and we hope to see great improvements in the management of the department hereafter.

IN the city of Yankton, a 40-horse-power turbine water-wheel operating a tow-mill by day and an electric light by night, is driven by the force of water flowing from an artesian well, the cost of obtaining which was no greater than would have been the cost of a steam engine developing the same power, and counting the continual outlay necessary (had steam been employed) for fuel, repairs, and the salaries of engineer and fireman.

THE *Baltimore Journal of Commerce* of a recent date tells the following pretty little reminiscence:

To show how closely the loaf is allied to home and comfort, we will relate a story told by a lady of Asheville, N. C., soon after our civil war. She said: "We were—all that was left of us—seated around the tea-table one evening. The all was the little mother, the aged and feeble grand-parents, and the young who were unable to carry a musket. The tea was warm, but had never known China; the cattle had gone far a-field—to the commissary, there was no butter and little of anything else. A carefully wrapped package was laid on a napkin near the center of the table, and little mother came in, and unfolding disclosed a loaf of white bread, such as we had not seen for weary months. Hastily and nervously she divided it. The little ones clutched and ate their share quickly. We, the older ones, touched but could not taste nor swallow. There was a lump in the throat, you know," she said, sobbing.

WE will send the UNITED STATES MILLER and *American Miller* to any address in the United States or Canada for one year for $1.50, or both papers and "50 novel" premiums for $1.75.

ANOTHER PATENT WAR COMMENCED.

Millers all over the country will be interested in a suit to be tried in the United States court at Detroit, Mich., this month. The suit is brought by the Consolidated Roller Mill Company against W. A. Coombs, of Coldwater, Mich., for an alleged infringement of one of their numerous patents, and it promises to be as important as the famous Cochrane case, and of as general interest to millers, except that in this case all millers who were members of the National Association prior to March 9, 1887, are relieved by reason of an agreement between the Association and the Consolidated Company whereby the latter agreed to relieve the members from all infringements previous to that date. All millers using rolls furnished by the Consolidated Company are likewise exempt. The suit is brought ostensibly against the miller, but it is understood to be aimed at some of the twenty or thirty firms manufacturing various kinds of rollers. The Consolidated Company is composed of E. P. Allis & Co., of this city; Stilwell & Bierce Mfg. Co., of Dayton, Ohio; the Nordyke & Marmon Co., of Indianapolis and the J. T. Noye Mfg. Co. of Buffalo. It controls about eighty patents. As it has employed Rodney Mason, the noted patent lawyer, to prosecute its case, and has been two years in collecting its evidence, it is safe to say this is a test case of no small importance. The value of The Millers' National Association as a protection against patent litigation, will be duly appreciated by members.

THE C., I., St. L. & C. Ry. (Kankakee Line) is the best line to Cincinnati, Richmond, Va., Newport News, Washington, Baltimore, Chattanooga, Atlanta, Savannah, Charleston, Jacksonville, St. Augustine, Thomasville, Pensacola, Mobile, New Orleans, and all points in the South and South-east.

NEWS ITEMS OF ALL SORTS.

DEAD, John Engelke, a well known St. Louis miller.

CANADIAN millers are petitioning their Parliament for protection.

THE Chamber of Commerce at Duluth, Minn., was destroyed by fire Jan. 27.

BURNED—Feb. 8, Lewis Van Inwagen's elevator with contents, at Hastings, Minn.

J. B. KEHL's mill at Chippewa Falls, Wis., was badly damaged by fire Feb. 23. Insured in the Miller's Mutual.

BURNED, Feb. 13, Higgins & Murchison's elevator at Indianapolis, Ind., containing 40,000, bushels of corn.

THE Baltimore and Ohio R. R. will build an elevator of 1,000,000 bushels capacity at Philadelphia, this year.

THE farmer's elevator at Tobias, Neb., will soon be completed, and a 60-barrels steam-roller-mill is under way.

THE Kansas Elevator Company of Armourdale, Kas., will establish a flouring mill in connection with the elevator.

A $400,000 fire occurred in Montreal, Feb. 16, in which about $100,000 worth of No. 1 wheat, belonging to Goulds, the millers, was destroyed.

BELIOT, Wis., has secured the location of The Williams Steam Engine Works of Chicago. The city gave as a bonus ten acres of land and $10,000 in cash.

IT is reported that W. W. Cargill, of La Crosse Wis., will probably build a mill this year at Sault Ste. Marie, Mich. The work on the canal there is progressing rapidly.

FEB. 5, Brown's elevator, Lincoln, Neb., caught fire and burned to the ground. The elevator is a total loss, together with 30,000 bushels of grain. The loss will aggregate $50,000.

THE Stilwell & Bierce Manufacturing Co., of Dayton, are at work on a power plant, including Victor turbines, for a new pulp and paper mill for Messrs. Kimberly, Clark & Co., of Neenah, Wis.

Two hundred members of The Philadelphia Produce Exchange made an excursion to Washington, D. C., Feb. 11, and called on President Cleveland. This excursion took the place of their annual banquet.

AT Fostoria, Mich., Feb. 14, fire was discovered in the elevator of Foster & Borsen. The building which contained 1,000 bushels of wheat and 2,000 bushels of oats burned to the ground. Loss $6,000; insured for $3,500.

A FLUME costing over $1,000,000 has just been completed at San Diego, Cal. It will furnish that city and vicinity with water. The flume is 50 miles long and passes over 350 trestle bridges, and through eight tunnels.

BURNED—Feb. 16, Mrs. J. R. Cook's 150-barrels mill at Rochester, Minn. Loss $15,000. No insurance. The mill has stood idle for a long time, and the fire was evidently the work of an incendiary. One man was badly injured by falling timbers.

KELLY & LYLE's mill, Leavenworth, Kas., the largest concern of its kind in Kansas, caught fire Feb. 25, and burned to the ground. The elevator, containing 200,000 bushels of wheat, was also destroyed. The loss will be over $500,000. Spontaneous combustion was probably the cause.

AT Staunton, Ill., Feb. 9, the Staunton Elevator, the property of the Star Milling Company, was destroyed by fire. One thousand bushels of wheat and 400 bushels each of corn and oats were consumed. The loss is about $5,000, on which there was $2,100 insurance. It is thought the fire was of incendiary origin.

AT Kansas City, Mo., Feb. 7, an explosion of dust occurred on the fourth floor of the Corle & Sons' oatmeal mills, corner of Santa Fe and Eighth streets, and immediately fire broke out. The total loss on the building, machinery and stock is between $15,000 and $20,000, which is covered by insurance for more than twice the greater amount.

EDW. F. HECHT, cashier of Chas. Kaestner & Co., of 303 S. Canal st., Chicago, mill-furnishers, was attacked at mid-day by three thugs who endeavored to rob him of a satchel containing a considerable sum of money which he was bringing from the bank to pay off workmen with. Although badly bruised in the tussle, we are glad to learn that he was not seriously hurt.

THE firm of Poole & Hunt, machinists at Baltimore, Md., has been dissolved by the retirement of German H. Hunt. The senior member of the firm, Robert Poole, has associated with him his son George Poole The firm of Poole & Hunt had been in existence for 38 years. The number of employes is about 300. Mr. Hunt will take a rest for at least a year, during which time he will make a tour of Europe. After this he will engage in a new enterprise.

SAYS a Canadian exchange: "A new flour mill is to be built during the coming summer at Port Arthur by Messrs. Hastings & McGaw which will be among the best and most modern mills in Canada, if not the largest; it will be of brick and stone; of 500 barrels daily capacity; six stories high; an elevator of 40,000 bushels in connection; cost about $75,000. They are to get a bonus of $15,000 and exemption from taxation, and agree to have the mill in running order by Oct. 15th.

OUR readers will confer a favor by writing to us giving us any item of news such as new mills, elevators, etc., or improvements in the same, or giving information of a practical nature of general interest to the trade.

MILWAUKEE ITEMS.

MR. FERDINAND SCHLEISENIGER, well known to a good many millers and mill furnishers, from his connection with the Cockle Separator Mannfacturing Co., the Milwaukee Dust Collector Co., etc., has of late years become a prominent character in mining circles. He has recently aided in organizing a syndicate for the purchase of the Chapin iron mine, the largest in the world, for the sum of $2,000,000. Recently he paid $900,000 into the Plankinton Bank as the first payment. Mr. Schleisenger will be President of the new company. He also owns an interest in the York mine, said to be worth a cool million. We congratulate Mr. Schleisenger on his good fortune.

THE first electric traveling crane ever buil in the United States has just been introduced in the foundry of E. P. Allis & Co. It is a ponderous affair weighing 30 tons, and capable of lifting and carrying to any part of the foundry with ease, a weight of 25 tons. The crane is a bridge-like affair, suspended on tracks on each side of the foundry, near the ceiling. It is provided with three electric motors. One moves the crane, another moves the carriage with which the crane is provided from one side of the foundry to the other, and the other runs the lifting machinery. Its advantage over the ordinary power traveling crane, which it resembles somewhat, is a saving of the power and wear and tear of machinery. The only other electric crane known is in an English foundry, the latter being supplied with only one motor, rendering clutches and complicated gearing necessary.

THE U. S. MILLER for one year and 50 novels for One Dollar.

Don't forget to order at once.

ANALYSIS OF WHEAT.

In reading the tables of analyses quoted by different writers, it will be noticed that they do not by any means agree as to the constituent parts of certain wheats. It appears to be useless to expect any very great uniformity in these statements. The reason may be that no two analysts treat precisely similar wheats (and it is a nice point of practical milling knowledge that no two parcels of the same class wheats work exactly alike), consequently such diversity as we find may be explained by variations of soil, climate, or temperature, rather than by assuming that some, at least of the scientists, have given inaccurate figures.

The physical structure of a wheat grain is said by Mege-Mouries to consist of the following parts:

1. The outer skin or epidermis equal to	0·5	of grain	Offals.
2. The 2d skin or epicarp equal to	1·0	"	
3. The 3d skin or endocarp.	1·5	"	
4. The 4th skin or testa	2·0	"	
5. The embryo or germ	2·0	"	
6. The embryo membrane	3·0	"	
7. The endosperm	90·0	"	
	100·0		

THE C., I., St. L. & C. Ry. (Kankakee line) is the best route to Florida. Close connections in Central Union Depot, Cincinnati with through express trains of C. N. O. & T. P. Ry. Queen & Crescent Rout

WE shall be pleased to receive from any of our readers, short, crisp, sensible letters on subjects of interest to the flour and grain trade for publication.

DO YOU INTEND TO BUILD?
PRACTICAL LOW-COST HOUSES. HOW TO BUILD THEM.

A Large Atlas, containing drawings and floor plans of 40 Modern Houses with Correct Estimates of cost of building. All kinds of buildings ranging from a $400 cottage to a $10,000 residence. The latest, most complete, and only practical book published. It is false economy to attempt to build without these plans. Price by mail, post-paid, 50 cts. Stamps taken.

Address, UNITED STATES MILLER, Milwaukee, Wis.

EVERYBODY'S PAINT BOOK

A new work on INDOOR and OUT-DOOR painting which is designed to teach people how to DO THEIR OWN PAINTING and save the expense of a professional painter. The most practical and valuable work of the kind ever issued. Full directions are given for mixing paints for ALL PURPOSES. Tells all about PAPER HANGING, KALSOMINING, STAINING, VARNISHING, POLISHING, as well as how to RENOVATE FURNITURE, so that it will look as good as new. Tells all about HOUSE-CLEANING with paint and kalsomine. Full directions are given for making the beautiful SPATTER-WORK pictures in which the ladies are so much interested. Tells how to paint OUT-BUILDINGS, ROOFS, FARM WAGONS, FARM IMPLEMENTS and CARRIAGES as well as how to polish a PIANO or ORGAN; how to imitate GROUND GLASS or make paint for BLACKBOARDS; GRAINING in oak and black walnut, painting in imitation of EBONY, MAHOGANY and ROSEWOOD; GILDING, BRONZING and SILVERING. Elegantly printed, beautifully bound. Will SAVE ITS COST in a short time. Sent by mail on receipt of price. One Dollar.

Address, UNITED STATES MILLER, Milwaukee, Wis.

THE PRATT INSTITUTE, BROOKLYN, N. Y.

In the "good old days of our fathers" the boy or young man desiring to learn a trade, was obliged generally to become apprentice to some master and serve several years before he was considered competent to enter upon his duties as a journeyman. During this period of apprenticeship he was expected to do the necessary sweeping and cleaning up around the shop, run errands, do chores about the master's house, etc.

Within the last generation there has arisen a demand for institutions combining teaching with practice, in which trades could be well and quickly learned. There are now a number of these establishments in different parts of this country, and judging from the extent that they are patronized, they indeed fill along-felt want.

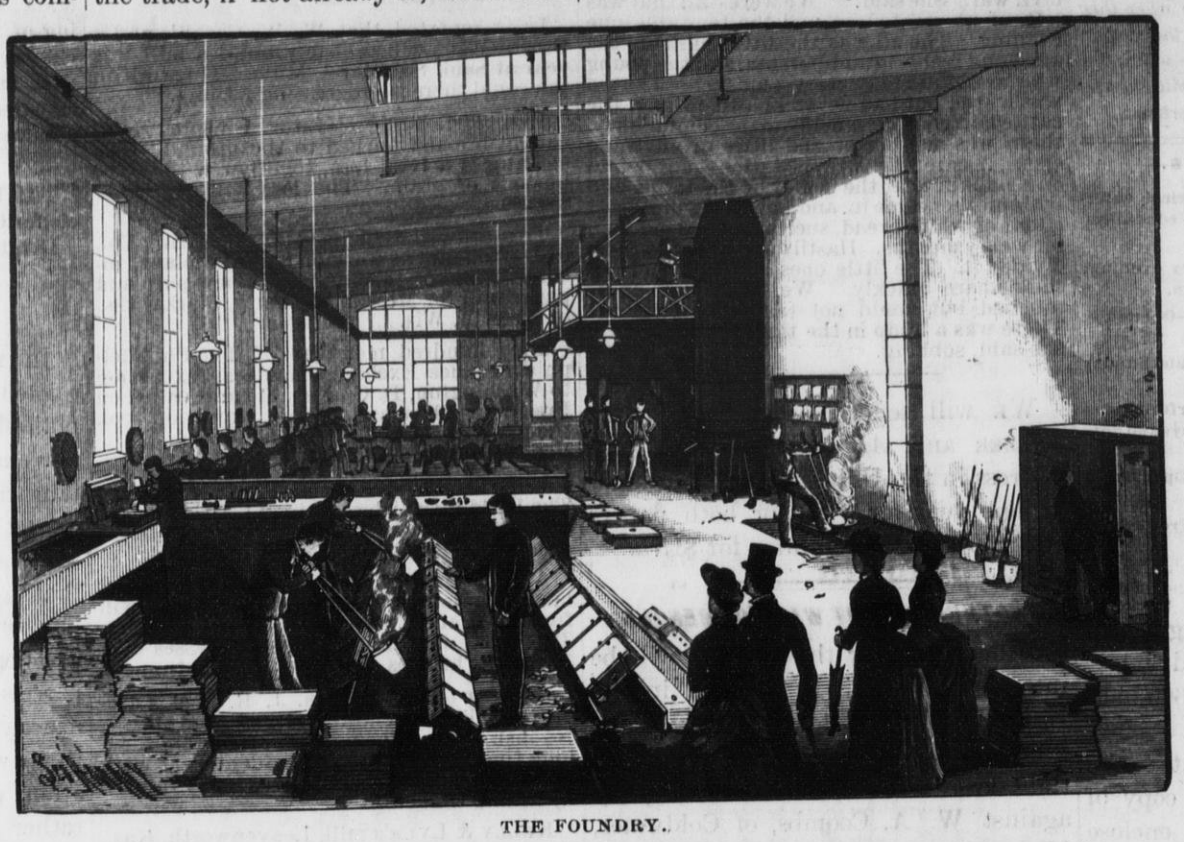
We take pleasure in calling to the notice of our readers the Pratt Institute of Brooklyn, N. Y., and the illustrations herewith given will give a very good idea of the value of such a place of instruction for the public welfare.

The Institute owes its existence to the philanthropic nature and personal efforts of Mr. Charles Pratt, who, in his youth was compelled to obtain his knowledge of practical mechanics in the old-fashioned way. He determined, while enduring the hardships of a poor apprentice, that if he should succeed in life he would make the road to practical knowledge easier to at least a portion of mankind whose youth succeeded his. How well he has accomplished his design the reader can readily imagine.

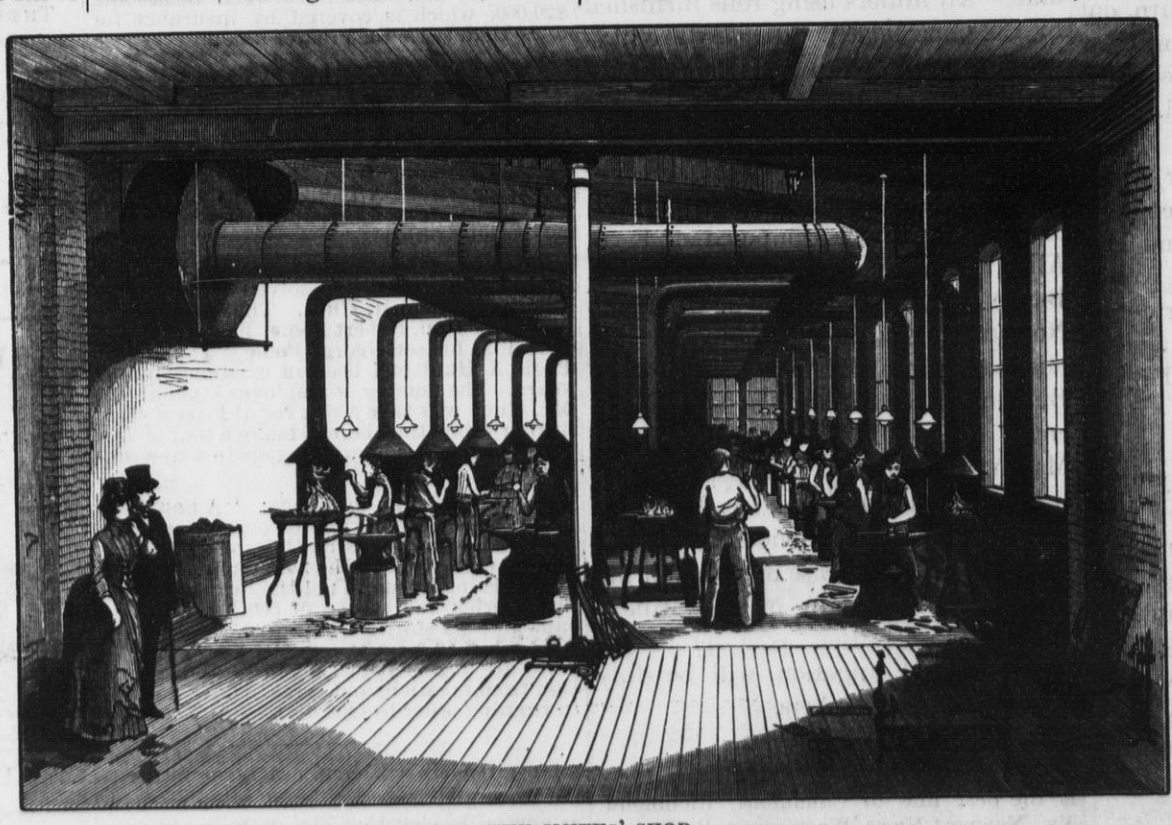
The buildings of the Pratt Institute in Brooklyn contain from three to four acres of floor space and are from six to eight stories in height. They occupy a plot of ground 350 x 200 and across the street there is another plot of ground 250 x 200 feet, which at present is used for a playground for boys. Both male and female students receive instruction. The buildings are built tastily and subtsantially and are supplied with all the modern appliances for heating, lighting, ventilation, prevention of fire, etc.

Work on the building was commenced in July, 1885, and a charter was granted in May 1887, with power to confer degrees. The Institute has a free library containing several thousand volumes; a free reading room supplied with a great number of American and foreign periodicals and reference books, and a technical museum containing specimens of manufactured articles and the crude materials from which they are made, so arranged as to show the various processes through which they pass from the raw material to the finished product.

We have not the space here to enter minutely into the minute description. Our object is to call attention to it, and those who desire further information can do so by writing to the Secretary of the Pratt Institute, Brooklyn, N. Y. It is worthy of the careful investigation of all who have the desire and means to avail themselves of its benefits.



THE FOUNDRY.



THE SMITHS' SHOP.

THE WINTER-WHEAT MILLERS' CONVENTION.

On the fifth of February about two hundred representative millers from various winter-wheat states assembled in convention in the hall of the Board of Trade at Indianapolis, Ind. The object of the convention was to establish an organization which would be able to regulate the trade so as to make it a reasonably prosperous one. The millers present fully recognized the fact that without some such organization the trade, if not already so, would soon become thoroughly demoralized, and therefore ruinous to thousands engaged in the business.

Dr. E. T. Noel of Nashville, Tenn., was elected president of the convention, and D. H. Ranck of Indianapolis, secretary. After an address setting forth the object of the meeting by the president, the gentlemen present proceeded to business in a straight, forward manner, the result of which was the establishment of an organization to be called "The Central Millers' Association, with a board of directors consisting of one miller from each state represented in the association. At the present writing (Feb. 20) we are informed that the capacity of mills in the association is about 66,000 barrels per day, to which additions are made daily.

Winter-wheat millers desiring to obtain a full and complete report of the proceedings, can obtain the same by address Alex. Smith, Esq., secretary Central Millers' Association, 212 Chamber of Commerce, St. Louis, Mo.

On the evening of February 5th a magnificent banquet was given to the visitors by the mill furnishers and manufacturers, millers, transportation companies and business men of Indianapolis. The banquet was thoroughly enjoyed while listening to the sweet strains of music from a fine band. A colored quartette also charmed those present with several happy songs. The inner man being satisfied the toast, master D. H. Ranck, Esq., the accomplished editor of *The Millstone* proceeded to read a number of good toasts, all of which were happily responded to by the gentlemen present. As the clock struck the hour of one, the guests arose and proceeded to their respective lodgings, satisfied that they had spent one of the happiest evenings of their lives.

CONVENTION NOTES.

GEO. BAIN, of the St. Louis delegation and a number of others called on President-elect Harrison. By the way, it seems quite propable that George will be appointed U. S. Consul at Glasgow.

THE milling press was represented as follows: *The Millstone*, by D. H. Ranck; *The Merchant, Miller and Manufacturer*, by J. L. Rickart; *The Northwestern Miller*, by A. Litchfield; *The American Miller*, by H. B. Mitchell; *The Roller Mill*, by E. L. Burdick and *The United States Miller*, by E. H. Cawker.

WM. TRUDGEON, representing the Richmond Mfg. Co. of Lockport, N. Y., the only man on earth that can call every miller in six winter-wheat states by name on sight, was omnipresent.

BRO. RANCK, of *The Millstone*, did his level best to make things pleasant for everybody and succeeded.

THE GRAND HOTEL stands high in the estimation of all visitors.

MANY millers were much disappointed in not being able to find time to take the trip around on the Belt Line, and visit The Nordyke & Marmon Mfg. Co.'s works and other establishments. Those who could stay were well repaid for their time and trouble.

M. H. ESCOTT, formerly of Milwaukee, but now with the J. B. Alfree Co., of Indianapolis, we are glad to say is again in good health and seemed to enjoy himself well in making things pleasant for visitors.

Among the visiting orators present at the banquet were Smith, Ballard, McCann, Seybt, and—well—come to think of it, the majority present were all orators.

FOREIGN ITEMS.

THE United Kingdom's wheat crop in 1888 was 74.493,133 bus., against 76,224,940 bus. in 1887, 63,347,885 bus. in 1886, 79,635,269 bus. in 1885, and 82,069,964 bus. in 1884.

"THE value of the American maize crop," observes the London *Mark Lane Express*, "is something astonishing. To the two crops of 1887 and 1888 an aggregate monetary value of £268,000,000 is assigned. With this wonderful increase of agricultural wealth it is no longer surprising that the United States are paying off their national debt at the rate of £30,000,000 a year, or that a high mean standard of prosperity continues to be supported, notwihstanding protective tariffs which would drive Englishmen to the verge of revolt."

JUST think of it! Of every eight loaves of bread which the Londoner eats seven are made of foreign wheat—two being Russian—and only one of home-grown grain. During last year London received a total of 2,745,891 qrs. of wheat, and of flour a further quantity (reckoned as quarters) of 2,356,883 qrs., or a grand total of 5,102,774 qrs. Of this vast quantity, the largest since 1883, but 660,000 were native, the whole of the remainder coming to us from abroad. The most noteworthy feature of the London trade is the extraordinary large imports of Russian wheat, and as striking a decrease in the imports from the United States.—*Mark Lane Express.*

RUSSIA'S grain shipments in 1888 having been the largest on record, it is somewhat surprising to learn that Russian official opinion, as embodied in the report of a recent Agricultural Commission, is of a very pessimistic character concerning the future of the vast corn-growing lands of the Empire. The big yield of 1888 following the good crop of 1887, an event which must be regarded as very exceptional, while the decrease in the average fertility of the soil on the returns of every ten years appears to be continuous. The destruction of forests and the embarassed state of the farmers, whose crops as well as holdings are mortgaged at a higher rate of interest than agricultural profits allow, are two other causes of what appears to be well-grounded alarm.—*Mark Lane Express*, (London).

THE SAULT STE. MARIE VS. THE SUEZ CANAL.—The last month of any considerable traffic through the Sault Ste. Marie Canal showed a gain of 105,000 tons over November, 1887, and brought the total freight tonnage for the season to December 1st up to 6,409,278 tons. This, a Cleveland paper remarks, is doubtless the greatest volume of business which has ever passed through any ship canal in an equal period. It is about the usual tonnage of the Suez canal for an entire year, showing a monthly traffic twice as great as that of the famous highway opened through the Egyptian sands by Count de Lesseps. The growth of the commerce of the great lakes is wonderful, even in this land of industrial marvels.

AN AUTHENTIC BUYER'S GUIDE.

MILL AND ELEVATOR BUILDERS, MILL FURNISHERS, MANUFACTURERS OF AND DEALERS IN MILL AND ELEVATOR MACHINERY AND SUPPLIES.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year, cash with order. Additional lines, $1.00 each, per year.

Edw. P. Allis & Co., Milwaukee, Wis., builders of complete Flour Mills, manufacturers of Flour Mill Machinery, and dealers in Supplies of every description. [Mr.89.]

Garden City Mill Furnishing Co., Chicago, Ills., Mill Builders, manufacturers full line of Flour Mill Machinery, dealers in Mill Supplies, Bolting Cloth etc., etc. [Mr.89.]

Borden, Selleck & Co., 48 & 50 Lake st., Chicago, Ills., manufacturers of "HARRISON CONVEYOR" for Grain, Malt, etc., etc. [Mr.89.]

John C. Higgins & Son, 165 West Kinzie Street, Chicago, Ills., mfrs. of and dressers of Mill Picks. [Mr.89.]

H. P. Yale & Co., Milwaukee, Wis., Manufacturers' Agents of Engines and Boilers, New York Leather Belting Co.'s Leather Belting, Dodge Wood Pulley.

Poole & Hunt, Baltimore, Md., manufacturers of Steam Engines, Water Wheels, Flour, Corn, Paper, Saw and Cotton Mill Machinery.

W. J. Clark & Co., Salem, O., manufacturers of "SALEM" Elevator Buckets, etc.

Thornburgh & Glessner. 18—22 N. Clinton St., Chicago, Ills., manufacturers of Mill and Elevator Supplies.

R. C. McCulley, (P. O. Box 214) Lancaster, Pa., manufactures Cob Crushers, Cooper's Stoves, Castings, Patterns, etc. [Mr.89.]

S. H. & J. Sanford, Phoenix Iron Works, Sheboygan, Falls, Wis., manufacturers of the "IMPROVED WALSH DOUBLE TURBINE WATER WHEEL." [Mr.89.]

John C. Kilner, York Foundry and Engine Works, York, Neb. Mill and Elevator machinery of all kinds, Engines, Boilers, Pulleys, Shafting, etc. [Mr.89.]

The Gutta Percha and Rubber Mfg. Co., 159-161 Lake st., Chicago Ill., Belting and Rubber Goods. [Mr 89.]

The Avery Elevator Bucket Co., sole owners and manufacturers of Seamless Steel Elevator Buckets, Wason, Lake and Dart sts., Cleveland, O. [Mr.89.]

Richmond Mfg. Co., Lockport, N. Y., manufacturers of Grain Cleaning Machinery, Bran Dusters etc. [89.Mr.]

N. Y. Belting and Packing Co., N. Y. Leather Belting Co., Goulds & Austin, Agents, 167 and 169 Lake Street, Chicago. [Apr.89.]

Weller Bros., 94 Wendell st., Chicago. M'f'rs Mill and Elevator specialties, Cups, Boots, Spouts, Steel Conveyors, Power Grain Shovels; dealers in Cotton and Rubber Belting, etc. [Apr.89.]

The Nordyke & Marmon Co., Indianapolis, Ind., Flour Mill and Mill Machinery builders, and dealers in Mill Supplies of all kinds. [May89.]

The Shields & Brown Co., 240 and 242 Randolph st., Chicago, and 143 Worth st., New York Mfrs. of Sectional Insolated Air Coverings for steam, gas, and water pipe, etc. [May 89.]

W. G. Avery M'f'g Co., 10 Vincent st., Cleveland, O., Specialties: Avery Lever Belt Punches, Avery Seamless Elevator Buckets, Belting, Elevator Bolts, &c. [May'89.]

The H. J. Deal Specialty Co., Bucyrus, Ohio. Headquarters for Flour and Grain Testing Appliances, and Specialties for the Milling, Flour and Grain trades.

EXPORT AND MERCHANT MILLERS AND MANUFACTURERS OF WHEAT, RYE AND BUCKWHEAT FLOURS, AND CORN MEAL AND CORN PRODUCTS. (WITH NAMES OF SPECIAL "BRANDS" MADE) DESIRING CORRESPONDENCE WITH SOLID HOUSES WITH A VIEW TO TRADE.

Cards will be inserted under this head in the UNITED STATES MILLER, not exceeding three lines, paper included, for FIVE DOLLARS per year. Additional lines, $1.00 each per year.

J. B. A. Kern & Son, "Eagle Mills," Milwaukee, Wis. WHEAT FLOUR BRANDS—*Patents:* "Success," "Kern's." *Bakers:* "Triumph," "High Ground," "Eagle." RYE FLOUR BRANDS—"A Rye," "1 Rye," "Rye." [Apr.'89.]

E. Sanderson & Co., "Phoenix Mills, Milwaukee, Wis., U. S. A. Manufacturers and Exporters of choice spring wheat flours. Daily capacity 1500 barrels. [Apr.'89.]

Bernhard Stern, "Jupiter Mills," Milwaukee Wis. Roller Mill. Hard wheat *Patents*. Principal brand, "Jupiter." [Apr.'89.]

Faist, Kraus & Co., "Duluth Roller Mill," Milwaukee, Wis., Manufacturers and Exporters of choice spring wheat flours. Daily capacity 1500 barrels. [May'89.]

Russell, Andrews & Birkett Penn Yan, N. Y. Manufacturers of roller process Rye and Buckwheat flour. Absolute purity guaranteed. *Write for prices.* [Apr.'89.]

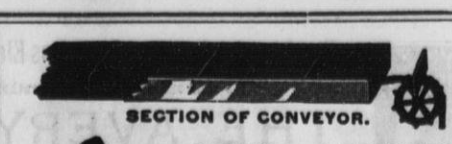
Prominent Flour, Grain and Provision Brokers, desiring correspondence with Millers of Wheat, Rye and Buckwheat Flours, and Cornmeal and Corn Products, with a view to Trade.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year. Additional lines, $1.00 each per year.

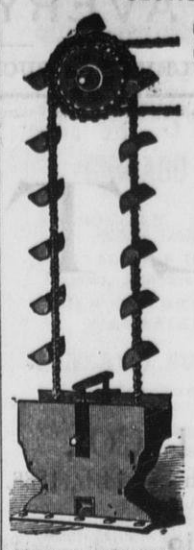
W. K. Sherwood, Flour and Grain Commission, 18 South Commercial Street, St. Louis, Mo. [Ap.89.]

L. R. Hurd, Shippers of Minnesota and Dakota Spring Wheats, Minneapolis, Minn., Possessing a thorough and practical knowledge of the *Economical and Flour Producing Qualities* of all wheats grown in the northwest. I am enabled to make purchases with special reference ts these qualities.

THE publisher of the UNITED STATES MILLER is desirous of having the names and addresses of Head Millers, Millwrights and Head Engineers in all mills having a capacity of 150 bbls. per day or more.



SECTION OF CONVEYOR.



ROLLER and DETACHABLE CHAIN BELTING

DETACHABLE in every Link.

Especially Designed for

Elevators, Conveyors, Drive Belts, Etc., Etc.

For Handling

GRAIN, SEEDS, EAR CORN, MALT, COTTON SEED, COAL, STONE, CLAY, PAPER-PULP, TAN-BARK, BOXES, BARRELS, ETC.

Also manufacturers of the Gregory Grain, Seed and Fruit Dryer; Meal and Flour Purifier.

Before Placing Orders

Send for Illustrated Catalogue and Prices.

THE JEFFREY MFG. CO.,

169 E. 1st Ave., COLUMBUS, O.

[Jan.89.]

1889 **New Business** 1889

Cyclopædia OF THE **MANUFACTURES** AND **PRODUCTS** OF THE **UNITED STATES**

FOR DOMESTIC and FOREIGN TRADE

Our National Staples and Specialties

Showing where ANY ARTICLE OF AMERICAN MANUFACTURE can be purchased DIRECT.

A COMPLETE REFERENCE BOOK

for Manufacturers, Wholesalers, Jobbers, Retailers, Commission, Export and Import Merchants, etc.

—PRICE, $5.00—

A Complete Cyclopædia **FOR BUYERS AND SELLERS in all Trades.** Bound in Cloth.

In Leather, $7.00.

PUBLISHED BY

THE SEEGER & GUERNSEY CO.

7 Bowling Green, New York, U. S. A.

TRADE LISTS FURNISHED.

CORRESPONDENCE SOLICITED.

AGENTS WANTED EVERYWHERE.

Manufacturers will please forward to us two copies of their latest catalogue.

GANZ & CO.

Budapest, Austria-Hungary.

We are the first introducers of the Chilled Iron Rollers for milling purposes, and hold Letters Patent for the United States of America. For full particulars address as above.

[Mention this paper when you write to us.]

Do you wish to purchase the Best

FRENCH BURR

Vertical or Horizontal

Feed Mills

OR

Cob Crushers.

Write to

C. C. PHILLIPS,

20 South Broad Street

Philadelphia, Pa.

Improved ‡ Walsh ‡ Double ‡ Turbine

This wheel has a perfect fitting cylinder gate and draft tube combined, and allows no water to escape when closed.

POWER GUARANTEED

equal to any wheel on the market using equal amount of water. Address for particulars,

B. H. & J. SANFORD,

Phœnix Iron Works,

Sheboygan Falls, Wis.

ENLARGED.

Rand, McNally & Co.'s

Business Atlas

1889.

NOW IN PRESS.

NEW SIZE OF PAGE, 15 x 21 INCHES.

It will contain new large scale double page maps of all important states (no cut-up maps.

The entire arrangement will be new, embodying the most improved methods of indexing and reference, clearly showing the location, population and commercial advantages of over 200,000 towns in the United States, Canada and Mexico.

Descriptive circular, printed on one of the maps, worth 35 cents, sent free on application.

RAND, McNALLY & CO.,

148 Monroe Street, Chicago.

York Sto 323 Broadway.

Situation Wanted.

A practical Stone Miller of thirty years experience, with good business qualifications and industrious habits, wants charge of a good Stone Mill by the month, or will run a mill on shares. Address, H. R. GARLICK, Menomonie, Wis.

Machinery For Sale

ONE PAIR 4-FT. MILLSTONES; new.

SEVEN PAIR 4-FT. MILLSTONES; used about three months.

ONE PAIR 9 x 18 CHILLED ROLLS; smooth.

ONE No. 1 THROOP SMUTTER AND SCOURER.

ONE 24-INCH MIDDLINGS MILL.

ONE 1000-LB. PALMER POWER SPRING HAMMER.

ADDRESS

The Filer-Stowell Co.

CREAM CITY IRON WORKS,

Milwaukee, - Wisconsin.

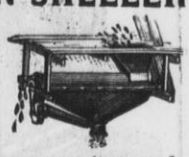
"TRIUMPH" CORN SHELLER

CAPACITY

2000 BUSHELS PER DAY.

Shells wet or dry corn.

CHEAPEST AND BEST SHELLER.



PAIGE MANUF'G CO.,

No. 12 Fourth St., Painesville, O.

[Please mention this paper when you write to us.]

Better THAN THE *Best*

College

IS **Charles Mayer's Commercial College,**

Grand Avenue (Public Library Building), **Milwaukee.** Established 1876.

1876, 27 pupils; 1887, 328 pupils. Telephone 1575. **Day and Evening Sessions.**

Students of either sex received at any time for full course or any special branch of study.

DEPARTMENTS: Commercial, Preparatory, Shorthand (Graham's analytical system) and Typewriting (all styles of machines), Languages, Plain, Ornamental and Round Writing.

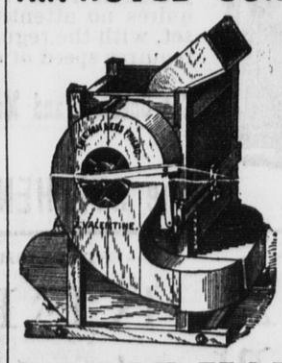
Best, Largest, Most Beautifully Equipped School of its kind. Eight teachers. Perfect Order. Liberal terms.

☞ Address, or call, College.

Scholars from the country 20 Per Cent. Discount allowed. Board procured. Further information, address College.

[Oct 5m.]

IMPROVED CORN SHELLER,



IT IS THE

BEST CORN SHELLER

MADE FOR MILL USE.

IT IS

Simple in Construction Almost Noiseless,

—AND—

Requires Little Power

HUNDREDS ARE IN USE.

For descriptive circular, price list, etc., Address

JACOB VALENTINE,

Gorham, Ontario Co., N. Y.

The True Short System of Milling.

A NEW BOOK JUST ISSUED BY R. JAMES ABERNATHY.

PRICE: $2.00 PER COPY, POST-PAID.

ONE COPY AND THE U. S. MILLER, $2.25.

Address, **UNITED STATES MILLER,**

MILWAUKEE, WIS.

STILL ON TOP.

Perhaps the highest compliment that could be paid the **"SALEM"** Bucket, is the fact that, during the past few years, **its shape has been so closely imitated** by other manufacturers, as to infringe our patented rights; but experience reveals **the imperfections of imitations,** and, we therefore, take it as a **further compliment** to the **"SALEM"** Bucket, that some of its old patrons who were **induced to try the imitations, have now returned to the Salem Bucket, thereby acknowledging it to be the most satisfactory.** Don't be deceived by other makes of Buckets that are claimed to be "just as good." Insist upon having the **ORIGINAL AND RELIABLE**

"SALEM" BUCKET.

All legitimate "Salem" Buckets are plainly marked with the word "SALEM."

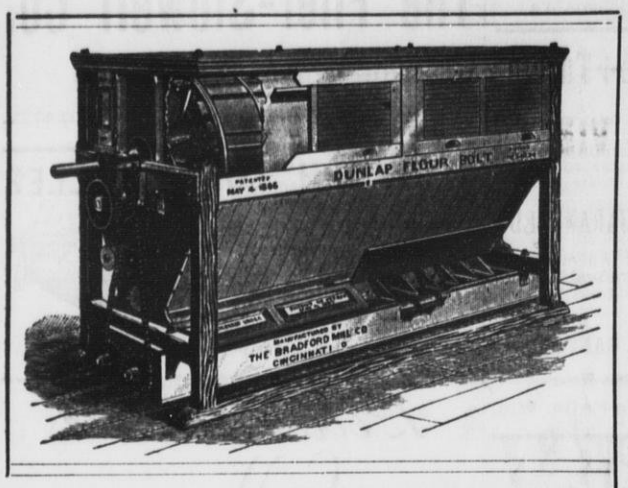
W. J. CLARK & CO., Sole Manufacturers, - SALEM, OHIO.

THORNBURGH & GLESSNER, Gen'l Agents, CHICAGO.

SPECIAL STAMPERS OF SHEET METALS.
We do Stamping and Pressing of Sheet Metals for All Classes of Work.
—ALSO SOLE MANUFACTURERS OF—
SEAMLESS STEEL BUCKETS
INSIST on having this Bucket furnished when ordering.
Ask your dealer for the Avery Pat. Seamless Steel Elev. Bucket.

We do not advertise Seamless Elevator Buckets and fill orders with "Pieced Ones"
We will make Special Prices rather than move stock to our new factory. Send for discounts.
THE AVERY STAMPING CO.,
—SUCCESSORS TO—
AVERY ELEVATOR BUCKET CO., CLEVELAND, OHIO, U. S. A.

THE
DUNLAP · BOLT
"A Great Acquisition to Milling."



The New 1500-Barrel Mill on Staten Island, N. Y., will have 52 of these Reels to do all its Bolting.

HUNGARIAN ROLLER MILL CO.,
BLOOMINGTON, ILLS., September 14th, 1888.

THE BRADFORD MILL CO., Cincinnati, Ohio.

GENTLEMEN: I have had your DUNLAP REEL in operation about 15 days and nights, and on new wheat which was very soft, and it has accomplished its work admirably; greatly exceeded my expectations. I have operated quite a variety of Reels, but have to say the DUNLAP surpasses any I have ever seen or used.

It gives me pleasure to state that its work has given entire satisfaction, and moreover, am surprised at its close separation, capacity and light running. The Dunlap Reel can certainly be considered a great acquisition to milling.

I to-day forward you, per mail, samples of material upon which your Reel is working. Yours truly,

A. G. BEOBOLD,
Head Miller Hungarian Roller Mill Co.

THE BRADFORD MILL CO.
CINCINNATI, OHIO.

PROPOSALS FOR FLOUR MILL MACHINERY.
U. S. Indian Service. Green Bay Agency, Wisconsin, Dec. 27, 1888.

Sealed proposals, indorsed "Proposals for Flour Mill Machinery" and addressed to the undersigned at Keshena, Wisconsin, will be received at this office until 1 o'clock, of Friday, Feb. 15, 1889, for furnishing and delivering at Shawano, Wis., machinery for a flour mill of a capacity of 25 to 40 barrels per day; also one 56 inch turbine water wheel. The mill is to be run by water power, and the machinery required should consist of the following, viz: One four break roller mill with elevators and scalpers complete; two double roller mills; four scalping reels and chests complete; two flour-dressing round reels; one centrifugal; one bran duster; one wheat separator; one milling separator; one scourer and polisher, and a four-foot rolling screen for finishing wheat, together with all necessary pulleys, elevators, belting, shafting, coupling, hangers, gearing and necessary iron work to place the machinery in running order.

CERTIFIED CHECKS.

Each bid must be accompanied by a certified check or draft on some U. S. depository for at least 5 per cent. of the amount of the proposal, which check or draft shall be forfeited to the United States, in case any bidder receiving an award shall fail to promptly execute a contract with good and sufficient sureties; otherwise to be returned to the bidder.

The right is reserved to reject any or all bids, or any part of any bid, if deemed for the best interests of the service. THOS. JENNINGS,
U. S Indian Agent.
Keshena, Shawano Co., Wis.

PRIVATE · TELEGRAPHIC · CIPHER
CODE
Compiled Expressly for the use of
Millers, Flour & Grain Brokers
For Private Telegraphic Correspondence, either for Land or Cable Lines.

☞ 1888 Edition, just out, March 1, 1888, revised, amended and added to, to meet all the requirements suggested by the members of the Miller's National Association, *who use more copies of the Code than all others combined.*

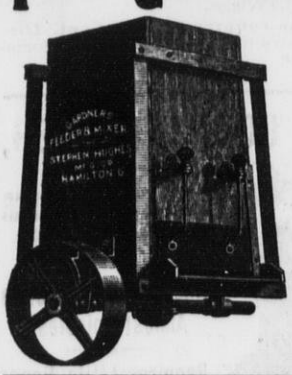
Published by the Riverside Printing Co., Milwaukee, Wis.
For terms, etc., address, stating number of Codes probably wanted,
E. HARRISON CAWKER, Milwaukee, Wis.

CAWKER'S AMERICAN
FLOUR MILL
—AND—
GRAIN ELEVATOR
DIRECTORY
Published once in two years.

Gives nearly 28,000 Addresses, P. O., County and State, Capacity, Power, System, etc.; also lists of Millwrights, Miscellaneous Mills, Millbuilders and Furnishers, Flour and Grain Dealers, Foreign Flour and Grain Importers, etc., etc.

1888-9 Edition, Issued March, 1888.
PRICE, $10 PER COPY,
post paid and registered to any part of the world. Address,
E. HARRISON CAWKER, Milwaukee, Wis.

The Gardner Flour Feeder and Mixer.

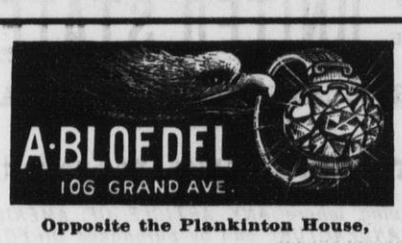


THE ECONOMIST AND MILLER'S FRIEND.
THOUSANDS NOW IN USE.

☞ *Saves the Labor of one man.* Can be quickly adjusted to feed from ten pounds to five barrels per hour. Requires no attention, and will feed any amount at which it is set, with the regularity of clock-work. It is easily set up, and requires speed of only 20 to 30 revolutions.

The Cheapest and Most Perfect Machine ever offered to the Milling Public.

Write for Circulars to
The STEPHEN HUGHES M'FG. CO., Hamilton, O.



Opposite the Plankinton House,
—MANUFACTURER OF—
FINE JEWELRY
A VERY LARGE STOCK OF
Diamonds, Fine Watches, Jewelry, Silverware,
Opera Glasses, Gold Spectacles, Canes, Umbrellas, etc.
Goods warranted as represented. Prices reasonable

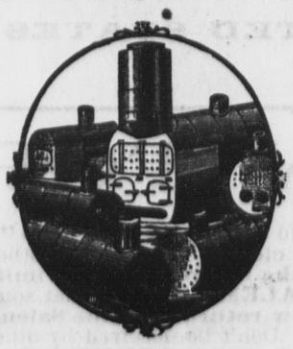
—ESTABLISHED 1846—
J. B. A. KERN & SON,
Merchant Millers,
Capacity 2,000 Barrels Per Day. MILWAUKEE, WIS.
Manufacturers of Choice Minnesota and Dakota Hard Wheat Flour.
RYE FLOUR
By most approved roller process, guaranteed the best and purest rye flour manufactured.
WE INVITE CORRESPONDENCE FROM CASH BUYERS.

ENGINE FOR SALE.
One 600 Horse Power Corliss Upright Compound Engine

Diameter of high pressure cylinder 28 inches, 36 inch stroke. Diameter of low pressure cylinder 56 inches, 36 inch stroke. Length of crank shaft 11 feet. Diameter of journals, 15 inches. Diameter of fly wheel, 24 feet. Weight of fly wheel, 48,000 pounds. Boiler feed pump. Engine complete, in good working order; can make from 1,000 to 1,200 bbls. of flour in 24 hours; has made a barrel of flour with 20 pounds of coal. For particulars apply to

JOHN B. A. KERN & SON,
EAGLE FLOURING MILLS, MILWAUKEE, WIS.

MARINE BOILER WORKS,
RICHARD DAVIS,
Manufacturer of High and Low Pressure
STEAM BOILERS

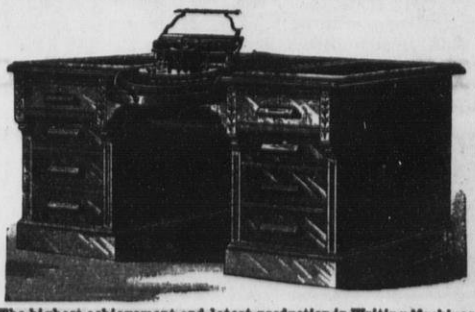


LARD
—AND—
OIL TANKS
—AND—
Sheet Iron Work
IN GENERAL.

Oregon St., bet. Barclay and South Water Sts.,
MILWAUKEE.

Particular Attention Paid to Repairs. Orders Solicited and Promptly Executed.

HAMMOND
TYPE-WRITER AND DROP CABINET DESK.



The highest achievement and latest production in Writing Machines

As I am receiving requests for exchanges daily from parties who have the old style type-bar machines, and as I am thus securing hundreds of second-hand Remingtons and Caligraphs at *very low prices*, I am able to offer these latter machines in many cases *as good as new* at prices that defy competition. Write and see! Yours respectfully,

P. H. Sercombe, Prop. MILWAUKEE TYPE-WRITER AGENCY.

Ropp's Commercial Calculator.

New and revised edition in gold, cloth, beautifully embossed in colors, with silicate slate, sent to any address post-paid for seventy-five cents. The time and labor saved by the use of this valuable pocket assistant is great, indeed. Address, United States Miller, Milwaukee, Wis.

To every Lover of Good Reading:

DEAR FRIEND—Mr. Will C. Turner, the well known Publisher and Managing Editor of CITY AND COUNTRY, that excellent 16 page monthly magazine published at Columbus, Ohio, has recently made an offer in connection with his publication which should certainly be accepted by you CITY AND COUNTRY has been regularly published at the rate of $1 per year, for the past seven years. Mr. Turner is anxious to increase his already large circulation within the next three months to 50,000 regular subscribers more.

To accomplish this purpose, believing that every subscriber will, at the expiration of their subscription renew, he has devised the following plan:

Every person desiring to become a subscriber to the CITY AND COUNTRY, which, by the way, contains each year *four to five continued stories, thirty to forty illustrations in each issue* and a *large amount of interesting reading*—especially so to the ladies—is requested to carefully and plainly to write out two complete copies of this letter and sign your name at the bottom. These copies must then be mailed by you to two of your friends in some other town or locality who are thereby requested to do just as you have done, viz: Write two copies and send to two of their friends, and so the work will goon and on. After mailing the two copies, the original letter which you copy from, together with a slip of writing paper, cut about the size of a postal card, with your address plainly written on one side and the address of the two to whom you have sent the copies on the other side, and 25 cents in silver or postage stamps must be enclosed in a letter and mailed to Will C. Turner, Columbus, Ohio. On the receipt of these you will be placed on the subscription list for one year, the copy for the present month will be promptly mailed, and also, which is the greatest reason why you should accept this offer, *five complete novels* in pamphet form will be sent you by mail, post-paid, which would *regularly cost one dollar each* if bound in cloth. Do not let the opportunity pass, as Mr. Turner only proposes to let this offer stand for a short time. True, it requires some time and work to copy all this twice, but you will be most handsomely rewarded for it.

[Signed,]

SITUATION WANTED.

Situation wanted by a German miller. Several years' experience in Germany with both roller and stone system. Prefer situation in a neat country mill. Address Wenzel Koerbl care of the Thomas House, Fourth street, Milwaukee, Wis.

THE CHICAGO MILWAUKEE AND ST. PAUL RAILWAY CO.

Fast Mail Line with Vestibuled Trains between Chicago, Milwaukee, St. Paul and Minneapolis.

Trans-Continental Route between Chicago, Council Bluffs, Omaha and the Pacific Coast.

Great National Route between Chicago, Kansas City and St. Joseph, Mo.

5700 Miles of Road reaching all principal points in Illinois, Wisconsin, Minnesota, Iowa, Missouri and Dakota.

For maps, time tables, rates of passage and freight, etc., apply to the nearest station agent of the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY, or to any Railroad Agent anywhere in the World.

ROSWELL MILLER, General Manager. A. V. H. CARPENTER, Gen'l Pass. and Tkt. Agt.

☞ For information in reference to Lands and Towns owned by the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY COMPANY, write to H. G. HAUGEN, Land Commissioner, Milwaukee, Wisconsin.

THE CHICAGO AND
NORTH-WESTERN RAILWAY.

OVER 7,000 MILES

Of steel track in Illinois, Iowa, Wisconsin, Michigan, Minnesota, Nebraska, Dakota and Wyoming, penetrates the Agricultural, Mining and Commercial Centres of the

WEST AND NORTHWEST.

The Unrivaled Equipment of the Line embraces Sumptuous Dining Cars, New Wagner and Pullman Sleepers, Superb day Coaches and

FAST VESTIBULED TRAINS

Running direct between Chicago, St. Paul and Minneapolis, Council Bluffs and Omaha, connecting for Portland, Denver, San Francisco and all Pacific Coast Points.

ONLY LINE TO THE BLACK HILLS

For Tickets, Rates, Maps, Time Tables and full information, apply to any Ticket Agent or address the Gen'l Passenger Agent, Chicago, Ill.

J. M. WHITMAN, General Manager. H. C. WICKER, Traffic Manager. E. P. WILSON, Gen'l Pass. Agt.

NOTES from the diary of tourists, commercial travelers, business men and others has revealed:

That the **Wisconsin Central** has the unqualified endorsement of all:

That the **Wisconsin Central** has to-day the most popular line between **Chicago** and **Milwaukee**, and **St. Paul Meneapolis** and the **Northwest**;

That the **Wisconsin Central** is daily adding to its admirers as the recognized **Pullman** line between **Chicago** and **Milwaukee** and **Ashland, Duluth** and **Lake Superior**;

That the **Wisconsin Central** touches the most prominent points in Wisconsin, and that it has more important business centers on its through line than any other railway to and from the **Northwest**;

That the **Wisconsin Central** has made an enviable reputation with its peerless **Dining Car Service**;

That the **Wisconsin Central** runs fast trains on which all classes of passengers are carried with commodious and distinct accomodation for all:

That the **Wiscosin Central** has representatives distributed throughout the country, who will cheerfully give any information that may be desired and that its terminal Agents are specially instructed to look after the comfort of passengers who may be routed via its line.

For detailed information, apply to your nearest Ticket Agent; or to representatives of the Wisconsin Central Company.

WM. S. MELLEN, General Manager. JAMES BARKER, Genl. Passr. &. Tkt. Agt.

LOUIS ECKSTEIN, Asst. Genl. Passr. & Tkt. Agt.

MILWAUKEE, WIS.

ALL persons desiring to reach the entire milling and grain trade of America, by circular or otherwise, should obtain a copy of CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888.

WE shall be pleased to receive from any of our readers, short, crisp, sensible letters on subjects of interest to the flour and grain trade for publication.

EXPORTING millers should write to the Riverside Printing Co., Milwaukee, Wis., for the best Flour Cable Code ever published. There are more copies of this Code in use than of ALL other flour codes published. It is simple and accurate.

ASHLAND M.L.S. & W.RY ROUTE

THE MILWAUKEE, LAKE SHORE & WESTERN R'Y

IS THE DIRECT AND MOST POPULAR LINE AND

Through Sleeping and Parlor Car Route

FROM

CHICAGO and MILWAUKEE

TO

SHEBOYGAN, MANITOWOC, APPLETON, NEW LONDON AND WAUSAU,

TO ALL THE IMPORTANT TOWNS IN THE

Gogebic, Penokee and Montreal Iron Ranges,

HURLEY, BESSEMER, IRONWOOD, WAKEFIELD AND GOGEBIC,

TO

ASHLAND, SUPERIOR and DULUTH,

To all Fox River Manufacturing Cities

AND

The Lumbering Districts of Northern Wisconsin and Michigan.

SPORTSMEN The best Fishing and Hunting in the NORTHWEST reached by the ASHLAND ROUTE. Send to the General Passenger and Ticket Agent for Descriptive and Illustrated Publications, Maps, Folders, Time Cards and General Information.

Milwaukee Office, 95 Wisconsin St.

H. G. FLEITH, Com. Freight Agt. F. P. REGAN, City Pass. & Tkt. Agt.

H. F. WHITCOMB, General Manager. GEO. S. MARSH, Gen'l Pass. & Tkt. Agt.

MILWAUKEE.

Milwaukee & Northern R. R.

SHORT LINE

TO

Marquette, Negaunee, Ishpeming, Hancock, Houghton, Champion, Republic, Iron Mountain, Menominee, Mich.

Marinette, Green Bay, Depere, Neenah, Menasha, Appleton, Wis.

THE TABLE OF EXPRESS TRAINS.

STATIONS.	DEPART.	ARRIVE.
Champion, Republic,	*1:35 A. M.	*3:20 A. M.
Iron Mountain, Menominee, Marinette, Green Bay, Depere,	*1:35 A. M. 3:10 P. M.	*3:20 A. M. 3:55 P. M.
Green Bay, Depere, Appleton, Menasha, Neenah,	†7:35 A. M. 7:55 A. M. 3:10 P. M.	3:55 P. M. 10:20 A. M.

*Daily. †Daily, except Monday. All other trains daily except Sunday.

Pullman Sleeping Cars are run on all night trains, and are ready for occupancy at 9:00 P. M.

New Passenger Station, Fourth Ward Park.

C. F. DUTTON, General Manager. W. B. SHEARDOWN, General Ticket Agent.

A NIGHT IN CHICAGO

—AND A—

NIGHT TRAIN

—TO—

INDIANAPOLIS.

—THE—

MONON ROUTE

LOUISVILLE, NEW ALBANY & CHICAGO RY.

HAS A TRAIN

Leaving Chicago

AT 11:40 P. M.

EVERY NIGHT (Sundays included), with THROUGH COACHES and PULLMAN SLEEPERS, ARRIVING INDIANAPOLIS at 7:30 A. M.

ADDITIONAL TRAINS leave Chicago for Indianapolis at 8:15 A. M. and 8:20 P. M.

Ask your home Agent to make your tickets read via the MONON ROUTE, so your comfort may be assured. For further information, Sleeping Car erths, etc., call at

CITY TICKET OFFICE, No. 73 CLARK ST.

—OR AT THE—

DEARBORN STATION, CHICAGO.

E. O. McCORMICK, Gen'l Pass. Agent, CHICAGO.

DO NOT DELAY YOUR SUBSCRIPTION FOR

LIPPINCOTT'S MAGAZINE,

which now stands in the front rank of monthly publications and occupies the position of

A LEADER AMONG LEADERS.

Each number contains A COMPLETE NOVEL, as well as a liberal quantity of miscellaneous matter of an interesting and instructive nature. One year's subscription gives

A LIBRARY OF 12 COMPLETE NOVELS

by American authors, together with AN ABUNDANCE OF SHORT STORIES, POEMS, ESSAYS, and matters of unusual interest to general readers, making

A VOLUME OF NEARLY 2000 PAGES.

The success of LIPPINCOTT'S stands unprecedented in the annals of Magazine publishing, and to-day its familiar title is welcomed in every hamlet, village, town, and city throughout the United States.

The best writers of the age have been secured and new features will, from time to time, be added which will give to LIPPINCOTT'S

A DISTINCTIVE PLACE OF ITS OWN.

Amélie Rives, Edgar Saltus, John Habberton, Edgar Fawcett, Captain Charles King, U.S.A., Grace King, M. Elliott Seawell, Selina Dolaro, Maurice Barrymore, Ouida, and many others will contribute to its pages for 1889. For full prospectus, address Lippincott's Magazine, Philadelphia. 25 cents single number. $3.00 per year. Send for sample copy.

THE **CH&D** CINCINNATI, HAMILTON & DAYTON R.R.

THE THROUGH CAR LINE

—FROM AND TO—

CINCINNATI

WITH THROUGH CAR SERVICE BETWEEN

CINCINNATI and INDIANAPOLIS,
CINCINNATI and TOLEDO and DETROIT,
CINCINNATI and CHICAGO,
CINCINNATI and ST. LOUIS,
CINCINNATI and DAYTON and RICHMOND,
CINCINNATI and FT. WAYNE and GRAND RAPIDS,
CINCINNATI and GREENVILLE and VAN WERT.

With THROUGH RECLINING CHAIR CAR between

CINCINNATI, DECATUR and SPRINGFIELD, ILLS. and KEOKUK, IOWA, (daily)

PARLOR CHAIR CARS ON DAY, and SLEEPERS ON NIGHT TRAINS, "YEAR 'ROUND."

Ask for Tickets via C. H. & D. R. R.

For full information, Tickets, Sleeping Car Space, &c., Inquire of or Address,

W. H Fisher, Gen'l Agt., Indianapolis, Ind. W. H. Whittlesey, Central Pass'r Agt., Dayton, O.
John Bastable, District Pass'r Agt, Toledo, O. D. B. Tracy, Northern Pass'r Agt., Detroit, Mich.
Wm. A. Wiggins, Southern Passenger Agent, Chattanooga, Tenn.
J. G. Mason, City Passenger Agent, Cincinnati, O.

Or General Passenger Agent's Office, - No. 200 W. Fourth St., Cincinnati, O.

C. C. WAITE, Vice-Pres't & Gen'l Manager. CHAS. H. ROCKWELL, Gen'l Pass'r & Ticket Agent.

THE

Chicago & Grand Trunk R'y

NIAGARA FALLS AIR LINE

Is the Shortest and Most Direct Route East.

THROUGH SLEEPING AND PARLOR CARS TO

New York, Montreal and Boston.

The Only Line running Through Sleeping Cars between

CHICAGO and PHILADELPHIA

Via NIAGARA FALLS Without Change.

Trains leave Dearborn Station at 9.05 a. m., 3.25 p. m. and 8.15 p. m. 8.15 p. m. train has elegant Pullman Sleeping Car to Detroit daily.

2nd class tickets good on all trains.

W. E. DAVIS, Gen'l Pass's & Ticket Agent, CHICAGO. E. H. HUGHES, Gen'l Western Pass'r Agent, CHICAGO. B. C. MEDDAUGH, Nor. Pass'r Ag't, 99 Wisconsin St., MILWAUKEE.

STEAMSHIP TICKETS

To or from Europe at lowest rates, by all lines. Cabin plans can be consulted and best accommodations secured as far in advance as desired.

Information furnished by mail or on application at office, 99 Wisconsin St., Southwest cor. Broadway.

B. C. MEDDAUGH, Gen'l S. S. Agent. MILWAUKEE, WIS.

CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888, issued March 3, is meeting with much praise from all departments of the trade. While not claimed by the publisher to be perfect, it answers FULLY the requirements of the trade. It is the only list published. The demand is limited and the price (Ten Dollars per copy) is cheap, considering the labor required in compiling, printing and selling. It contains lists of flour mill and grain elevator owners, micellaneous kinds of mills such as corn, rye, oatmeal, rice and feed mills, millwrights, flour brokers and dealers in various sections of the United States and Canada, and a good list of European flour and grain importers. Kind of power used, rolls or stones, capacity and millers supposed to be worth $10,000 or *more* are indicated in thousands of cases.

GREAT BARGAIN

FOR OUR SUBSCRIBERS.

Readers of the UNITED STATES MILLER can secure one year's subscription to that charming journal, **THE LADIES HOME COMPANION**, for only 10 cents additional; that is, both journals, the UNITED STATES MILLER and the Ladies Home Companion, will be sent one year to any address for one dollar and ten cents ($1.10). The

LADIES·HOME·COMPANION

A Practical Household Journal.

Stands without a peer in literary excellence, typographical beauty, sugestive illustrations and helpful advice for every department of home life. It is beautifully illustrated, printed on fine, cream tinted paper, and has a more brilliant array of contributors than ever before, consisting of

Eight Regular Editors and Scores of Eminent Writers,

Whose facile pens will furnish **Short and Continued Stories** of absorbing interest, while all branches of household economy that can possibly come within the good housewife's province will be ably treated.

10 cents additional to the regular subscription price of the United States Miller will secure that charming periodical, the Ladies Home Companion, one year (24 numbers), each copy equal in size, quality and amount of reading matter to other illustrated papers that cost 10 cents a copy or $4.00 a year.

Read a brief outline below of the subjects treated in the Ladies Home Companion:

PRACTICAL HOUSEKEEPING. This department is a well-spring of valuable suggestions for every branch of housekeeping, including a large variety of tested recipes, and how to prepare them at the least expense, in dainty and appetizing forms; also, hints for table decorations, methods of work, etc

FANCY WORK. DECORATIONS. These departments give elegant illustrations and plain directions showing how to make all kinds of fancy work, embroideries, needlewo k. chrocheting, knitting, suggestions for ornamenting rooms, decorating furniture, curtains, etc.

FASHIONS, OR, WHAT TO WEAR AND HOW TO MAKE IT. Artistic illustrations and descriptions of, with the newest and latest Styles and Novelties in Ladies' and Children's Dresses, Hats, Bonnets and other garments, with directions that enable one to dress well and economically.

MOTHERS find the portion devoted to them invaluable, and filled with a wide range of helpful suggestions obtained from practical experience relating to a mother's duties.

OCCUPATIONS FOR WOMEN. The Ladies Home Companion aims to keep women informed in reference to those things that wives, mothers and single women are doing to earn money, while in all its departments it is the most complete, most readable and

Most Fascinating Ladies Paper Published.

ETIQUETTE at home and abroad, at the table and on the street, at public gatherings, etc.

SEASONABLE BILLS OF FARE are given, with plain directions for the economical preparation of healthful, nourishing and palatable dishes, with hints for serving, arrangement of table, reception of guests, etc., etc. Also menu for parties, teas, receptions, Thanksgiving and Christmas dinners.

TOILET.—Recipes and hints for care of hands, face, teeth, eyes, hair, etc., color and harmony in dress, etc.

DEPORTMENT.—Rules, usages and ceremonies of good society, letter writing, good manners, the art of conversing well, accomplishments, home training.

Address, THE UNITED STATES MILLER, Milwaukee, Wis.

G. M. MANN. F. P. MANN

MILWAUKEE BAG COMPANY,

MANUFACTURERS OF

COTTON, PAPER AND JUTE

GRAIN AND

FLOUR SACKS

DEALERS IN

TWINES, CENTALS, ETC.

TELEPHONE NO. 427.

No. 134 West Water Street, MILWAUKEE, WISCONSIN.

SCHIEREN'S

OAK-TANNED

LEATHER BELTING

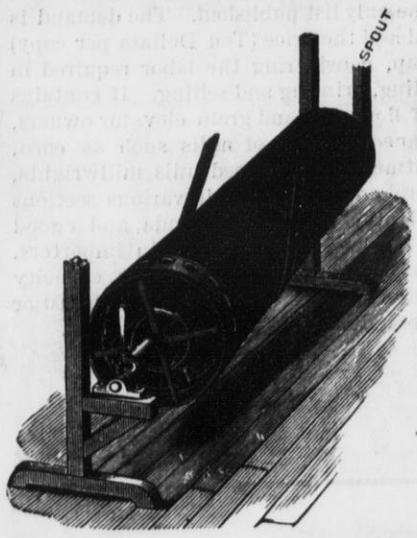
GOODYEAR RUBBER CO.

372 & 374 EAST WATER STREET
MILWAUKEE.

131 EAST THIRD STREET
ST. PAUL.

201 NICOLLET AVENUE
MINNEAPOLIS.

Cotton Belting and Hose "Gold Seal" Rubber Belting.



PRINZ

Patent Improved Cockle Machine.

The Most Durable, Simple and Efficient Machine for the purpose on the market.

CENTENNIAL MILLS,
EVANSVILLE, IND., June 14, 1887.

FAUSTIN PRINZ & CO., Milwaukee, Wis.

GENTLEMEN:—Enclosed please find check in payment of Cockle Machine sent us May 26, 1887. The Machine does its duty.

May 23rd, 1888.

The Cockle Machine you sold us a year ago doing its work as well now as it did in the start and has not cost us a dime for repairs yet.

Respectfully yours,
J. W. LAUBSCHER & BRO

MANUFACTURED IN FOUR SIZES.

PRINZ & RAU MFG. CO., MILWAUKEE, WIS.

Write for Descriptive Pamphlet.

[Please mention this Paper when you write.]

BURNHAM'S NEW IMPROVED STANDARD TURBINE WHEEL

PATENTED MAR. 27, 1883. and MAY 1, 1888. ADDRESS YORK PENN. for PRICE &c. &c.

WILLSON

Spring Whiffletree

Designed to Make the Burdens of Laboring Horses Easier, and to Keep them in Good Working Condition.

These trees will commend themselves to every owner of Laboring Horses, for the reason that the load is constantly balanced on the spring, making it impossible for the horse, harness or wagon to receive any sudden shock or jar. Some of the benefits derived from their use are as follows:

Prolongs the Life of the Horse; Prevents Sore Shoulders, Stiffness of Limbs, Reluctance in Pulling and Destruction of Harness.

☞ *Send for Catalogue and Prices.*

AGENTS WANTED.

THE JEFFREY MFG. CO.

169 E. 1st Ave., COLUMBUS, O., U. S. A.

[Jan. 89.]

THE GREATEST SUCCESS OF THE DAY!

THE NEW ERA SCALPER

Read the following Testimonials and then write us for particulars:

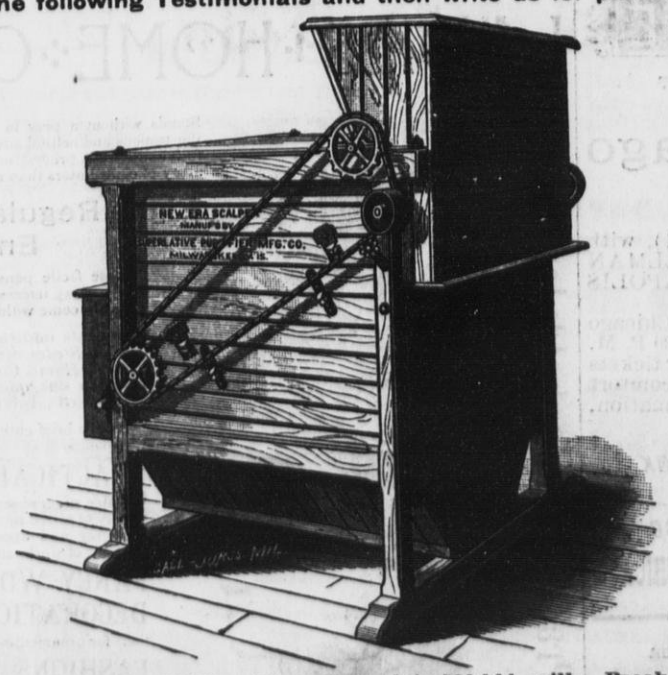
TESTIMONIAL.

CARLINVILLE, ILL., Feb. 16, '89.

Superlative Purifier Co., Milwaukee.

DEAR SIRS: It affords us great pleasure to say that the New Era Scalpers are giving the very best of satisfaction, and the longer we use them the better we are pleased. Our Patent as well as the grade below the Patent have been improved considerably with no other change in the mill than scalping with your machines. They require nominal power, and, in a word, are a big success.

Yours truly,
HENRY C. YAEGER,
Pres't Yaeger Flour Mill Co.



TESTIMONIAL.

YOUNGSTOWN, O., Dec. 7, '88.

DEAR SIRS:

In order to put in your scalpers on our 2d, 3d, 4th and 5th breaks and retain our hexagon scalpers for wheat cleaners, I was obliged to add another story to our roller room, at an expense of five times as much as the cost of the machines. Having now run the machines for thirty days, I feel satisfied with the expenditure made, as I think we are now making the nicest flour we ever made. Our 2d, 3d, 4th and 5th break flour (we make eight breaks) is as white and clean as our patent, while our flour all through is the best we ever made. Our hexagon scalpers make excellent wheat cleaners, and your machines make excellent scalpers. The two combines make excellent flour.

Respectfully yours,
HOMER BALDWIN.

One Machine will handle 4 Breaks in 75 bbl. mill, or 1 Break in 500 bbl. mill. Break Flour as white as any.

For Prices, etc., address: SUPERLATIVE PURIFIER MFG. CO., MILWAUKEE, WIS.

FRATTINGER,

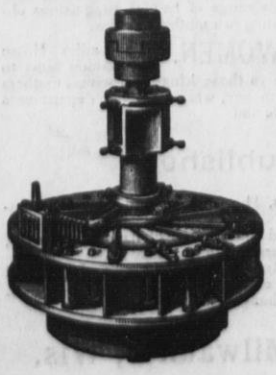
City Tailor

389 Broadway,

MILWAUKEE.

JAMES LEFFEL'S IMPROVED

Water Wheel



Fine New Pamphlet for 1888.

The "OLD RELIABLE" with Improvements, making it the Most Perfect Turbine now in use, comprising the Largest and the Smallest Wheels, under both the Highest and Lowest Heads in this country. Our new Pocket Wheel Book sent free. Address,

JAMES LEFFEL & CO., Springfield, Ohio,
and 110 Liberty St., New York City.

[Please mention this paper when you write to us.]

POOLE & HUNT'S

Leffel Turbine Water Wheel

Made of best material and in best style of workmanship.

Machine Molded Mill Gearing

From 1 to 20 feet diameter, of any desired face or pitch, molded by our own SPECIAL MACHINERY. Shafting, Pulleys, and Hangers, of the latest and most improved designs.

Mixers and General Outfit for Fertilizer Works.

Shipping Facilities the Best in all Directions.

POOLE & HUNT, Baltimore, Md.

N. B.—Special attention given to Heavy Gearing for Pulp and Paper Mills.

[Mention this paper when you write to us.]

1876. 1889.

The United States MILLER

Devoted to Flour, Grain, Milling, Manufacturing and Commercial Interests.

Fourteenth Year—No 3. MILWAUKEE, MARCH, 1889. Subscription Price, $1.00 Per Year.

It is with pleasure that we devote our entire first page to illustrations of scenery along the line of the above-named railroad, for the reason that we believe it will prove especially interesting to the thousands of visitors to Milwaukee this summer, who will come here on the occasion of the Grand Army of the Republic Encampment, many of whom will, no doubt, desire to take a trip over the line, to study the many openings for prosperous business in lumbering, mining, manufacturing, developing of numerous water powers, etc., and perhaps to while away a few days in pursuit of the gamiest fish yet developed in American waters, i. e., the black bass and the muskallonge as well as the dainty brook-trout.

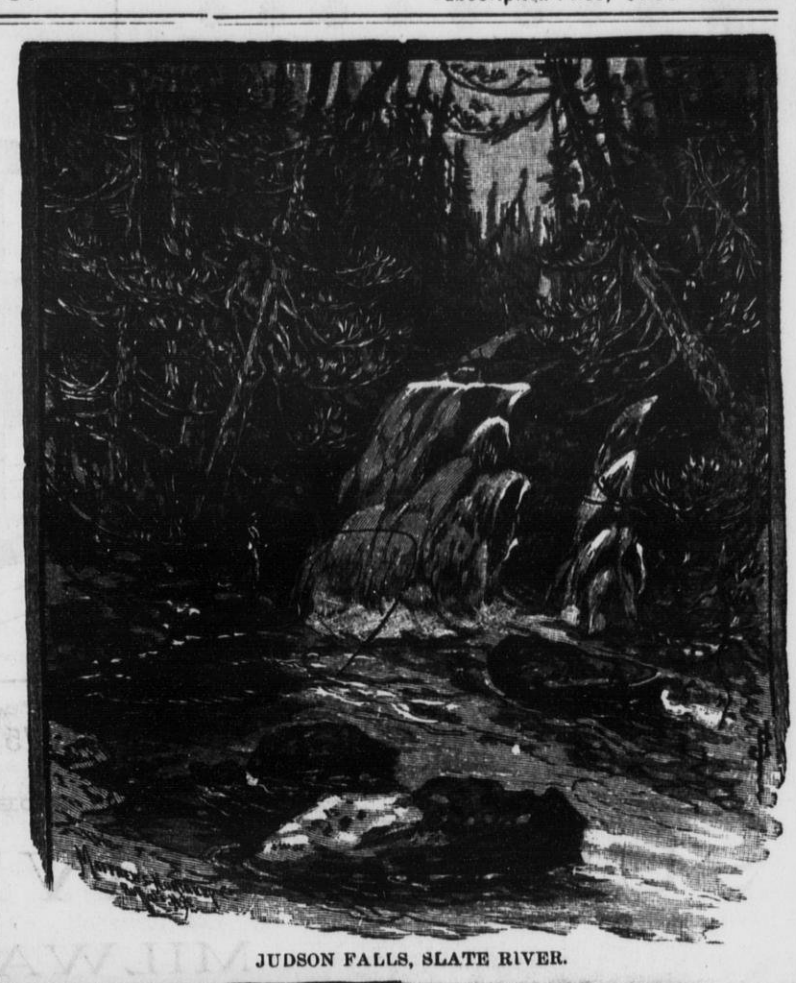
This line originally connecting the principal cities on the western shore of Lake Michigan, Sheboygan and Manitowoc with Milwaukee, and by the Milwaukee division of the Chicago & Northwestern Railway with Chicago, was at a later period extended direct to Kaukauna, Appleton, New London and Wausau in Central Wisconsin, and finally pushed with extraordinary rapidity for nearly two hundred miles through the almost unbroken forest to the Gogebic, Penokee and Montreal iron ranges of the Michigan Peninsula, thence to Ashland, Wis., its present terminus on Lake Superior.

In calling to mind the various railways of the country whose lines by virtue of the wise foresight of their projectors, or owing to the fortunate fact that the latter built better than they knew, have been specially fortunate in their location as related to the possibilities of tributary territory, it would be difficult, considering the limits actually occupied and immediately affected, to find one so exceptionally favored in this respect as this line.

The entire region adjacent to the line possesses those natural and varied resources and advantages which create traffic, aid in the building up of commercial and manufacturing communities and stimulate the intercourse of all classes of people between it and other sections of the country.

The proximity of this vast timbered region to numerous localtities on the same line of railway affording abundant water power and all the facilities for the manufacture of lumber, pulp, paper, furniture and all kinds of wooden-ware, has had a most important bearing on the growth of manufacturing industries. The advantages of locating such enterprises in a section where the raw material extends from the doors of the workshop and mill for a hundred or more miles in every direction, and in a country intersected by natural waterways, is very apparent.

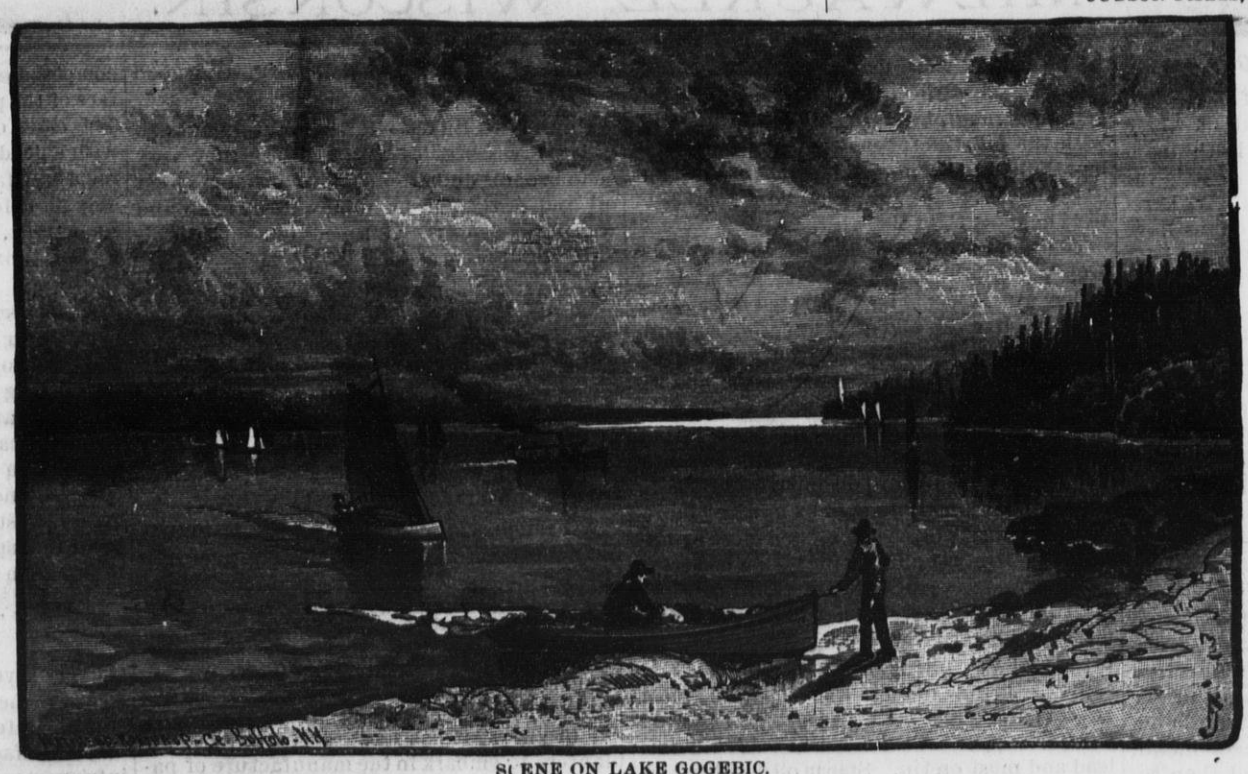
The city of Sheboygan owes much of its recent rapid growth and present prosperity to its chair, furniture and wooden-ware manufacturing. Two rivers is also prominent in this respect. Kaukauna and Appleton are both widely known as general manufacturing centers, including among their other establishments several of the largest paper, pulp and flouring mills in the West,



JUDSON FALLS, SLATE RIVER.

agricultural implement and machinery works, woolen mills and boot and shoe factories. The immense water-power of the Fox River at these points and the extensive improvements connected therewith for the purpose of increasing the facilities for the location of manufactories have given prominence to both Appleton and Kaukauna. Oshkosh has extensive sash, door and blind and furniture manufactories and match factories. Wausau also has sash, door and blind and other manufacturing industries and a magnificent water-power capable of great development. There are numerous other points on the line where manufacturing has been established and a careful investigation will well repay those seeking the most favorable locations for enterprises of this kind.

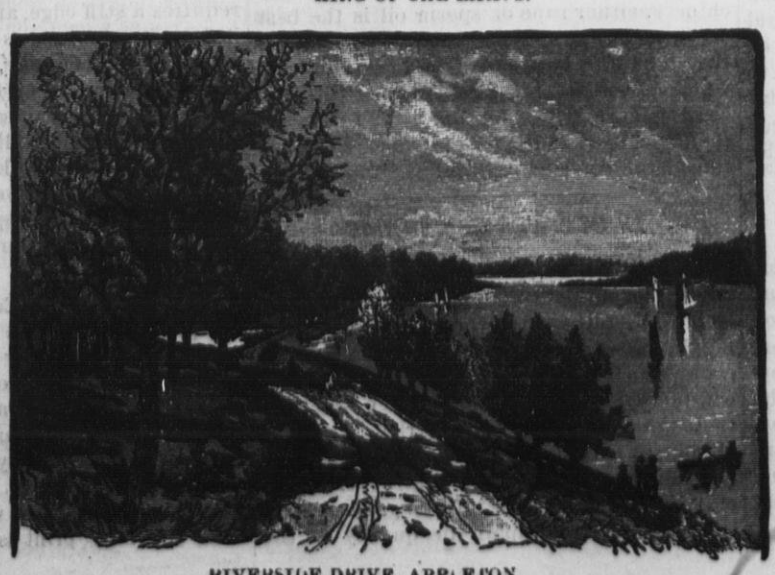
Our space does not permit us to go into any details whatever, but very complete information concerning this road and the country which it traverses can be obtained by addressing Mr. Ernst Vliet, G. P. A., Milwaukee, Lake Shore & Western Railway, Milwaukee, Wis.



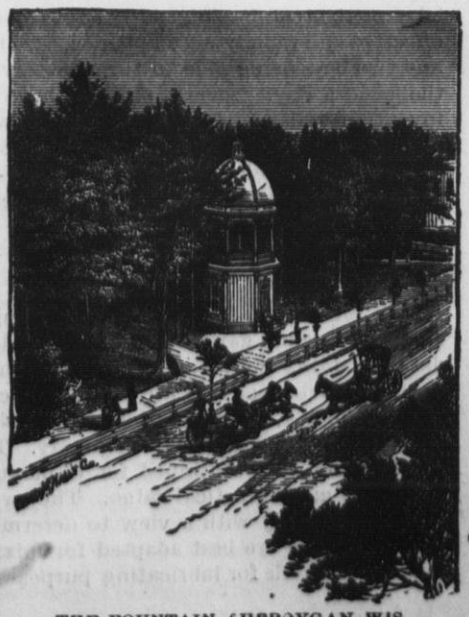
SCENE ON LAKE GOGEBIC.

PILOT ROCK, SLATE RIVER.

KING OF THE LAKES.



RIVERSIDE DRIVE, APPLETON.



THE FOUNTAIN, SHEBOYGAN, WIS.

The Greatest Success of the Day!

THE NEW ERA SCALPER

Read the following Testimonials and then write us for particulars:

TESTIMONIAL.

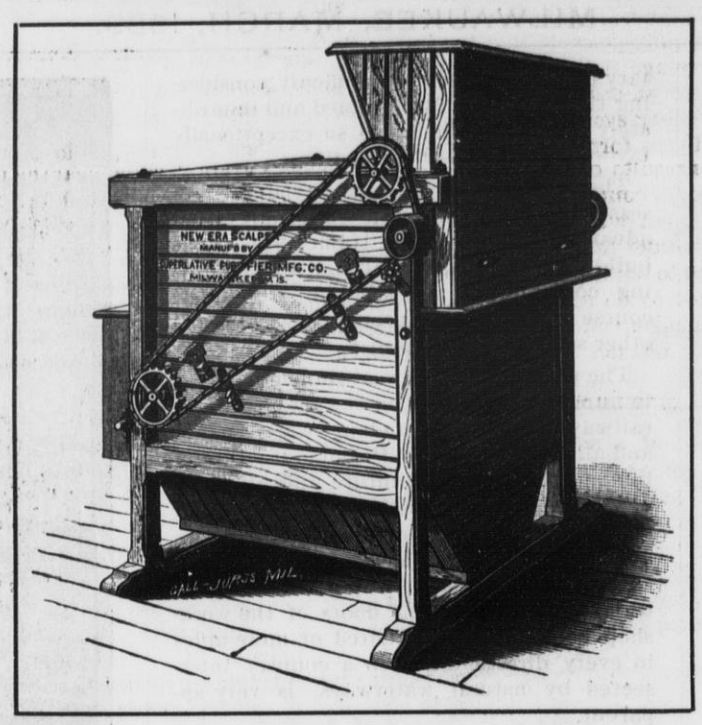
CARLINVILLE, ILL., Feb. 16, 1889.

Superlative Purifier Co., Milwaukee:

DEAR SIRS: It affords us great pleasure to say that the New Era Scalpers are giving the very best of satisfaction, and the longer we use them the better we are pleased. Our patent as well as the grade below the patent have been improved considerably with no other change in the mill than scalping with your machines. They require nominal power, and, in a word, are a big success.

Yours truly,

HENRY C. YAEGER.
Pres't Yaeger Flour Mill Co.



TESTIMONIAL.

YOUNGSTOWN, O., Dec. 7, 1888.

DEAR SIRS: In order to put in your scalpers on our 2d, 3d, 4th and 5th breaks and retain our hexagon scalpers for wheat cleaners, I was obliged to add another story to our roller room, at an expense of five times as much as the cost of the machines. Having now run the machines for thirty days, I feel satisfied with the expenditure made, as I think we are now making the nicest flour we ever made. Our 2d, 3d, 4th and 5th break flour (we make eight breaks) is as white and clean as our patent, while our flour all through is the best we ever made. Our hexagon scalpers make excellent wheat cleaners, and your machined make excellent scalpers. The two combines make excellent flour.

Respectfully yours,

HOMER BALDWIN.

One Machine will handle 4 Breaks in 75 bbl. mill, or 1 Break in 500 bbl mill. Break Flour as white as any.

FOR PRICES, ETC., ADDRESS

SUPERLATIVE PURIFIER MFG. CO.

MILWAUKEE, WISCONSIN.

[Mention this paper]

A VALUABLE INVENTION.

Mr. G. W. Avery, an inventor of Cleveland, recently had issued to him a patent which covers substantial improvements in the manufacture of elevator buckets, cattle-car troughs and other similar articles. As heretofore made such buckets and troughs have been made either from blanks cut and bent into form by stamping from sheet metal what is known as "seamless" troughs, etc. The folded blank forms are heavy clumsy and are expensive to make because of the great waste of material and of the riveting or other means adopted to secure the blanks in form. The seamless buckets and troughs are expensive because they require a special make of steel that is costly and difficult to procure, while the breakage in stamping is considerable. Besides, the sizes of these seamless articles are necessarily limited, as stamping in the forms of buckets and troughs cannot be done beyond comparatively shallow depths and short lengths. By Mr. Avery's invention elevator buckets for cattle-car troughs and other articles, possessing all the advantages of the seamless articles, can be produced at minimum initial cost. He stamps from sheet metal, buckets, troughs, etc. in halves and then secures the parts together by means of brazing or by electrically welding or fusing. These halves requiring little drawing of the metal in stamping them allows their being made of cheap grades of metal, procurable at all times in any market, and they may be made of any depth or length, with no loss by breakage. The method of brazing adopted is cheap, effective and rapidly accomplished, two men and two boys being able to turn out several thousand a day. Some capitalists have the invention under advisement with a view to forming a company having sufficient capital to mauufacture elevator buckets, cattle-car troughs, and other articles on a large scale, either in Cleveland or Chicago.

ACTION OF OILS ON METALS.

The Journal of the Society of Chemical Iudustry recently gave some very interesting data regarding the action of oils in common use upon metals, as they are brought in contact by storage, transportation and employment in the lubrication of machinery. The experiments were continued for 12 months, and are of much practical value. They were made principally with a view to determine what fixed oils are best adapted for mixing with mineral oils for lubricating purposes.

The metals were first thoroughly cleaned and washed with ether and dried, and after being weighed placed in cork tubes together with the oil, the tubes being kept for twelve months at an average temperature of about 80 degrees F. in the summer, and 50 degrees F. to 55 degrees F. in the winter.

The results of the experiments show that: Iron is least affected by seal oil, and most by tallow oil. Brass is most affected by rape oil, least by olive oil, and most by cotton-seed oil. Lead is least affected by olive oil and most by whale oil; but whale, lard and sperm oils all act to nearly the same extent on lead. Zinc seems, by four actual weighings that were of any value, to be not acted on by mineral lubricating oil, least by lard oil and most by sperm oil. Copper is not affected by mineral lubricating oil, least by sperm oil and most by tallow oil. Mineral lubricating oil has no action on zinc and copper, acts least on brass and most on lead. Olive oil acts least on tin and most on copper. Rape oil has no action on brass and tin, acts least on iron and most on copper. Tallow oil acts least on tin and most on copper. Lard oil acts least on zinc and most on copper. Cotton-seed oil acts least on lead and most on tin. Sperm oil acts least on brass and most on zinc. Whale oil has no action on tin, acts least on brass and most on lead. Seal oil acts least on brass and most on copper.

From the foregoing results it will be seen that mineral lubricating oil has, on the whole, the least action on the metals experimented with, and sperm oil the most.

For lubricating the journals of heavy machinery, either rape or sperm oil is the best oil to use in admixture with mineral oil as they have the least effect on brass and iron, which two metals generally constitute the bearing surfaces of an engine. Tallow oil should be used as little as possible, as it has considerable action on iron.

THINGS WORTH KNOWING.

IN buying a belt, an engineer of standing advises machinists to select belts of a light color in preference to others. The best belting, he states, has an unmistakable light buff color, which indicates that it is not only all oak-tanned, but that the leather has been thoroughly washed by the currier, to remove all matter except the fiber. The light color also indicates that the best qualities of grease only have been used, as inferior greases darken the color and impair the quality of the leather. The same rule holds in getting good sole leather for shoes.

CLEANING BRASS.—It is a great mistake to clean brass articles with acid, as they very soon become dull after such treatment; sweet oil and putty powder, followed by soap and water, is one of the best mediums for brightening brass and copper.

SOMETIMES I have had to make holes in steel that was too hard to cut or file easily. Then I make a mixture that will cut a hole. I mix one ounce of sulphate of copper, quarter of an ounce of alum, half a teaspoonful of powdered salt, a gill of vinegar, twenty drops of nitric acid. This will make a hole, or if washed off quickly it will give a beautiful frosted appearance to the metal.—*Ex.*

A French scientific journal asserts that it has long been known that the stalk of the sugar-cane might be used in the production of a paper of the best quality; and in recommending the introduction of paper making among the French sugar producing colonies expresses surprise that with the constant decline in the value of sugar and the steadily increasing use of paper, it has never occurred to sugar planters to embark in the manufacture of paper as a supplement to sugar producing. The fibers of the cane, it is claimed, give an excelent paper, and the necessary mechanical and chemical process are easily carried out.

A DEALER in cutlery expresses the opinion that not one man in fifty knows how to sharpen a pocket knife. "A razor," he says "must be laid flat on the hone, being hollow ground and requiring a fine edge. But a pocket knife requires a stiff edge, and the moment you lay it flat on a stone, so as to touch the polished side you ruin the edge. The blade must be held at an angle of twenty or twenty-five degrees and have an edge similar to a chisel. This is technically called the 'cannel,' and is marked on all new knives by a white line which does not remove or touch the polished surface. Knives improperly whetted are often condemned as too hard or too soft without reason."

A WELL-KNOWN Eastern manufacturing company are using in their shop thin sheet iron as a mounting for blue prints, and it is proving very satisfactory. It is cold rolled, has a smooth surface, and it is cut into two different sizes for blue prints used in the shop. It is practically indestructible, quite light and inexpensive. The iron is first varnished on both sides with shellac varnish, then the blue print is put on with a paste composed of ordinary starch, after which the face of the print is varnished with the shellac. The chief draftsman says he experimented with a good many kinds of paste before finding a satisfactory one, and that starch is the only thing found that would answer. He also found that, unless the iron is previously varnished, it oxidizes under the print and spoils the lines.

A RECENT case is reported where a painter engaged in a mill removed his overalls at 6 p. m. to go home. At 8:30 the watchman, discovering smoke in the mill, summoned the engineer, and together they searched the premises carefully, tracing the smoke to a small room in which the overalls were discovered, and in one pocket was a bunch of greasy waste, which ignited. This goes to prove that spontaneous combustion will ensue in less than three hours if the conditions are all right.

PATENT SECRETS.

Every inventor who takes out a patent does so under the impression that by so doing his secret is safe, and that he will be protected in the manufacture of the article against the infringements, or the ingenious imitations of others.

Now, the fact is that as soon as the patent is granted, it, together with the claim upon which it is granted, is published, and is no longer a secret, as any one can easily learn what the claim covers, and with this information can go to work to improve upon it, and if successful very often produces an article that is more valuable, and is a successful competitor against the original, and the poor inventor finds his patents of little value.

In order to protect themselves against such thievishness many inventors have taken advantage of the system of patent law which allows a man to file his application and pay a certain amount, which secures him for a term of four years, without taking out his final papers and having his patent published and his claims made public. At the end of four years he can renew his application for another term of equal length. In this way his secret is safe, for the patent examiners and those in charge of the matter are under heavy bonds to the Government not to divulge the secrets or claims of the applicant for a patent, and those who would steal the patent or attempt to imitate it either in part or as a whole dare not do so now, not knowing what is covered by the claims of the inventor.—*Manufacturers' Gazette.*

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.

OFFICE, NO. 124 GRAND AVENUE, MILWAUKEE.

SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.

To American subscribers, postage prepaid..... $1.00
To Canadian subscribers, postage prepaid..... 1.00
Foreign subscriptions..... 1.25

All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.

Bills for advertising will be sent monthly, unless otherwise agreed upon.

For estimates for advertising, address the UNITED STATES MILLER.

[Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE, MARCH, 1889.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. *You will thereby oblige not only this paper, but the advertisers.*

MILWAUKEE AMUSEMENTS.

ACADEMY OF MUSIC—First-class theatrical entertainments every evening. Matinees Wednesdays, Saturdays and Sundays, at 2 p. m.

STANDARD THEATER (South-side)—Every evening; matinees Saturdays and Sundays, at 2 p. m.

GRAND AVENUE THEATER AND MUSEUM—Open daily from 10 a. m. to 10 p. m.

STADT THEATER (German)—Wednesday and Sunday evenings.

PEOPLE'S THEATER—Choice variety performances every evening; matinees Tuesdays, Fridays and Sundays, at 2 30 p. m.

PUBLIC MUSEUM, Exposition Building—Open daily; admission free.

LAYTON ART GALERY—Open daily. Free admission Tuesday, Thursday and Saturday.

THE fire loss in the United States and Canada, during February was $12,800,000.

THE new mills in Brazil have recently been purchasing wheat in the United States.

"La Molineria Espanola" is the title of a Spanish monthly milling journal just issued at Barcelona, Spain, by Dr. Alfred Nadal.

THE firm of Cranson, Huntley & Co. of Silver Creek is now changed to Huntley, Cranson & Co. Mr. G. S. Cranson has retired from the firm.

IT is said that "Jubilee" Juggins of England has squandered $2,000,000 in two years, and further that he has not indulged in grain speculations either.

THE flour bill of lading matter is still vexing the flour exporters and importers, and the committees having the matter in charge are indulging in a voluminous correspondence.

MR. NEVILL of England is credited by the *British Baker* as producing more bread than any other baker in the world. He uses over 3 000 sacks (280 lbs.) per week. He uses only flour ground on millstones and will have no other.

THE U. S. Supreme Court holds that a patent granted in the United States, which has first been taken out in a foreign country, does not expire until the extreme limit of time for which an extension thereof may be secured in the foreign country.

BLAKE, the Kansas weather prophet has been urging Kansas farmers to seed extensively with spring wheat, and he thinks that his advice will be heeded so that the harvest will be not far from 60,000,000 bushels for 1889. He promises the most favorable weather.

Dobson, Crawford & Co. of 66 Garden st., Cleveland, O., are introducing an Improved Flour and Corn-meal Bolt to the milling public which has met with good endorsement from a number of prominent millers. We hope to be able to give our readers further information concerning it in our next issue.

WE are under obligations to Mr. H. J. Deal of Bucyrus, O., (the well-known dealer in Mill specialties,) for a report of the meeting of the Northern Ohio Millers Association at Bucyrus. Matters pertaining to local business were principally discussed. The next regular meeting will be held at Norwalk. A special meeting will be held at Elyria, April 16.

As the time for sowing spring wheat is approaching, it may not be amiss to remind the miller that it would be well to advise farmers that only good wheat should be sown. The influence of millers in this respect is great, and we know that many have in the past not only used it, but have gone further and procured seed wheat, and furnished it to farmers at cost, and we believe it has always resulted in profit to both miller and farmer.

JOHN STEVENS of Neenah, Wis., of roller-mill fame is now traveling Europe. During his absence some one started a report that he had been sued for infringement of some foreigner's patent and detained to await trial. The report is *unquestionably* entirely without foundation and must have been started either maliciously or by some practical joker. Our readers may rest assured that Mr. John Stevens and the Stevens Roller Mills are all right.

Mr. John R. Davis of Neenah, has just arrived home. He parted from the Stevens party only a few days since. He brands the story as a "malicious falsehood."

ABERNATHY'S new book on "Short-system Milling," is meeting with both praise and criticism from the milling journals, as well as millers. It is quite possible that it deserves both. The average mill builder would probably rather have an order for what is called by some the "long system" than the "short-system," for in the former more machinery is used and finer results can be obtained, than with the latter, of course at a greater expense for the plant, but we know of no instance where a mill-builder in any part of the country has refused to build a "short-system" mill when requested to do so. "You pays your money and you takes your choice." The miller must judge for himself which is the best for his interests.

THE capacity of a man's mill is his own affair and of course if he desires to keep it a secret, he is at perfect liberty to try to do so. The chances are, though, that if he does not give the correct capacity himself, his neighbors will do so for him.

We protest, however, against his giving a greater or less capacity for publication than the facts entitle him to. It is far better to decline to answer inquiries. The vanity which has at times led some millers to give their fifty-barrel mill a capacity of a hundred for publication is not altogether harmless. Statisticians asking for such figures should feel safe at all times in using them for calculations. Millers as well as others are interested in *knowing* what the capacity is of the mills of this country.

OUR readers will bear in mind that Milwaukee during the coming summer and fall will be the place of meeting of a great number of conventions among which is the Millers' National Association which we hope will be largely attended. Further the G. A. R. Encampment will be held here, on which occasion a half million visitors are expected. Everything possible will be done to make the visitors at that time comfortable and happy. We have a beautiful city, accessible by lake and rail, and it possesses great advantages both as a manufacturing point and a place of residence. Many of our visitors from distant parts will no donbt take advantage of the occasion to visit some of the beautiful scenery in different parts of Wisconsin and Minnesota and Northern Michigan, reached by the many lines of railroad centering in this city.

THE STEAM BOILER INSURANCE HUMBUG

For a considerable number of years companies have been in existence whose sole business has been the insurance of steam boilers against explosions and damages resulting therefrom. The business has proved to be lucrative, and the number of such companies are on the increase. It is simply astonishing to find the number of supposed-to-be good business men, that are constantly paying tribute to these companies. Think of it for a moment. If you have a good boiler and a competent engineer, there is no more liability that your boiler will explode than that it will be struck by lightning. If you have not a good boiler and a competent engineer no responsible company will assume your risk. That is the long and short of it. If you have got any money that you feel you must spend, spend it in improvements of your steam plant and increase your engineer's salary.

HAVE you a wife, daughter or sweetheart? If so, send $1.10 for a copy of *The Ladies' Home Companion* and THE UNITED STATES MILLER. Both papers for one year for $1.10. The former is published twice a month, and is a beautiful 16-page paper. Address THE U. S. MILLER, Milwaukee, Wis.

THE C., I., St L. & C. Ry. (Kankakee Line) is the best line to Cincinnati, Richmond, Va., Newport News, Washington, Baltimore, Chattanooga, Atlanta, Savannah, Charleston, Jacksonville, St. Augustine, Thomasville, Pensacola, Mobile, New Orleans, and all points in the South and South-east.

NEWS ITEMS OF ALL SORTS.

THE J. B. Allfree Co., of Indianapolis, Ind., report the following contracts:

BURNED, March 15, Buchan & Kuenzal's flour and woolen mill, at New Bremen, Ohio. Loss $50,000.

BURNED, March 13, Finch & Haywood's grain elevator, including 12,000 bushels wheat and 6,000 bushels barley. Loss $40,000.

W. M. MCCUTCHIN & Co.'s elevator at Winona, burned March, 9, with 8,000 bushels of wheat. Loss on building $28,000. Partially insured.

AT Milton, Ont., Feb. 25, the steam grist mill, owned by John Shaw and leased by C. K. Stewart, was burned. Loss, $7,000; insurance, $3,000.

A BOILER explosion in the Victoria mills, St. Louis, is reported to have resulted in damages to the amount of $10,000. One man was killed and another injured.

AT West Jefferson, Ohio, Feb. 24, James Peene's grain elevator, near the L. M. Depot, was burned. Loss, $3,000; insurance $1,500. Supposed to have started in the engine room.

AT Cedarburg, Wis., Feb. 20, fire at 6 A. M. destroyed the flour mills of Henry Wehausen. The loss is estimated at 35.000. Insurance not known. The flour mill was a five-story stone building, and was one of the finest in the county.

BUFFALO millers recently purchase 600,000 bushels of an especially fine grade of spring wheat which has been stored in Chicago for a long time. Buffalo millers do not propose to stand second to any part of the country in regard to the manufacture of good flour.

CHARLES LARKINS, of the firm of Case & Larkins, dealers in grain and hardware at Knobnoster, Mo., died, and Alonzo Case, the surviving partner, has made an assignment. They had been in business 25 years. A few months ago they claimed assets of $48,000 and liabilities $13,000.

NEELY & MCCORD are preparing to erect a sixty-barrel mill at Lynville, Tenn.—Showers & Murphy will build a forty-barrel mill at Madisonville, Ky.—J. M. Case, late of the Case Manufacturing Co., Columbus, O., will go to Europe to work up a business there.—The Rockwall Mill Co., Rockwall, Tex., is negotiating for its machinery.

THE contract for building the new mill of the Fountain City Milling Company, at Fountain City, Wis., was let March 21, to a St. Paul contractor for $134,650. Work is to be commenced at once, and the mill is to be in operation by July 1, 1890. It is to be of white sandstone, with red stone trimmings; to be 80 feet deep by 130 feet long, and five stories high.

A CALIFORNIA correspondent writes: Work is to be begun in the spring on a dam forty-eight feet high across the Klamath River, which is to afford water power for a number of new saw-mills not far from the Calfornia and Oregon line in Shasta County. An Eastern syndicate, in which Gen. Alger, of Detroit, Mich., is said to be interested, is behind the scheme and the capital is said to be about $10,000,000.

A 50-bbl. short-system mill, consisting of a full line of Keystone roller mills, Success bolters, etc., including power plant, for Johnson & Tavener, Huron, Ind.; a 50-bbl. short-system hominy and pearl-meal mill, consisting of Keystone hullers, four high corn-meal purifiers, hominy separators, etc., for Winslow & Beal, Fairmount, Ind.; a 75-bbl. short-system hominy and pearl-meal mill, consisting of a full line of their special corn-milling machines for Geo. Catt & Co., Bloomfield, Ind.; and the sale of special corn milling machinery to E. A. Spink & Co., Washington, Ind.; Geo. F. Signor & Co., Washington, Ind.; H. Miller & Co., Conklin, Mich.

A. ST. LOUIS jobber in twine and cordage states in an interview that the National Cordage Company, of New York, was in reality a gigantic trust, representing thirty-two manufactories, with a capital of $20,000,000, and that it owned all the manilla and sisal fibre in the country, and even all the crops now growing, and that it was due to this trust that the price of twine had advanced from 9c. last year to 15½c., the present price. Manilla from the Philippine islands and sisal from Yucatan are the raw materials for the manufacture of binders' twine, used in harvesting wheat in this country, and it is said that by this advance in the price of twine the trust is levying 15c. an acre on all the wheat fields of the country.

PLANS for utilizing the Lachine Rapids, Montreal, Canada, for water power to drive electric machinery, as well as to eventually use the water to supply the city, are going ahead. Plans and descriptions of the locality and water power are being prepared and will be transmitted to England, France and Germany to obtain the very highest advice as to the best means of transmitting the enormous power, which is calculated at from 750,000 to a million horse-power. The company can furnish 5,000 horse-power in a very short time by putting a dam across the natural channel in the island, and should they obtain a contract would do so at once. At all events, before another cold season the company expects to be able to furnish power to the whole city, from an eighth of a horse-power upwards.

MILWAUKEE ITEMS.

LOCAL mill-furnishers report business fair for this season of the year.

RICHARD DAVIS' Marine Boiler Works were damaged by fire to the extent of $6,000 March 21. The work of this establishment however will not particularly be interfered with.

THE name of the Ph. Best Brewing Co. has been changed to Pabst Brewing Co. Capt. F. Pabst has been for many years the president and manager of this great establishment.

THE Superlative Purifier Co. of this city recently received an order for sixteen New Era Scalpers from Messrs. Ogilvie & Co. of Canada, to be used in their mills in various parts of the Dominion.

THE Milwaukee Bridge and Iron Works have purchased a seven-acre tract of land on Barclay st. and Greenfield av., where they will erect an immense plant to accommodate their constantly increasing business.

MILWAUKEE millers are not entirely satisfied with the present condition of business, but admit that it might be a good deal worse. Our millers are of a philosophical turn of mind, and are not liable to grumble a great deal.

HON. HENRY SMITH, Ex-Member of Congress has returned to Milwaukee, and has resumed his business of builder and millwright. He has just completed the plans for a 50,000-bushels elevator for Wm. Gerlach & Co. of this city.

Two companies are now organized in this city for the purpose of manufacturing apparatus for burning crude petroleum for fuel for producing steam. Any one desiring to know the latest particulars concerning the best method of burning crude oil with a view to business will do well to address E. C. Notbohm, No. 68 Wisconsin st., Milwaukee, Wis.

WE think it would be well for city authorities that have the purchasing of machinery and supplies for the city's use to purchase of Milwaukee manufacturers and dealers when prices approximate those of outside builders. Recently the water-works department was in need of a hundred hydrants. A Philadelphia firm received the order on a bid of $24 less than a Milwaukee firm that makes as good if not better hydrants. Is this good business policy? Will it help to build up Milwaukee and give work to skilled and unskilled labor? The above incident is but an insignificant one compared to others of like character. Nearly, if not quite all of an immense amount of water pipe and a large amount of sewer pipe has for years been purchased in distant cities.

THE death of Sylvan Wohlrab, on the Lindwurm farm, March 16, recalls his sudden rise and fall on 'Change. While associated with Bernhard Stern, the well-known miller, a fortunate ventnre in wheat-buying encouraged him to engage in other and larger speculations of the kind. He was very successful for a time, lived in an elegant house on Prospect avenue and was accounted wealthy. It is said he made $100,000 in one of his undertakings. Soon the tide of his fortune turned, and disaster followed disaster, so that in a short time he was obliged to give up his residence, his carriages and other property. He then moved to the farm of his father-in-law, the late Capt. Lindwurm, utterly discouraged and broken in health, lingering through the winter and finally passing away in the presence of his wife and three children. He was about 45 years of age.

THE Wisconsin Mitis Company, Messrs. I. A. & P. E. Dutcher, Milwaukee, manufacturers of wrought iron and steel castings, are doing an active business in this line, with a steadily increasing demand. These castings are made under the Mitis process. What is specially noticeable in these castings, and give them superiority, is their conformity or rather uniformity to pattern, their susceptibility to hardening or welding and also their toughness. They are said to take the place of Smith's forgings of complicated forms, malleable, or ordinary brass, bronze or iron. There is no doubt but that when the character of this process becomes generally known the demand will be materially stimulated. This process needs no annealing and as a necessary consequence, work can be executed in a notably short time after receipt of patterns.

THE U. S. MILLER for one year and 50 novels for One Dollar.

Don't forget to order at once.

OUR LONDON LETTER.

Crop and Trade Prospects—Condition of the Milling and Millbuilding Trade—A New Sieve Purifier—New English Patent for Cooling Chilled Rolls—The Flour Trust—Bakers' Troubles—Researches of German Chemists, Etc.

A few days of real winter weather has been experienced during the past month, and visitors to the Corn Exchange at Mark Lane last Monday, from various parts of the country, reported a second good fall of snow this season. The several days frost acted as a good seasonable check to vegetation in the middle of the month, and the farmers talk now more hopefully of the young wheat plant. Still the English climate has a charming independence about it which mocks at the calendar, and so we have had, as a rule, during the past month a very close "muggy" day after each sharp frost. The corn trade during the past month has been unusually sensitive to climate variations, inclement weather almost directly causing strength and mildness as sudden, a return of inactivity and weakness. The tone at the Mark Lane Corn Exchange on Monday last was much firmer, and the country exchanges show some slight change for the better. The imperial average is, indeed, depressingly low; for the week ending February 23, at the 187 statute markets, the price of English wheat was only 29s 5d per quarter on sales of 49,762 qrs., against 55,303 qrs. at 30s 2d in the corresponding week of last year. *Dornbusch's List* puts the summary of last week's markets in the home grain trade as follows:

	Wheat	Flour.	Barley	Oats.	Beans.	Peas.	Maize.
Dearer	9	....	....	4	4	....	....
Fair or steady	19	1	10	9	5	3	5
Dull or weak	27	13	25	21	9	11	16
Cheaper	....	....	2	....	....	.	3
Total	55	14	37	34	18	14	24

At Mark Lane market on Monday last there was a good attendance, and amongst buyers there was more enquiry which was somewhat general in respect to wheat and flour. Under a Continental demand wheat was about six pence dearer, and flour all around can be reckoned as three pence up. Old Duluth made 45s per quarter, and native and ordinary sorts can be put down at 31s to 38s per quarter. The final official estimate of last year's harvest in this country has now been published, and on the whole the unfavorable opinions expressed by competent authorities last autumn are confirmed. The result given in this return are framed on estimates received from nearly 14,000 parishes in Great Britain and have been very carefully examined, any apparent discrepancies being inquired into and explained before the figures supplied were adopted. For Great Britain the wheat crop is put down as yielding 71,939,647 bushels, the estimated yield being one of 28.05 bushels per acre as against 74,322,747 bushels or 32.07 bushels per acre in 1887. There was thus according to these official figures an increase during the year of 10.66 per cent. in the area devoted to the crop, and a decrease of 12.54 in the yield. The official report beyond this declares that in a given case it was found that last year's wheat yielded 25 to 30 per cent. less flour than that of 1887. Everything therefore tends to show that, although the figures apparent look better than were anticipated by the bulls, the wheat harvest of 1888 was really the smallest one ever reaped in Great Britain. It is no wonder therefore with the South Russian ports still blocked by frost, and the news from the United States as well as the foregoing government report that the demand in the corn trade, which has been languishing for some time past, should revive.

The flour mill engineering trade is very brisk at the present time in England which puts the machinery men in a very good temper and makes it easier to obtain some of the very amusing things that have occurred during the past month. One little bit of news which is in every one's mouth, at least those who are connected with the trade, was told me on Monday last on "'Change," where I met no less than ten of the most prominent English milling engineers, including "the noted gentleman" who told "one of the press" at a recent Royal Show, that he had been taking so many orders that he employed a man specially to sharpen his pencils as he had not the time between times—was to the effect that Mr. Higginbottom, the inventor of a new sieve purifier, which is making some stir in the Midlands with the help of one of our old American friends, had cabled to Mr. Geo. T. Smith to come at once to England to make arrangements for introducing the purifier into the States as it would put all other purifiers into the shade, *including his own.* Mr. George T. Smith was, however, not in such a violent hurry to make his fortune, so simply wrote to his agents, Messrs. W. R. Dell & Son, of Mark Lane, to write and let him know what they thought of the "wonder." The new purifier is a clumsy looking machine with a large wooden case above the sieve which contains an arrangement for collecting the "fluff," and so doing away with the use of a stive room or separate dust collector.

Mr. J. B Bradshaw, of Sheffield, has taken out a patent for the purpose of cooling chilled rolls more rapidly and uniformly than is at present possible. The inventor casts an internal coil of pipes in the body of the roller, and parallel to its axis. The method by which the casting process is conducted is similar to that employed in casting the coils of blast furnace tuyeres, that is to say, the coil is placed in the required position within the chill, and the molten metal is poured into the mould so as to surround the coil and retain it in position. The roller which is so manufactured is traversed with a helical passage from one end to the other, and the extremities of the hole are flush with the parallel faces of the cylinder. Directly the roll has been formed, and the metal solidified, a blast pipe is connected to one end of the coil, and a continuous current of cold air is forced through it. By this means the metal is uniformly and rapidly cooled, and a large amount of heat in the casting is prevented from passing to the chill. It will be seen that by this process the duty of the chill in cooling the castings is considerably reduced, and the life of the chill will therefore be extended. The internal coil may be brought into requisition on subsequent occasions when the roller has become inordinately heated in the performance of its ordinary duties. In that case the stream of water which is usually directed over the surface for the purpose of cooling the roller is caused in addition to pass through the coil.

Some very lively letters have been written and published, from various people in the *Iron and Steel Trades Journal*, on the question of "Who invented the Spiral Conveyor," and an American who introduced the conveyor to the English market under a special trade name, has had a very uncomfortable time of it. One correspondent to the same journal says at the end of one of his letters: "Engineering practice in this country has been extensive enough to prevent practical men from putting forth claims which cannot be demonstrated in operation, and we feel sore about not using ordinary caution before ordering the conveyor which did 'anything and everything.' A little reflection would have saved us from paying for our experience. It shows the smartness of foreigners, that they can, by means of unlimited power of assertion, rush us into paying patent prices for English inventions mouldy from age and discarded as practical failures." I am afraid the foregoing letter does not do credit to the Britain who wrote it as it does not show him to be a very business individual, but it will give your readers some idea of the qualifications of some Britishers in trade on this side of the "Herring Pond."

The Flour Trust, or the "North Eastern Milling Company," as it was called, fell through by some of the directors withdrawing from the concern. This state of things was brought about at a meeting called by the promoters on the 14th of February, when it was found that certain promises made by the promoters could not be carried out on account of the action of the public. The result is that since the meeting nothing has been heard about the company, and some of the millers who joined are the sufferers by having some customers leaving them to go to other millers outside the ring.

For some time past the stand holders at the York Corn Exchange have had to complain of the non-attendance of farmers on market days, and to remedy this evil the stand holders held a meeting on the 16th inst. and decided to present a memorial to the Lord Mayor and Corporation of York. The memorialists urge that the practice of farmers transacting their business in the open thoroughfaresis greatly to the public inconvenience, and state:

"We, therefore, as corn buyers who have attended this market for a considerable period, and many of us traveled to York from a great distance to purchase the corn grown in the neighborhood of York, have pleasure in supporting the directors of the company in asking your Lordship and the Markets Committee to take urgent steps to prevent the buying and selling of grain in the public streets of the city whilst there is ample and comfortable accommodation in the York Corn Exchange building to which the sellers of corn have free access."

I understand that unless matters mend the York Corn Exchange will be utilized for another purpose. Although not the same as the flour room on Mark Lane market, which never did enjoy much favor since the reconstruction of the old market. This room has been taken by Messrs. Barker, the well-known bankers of Mark Lane.

Now and again we hear of some strange law suits, but the one by which two bakers were fined two shillings and sixpence and costs each under the Lord's Day Act, at Newry, Ireland, for having worked at their trade on Sunday, is somewhat unique. The prosecution was instituted by the Co-operative Bakers' Society, and the conviction was the first obtained under the Act in Ireland for forty years past.

Two German chemists have carefully analyzed a large number of samples of grain from England, India, Russia and other countries, chiefly in order to ascertain the percentages of nitrogenous substances or albumenoids and starch, consequent upon the differences of season and climate. European wheat is said to contain an average of 13.9 per cent. of albumenoids, while Indian grain only contains 12 66 per cent. More generally it is found that the highest proportion of albumenoids and gluten occurs in grain which has been rapidly matured, in which the respective percentages would be 13.17 and 18.08. When ripening does not take place within 130 days the amount of albumenoids is reduced to 12.47 and the gluten only forms to the extent of 9.22 per cent. Small grain is always characterized by a high percentage of gluten, while a large grained sample will be especially rich in starch It thus appears, according to these gentlemen, that a rapidly matured crop will be more nutritious than one which is ripened late, moreover the greater the proportion of gluten in the flour the more bulky will be the dough, so that flour from quickly ripened corn ought to make lighter pastry. For baking purposes the presence of a considerable quantity of starch is important so the best bread will be that which is made from large grained corn gathered in an early harvest.

In concluding this letter I must not forget to mention that Mr. Reuther, of the firm of Messrs. C Reuther & Reisert, the well known makers of automatic self-registering grain scales which have had a large sale in Great Britain, will visit the United States next May to open a branch establishment in one of the principal cities for the sale of their machines.

L. MAYGROVE.

London, March 1, 1889.

THE C., I., St. L. & C. Ry. (Kankakee line) is the best route to Florida. Close connections in Central Union Depot, Cincinnati with through express trains of C. N. O. & T. P. Ry. Queen & Crescent Route.

WE will send the UNITED STATES MILLER and *American Miller* to any address in the United States or Canada for one year for $1.50, or both papers and "50 novel" premiums for $1.75.

FOREIGN NOTES.

MESSRS. HARTMANN & GOERS, of Berlin, Germany, extensive dealers in flour, have suspended payment.

THE present population of Japan is about 38,500,000. The Japanese are abandoning the use of rice for food and are already free users of wheaten flour, most of which is imported from the United States.

INDIAN wheat crop prospects for the present year are not over-bright. There is a slight increase in the area of grain grown, but the absence of rain has proved hurtful to the wheat plant in many of the provinces.

A LARGE number of Ontario millers met at Toronto, Ont., in February, and after discussing the matter concluded to ask their parliament to put a duty of one dollar per barrel on American flour. This appears to be all right from the Canadian millers point of view, but what parliament and the rest of the population will do about it, is not hard to guess.

GREAT excitement prevails on the Austrian and Hungarian Corn Exchange by reason of the committee of the Buda-Pesth Corn Exchange having excluded from arbitration all time contracts of which cash settlement should form an integral part. When this decree came into force speculation in corn was quite a fashionable "vice" in Hungary, agents from the leading speculators calling at houses to solicit "subscriptions," and all classes of society being enticed into the gamble. The decree has already largely diminished the mania, and so far has done good, but it is also to be feared that the "settlements" of many legitimate grain dealers have been unduly interfered with.

* * *

THE sixteen per cent. which the North-Eastern Milling Company are to earn will prove difficult to make. The attempt to secure the principal mills between the Humber and and the Tweed has not been entirely successful, and a number of the unsecured mills have formed a co-operative league among themselves, which threatens to undermine the work of the syndicate. The public are not coming forward very liberally with their money, though a considerable amount of capital has, undoubtedly, been subscribed. The enterprize will, probably start with a million sterling, instead of two millions, as originally proposed. A new mill, to make 1,200 sacks a day is, it may be mentioned in passing, nearly completed at Dunston-on-Tyne, and this gigantic private enterprize is in the hands of an opponent of the syndicate. —*Mark Lane Express*

THE COST OF BREAD.—The distribution of bread, after it is baked now costs the average workman in a city as much as it does to grow the wheat, mill it, move it 1,500 miles and convert it into bread, all put together.—*Forum.*

"GIBBETING BREAD."—This curious custom is still practiced by the Lincolnshire housewives. The origin appears to be as follows: Not infrequently, in consequence of a bad harvest and the premature garnering of wheat before the ears have hardened, bread, after it is baked, will be found to be fibrous, or, in common parlance, *ropy*. It is customary for the women, when they find such to be the case, to take a stick and drive it through one of the loaves, which is afterwards hung carefully up in the larder to guard against the repetition of ropy bread in future bakings.—*British Baker.*

A CORNER IN GRAIN: Wife—"I see that our neighbor Bonds is down again."

Husband—"What is it this time? Wheat, I suppose?"

Wife—"No, I think from his appearance it was rye that floored him now. And I don't want you to dabble with it any more.—*Lowell Citizen.*

IF you are about to build write to the UNITED STATES MILLER for a copy of "Brean's House Plans," and enclose fifty cents in stamps. It will help you.

AN AUTHENTIC BUYERS' GUIDE.

MILL AND ELEVATOR BUILDERS, MILL FURNISHERS, MANUFACTURERS OF AND DEALERS IN MILL AND ELEVATOR MACHINERY AND SUPPLIES.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year, cash with order. Additional lines, $1.00 each, per year.

Edw. P. Allis & Co., Milwaukee, Wis., builders of complete Flour Mills, manufacturers of Flour Mill Machinery, and dealers in Supplies of every description. [Mr.89.]

Garden City Mill Furnishing Co., Chicago, Ills., Mill Builders, manufacturers full line of Flour Mill Machinery, dealers in Mill Supplies, Bolting Cloth etc., etc. [Mr.89.]

Borden, Selleck & Co., 48 & 50 Lake st., Chicago, Ills., manufacturers of "HARRISON CONVEYOR" for Grain, Malt, etc., etc. [Mr.89.]

John C. Higgins & Son, 165 West Kinzie Street, Chicago, Ills., mfrs. of and dressers of Mill Picks. [Mr.89.]

H. P. Yale & Co., Milwaukee, Wis., Manufacturers' Agents of Engines and Boilers, New York Leather Belting Co.'s Leather Belting, Dodge Wood Pulley.

Poole & Hunt, Baltimore, Md., manufacturers of Steam Engines, Water Wheels, Flour, Corn, Paper, Saw and Cotton Mill Machinery.

W. J. Clark & Co., Salem, O., manufacturers of "SALEM" Elevator Buckets, etc.

Thornburgh & Glessner, 18—22 N. Clinton St., Chicago, Ills., manufacturers of Mill and Elevator Supplies.

R. C. McCulley, (P. O. Box 214) Lancaster, Pa., manufactures Cob Crushers, Cooper's Stoves, Castings, Patterns, etc. [Mr.89.]

B. H. & J. Sanford, Phoenix Iron Works, Sheboygan, Falls, Wis., manufacturers of the "IMPROVED WALSH DOUBLE TURBINE WATER WHEEL." [Mr.89.]

John C. Kilner, York Foundry and Engine Works, York, Neb. Mill and Elevator machinery of all kinds, Engines, Boilers, Pulleys, Shafting, etc. [Mr.89.]

The Gutta Percha and Rubber Mfg. Co., 159-161 Lake st., Chicago. Ill., Belting and Rubber Goods. [Mr.89.]

The Avery Elevator Bucket Co., sole owners and manufacturers of Seamless Steel Elevator Buckets, Wason, Lake and Dart sts., Cleveland, O. [Mr.89.]

Richmond Mfg. Co., Lockport, N. Y., manufacturers of Grain Cleaning Machinery, Bran Dusters etc. [89.Mr.]

N. Y. Belting and Packing Co., N. Y. Leather Belting Co., Goulds & Austin, Agents, 167 and 169 Lake Street, Chicago. [Apr.89.]

Weller Bros., 94 Wendell st., Chicago. M'f'rs Mill and Elevator specialties, Cups, Boots, Spouts, Steel Conveyors, Power Grain Shovels; dealers in Cotton and Rubber Belting, etc. [Apr.89.]

The Shields & Brown Co., 240 and 242 Randolph st., Chicago, and 143 Worth st., New York. Mfrs. of Sectional Insolated Air Coverings for steam, gas, and water pipe, etc. [May 89.]

W. G. Avery M'f'g Co., 10 Vincent st., Cleveland, O., Specialties: Avery Lever Belt Punches, Avery Seamless Elevator Buckets, Belting, Elevator Bolts, &c. [May'89.]

The H. J. Deal Specialty Co., Bucyrus, Ohio. Headquarters for Flour and Grain Testing Appliances, and Specialties for the Milling, Flour and Grain trades.

EXPORT AND MERCHANT MILLERS AND MANUFACTURERS OF WHEAT, RYE AND BUCKWHEAT FLOURS, AND CORN MEAL AND CORN PRODUCTS (WITH NAMES OF SPECIAL "BRANDS" MADE) DESIRING CORRESPONDENCE WITH SOLID HOUSES WITH A VIEW TO TRADE.

Cards will be inserted under this head in the UNITED STATES MILLER, not exceeding three lines, paper included, for FIVE DOLLARS per year. Additional lines, $1.00 each per year.

J. B. A. Kern & Son, "Eagle Mills," Milwaukee, Wis. WHEAT FLOUR BRANDS—*Patents:* "Success," "Kern's." *Bakers:* "Triumph," "High Ground," "Eagle." RYE FLOUR BRANDS—"A Rye," "1 Rye," "Rye." [Apr.'89.]

E. Sanderson & Co., "Phoenix Mills, Milwaukee, Wis., U. S. A. Manufacturers and Exporters of choice spring wheat flours. Daily capacity 1500 barrels. [Apr.'89.]

Bernhard Stern, "Jupiter Mills," Milwaukee Wis. Roller Mill. Hard wheat *Patents*. Principal brand, "Jupiter." [Apr.'89.]

Faist, Kraus & Co., "Duluth Roller Mill," Milwaukee, Wis., Manufacturers and Exporters of choice spring wheat flours. Daily capacity 1500 barrels. [May'89.]

Russell, Andrews & Birkett Penn Yan, N. Y. Manufacturers of roller process Rye and Buckwheat flour. Absolute purity guaranteed. *Write for prices.* [Apr.'89.]

Prominent Flour, Grain and Provision Brokers, desiring correspondence with Millers of Wheat, Rye and Buckwheat Flours, and Cornmeal and Corn Products, with a view to Trade.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year Additional lines, $1.00 each per year.

W. K. Sherwood, Flour and Grain Commission, 18 South Commercial Street, St. Louis. Mo. [Ap.89.]

Machinery For Sale

ONE PAIR 4-FT. MILLSTONES; new.

SEVEN PAIR 4-FT. MILLSTONES; used about three months.

ONE PAIR 9x18 CHILLED ROLLS; smooth.

ONE No. 1 THROOP SMUTTER AND SCOURER.

ONE 24-INCH MIDDLINGS MILL.

ONE 1000-LB. PALMER POWER SPRING HAMMER.

ADDRESS

The Filer-Stowell Co.

CREAM CITY IRON WORKS,

Milwaukee. - Wisconsin.

"TRIUMPH" CORN SHELLER

CAPACITY

2000 BUSHELS PER DAY.

Shells wet or dry corn.

CHEAPEST AND BEST SHELLER.

PAIGE MANUF'G CO.,

No. 12 Fourth St., Painesville, O.

[Please mention this paper when you write to us.]

CAWKER'S AMERICAN

FLOUR MILL

—AND—

GRAIN ELEVATOR

DIRECTORY

Published once in two years.

Gives nearly 23,000 Addresses, P. O., County and State, Capacity, Power, System, etc.; also lists of Millwrights. Miscellaneous Mills, Millbuilders and Furnishers, Flour and Grain Dealers, Foreign Flour and Grain Importers, etc., etc.

1888-9 Edition, Issued March, 1888.

PRICE, $10 PER COPY,

post paid and registered to any part of the world. Address,

E. HARRISON CAWKER, Milwaukee, Wis.

Better THAN THE Best College

Charles Mayer's Commercial College,

Grand Avenue (Public Library Building), **Milwaukee**. Established 1876.

1876, 27 pupils; 1888, 328 pupils. Telephone 1575. **Day and Evening Sessions.**

Students of either sex received at any time for full course or any special branch of study.

DEPARTMENTS: Commercial, Preparatory, Shorthand (Graham's analytical system) and Typewriting (all styles of machines), Languages, Plain, Ornamental and Round Writing.

Best, Largest, Most Beautifully Equipped School of its kind. Eight teachers. Perfect Order. Liberal Terms.

☞ Address, or call at College.

Scholars from the country 20 Per Cent. Discount allowed. Board procured. Further information, address College.

Opposite the Plankinton House,

—MANUFACTURER OF—

FINE JEWELRY

A VERY LARGE STOCK OF

Diamonds, Fine Watches, Jewelry, Silverware,

Opera Glasses, Gold Spectacles, Canes, Umbrellas, etc.

Goods warranted as represented. Prices reasonable

PRIVATE · TELEGRAPHIC · CIPHER

CODE

Compiled Expressly for the use of

Millers, Flour & Grain Brokers

For Private Telegraphic Correspon ence, either for Land or Cable Lines.

☞ 1888 Edition, just out, March 1, 1888, revised, amended and added to, to meet all the requirements suggested by the members of the Miller's National Association, *who use more copies of the Code than all others combined.*

Published by the **Riverside Printing Co.**, Milwaukee, Wis.

For terms, etc., address, stating number of Codes probably wanted,

RIVERSIDE PRINTING CO., Milwaukee, Wis.

DO YOU INTEND TO BUILD?

PRACTICAL LOW-COST HOUSES. HOW TO BUILD THEM.

A Large Atlas, containing **drawings** and **floor plans of 40 Modern Houses with Correct Estimates** of **cost of building,** all kinds of buildings ranging from a **$400 cottage** to a **$10,000 residence. The latest, most complete, and only practical book** published. It is **false economy** to attempt to build without these plans. Price by mail, post-paid, **50 cts.** Stamps taken.

Address, UNITED STATES MILLER, Milwaukee, Wis.

EVERYBODY'S PAINT BOOK

A new work on **INDOOR** and **OUTDOOR** painting which is designed to teach people how to **DO THEIR OWN PAINTING** and save the expense of a professional painter. The most practical and valuable work of the kind ever issued. Full directions are given for mixing paints for **ALL PURPOSES.** Tells all about **PAPER HANGING, KALSOMINING, STAINING, VARNISHING, POLISHING,** as well as how to **RENOVATE FURNITURE,** so that it will look as good as new. Tells all about **HOUSE-CLEANING** with paint and talsomine. Full directions are given for making the beautiful **SPATTER-WORK** pictures in which the ladies are so much interested. Tells how to paint **OUT-BUILDINGS, ROOFS, FARM WAGONS, FARM IMPLEMENTS** and **CARRIAGES** as well as how to polish a **PIANO** or **ORGAN;** how to imitate **GROUND GLASS** or make paint for **BLACKBOARDS; GRAINING** in oak and black walnut, painting in imitation of **EBONY, MAHOGANY** and **ROSEWOOD** stain, **GILDING, BRONZING** and **SILVERING.** Elegantly printed, beautifully bound. **Will SAVE ITS COST** in a short time Sent by mail on receipt of price. One Dollar.

Address, UNITED STATES MILLER, Milwaukee, Wis.

SECTION OF CONVEYOR.

ROLLER and DETACHABLE CHAIN BELTING

DETACHABLE in every Link.

Especially Designed for

Elevators, Conveyors, Drive Belts, Etc., Etc.

—— For Handling ——

GRAIN, SEEDS, EAR CORN, MALT, COTTON SEED, COAL, STONE, CLAY, PAPER-PULP, TAN-BARK, BOXES, BARRELS, ETC.

Also manufacturers of the Gregory Grain, Seed and Fruit Dryer; Meal and Flour Purifier.

Before Placing Orders

Send for Illustrated Catalogue and Prices.

THE JEFFREY MFG. CO.,

169 E. 1st Ave., COLUMBUS, O.

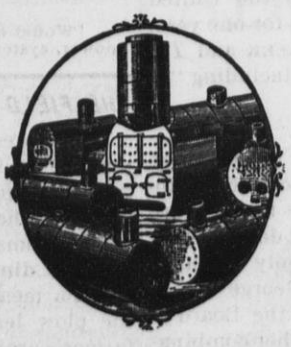
[Jan.89.]

MARINE BOILER WORKS,

RICHARD DAVIS,

Manufacturer of High and Low Pressure

STEAM BOILERS



LARD

—AND—

OIL TANKS

—AND—

Sheet Iron Work

IN GENERAL.

Oregon St., bet. Barclay and South Water Sts.,

MILWAUKEE.

Particular Attention Paid to Repairs. Orders Solicited and Promptly Executed.

THE DAKOTAS.

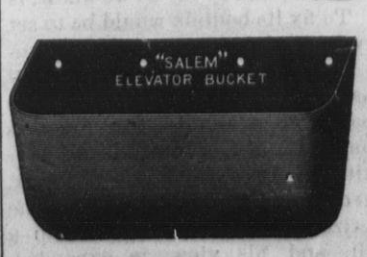
Public attention is now, more than ever, directed to these two new States of the Union. Climate, soil and opportunities for investment of capital, are unexcelled by any other section of the Great West. The Chicago, Milwaukee & St. Paul Railway Co., which has lines of its own in both South and North Dakota, has just issued an illustrated pamphlet entitled, "*Plain Facts about Dakota,*" containing numerous letters from farmers and others which are well worth reading, as they show the results of each writer's personal experience in the North-West, and convey a great deal of valuable and reliable information which will be of benefit to those seeking new homes in South and North Dakota.

For a free copy of this pamphlet address A. V. H. Carpenter, General Passenger Agent, Milwaukee, Wis.

Ropp's Commercial Calculator.

New and revised edition in gold, cloth, beautifully embossed in colors, with silicate slate, sent to any address post-paid for seventy-five cents. The time and labor saved by the use of this valuable pocket assistant is great, indeed. Address, United States Miller, Milwaukee, Wis.

STILL ON TOP.



Perhaps the highest compliment that could be paid the **"SALEM"** Bucket is the fact that, during the past few years, **its shape has been so closely imitated** by other manufacturers, as to infringe our patented rights; but experience reveals **the imperfections of imitations,** and, we therefore, take it as a **further compliment** to the **"SALEM"** Bucket, that some of its old patrons who were **induced to try the imitations, have now returned to the Salem Bucket, thereby acknowledging it to be the most satisfactory.** Don't be deceived by other makes of Buckets that are claimed to be "just as good." Insist upon having the **ORIGINAL AND RELIABLE**

"SALEM" BUCKET.

All legitimate "Salem" Buckets are plainly marked with the word **"SALEM."**

W. J. CLARK & CO., Sole Manufacturers, - SALEM, OHIO.

THORNBURGH & GLESSNER, Gen'l Agents, CHICAGO.

SPECIAL STAMPERS OF SHEET METALS.
We do Stamping and Pressing of Sheet Metals for All Classes of Work.
—ALSO SOLE MANUFACTURERS OF—
SEAMLESS STEEL BUCKETS
INSIST on having this Bucket furnished when ordering.
Ask your dealer for the Avery Pat. Seamless Steel Elev. Bucket.

We do not advertise Seamless Elevator Buckets and fill orders with "Pieced Ones"
We will make Special Prices rather than move stock to our new factory. Send for discounts.
THE AVERY STAMPING CO.,
—SUCCESSORS TO—
AVERY ELEVATOR BUCKET CO., CLEVELAND, OHIO, U. S. A.

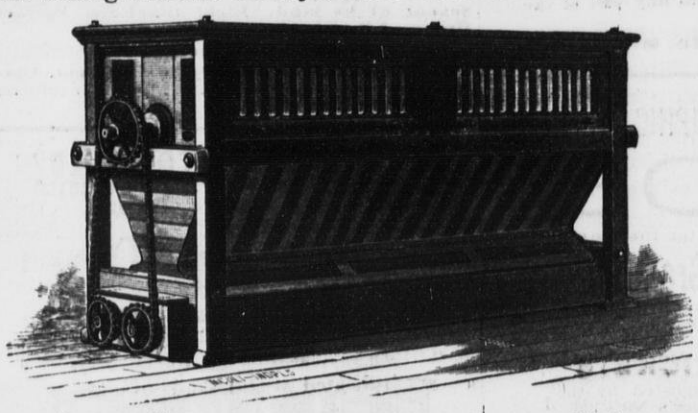
—ESTABLISHED 1846—
J. B. A. KERN & SON,
Merchant Millers,
Capacity 2,000 Barrels Per Day. MILWAUKEE, WIS.
Manufacturers of Choice Minnesota and Dakota Hard Wheat Flour.
RYE FLOUR
By most approved roller process, guaranteed the best and purest rye flour manufactured.
WE INVITE CORRESPONDENCE FROM CASH BUYERS.

ENGINE FOR SALE.
One 600 Horse Power Corliss Upright Compound Engine
Diameter of high pressure cylinder 28 inches, 38 inch stroke. Diameter of low pressure cylinder 56 inches, 38 inch stroke. Length of crank shaft 11 feet. Diameter of journals, 15 inches. Diameter of fly wheel, 24 feet. Weight of fly wheel, 48,000 pounds. Boiler feed pump. Engine complete, in good working order; can make from 1,000 to 1,200 bbls. of flour in 24 hours; has made a barrel of flour with 20 pounds of coal. For particulars apply to
JOHN B. A. KERN & SON,
EAGLE FLOURING MILLS. MILWAUKEE, WIS.

THE "SUCCESS" BOLTER AND DRESSER.

The cuts given with this article show the J. B. Allfree Co.'s new reel, the "Success," a side and end view of the complete machine, a view of the reel in detail, exhibiting its method of handling the material, and a cross-section of the same being given. Respecting the particular objects to be obtained, by the use of this reel, and some of the advantages of its mechanism, the company explains as follows:

This new bolter and dresser was designed to meet the want long felt among millers for a machine not so severe as a centrifugal, but for more rapid and regular bolting than the old style reels. This



"SUCCESS" BOLTER AND DRESSER.

machine accomplishes results far more satisfactory than were anticipated by its inventor. Its construction is somewhat novel, but extremely simple. The interior of the bolting cylinder, or reel, is provided with a series of elevating shelves, their backs being adjustable, so that the space between them and the cloth may be increased or diminished, at one or both ends, to suit the charge of material upon the reel, also the kind of material. By this arrangement the machine is put under perfect control. With an ordinary charge they will usually be found to work best

"SUCCESS" REEL—CROSS-SECTION.

an inch away from the cloth at tail end of the reel, the object being to diminish placed about one inch from the cloth at the head, and no more than one-fourth of the space proportionately to the decrease of material inside the reel. This is done by slacking the thumb nut and slightly rotating a segment lever. One other leading feature of this bolter is that the cloth can be kept stretched endwise so as to obviate the difficulty of the sagging between the circular ribs, which is very detrimental to bolting. This is done while the machine is in operation, or standing, by turning a nut at the end of the shaft, which draws the tailhead of the reel toward the end of the machine, stretching the cloth evenly from end to end. The machine is built of the very best material, being principally of hard wood, no pains being spared to make it complete in workmanship and elegant in appearance. Surely no better machine has yet been placed before the milling public. We have been slow to advertise it, desiring to fully test it on all kinds of material. The success it has already attained, together with a largely increasing demand, warrant us in greatly improving our facilities for its manufacture, which also enable us to offer it at an extremely low price.

Any further information which may be desired by millers having in view the adoption of a new flour dressing apparatus, will be promptly furnished on request by the J. B. Allree Co., Indianapolis, Ind.

"SUCCESS" REEL.

AN Irish servant was complimented by her mistress before company on the elaborate ornamentation of a large pie at dinner. "Why, Bridget, you are quite an artist. How did you manage to do this so beautifully?"

"Indade it was myself that did it, mum," said Biddy, with a grin; "isn't it purty? I did it with your false teeth, mum." Tableau and curtain.

SPECIAL NOTICE.

WE will furnish any one in the United States or Dominion of Canada, for one year, with THE UNITED STATES MILLER and *The Northwestern Miller*, for $3.25; including "50 novels," $3.75.

THE Salt Union is evidently not destined to traverse smooth paths; no, not even while the syndicate, who control the market, are able to put the premium up and down to suit their own sweet will; and only recently jumped it up a good 1½. Sir George Campbell has asked the President of the Board of Trade a terrible question—whether combinations of capatalists of its "ilk," and for its purposes are not "offences against the law of conspiracy or against the laws, making penal proceedings in restraint of trade in salt or other articles of consumption;" and Mr. Bradlaugh roundly asserted that, "in the Law Reports there was a case of a conviction for a combination to raise the price of salt." By this time, what with the Anti-Salt Monopoly League, the irate Scotch baronet and the junior member for Northampton, we have no doubt that these wicked Chesire and Cleveland monopolists are quaking in their shoes. Yet still the giant smiles.—*Financial Chronicle*, (London).

If You Want the Earth, Here You Are!
THE "UNITED STATES MILLER" AND
50 Charming Complete Novels
—FOR—
ONE DOLLAR!
To Foreign Countries $2.00, (8 Shillings English.)

These Novels are printed in pamphlet form, on good paper. They would cost you in the form of "*Seaside*" or other libraries, $10.00. If you do not want to read the books yourself, divide them up among your friends. The regular subscription price of the U. S. MILLER alone is $1.00 per year, and it is worth the money. We have been able to make a good bargain with an Eastern publisher and propose to give our subscribers the benefit of it. The following is the list of novels:

A Bartered Life. By MARION HARLAND.
An Old Man's Sacrifice. By MRS. ANN S. STEPHENS.
A Wicked Girl. By MARY CECIL HAY.
A Low Marriage. By MISS MULOCK. *Illustrated.*
Under the Lilacs. By the author of "Dora Thorne."
The Strange Case of Dr. Jekyll and Mr. Hyde. By R. L. STEVENSON.
The Lawyer's Secret. By MISS M. E. BRADDON.
Fair but False. By the author of "Dora Thorne." *Illustrated.*
The Nine of Hearts. By B. L. FARJEON.
Doris's Fortune. By FLORENCE WARDEN.
A Playwright's Daughter. By MRS. ANNIE EDWARDS. *Illustrated*
Forging the Fetters. By MRS. ALEXANDER.
The Poison of Asps. By FLORENCE MARRYAT.
Moat Grange. By MRS. HENRY WOOD.
Agatha's History. By MARGARET BLOUNT.
Out of the Sea. By CLARA AUGUSTA.
The Story of a Storm. By MRS. JANE G. AUSTIN
The Evil Genius. By M. T. CALDOR.
The Mystery at Blackwood Grange. By MAY AGNES FLEMING.
The Last of the Ruthvens. By MISS MULOCK *Illustrated.*
The Norwick Farm Mystery. By WILKIE COLLINS *Illustrated.*
Out of the Depths. By HUGH CONWAY.
Retribution. By MARGARET BLOUNT.
A Tale of Sin. By MRS. HENRY WOOD.
A Fortune Hunter. By ANNIE THOMAS. *Illustrated*
In Cupid's Net. By the author of "Dora Thorne."
Wedded and Parted. By the author of "Dora Thorne."
The Knightsbridge Mystery. By CHARLES READE. *Illustrated.*
Ingledew House. By the author of "Dora Thorne."
A Passive Crime. By "THE DUCHESS."
Rose Lodge. By MRS. HENRY WOOD.
A Bridge of Love. By the author of "Dora Thorne."
The Fatal Marriage. By MISS M. E. BRADDON.
A Queen Amongst Women. By the author of "Dora Thorne."
The Blatchford Bequest. By HUGH CONWAY. *Illustrated.*
The Curse of Carew. By the author of "Dora Thorne."
A Shadow on the Threshold. By MARY CECIL HAY.
The Fatal Lilies. By the author of "Dora Thorne."
Carrison's Gift. By HUGH CONWAY. *Illustrated.*
More Bitter than Death. By the author of "Dora Thorne."
Miss or Mrs.? By WILKIE COLLINS. *Illustrated.*
In the Holidays. By MARY CECIL HAY.
The Romantic Adventures of a Milkmaid. By THOMAS HARDY.
A Dead Heart. By the author of "Dora Thorne."
Dark Days. By HUGH CONWAY.
Shadows on the Snow. By B. L. FARJEON.
At the World's Mercy. By FLORENCE WARDEN.
Called Back. By HUGH CONWAY.
Mildred Trevanion. By "THE DUCHESS."
The Grey Woman. By MRS. GASKELL. *Illustrated.*

Fill out the blank below, enclose $1.00 and address plainly to
E. HARRISON CAWKER.
Publisher of the "United States Miller," Milwaukee, Wis.

$1.00. .....*1889.*
Publisher UNITED STATES MILLER, Milwaukee, Wis.

Send the UNITED STATES MILLER for one year and 50 Novels, post paid, for which find enclosed One Dollar.

Name.....
Post Office.....
County..... State.....

[Would be pleased also to have you mention any particulars about your mill or elevator, capacity power, system, etc., and the name of Head Miller, or any item of news of interest to the trade.

THE FIELD OF INVENTION UNBOUNDED.

The impression is very generally prevalent that the field of invention is being reduced by the achievements of the thousands of bright intellects that are now working upon its various problems. As each circuit of a mowing-machine diminishes the area of grass to be cut in a meadow, as each furrow turned by the plow lessens the work to be done on a farmer's arable acres, so it is supposed that every new application of science, or device for promoting the comfort, convenience or profit of mankind brings nearer a coming time when invention will be compelled by lack of room to come to a halt. This is natural, because we are accustomed to compare the immaterial and intangible with material and tangible things. When we speak of a field, whether it be for the plowman, the poet, or the inventor, we naturally think of measurable space. But the field of mental effort is not measurable, and so far as we know, is unlimited. To fix its bounds would be to set an arbitrary limit to the progress of the human race. The science, art, literature—in all that exalts and embellishes life—the space yet available for progress comes as near infinitude as anything we are capable of conceiving. To one who stands in a valley the horizon is near; let him climb a hill, and his view is expanded. When he attains a greater height the prospect appears still wider. The inventive genius of the world is rising higher and higher every day. Its prospect never appeared so utterly boundless as now. All that has been achieved, all the grand conquests that are recorded, are but an atom in the balance weighed when brought against the possibilities of the future. Every victory suggests new lines of effort and equips the victor for further and better work. The supplying of one want suggests means for supplying others. So long as there is work for man to do, the inventor will find employment. Unless the author of nature has fixed an impassable barrier to the progress of man, invention will never have a vacation.

OUR readers will confer a favor by writing to us giving us any item of news such as new mills, elevators, etc., or improvements in the same, or giving information of a practical nature of general interest to the trade.

SMART BOY.—A man who wanted to learn what profession he would have his son enter, put him in a room with a Bible, an apple and a dollar bill. If he found him when he returned reading the Bible, he would make a clergyman of him; if eating the apple, a farmer; and if interested in the dollar bill, a banker. When he returned, he found the boy sitting on the Bible, with the dollar bill in his pocket, and the apple almost devoured. He made a politician of him.

THE publisher of the UNITED STATES MILLER is desirous of having the names and addresses of Head Millers, Millwrights and Head Engineers in all mills having a capacity of 150 bbls. per day or more.

THE CHICAGO MILWAUKEE AND ST. PAUL RAILWAY CO.

Fast Mail Line with Vestibuled Trains between Chicago, Milwaukee, St. Paul and Minneapolis.

Trans-Continental Route between Chicago, Council Bluffs, Omaha and the Pacific Coast.

Great National Route between Chicago, Kansas City and St. Joseph, Mo.

5700 Miles of Road reaching all principal points in Illinois, Wisconsin, Minnesota, Iowa, Missouri and Dakota.

For maps, time tables, rates of passage and freight, etc., apply to the nearest station agent of the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY, or to any Railroad Agent anywhere in the World.

ROSWELL MILLER, General Manager. A. V. H. CARPENTER, Gen'l Pass. and Tkt. Agt.

☞ For information in reference to Lands and Towns owned by the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY COMPANY, write to H. G. HAUGEN, Land Commissioner, Milwaukee, Wisconsin.

THE CHICAGO AND
NORTH-WESTERN RAILWAY.
OVER 7,000 MILES
Of steel track in Illinois, Iowa, Wisconsin, Michigan, Minnesota, Nebraska, Dakota and Wyoming, penetrates the Agricultural, Mining and Commercial Centres of the
WEST AND NORTHWEST.
The Unrivaled Equipment of the Line embraces Sumptuous Dining Cars, New Wagner and Pullman Sleepers, Superb day Coaches and
FAST VESTIBULED TRAINS
Running direct between Chicago, St. Paul and Minneapolis, Council Bluffs and Omaha, connecting for Portland, Denver, San Francisco and all Pacific Coast Points.
ONLY LINE TO THE BLACK HILLS
For Tickets, Rates, Maps, Time Tables and full information, apply to any Ticket Agent or address the Gen'l Passenger Agent, Chicago, Ill.
J. M. WHITMAN, General Manager. H. C. WICKES, Traffic Manager. E. P. WILSON, Gen'l Pass. Agt.

NOTES from the diary of tourists, commercial travelers, business men and others has revealed:

That the **Wisconsin Central** has the unqualified endorsement of all:

That the **Wisconsin Central** has to-day the most popular line between **Chicago** and **Milwaukee**, and **St. Paul, Minneapolis** and the **Northwest**;

That the **Wisconsin Central** is daily adding to its admirers as the recognized **Pullman** line between **Chicago** and **Milwaukee** and **Ashland, Duluth** and **Lake Superior**;

That the **Wisconsin Central** touches the most prominent points in Wisconsin, and that it has more important business centers on its through line than any other railway to and from the **Northwest**;

That the **Wisconsin Central** has made an enviable reputation with its peerless **Dining Car Service**;

That the **Wisconsin Central** runs fast trains on which all classes of passengers are carried with commodious and distinct accomodation for all:

That the **Wisconsin Central** has representatives distributed throughout the country, who will cheerfully give any information that may be desired and that its terminal Agents are specially instructed to look after the comfort of passengers who may be routed via its line.

For detailed information, apply to your nearest Ticket Agent; or to representatives of the Wisconsin Central Company.

WM. S. MELLEN, General Manager. JAMES BARKER, Genl. Passr. &. Tkt. Agt.
LOUIS ECKSTEIN, Asst, Genl. Passr. & Tkt. Agt.
MILWAUKEE, WIS.

ALL persons desiring to reach the entire milling and grain trade of America, by circular or otherwise, should obtain a copy of CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888.

WE shall be pleased to receive from any of our readers, short, crisp, sensible letters on subjects of interest to the flour and grain trade for publication.

EXPORTING millers should write to the Riverside Printing Co., Milwaukee, Wis., for the best Flour Cable Code ever published. There are more copies of this Code in use than of ALL other flour codes published. It is simple and accurate.

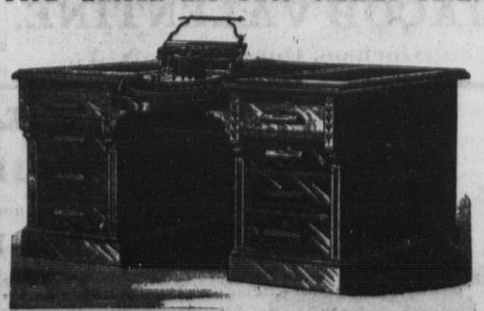
ASHLAND M.L.S.&W.RY. ROUTE
THE MILWAUKEE, LAKE SHORE & WESTERN R'Y
IS THE DIRECT AND MOST POPULAR LINE AND
Through Sleeping and Parlor Car Route
FROM
CHICAGO and MILWAUKEE
TO
SHEBOYGAN, MANITOWOC, APPLETON, NEW LONDON AND WAUSAU,
TO ALL THE IMPORTANT TOWNS IN THE
Gogebic, Penokee and Montreal Iron Ranges,
HURLEY, BESSEMER, IRONWOOD, WAKEFIELD AND GOGEBIC,
TO
ASHLAND, SUPERIOR and DULUTH,
To all Fox River Manufacturing Cities
AND
The Lumbering Districts of Northern Wisconsin and Michigan.
SPORTSMEN The best Fishing and Hunting in the NORTHWEST reached by the ASHLAND ROUTE. Send to the General Passenger and Ticket Agent for Descriptive and Illustrated Publications, Maps, Folders, Time Cards and General Information.
Milwaukee Office, 95 Wisconsin St.
H. G. FLEITH, Com. Freight Agt. F. P. REGAN, City Pass. & Tkt. Agt.
H. F. WHITCOMB, General Manager. ERNEST VLIET, Gen'l Pass & Tkt. Agt.
MILWAUKEE.

Milwaukee & Northern R. R.
SHORT LINE
—TO—
Marquette, Negaunee, Ishpeming, Hancock, Houghton, Champion, Republic, Iron Mountain, Menominee, Mich.
Marinette, Green Bay, Depere, Neenah, Menasha, Appleton, Wis.
THE TABLE OF EXPRESS TRAINS.

STATIONS.	DEPART.	ARRIVE.
Champion, Republic,	*1:35 A. M.	*3:20 A. M.
Iron Mountain, Menominee, Marinette, Green Bay, Depere,	*1:35 A. M. 3:10 P. M.	*3:20 A. M. 3:55 P. M.
Green Bay, Depere, Appleton, Menasha, Neenah,	†7:35 A. M. 7:55 A. M. 3:10 P. M.	3:55 P. M. 10:20 A. M.

*Daily. †Daily, except Monday. All other trains daily except Sunday.
Pullman Sleeping Cars are run on all night trains, and are ready for occupancy at 9:00 P. M.
New Passenger Station, Fourth Ward Park.
C. F. DUTTON, General Manager. W. B. SHEARDOWN, General Ticket Agent.

A NIGHT IN CHICAGO
—AND A—
NIGHT TRAIN
—TO—
INDIANAPOLIS.
—THE—
MONON ROUTE
LOUISVILLE, NEW ALBANY & CHICAGO RY
HAS A TRAIN
Leaving Chicago
AT 11:40 P. M.
EVERY NIGHT (Sundays included), with THROUGH COACHES and PULLMAN SLEEPERS, ARRIVING INDIANAPOLIS at 7:30 A. M.
ADDITIONAL TRAINS leave Chicago for Indianapolis at 8:15 A. M. and 8:20 P. M.
Ask your home Agent to make your tickets read via the MONON ROUTE, so your comfort may be assured. For further information, Sleeping Car erths, etc., call at
CITY TICKET OFFICE, No. 73 CLARK ST.
—OR AT THE—
DEARBORN STATION, CHICAGO.
E. O. McCORMICK, Gen'l Pass. Agent, CHICAGO.

HAMMOND
TYPE-WRITER AND DROP CABINET DESK.

The highest achievement and latest production in Writing Machines
As I am receiving requests for exchanges daily from parties who have the old style type-bar machines, and as I am thus securing hundreds of second-hand Remingtons and Caligraphs at *very low prices*, I am able to offer these latter machines in many cases *as good as new* at prices that defy competition. Write and see! Yours respectfully,
P. H. Sercombe, Prop. MILWAUKEE TYPE-WRITER AGENCY.

CH&D CINCINNATI, HAMILTON & DAYTON R.R.
THE THROUGH CAR LINE
—FROM AND TO—
CINCINNATI
WITH THROUGH CAR SERVICE BETWEEN
CINCINNATI and INDIANAPOLIS,
CINCINNATI and TOLEDO and DETROIT,
CINCINNATI and CHICAGO,
CINCINNATI and ST. LOUIS,
CINCINNATI and DAYTON and RICHMOND,
CINCINNATI and FT. WAYNE and GRAND RAPIDS,
CINCINNATI and GREENVILLE and VAN WERT.
With THROUGH RECLINING CHAIR CAR between
CINCINNATI, DECATUR and SPRINGFIELD, ILLS. and KEOKUK, IOWA, (daily)
PARLOR CHAIR CARS ON DAY, and SLEEPERS ON NIGHT TRAINS, "YEAR 'ROUND."
Ask for Tickets via C. H. & D. R. R.
For full information, Tickets, Sleeping Car Space, &c., Inquire of or Address,
W. H Fisher, Gen'l Agt., Indianapolis, Ind. W. H. Whittlesey, Central Pass'r Agt., Dayton, O.
John B. stable, District Pass'r Agt, Toledo, O. D. B. Tracy, Northern Pass'r Agt., Detroit, Mich.
Wm. A. Wiggins, Southern Passenger Agent, Chattanooga, Tenn.
J. G. Mason, City Passenger Agent, Cincinnati, O.
Or General Passenger Agent's Office, - No. 200 W. Fourth St., Cincinnati, O.
C. C. WAITE, Vice-Pres't & Gen'l Manager. CHAS. H. ROCKWELL, Gen'l Pass'r & Ticket Agent.

THE
Chicago & Grand Trunk R'y
NIAGARA FALLS AIR LINE
Is the Shortest and Most Direct Route East.
THROUGH SLEEPING AND PARLOR CARS TO
New York, Montreal and Boston.
The Only Line running Through Sleeping Cars between
CHICAGO and PHILADELPHIA
Via NIAGARA FALLS Without Change.
Trains leave Dearborn Station at 9.05 a. m., 3.25 p. m. and 8.15 p. m. 8.15 p. m. train has elegant Pullman Sleeping Car to Detroit daily.
2nd class tickets good on all trains.
W. E. DAVIS, Gen'l Pass's & Ticket Agent, CHICAGO. E. H. HUGHES, Gen'l Western Pass'r Agent, CHICAGO. B. C. MEDDAUGH, Nor. Pass'r Ag't, 99 Wisconsin St., MILWAUKEE.
STEAMSHIP TICKETS
To or from Europe at lowest rates, by all lines. Cabin plans can be consulted and best accommodations secured as far in advance as desired.
Information furnished by mail or on application at office, 99 Wisconsin St., southwest cor. Broadway.
B. C. MEDDAUGH, Gen'l S. S. Agent. MILWAUKEE, WIS.

CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1889, issued March 3, is meeting with much praise from all departments of the trade. While not claimed by the publisher to be perfect, it answers FULLY the requirements of the trade. It is the only list published. The demand is limited and the price (Ten Dollars per copy) is cheap, considering the labor required in compiling, printing and selling. It contains lists of flour mill and grain elevator owners, micellaneous kinds of mills such as corn, rye, oatmeal, rice and feed mills, millwrights, flour brokers and dealers in various sections of the United States and Canada, and a good list of European flour and grain importers. Kind of power used, rolls or stones, capacity and millers supposed to be worth $10,000 or *more* are indicated in thousands of cases.

GREAT BARGAIN
FOR OUR SUBSCRIBERS.
Readers of the UNITED STATES MILLER can secure one year's subscription to that charming journal, **THE LADIES HOME COMPANION**, for only 10 cents additional; that is, both journals, the UNITED STATES MILLER and the Ladies Home Companion, will be sent one year to any address for one dollar and ten cents ($1.10). The
LADIES HOME COMPANION
A Practical Household Journal.

Stands without a peer in literary excellence, typographical beauty, sugestive illustrations and helpful advice for every department of home life. It is beautifully illustrated, printed on fine, cream tinted paper, and has a more brilliant array of contributors than ever before, consisting of
Eight Regular Editors and Scores of Eminent Writers,
Whose facile pens will furnish **Short and Continued Stories** of absorbing interest, while all branches of household economy that can possibly come within the good housewife's province will be ably treated.
10 cents additional to the regular subscription price of the United States Miller will secure that charming periodical, the Ladies Home Companion, one year (24 numbers), each copy equal in size, quality and amount of reading matter to other illustrated papers that cost 10 cents a copy or $4.00 a year.
Read a brief outline below of the subjects treated in the Ladies Home Companion:
PRACTICAL HOUSEKEEPING. This department is a well-spring of valuable suggestions for every branch of housekeeping, including a large variety of tested recipes, and how to prepare them at the least expense, in dainty and appetizing forms; also, hints for table decorations, methods of work, etc
FANCY WORK. DECORATIONS. These departments give elegant illustrations and plain directions showing how to make all kinds of fancy work, embroideries, needlework, chrocheting, knitting, suggestions for ornamenting rooms, decorating furniture, curtains, etc.
FASHIONS, OR, WHAT TO WEAR AND HOW TO MAKE IT. Artistic illustrations and descriptions of, with the newest and latest Styles and Novelties in Ladies' and Children's Dresses, Hats, Bonnets and other garments, with directions that enable one to dress well and economically.
MOTHERS find the portion devoted to them invaluable, and filled with a wide range of helpful suggestions obtained from practical experience relating to a mother's duties.
OCCUPATIONS FOR WOMEN. The Ladies Home Companion aims to keep women informed in reference to those things that wives, mothers and single women are doing to earn money, while in all its departments it is the most complete, most readable and
Most Fascinating Ladies Paper Published.
ETIQUETTE at home and abroad, at the table and on the street, at public gatherings, etc.
SEASONABLE BILLS OF FARE are given, with plain directions for the economical preparation of healthful, nourishing and palatable dishes, with hints for serving, arrangement of table, reception of guests, etc., etc. Also menu for parties, teas, receptions, Thanksgiving and Christmas dinners.
TOILET.—Recipes and hints for care of hands, face, teeth, eyes, hair, etc., color and harmony in dress, etc.
DEPORTMENT.—Rules, usages and ceremonies of good society, letter writing, good manners, the art of conversing well, accomplishments, home training.
Address, THE UNITED STATES MILLER, Milwaukee, Wis.

G. M. MANN. F. P. MANN

MILWAUKEE BAG COMPANY,

MANUFACTURERS OF

COTTON, PAPER AND JUTE

FLOUR SACKS

DEALERS IN

GRAIN BAGS, TWINES, CENTALS, ETC.

TELEPHONE NO. 427.

No. 134 West Water Street, MILWAUKEE, WISCONSIN.

SCHIEREN'S
OAK-TANNED
LEATHER BELTING

Cotton Belting and Hose

GOODYEAR RUBBER CO.

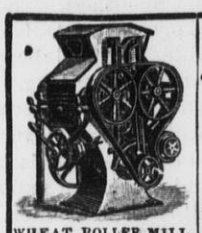
"Gold Seal" Rubber Belting.

PRICE LIST SENT ON APPLICATION.

372 & 374 EAST WATER STREET
MILWAUKEE.

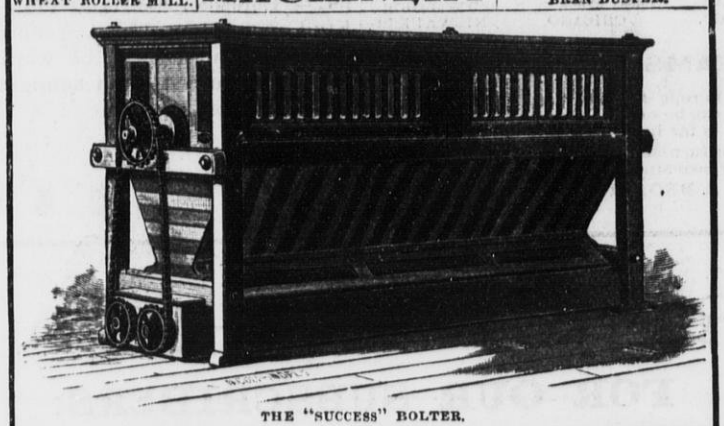
131 EAST THIRD STREET
ST. PAUL.

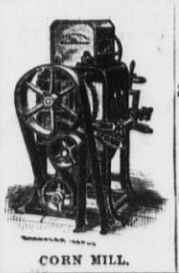
201 NICOLLET AVENUE
MINNEAPOLIS.


WHEAT ROLLER MILL.

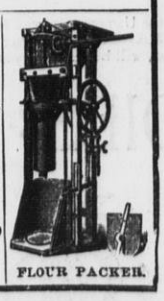
THE
J. B. ALLFREE COMPANY,
Indianapolis, Indiana,
manufacture this superior line
—OF—
MACHINERY

BRAN DUSTER.


THE "SUCCESS" BOLTER.


CORN MILL.

Also
AUTOMATIC ENGINES,
Purifiers,
SIEVE SCALPERS,
Corn Pearlers and Corn Cleaners,
Centrifugal Reels.
Address for prices, etc.,
THE J. B. ALLFREE COMPANY,
Indianapolis, Indiana,
Mill Builders and Mill Furnishers,


FLOUR PACKER.

GANZ & CO.

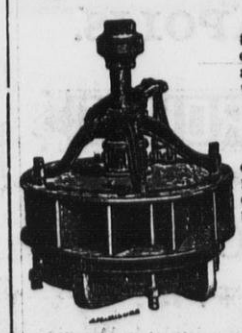
Budapest, Austria-Hungary.

We are the first introducers of the Chilled Iron Rollers for milling purposes, and hold Letters Patent for the United States of America. For full particulars address as above.

[Mention this paper when you write to us.]

Do you wish to purchase the Best
FRENCH BURR
Vertical or Horizontal
Feed Mills
OR
Cob Crushers.
Write to
C. C. PHILLIPS,
20 South Broad Street
Philadelphia, Pa.

Improved Walsh Double Turbine



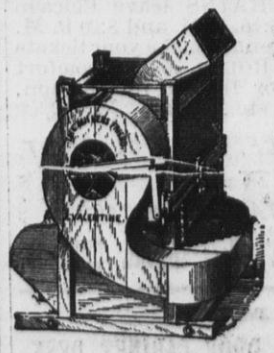
This wheel has a perfect fitting cylinder gate and draft tube combined, and allows no water to escape when closed.

POWER GUARANTEED

equal to any wheel on the market using equal amount of water. Address for particulars,

B. H. & I. SANFORD,
Phœnix Iron Works,
Sheboygan Falls, Wis.

IMPROVED CORN SHELLER,



IT IS THE
BEST CORN SHELLER
MADE FOR MILL USE
IT IS
Simple in Construction
Almost Noiseless,
—AND—
Requires Little Power
HUNDREDS ARE IN USE.
For descriptive circular, price list, etc., Address

JACOB VALENTINE,
Gorham, Ontario Co., N. Y.

BURNHAM'S NEW IMPROVED STANDARD TURBINE WHEEL

WILLSON
Spring Whiffletree

Designed to Make the Burdens of Laboring Horses Easier, and to Keep them in Good Working Condition.

These trees will commend themselves to every owner of Laboring Horses, for the reason that the load is constantly balanced on the spring, making it impossible for the horse, harness or wagon to receive any sudden shock or jar. Some of the benefits derived from their use are as follows:

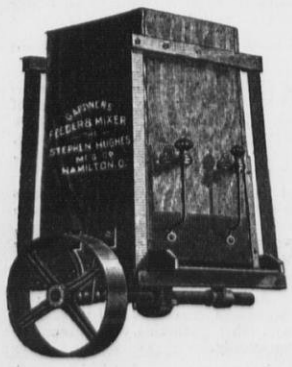
Prolongs the Life of the Horse; Prevents Sore Shoulders, Stiffness of Limbs, Reluctance in Pulling and Destruction of Harness.

☞ *Send for Catalogue and Prices.*

AGENTS WANTED.

THE JEFFREY MFG. CO.
169 E. 1st Ave., COLUMBUS, O., U. S. A.
[Jan. 89.]

The Gardner Flour Feeder and Mixer.



THE ECONOMIST AND MILLER'S FRIEND.
THOUSANDS NOW IN USE.

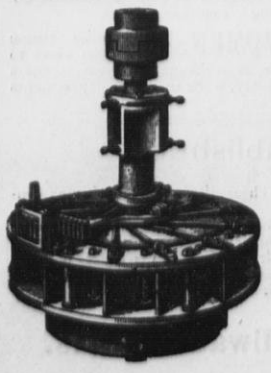
☞*Saves the Labor of one man.* Can be quickly adjusted to feed from ten pounds to five barrels per hour. Requires no attention, and will feed any amount at which it is set, with the regularity of clock-work. It is easily set up, and requires speed of only 20 to 30 revolutions.

The Cheapest and Most Perfect Machine ever offered to the Milling Public.

Write for Circulars to

The STEPHEN HUGHES MFG. CO., Hamilton, O.

FRATTINGER,
City Tailor
389 Broadway,
MILWAUKEE.



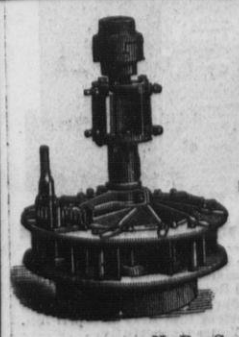
JAMES LEFFEL'S IMPROVED
Water Wheel

Fine New Pamphlet for 1889.

The "OLD RELIABLE" with Improvements, making it the **Most Perfect Turbine now in use**, comprising the **Largest** and the **Smallest** Wheels, under both the **Highest** and **Lowest** Heads in this country. Our new Pocket Wheel Book sent free. Address,

JAMES LEFFEL & CO., Springfield, Ohio,
and 110 Liberty St., New York City.

[Please mention this paper when you write to us.]



POOLE & HUNT'S
Leffel Turbine Water Wheel

Made of best material and in best style of workmanship.

Machine Molded Mill Gearing

From 1 to 20 feet diameter, of any desired face or pitch, molded by our own SPECIAL MACHINERY. Shafting, Pulleys, and Hangers, of the latest and most improved designs.

Mixers and General Outfit for Fertilizer Works.

☞ Shipping Facilities the Best in all Directions.

POOLE & HUNT, Baltimore, Md.

N. B.—Special attention given to Heavy Gearing for Pulp and Paper Mills.

[Mention this paper when you write to us.]

1876. 1889.

The United States MILLER AND THE MILLING ENGINEER.

Fourteenth Year.—No. 4. MILWAUKEE, APRIL, 1889. Subscription Price, $1.00 Per Year.

THE SAN DIEGO CAL., FLUME.

A GREAT ENGINEERING FEAT.

The great flume for supplying the city of San Diego, California, with water and for irrigating a large tract of land, otherwise worthless, has been completed. One can scarcely conceive the engineering skill required or the magnitude of the work without a personal inspection of the country traversed.

Mr. O. H. McConoughy, of *The Golden Era*, published in San Diego, in an article concerning this enterprise, says:

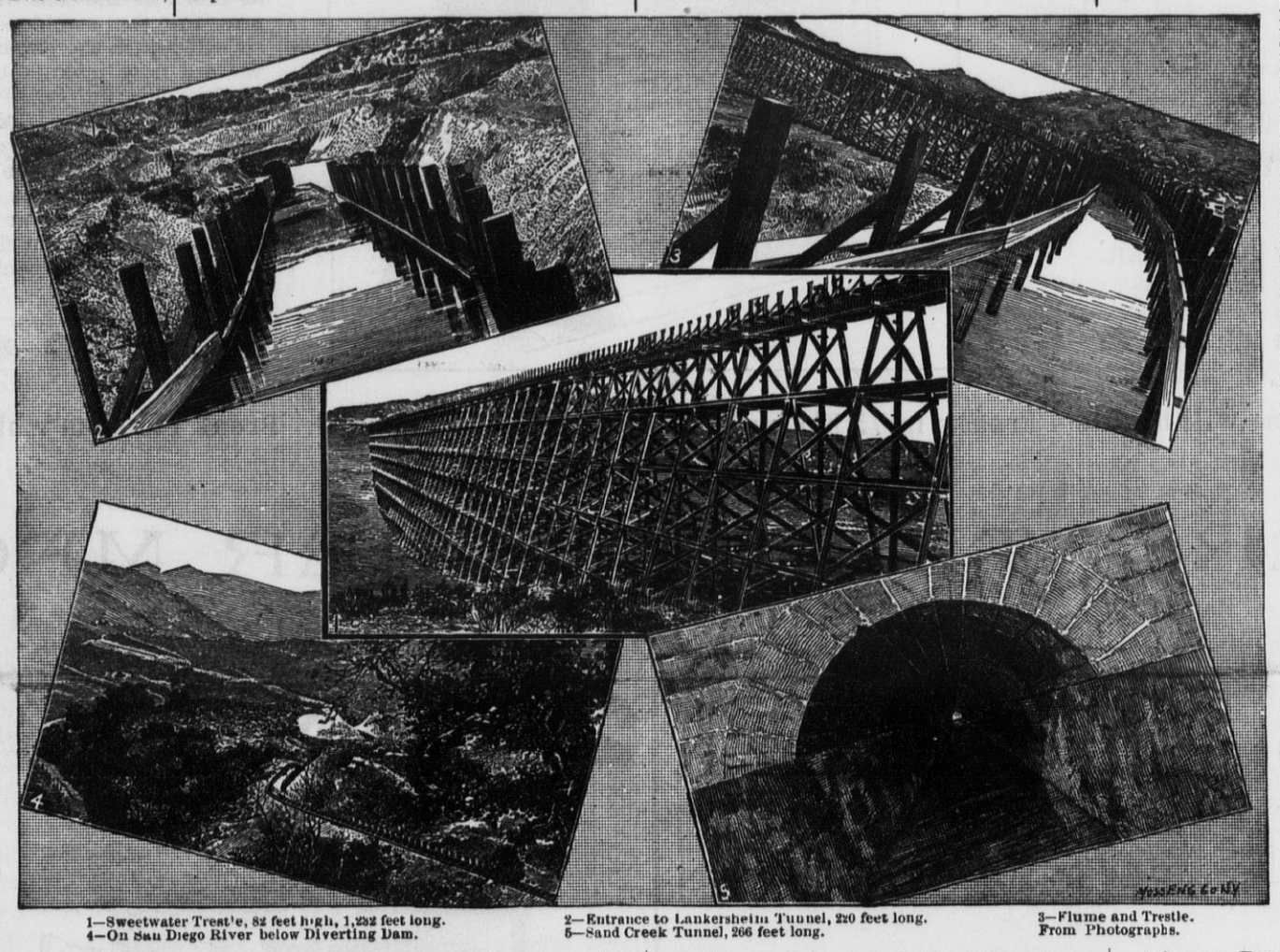
"The even grade of four and three-fourths feet fall to the mile is steadily maintained over three hundred and fifteen trestles and through the numerous tunnels and numberless cuts, from the diverting dam in the mountains, forty-five miles away, to the reservoir on mesa. Nowhere has any filling been allowed, leaving no chance for accidents such as washouts or slides. The native rock or firm bed of earth alone is used to rest the well-made trough of everlasting redwood. Where native rock or earth bed is not at the proper height a strongly made trestle, resting on them, supports the flume, which is strong enough for locomotive and train to pass over in safety.

The mountain sides below this circling artificial stream are strewn with great and small fragments of the solid rock, showing the effective use of giant powder, while on the upper side every rock and stone which might become displaced and damage the flume in its descent has been carefully removed The great pains taken may, perhaps, be understood when the perfectly made surface ditch is noticed on each side of the flume in its entire length, diverting the surface water and rainfall, and maintaining the stability of the flume, and the purity of its contents.

The great and never-failing supply of the very best of water back in those mountain fastnesses, and the vastness of the undertaking, can be better understood in figures than in words. The water shed at present concentrated is 150 square miles. The rainfall averages forty inches a year in this mountainous section, and water enough is now waiting to last San Francisco three years. There have been employed constantly for nearly two years a small army of men. At times, when they could work to advantage, as many as four hundred men have been employed. The commissary department kept many a sutler busy furnishing food.

Over one hundred wagons were necessary, and eight hundred horses and mules, to transport the lumber, nearly nine million feet of which was used. This was hauled by teams in caravans—five or six teams going together, each team with six, eight or ten horses and two or three wagons—so that a caravan was quite a lengthy affair. In many instances roads had to be constructed up the impassable mountain slopes, involving much time and labor, and frequently cost thousands of dollars. One road alone cost seven thousand dollars, and had to be built before the material for the flume could reach the necessary place.

The very head of the flume is the Cuyamaca dam, seven hundred and twenty feet long and thirty-five feet high, covering 900 acres with its crystal flood. From this the water flows down a natural flume, channeled in rock, about twelve miles to the diverting dam. This dam, four hundred feet long, thirty-five feet high and built of solid masonry, cost thirty-six thousand dollars, and holds in check another beautiful lake—a source of perpetual delight to all manner of water fowl, as well as to the hunter who has strayed that far. From the diverting dam the flume proper begins. This is thirty-five and three-quarters miles long, reaching the reservoir eight miles from the city, at an elevation of six hundred and thirty feet. From the reservoir it is piped to the city limits, where it is to be connected with the city water mains. The trestles and tunnels necessary in the construction of the flume are too numerous to mention, but we give a few to show the magnitude of the enterprise:



1—Sweetwater Trestle, 82 feet high, 1,252 feet long.
2—Entrance to Lankersheim Tunnel, 220 feet long.
3—Flume and Trestle.
4—On San Diego River below Diverting Dam.
5—Sand Creek Tunnel, 266 feet long.
From Photographs.

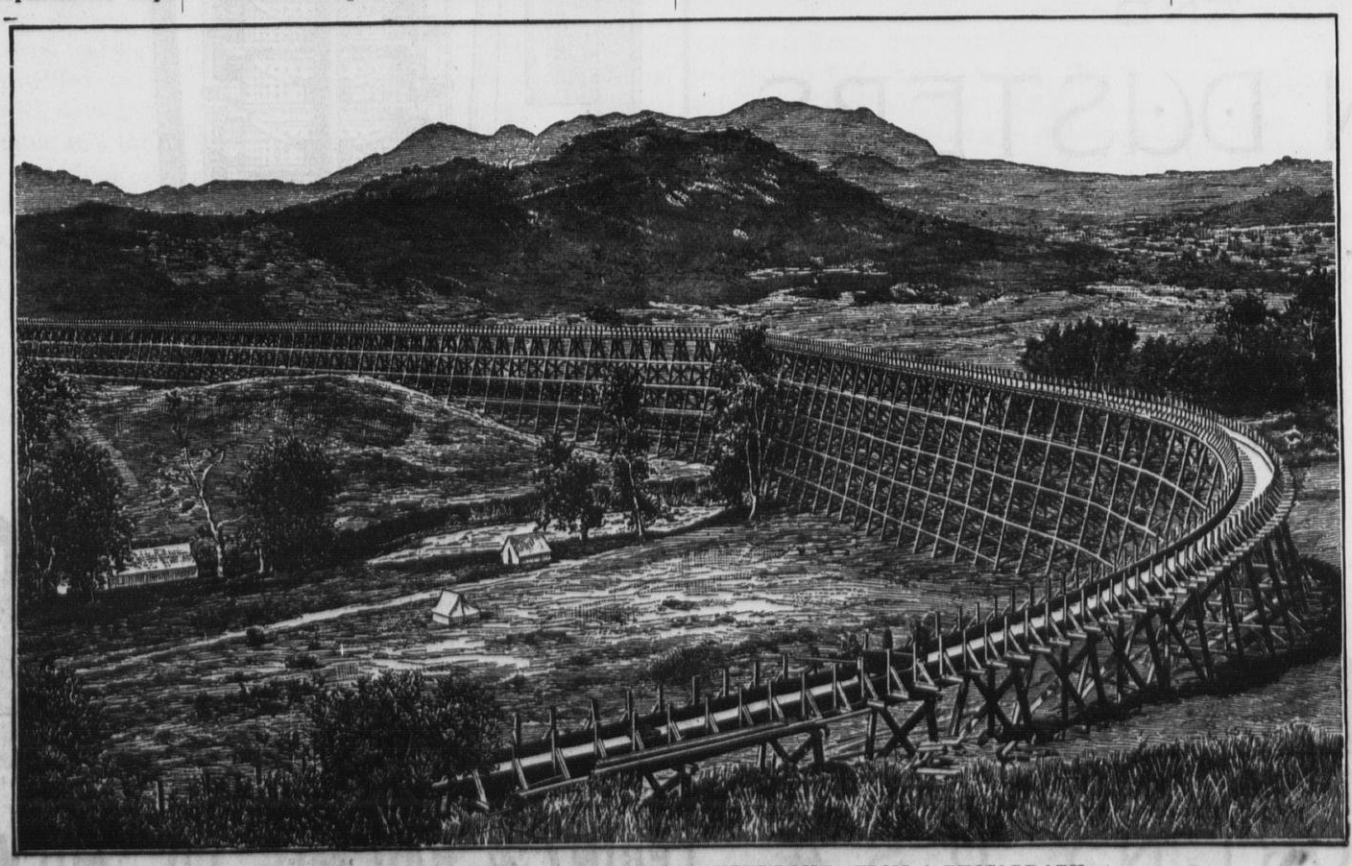
Some of the longest trestles are: The Sweetwater pass, 1,264 feet long and 81 feet high; Sweetwater pass No. 2, 720 feet long and 25 feet high; Sycamore creek, 720 feet long and 35 feet high; Connor creek, 688 feet long and 34 feet high; Knob creek, 600 feet long and 55 feet high; Cut-off, 640 feet long and 48 feet high; Los Coches, 1,664 feet long and 70 feet high; Sand creek, 600 feet long and 58 feet high; South Fork, 420 feet long and 86 feet high; Quail canyon, 560 feet long and 68 feet high; Monte tunnel, 438 feet long 60 feet high; Chocolate, 450 feet long and 63 feet high, and over three hundred smaller ones.

The most important tunnels are: Lankersheim, 1,900 feet in length; Los Coches, 313 feet; El Monte, 290 feet; Cape Horn, 700 feet; South Fork, 200 feet; Anderton, 270 feet, and Sand creek, 430 feet. These are through solid rock of granite or slate, six feet square, cemented and arched overhead, supports being placed wherever the rock is soft or has any indications of falling."

Mr. T. S. Van Dyke was the first to conceive the idea of bringing water from Cuyamaca to supply San Diego. Later on he unfolded his plans to Mr. W. E. Robinson, and these two gentlemen, after overcoming most discouraging obstacles, finally succeeded in enlisting capital to take hold of the scheme, and The San Diego Flume Company was organized in May, 1886, to bring water from the high mountains east of San Diego to supply the urgent need of the city for pure water in abundant quantities under pressure, and also to irrigate the rich valley and table lands around it. "To accomplish this," says the writer above quoted, "the company have constructed a reservoir in the Cuyamaca mountains nearly 5,000 feet above the sea, with a dam 35 feet high and 720 feet long, its capacity being 3,739,119.324 gallons—from whence the water as needed is taken down a rocky canyon to the San Diego river. Just below this point of junction is built a diverting dam of solid masonry, through gates in which, the water passes into the flume.

The flume is six feet wide and four feet high, built of clear dressed redwood plank two inches thick, resting on heavy mud sills, stringers and cross ties, the whole on a foundation of rock or earth in its natural position. It is believed to be the most solidly and thoroughly built structure of its kind in the United States, and that it will continue to be as it is now practically free from leakage. At present but one tier of side planks have been laid, making the height sixteen inches. The remainder can be easily laid as soon as needed. Its full capacity is 5,000 inches daily, equal 65,000,000 gallons, which is sufficient to irrigate 100,000 acres. Its length is nearly thirty-six miles, following the course of the San Diego river to the Cajon valley, at a height sufficient to irrigate the best lands in that valley, and thence to the edge of the mesa or table land adjoining the city, terminating at a point 630 feet above the sea, and eight miles distant from the city limits, to which a pipe line or flume and pipe line connects it with the main of the San Diego and Coronado Water Company.

In addition to the above work already done, other reservoirs will be constructed as soon as needed, upon sites already secured for the storage of the water rain supply. One of these near the "La Mesa tract," owned by the company, will contain 760,000,000 gallons, and another above the diverting dam 1,250,000,000 gallons."



LOS COCHES TRESTLE, 65 FEET HIGH, 1,774 FEET LONG. FROM A PHOTOGRAPH.

YOU may hive the stars in a nail keg, hang the ocean on a rail fence to dry, put the sky to soak in a gourd and unbuckle the bellyband of eternity and let the sun and moon out, but don't think you can escape the place that lies on the other side purgatory if you don't pay for your paper.—*Georgia Enterprise.*

A GRAIN-BIN PROBLEM.—St. Paul grain men have been vexing their souls over a problem touching a grain-bin and contents. It is this: Given a bin, dump into it, separately, five distinct qualities of wheat; open the spout at the bottom, and the query is, which layer of wheat comes out first? The uninitiated say at once, with a few exceptions, "The first layer at the bottom, of course!" W. A. Van Styke was determined to get at the facts and watched the bin with his eagle eye very closely the other day, after having caused a layer of barley to be placed on top of several layers of different kinds of wheat. The spout was opened and the barley came rushing out first.—*St. Paul Pioneer Press.*

THE first engine in the country was of the Newcomen type, and was built by Joseph Brown, of Providence, R. I. It was in operation, pumping water from a Rhode Island mine, in 1787. The cylinder was made of plate iron and was 2½ feet in diameter, and the valve between the cylinder and boiler was two feet in diameter. The engine raised seven hogsheads of water per minute, and the "flue" consumed two cords of wood in twenty-four hours.

PACIFIC coast exchanges report considerable shipments of flour to trans-Pacific ports.

SINCE 1878 Baltimore has outranked Philadelphia in the value of its export trade, although previous to that year almost the exact opposite was the case. In 1888, 6.3 per cent. of total exports from this country were shipped from Philadelphia, while 10.4 per cent. was shipped from Baltimore. In 1878 the percentages were: Philadelphia 9.4 and Baltimore 9.6 per cent. The unfavorable showing made by Philedelphia is due almoet wholly to the reduced exports of wheat and corn from that port.

The Greatest Success of the Day!

THE NEW ERA SCALPER

Read the following Testimonials and then write us for particulars:

TESTIMONIAL.

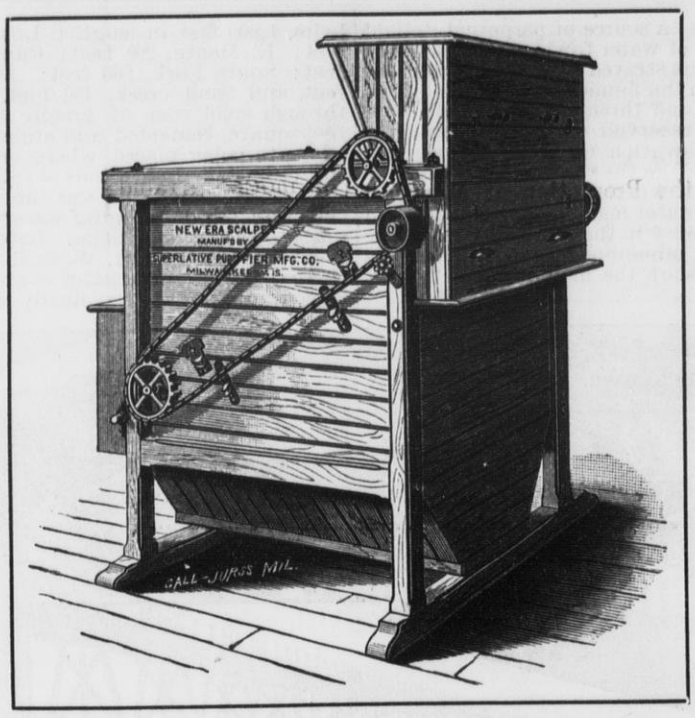
CARLINVILLE, ILL., Feb. 16, 1889.

Superlative Purifier Co., Milwaukee:

DEAR SIRS: It affords us great pleasure to say that the New Era Scalpers are giving the very best of satisfaction, and the longer we use them the better we are pleased. Our patent as well as the grade below the patent have been improved considerably with no other change in the mill than scalping with your machines. They require nominal power, and, in a word, are a big success.

Yours truly,

HENRY C. YAEGER.
Pres't Yaeger Flour Mill Co.



TESTIMONIAL.

YOUNGSTOWN, O., Dec. 7, 1888.

DEAR SIRS: In order to put in your scalpers on our 2d, 3d, 4th and 5th breaks and retain our hexagon scalpers for wheat cleaners, I was obliged to add another story to our roller room, at an expense of five times as much as the cost of the machines. Having now run the machines for thirty days, I feel satisfied with the expenditure made, as I think we are now making the nicest flour we ever made. Our 2d, 3d, 4th and 5th break flour (we make eight breaks) is as white and clean as our patent, while our flour all through is the best we ever made. Our hexagon scalpers make excellent wheat cleaners, and your machined make excellent scalpers. The two combines make excellent flour.

Respectfully yours,

HOMER BALDWIN.

One Machine will handle 4 Breaks in 75 bbl. mill, or 1 Break in 500 bbl. mill. Break Flour as white as any.

FOR PRICES, ETC., ADDRESS

SUPERLATIVE PURIFIER MFG. CO.

MILWAUKEE, WISCONSIN. [Mention this paper]

WORKS TO A CHARM!

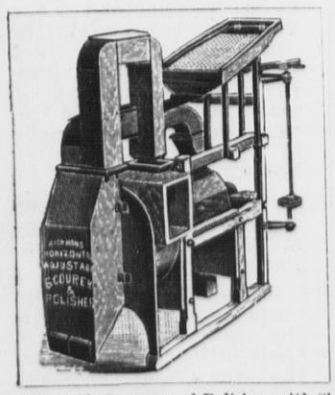
THE

RICHMOND

Grain Cleaning Machinerg

AND

BRAN DUSTERS



Adjustable Scourer and Polisher, with Shoe.

BUTLER, Ky., March 5, 1889.

RICHMOND MFG. CO.,
Lockport, N. Y.:

Gentlemen—We have put the new machine—Horizontal Adjustable Scourer and Polisher—up and it works to a charm. We are pleased with it. We enclose our check in payment of same.

Respectfully,

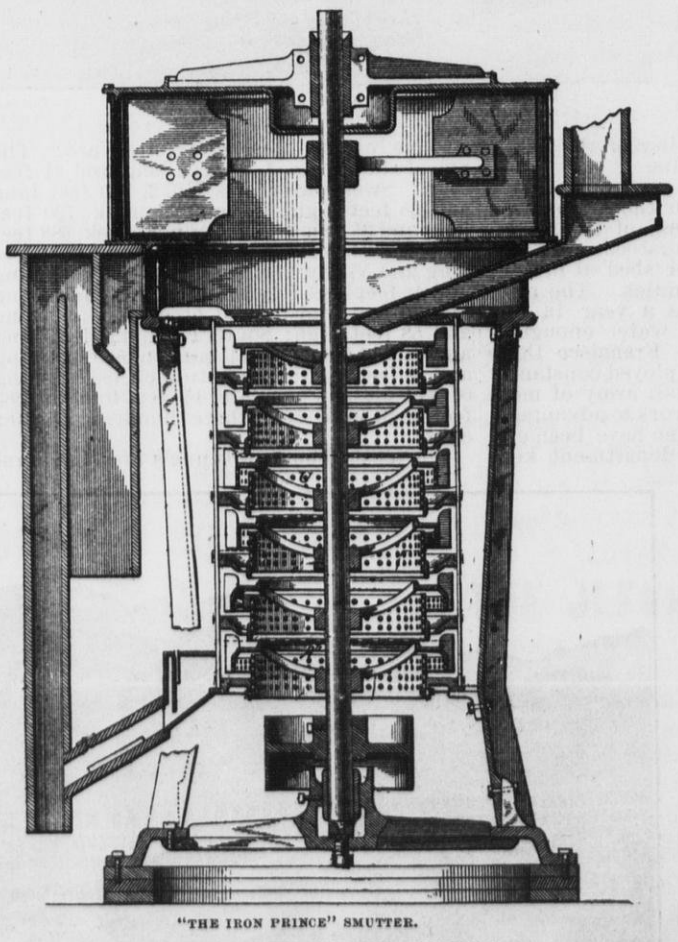
C. C. HAGEMEYER & CO.

C. C. HAGEMEYER, Pres't.

Richmond Manufacturing Co.,

LOCKPORT, N.Y., U.S.A.

2-THE BEST IN THE LAND-2



"THE IRON PRINCE" SMUTTER.

Office of the GEM MILLING COMPANY,
MILWAUKEE, April 24th, 1888.

PRINZ & RAU MFG. CO.:

GENTLEMEN—We find that sufficient time has elapsed since we first commenced to use your improved Smutter to authorize us in passing final judgment. It has now been in constant use since June 15th, 1886, and has given perfect satisfaction. It has taken the place and the work of three first-class machines and does the work more satisfactorily, removing the beards in a more thorough manner than the three machines combined formerly did. We also save power, being well satisfied that we are using no more power with your machine than we used formerly on one of the three machines taken out. As to durability of your machine we can say that we see no reason why it should not stand as much or more wear than any machine known to us.

Yours truly,

F. H. MADGEBURG, Pres't.

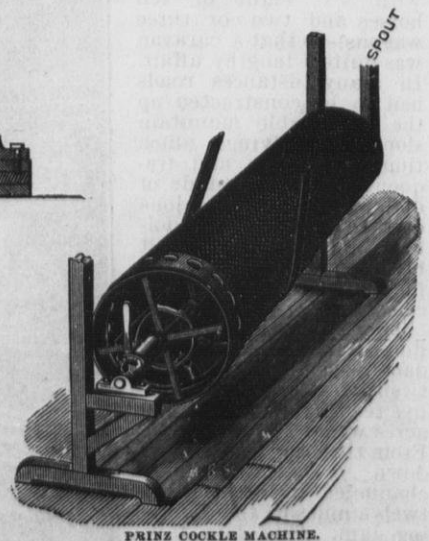
OFFICE OF
VICTOR ROLLER MILLS
Lime Spring, Ia.
Nov. 12, 1888.

Prinz & Rau Mfg. Co., Milwaukee, Wis.:

Gentlemen—Enclosed find draft to balance our account for Cockle Machine purchased of you. Our head miller is delighted with the machine; it is the best he ever saw work and it takes but little power to run it.

Respectfully,
REED & HEATH.

No. 2 Machine.



PRINZ COCKLE MACHINE.

PRINZ & RAU MFG. CO., MILWAUKEE, WIS.

UNITED STATES MILLER.

AND THE MILLING ENGINEER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.

OFFICE, NO. 124 GRAND AVENUE, MILWAUKEE.

SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.

To American subscribers, postage prepaid..... $1.00
To Canadian subscribers, postage prepaid..... 1.00
Foreign subscriptions..... 1.25

All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.

Mills for advertising will be sent monthly, unless otherwise agreed upon.

For estimates for advertising, address the UNITED STATES MILLER.

[Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE, APRIL, 1889.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. *You will thereby oblige not only this paper, but the advertisers.*

MILWAUKEE AMUSEMENTS.

ACADEMY OF MUSIC—First-class theatrical entertainments every evening. Matinees Wednesdays, Saturdays and Sundays, at 2 p. m.

STANDARD THEATER (South-side)—Every evening; matinees Saturdays and Sundays, at 2 p. m.

GRAND AVENUE THEATER AND MUSEUM—Open daily from 10 a. m. to 10 p. m.

STADT THEATER (German)—Wednesday and Sunday evenings.

PEOPLE'S THEATER—Choice variety performances every evening; matinees Tuesdays, Fridays and Sundays, at 2 30 p, m.

PUBLIC MUSEUM, Exposition Building—Open daily; admission free.

LAYTON ART GALERY—Open daily. Free admission Tuesday, Thursday and Saturday.

AN IMPORTANT ANNOUNCEMENT.

MILWAUKEE, Wis., April 24, 1889.

To the Milling Public:

We have this day disposed of our entire interest in the publication of THE MILLING ENGINEER to Mr. E. Harrison Cawker, publisher of THE UNITED STATES MILLER of this city, who will fulfill all of our unexpired contracts and subscriptions. In transferring this property with our good will to Mr. Cawker, we feel that we have placed it in capable hands, and that the interests of patrons of the paper will be carefully and conscientiously guarded. We bespeak for him the same generous measure of support which has been accorded to us in the past.

Respectfully,
EDW. P. ALLIS & Co.

* * * *

We simply desire to say in connection with the above letter that we shall endeavor to merit not only the kind words above written, but the good will of all who may in any manner favor us with patronage.

MR. ALBERT HOPPIN has resigned his position with Messrs. Edw. P. Allis & Co.,,and has purchased a large interest in *The Stationary Engineer* and *The Master Steam Fitter* at Chicago, and has removed to that city. Mr. Hoppin has had long experience as a milling journalist as former proprietor of *The Northwestern Miller* and later as editor of *The Milling Engineer*, published by Messrs. Edw. P. Allis & Co., and we are gratified to inform our readers that he will, during the year, contribute some valuable articles to this paper. In his new relations Mr. Hoppin is "right in his element," and no doubt there will be a marked improvement soon developed in the valuable journals he has purchased.

A LETTER from Mr. John W. Rodgers, Secretary Board of Trade, Oakley, Kan., says that there is a first-class opening for a good roller flour mill at that place of about 125 barrels daily capacity. The citizens are willing to give a good bonus to a suitable party. Address correspondence as above.

THE Millers' National Association will meet in Milwaukee, June 11, 12 and 13, 1889. There will doubtless be a large attendance of millers and others connected with the trade. The date set will find Milwaukee arrayed in all its summer beauty, and our visitors on that occasion will never regret the time or money spent to make the visit. It is quite probable that car-load delegations will come from various States. We shall endeavor to give full particulars in our May number.

CACOPHONICAL cachectical wegotism, complicated with hebetudinous micromental rhombo-cephalicity, continues to characterize the auto-inflatorial pseudo-philosophical milling-editorial gabble that gushes from the spouting Minneapolis artesian bore.—*Milling World.*

An "artesian bore" is good. An open sewer, however, is an abomination, and though but few may suffer from its nauseous exhalations, it is a pity it cannot be stopped.

THE Congress of Chili has made an appropriation for a competitive exhibition of flour mill machinery which is to be opened at Santiago, Chili, next November, under the auspices of the Chilian Society for the Promotion of Manufactures. The prize of 20,000f. ($4,000) will be awarded the successful competitor, whatever his country, by a jury of experts. Full particulars can be obtained by addressing Secretary Chilian Legation, Washington, D. C.

IMPORTANT TO FLOUR EXPORTERS.

The following communication, which is of importance to flour exporters, has just been received and handed to us for publication:

LONDON FLOUR TRADE ASSOCIATION,
30 Corn Exchange Chambers,
LONDON, March 28, 1880.

Mr. S. H. Seamans, Secretary Millers' National Association, Milwaukee:

DEAR SIR:—I am desired by the Executive Committee of the above association to bring to your notice the following fact:

"The dock companies have notified the trade that the new London clause of ½s per ton does not include fire insurance during the time the flour is upon the quay waiting delivery into lighters."

The holders of bills of lading are therefore exposed to this risk, and it is very difficult, if not impossible, to estimate accurately what amount to insure against fire, as it often happens that goods arrive and are upon the quay before receivers can identify them as appertaining to their bill of lading. The risk is of very short duration, and it would greatly facilitate business if it were included in the ocean policy, which could be done by adding the words, "including all risk on goods put on the quay under the London clause." We strongly recommend all millers and shippers to endeavor to have this inserted in future.

I remain, yours truly,
[Signed] JOHN KINGSFORD, Hon. Sec'y.

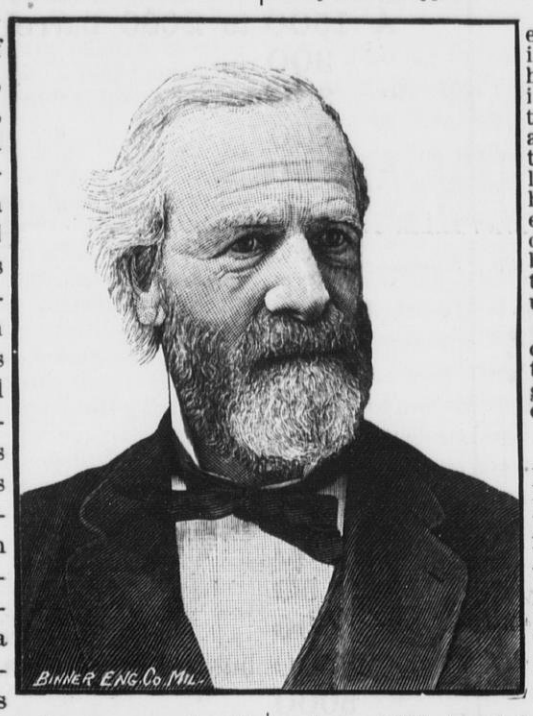
THE LATE EDWARD P. ALLIS.

During the evening of April 1, 1889, after a very brief illness, EDWARD P. ALLIS died at his home in this city of neuralgia of the stomach. His deathbed was surrounded by most of the members of his large family.

The announcement of his death, so sad, so unexpected and so sudden, struck a chill to the hearts not only of his kin and his large circle of private and personal friends but to an army of employes, many of whom had been in his service in various departments of the RELIANCE WORKS for years, and who had learned to regard him not simply as their employer but as a personal friend—one who was not so entirely wrapped up in his own affairs that he could take a genuine interest in their welfare. On the day of the burial the great Works stood empty and the host of operatives filed with measured tread through the streets to look for the last time on the face of their great chief—an industrial commander whose words were reason and whose ways were peace; whose inspiration was the faith that "no king upon his throne is so honored today as the Ericssons and Edisons at their work benches."

Edward P. Allis was born at Cazenovia, N. Y., May 12, 1824. Graduating from Union College, Schenectady, in 1845, his education was directed with a view to the practice of law. His tastes favored an active business life, and in 1846 he located in Milwaukee where in connection with William Allen he opened a leather store. The firm of Allis & Allen continued till 1854, during which time it built a large tannery at Two Rivers, Wisconsin. In 1854 Mr. Allis sold out his interest in the firm and connection with John P. McGregor engaged in the real estate and brokerage business. In 1861 he came into possession of the Reliance Works, and from that time forward his business history is written in the history of the works.

The picture of Mr. Allis, presented herewith is a good likeness.



In personal appearance he was of average height, slight, compactly, strongly built and capable of great endurance, quick in his motions, a rapid walker and his every action impressed one with the fact that he was firm of purpose and tireless in the pursuit of his business interests. He was quick to decide, relied upon his own judgment with confidence, had executive ability of a high order, attended strictly to his business and expected every one in his employ to do the same. He was quiet in manner, simple in his tastes and inclined to be reticent. He was a fine scholar, a great reader, and always kept fully posted in all scientific, mechanical and political matters.

Mr. Allis was neither inventor, engineer or mechanic but a *thorough business man*, wonderfully endowed with the peculiar faculty of assimilating and directing the talents of each, so that they might come to full fruition, as they did it building up the RELIANCE WORKS, whose products not only brought a competence to their owner, but served the best interests of mankind in most of the civilized countries of the world.

Nearly thirty years of his life were devoted to the building up of this great industrial enterprise from a little pioneer shop, beset with all the vicissitudes incident to a new country, to an establishment capable of turning out over three million dollars worth of manufactured products per annum and employing about fifteen hundred men. His will shows that it was his great heartfelt desire that this establishment might be perpetuated so as to be a constant, lasting, living blessing to Milwaukee for all time.

No employer ever had the welfare of his men more constantly in mind. He was at all times approachable and ready to listen to the claims of right, justice or ambition. On the other hand, no employer ever held the warm admiration and warm support of his workmen in a greater measure than did he, for he fully merited it. The employes of this noble man feel more keenly the loss of a friend by his death than that of an employer. Their feelings are aptly expressed in a series of resolutions adopted on the third of April, which we produce herewith.

At a joint meeting of the employes of the Reliance Works and members of the Allis Mutual Aid Society, held Wednesday, April 3d, the following resolutions were presented and adopted:

WHEREAS, Death has taken from us our much loved and respected employer, to whom we have been in the years that have passed so deeply indebted, not only for the work he has done in our behalf, but much more than this for the kindly personal interest he has always taken in all that has concerned our well-being and prosperity, and

WHEREAS, As his employes bound to him by so many ties of mutual sympathy and common interest in the building up of the great business, which has been his life work and which remains his most fitting monument, we are desirous of paying our tribute to his memory, therefore be it

Resolved, That by the death of Edward P. Allis, we have lost not only a kind, conscientious and liberal employer, but also a personal friend, endeared to us by his winning manners and by so many instances of thoughtful kindness and disinterested generosity; ever ready to meet with us on the broad plane of a common manhood.

Resolved, That we have ever found him in his dealings with us to have been honorable and upright, sympathizing with us in our desires and ambitions for advancement, and always willing to consider our interest in preference to his own, holding both subject to the welfare of the shops, which have been our common pride.

Resolved, That such of our number as are members of the Allis Mutual Aid Society cannot express too strongly our appreciation of the spirit of humanity which prompted him to found it and to contribute so generously to its support.

Resolved, That we extend to his sorrowing family our most heartfelt sympathy in this the hour of their bereavement, and that we pledge to them the same loyal service it would have been our greatest pleasure to render to him had he been spared to continue his work with us.

Resolved, That a copy of these resolutions be suitably engrossed and presented to his family.

In political faith Mr. Allis was a Republican and in full sympathy with the party, except on the currency question. In this he believed in the Greenback policy, and in 1877 headed the ticket of the Greenback party of Wisconsin as their candidate for governor. In the national campaign of 1888, being a strong believer in the policy of protection to American industries, he took an active interest in the cause and contributed much by his personal interest and efforts toward the victory of the Republican party.

Mr. Allis has always occupied a prominent position in the social and business circles of Milwaukee and his loss is keenly felt by the city. As years go, he was not an old man, not having quite reached his sixty-fifth birthday. The world is the better for his having lived. It will miss him sorely now that he is gone.

"He who here
Hath run his bright career,
And served men nobly, and acceptance found
And borne to light and right his witness high,
What can he better crave than to die,
And wait the issue sleeping under ground."
—*Matthew Arnold.*

THINGS WORTH KNOWING.

TO HARDEN COPPER.—Copper may be hardened by melting with it and thoroughly stirring into it 1 to 6 per cent. of manganese oxide. The other ingredients for bronze may then be added.

TO DETECT STEEL FROM IRON.—The slightest vein of iron or steel can readily be detected by the application of aqua-fortis to the surface. On steel it leaves a black mark; on iron the metal remains clean.

TO DETECT PARAFFINE IN MINERAL OILS.—A simple method of estimating the presence of paraffine in mineral oils and residues has been suggested by a German chemist. The advantage which it possesses over any previously known process is greater speed and simplicity, combined with accuracy. From five to twenty parts of the oil to be tested are shaken with from 100 to 200 parts of glacial acetite acid, and the paraffine which is precipitated by this reaction is collected on a filter. The filter is successively washed with acetic acid and alcohol, and is afterwards dried and weighed. By an alternative method the paraffine is dissolved from the filter by means of ether or benzine, and is weighed alone.

THE C., I., St. L. & C. Ry. (Kankakee Line) is the best line to Cincinnati, Richmond, Va., Newport News, Washington, Baltimore, Chattanooga, Atlanta, Savannah, Charleston, Jacksonville, St. Augustine, Thomasville, Pensacola, Mobile, New Orleans, and all points in the South and South-east.

THE KIND OF MILLS WE BUILD

The Model Mills of the country, built on "THE ALLIS SYSTEM," give such complete satisfaction, not only from the start but for years afterward, that millers, when contemplating improvements or the construction of new plants, prefer to place their orders where long experience and unbroken record of success, coupled with the highest guarantees, insure most perfect results.

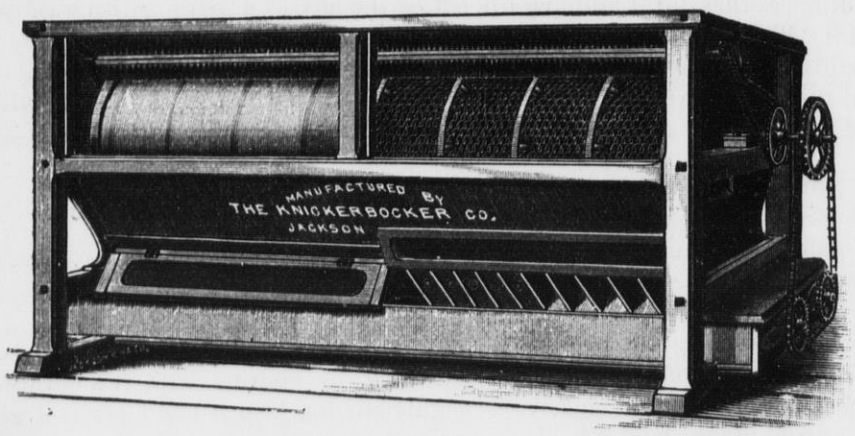
During the past few weeks contracts have been awarded to us for the following new roller mill plants:

A	1500 to 2000	barrel mill for	The Imperial Mill Co.,	Duluth, Minn.
"	300	" "	Columbia Mill Co.,	Columbia, Tenn.
"	300	" "	Lincoln Roller Mill Co.,	Lincoln, Ill.
"	200	" "	Pahl & Thomsen,	Spokane Falls, W. T.
"	150	" "	Rockwall Mill Co.,	Rockwall, Tex.
"	150	" "	Humphrey & Bird,	Hastings, Neb.
"	100	" "	C. H. Guenther & Sons,	San Antonio, Tex.
"	75	" "	C. Arndt & Son,	Sheboygan, Wis.
"	75	" "	Godfrey & Durst,	Danbury, Ia.
"	75	" "	Klingholz Bros.,	Manitowoc, Wis.
"	75	" "	Hacker & Warnke,	Manitowoc, Wis.
"	75	" "	F. C. Maertz,	Reedsville, Wis.
"	75	" "	Louis Nyquist & Co.,	Kirkhoven, Minn.
"	60	" "	Davis & France,	Medford, Oregon.
"	50	" "	Richey & Bond,	Hay Springs, Neb.
"	50	" "	Neely & McCord,	Pulaski, Tenn.
"	600	" (Corn Meal) "	Cannon & Yates,	Memphis, Tenn.
"	5000	bushel corn meal plant for	Baumgartl & Sheridan,	Chicago, Ill.
"	5000	" " "	Geo. W. Kidd,	La Salle, Ill.

All of the above mills will contain a complete outfit of Gray Roller Mills and other Special Machinery with Reliance Purifiers.

EDW. P. ALLIS & CO.,

RELIANCE WORKS, = = MILWAUKEE, WIS.



NEW HARMONY, Ind., Feb. 13, 1889.

THE KNICKERBOCKER CO.:

GENTLEMEN—We are well pleased with the NEW ROUND REEL. It is simple, durable, effective. It is mild in action, capable of doing a large amount of work, and making close, dry separations. It is quiet, clean and easy running We take pleasure in endorsing it as a standard machine, worthy of high commendation.

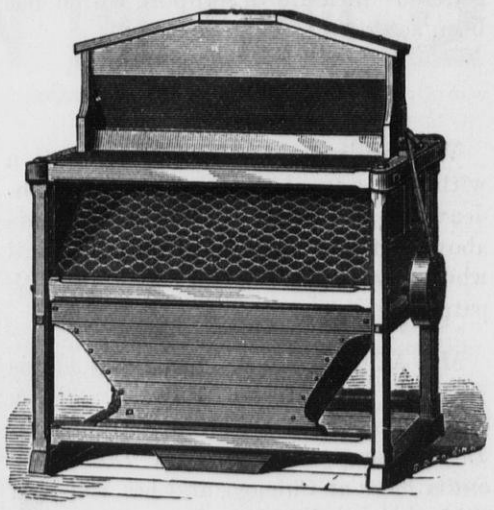
Yours Truly,

[Signed], CORBIN MILLING CO.

Cheap,

Durable and

Effective.



THE MORSE BREAK SCALPER

WE caution all parties against purchasing or using dust collectors which infringe our patents, and hereby give notice that we shall take proper legal steps to enforce our rights against all persons who infringe them, whether manufacturers or users.

No machine can be made after the pattern of the CYCLONE that does not infringe our rights.

The Knickerbocker Co.,

JACKSON, MICH.

OUR LONDON LETTER.

Crop and Trade Prospects—Bakers' Views—The Merchandize Marks Act and its enforcement beneficial to United States Millers—The New Purifier—Threatened Patent Litigation—The British Miller—The Paris Exposition, etc.

LONDON, April 9, '89.

The month of March has been very seasonable and has well sustained its reputation for boisterous winds, furious storms and more than the peck of dust which is said to be worth a "king's ransom." The season is altogether very fine for the early growth of grass and the furtherance of vegetation generally. For the past three weeks there has been a gentle rise in the average of English wheat—30s 1d to 30s 2d, and now 30s 5d. On the other hand, foreign wheat has gone the other way, downwards. If, however, the movement of the English average is to be taken as a guide, import wheat will soon show a tendency to follow. In the market generally there has been more confidence shown during the past few days, the holders thinking that prices are not at a minimum point and any changes can only be towards better rates. From various places abroad we hear that the ice is in motion and at the points the corn that is ready to be shipped is being rapidly transferred from quay to vessel. Russia is the only country that can ship grain freely at the present moment and will therefore be the only country that can have influence on our markets for some months to come. India which ruled the price of wheat here a few years ago is commencing its export campaign very leisurely and the exports from that country to England have been somewhat on the decline for the past few years. The following tables have been compiled and show the exports of wheat from the presidency of Bengal during the past three years:

	Cwts. of 112 lbs.	Rupees.
1885-86.....	4,189,531	1,52,96,583
1886-87.....	7,035,276	2,62,81,636
1887-88.....	4,322,899	1,67,90,729

It will be seen that during the year 1887-88 the decline in quantity was 38.4 per cent. This was ascribed to short outturn, owing to blight and insufficient rain. The collector of customs observed in a recent report under this head: "The wheat crop of Russia was a very full one, so that the short yield in India had no effect on prices. I had to report for 1884-85 the average price of wheat at 35s 8d per qr., a price which had not been touched since 1780, but the average price for the past year was 32s 7d per quarter." From letters received by the last mail we learn that the prospects of exporting any quantity of the next crop are very small, for according to the report from the revenue and agricultural department of the government of India, dated Calcutta, March 22, 1889, the acreage under wheat in Berae is said to be 936,074 acres, being 11 per cent. less than last year. This decrease is due to the scanty rainfall and in some places to rotation of crops and to an increased sowing of cotton. The condition of the growing wheat, however, when the memorandum was dispatched was good and the outturn was estimated at at about 10 annas. The price of wheat and flour during the past months on all the important markets has been disappointing to those "bulls" who looked for a good rise and at the Mark Lane Corn Exchange on Wednesday last the tone was not strong. The import of wheat into the United Kingdom during the first thirty weeks of the season was 36,086,120 cwt. against 26,957.155 cwt. last season, and of flour 8,596,804, against 10,822,416 cwt.

The principal topic of conversation on the several markets held during the last few days has been the death of Mr. John Bright, M. P., who was universally esteemed by every one regardless of sect or politics.

The Middling Sieve Purifier patented by Mr. James Higginbottom, of Liverpool, is making some headway in the Midland counties and the inventor is believed to have made some advances to a firm on your side of the water, to introduce the machine to the milling trade of the United States. The purifier which I saw at work during the past month in a well-known flour mill I hope to fully describe, with illustrations, in a future issue. A leading milling engineer recently gave out that this machine was an infringement of a patent which he took out some time since; but I hear that the engineer in question is only trying to make a bargain and obtain the sole right of manufacturing at a reasonable price. The patentee says he will "sell his last shirt" before he will give in, and so the matter rests, while the machine is making headway amongst a certain class of millers. It is certainly surprising that such a small fan, going at only 90 to 110 revolutions a minute, can do so much.

The *British and Foreign Confectioner*, a London paper published in the interest of the baking trade, has in the past two issues been attacking the English millers for mixing American flour with their home manufactured article and selling it as wholly their own, in defiance of the Merchandise Marks act, which was passed last year. The journal in question attempts to show that the millers do the bakers an injury, as when two flours are mixed together the same quantity of loaves cannot be obtained on account of the particles in the two flours not being uniform. If this act of parliament were put in force against the millers, it would open the door at the end of this year for American flour, which will require some help to regain the position it has lost on the English markets. According to the return issued by the government the total number of cases of stoppage of goods under the Merchandise Marks act for the year 1888 was 9,986. At the time of the preparation of the return there were 123 cases upon which a decision had not been given. The number of entire packages stopped in the case of package goods was 252,282.

The National Association of Master Bakers and Confectioners held their annual convention last week in Liverpool. It was a great success. There were four papers read at the meeting, which lasted two days; but only one will be of interest to the readers of the UNITED STATES MILLER. The reader of this paper said that English millers should mill all wheat separately so that the baker would know when purchasing flour what kind of flour he was buying. On a friend telling me of the discussion that followed, I thought what a splendid help the American millers were getting, for they do exactly what the bakers at this meeting were asking for. They mill wheats separately, for they only have one kind of wheat to mill. From the foregoing it will be at once seen that the English bakers are not all content with the flour that English millers are offering them, and it only requires the American millers to get the Merchandise Marks act set in motion and to say that their flour is from one kind of wheat to obtain again the strong hold they had on the English market last year.

Mr. J. M. Case, late of the Case Manufacturing Company, arrived safely in London recently, and will remain in England a short time. He will no doubt eventually go to France and establish a milling engineering company there.

There is some talk of the National Association of British and Irish millers holding their convention this year in Paris, which will give the members of the association a good opportunity of seeing the exhibition. This combining business with pleasure may result in the visitors obtaining many advantages, as many wrinkles will no doubt be dropped by the exhibitors of all the latest milling machinery. A large and influential miller in the north of England who has already had the honor to fill the presidential chair, has consented to be a prominent figure, if not the leader, during this visit. A council meeting of the association will meet early next month and decide the whole matter.

The Sun Flour Mills Co., whose mill at Waltham Abbey was burnt down on Christmas eve, have decided to build a large mill in London. The firm are now looking out for a convenient site and will decide during the next few days which of three sites they will purchase. Mr. H. Simon will no doubt be the engineer.

There are in London at the present time a number of people ready to promote any company; among others we hear of a Bread Company to be started with their own flour mill, bread factory and shops. The amount of money required for this scheme is one million sterling.

The *Russian Nouveau Tempo* states that two hygienic laboratories have been opened recently in the busiest parts of St. Petersburg at which gratuitous analysis are made at any time of specimens of the following articles of consumption: Drinking water, milk, flour, bread, meat, wine, beer and koumiss. What is offered in these laboratories is merely a general opinion as to whether foreign substances occur in articles submitted and whether the latter are fresh or not.

L. MAYGRONE.

THE U. S. MILLER for one year and 50 novels for One Dollar.

Don't forget to order at once.

WHAT A MEMPHIS, TENN., SCHOOL GIRL SAW IN A FLOUR MILL.

MEMPHIS, Tenn., April, 1889.

To the Editor:

I send you the enclosed composition of a young miss, a pupil of one of the private schools of this city. As it embraces some very original features and points not generally known, I send it to you as an example of how the young idea shoots in this "land of cotton": P.

A VISIT TO A FLOUR MILL.

A class of twenty girls, who had been studying the manufacture of flour, visited a flour mill, chaperoned by their teacher. About three o'clock we reached the mill, a large brick structure with a storing house attached. The wheat must be taken through the cleaning house before it can be ground.

It is first put in large bins, to be weighed. It passes to a machine which separates the wheat from the sticks, pieces of dirt and other impurities. This machine is a large bin with a coarse wire sifter attached, which is continually shaken. The wheat passes through to another bin, and the trash goes into a waste collector. The wheat is conveyed to a machine to remove the cockle and other small particles resembling the wheat berry in size and shape. It is then transferred to a large cylindrical-shaped bin, in which each seed is individually brushed and dusted. After this the seeds are perfectly clean and quite ready for grinding.

The wheat is carried to the rolling machine, which takes the place of the old-fashioned mill stones. These are in another room separated from the cleaning house by a brick wall. There are seven rolling machines through which the wheat must pass. In the first, the outside husk is cracked, in the second it is mashed a little more, and when it has passed through seven, a good deal of husks and other impurities have passed out at each roller. The husks that pass out at these rollers is the bran so highly esteemed for food for cows.

The next process is that of separating the glutenous from the starchy matter. This is in a large cylinder with bolting cloth over it, and is called the bolting reel.

There are a great many stops under the bolting reel, which grade the flour; the more that are open the more impurities pass out, and the finer the quality of flour. The oftener the fine pieces of wheat are made to pass through the reel the finer the resulting flour. The center of the building is one mass of conveyors, through which the grain is forced from one process to another by means of fans.

The grain is not yet pure, for the germ still remains, with other small impurities.

The next process is the middlings purifier. The impurities are carried up, and the flour goes to the first floor, where it is packed in barrels or small and large bags, holding from twenty-four to fifty pounds. In the middlings purifier there are frames covered with fine silk, through which the flour is sifted. There is a brush of the width of the purifier, and about two inches wide, which passes along the outside of the silk on an endless chain, to prevent the silks being clogged up. The inventor of this little brush has made $50,000 on it.

The packing is done on the first floor. There are a great many iron tubes of different sizes coming from the conveyors, which the flour comes through into the barrels and bags.

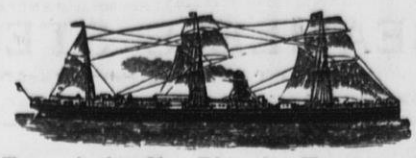
The flour is brought to the mill in the wheat berry form and put in the cleaning house, and the hand is not put to it until it comes out pure white flour, ready to be packed.

There are twenty-five men employed in the Memphis Mills. The wheat used here is brought from Nebraska and Illinois, but during the first of the season, July and August, a good deal of home-grown wheat is used.

We learned a great deal, spent a most profitable two hours, and will hardly forget the manufacture of flour. We return our most hearty thanks to Mr. Popplestone for his kindness. We were very glad to find that a great quantity of the flour is consumed in this city, for this seems like patronizing home industry, but very sorry and very much disappointed to learn that the mill belongs to a firm not of Memphis. MISS ——.

IF you are about to build write to the UNITED STATES MILLER for a copy of "Brean's House Plans," and enclose fifty cents in stamps. It will help you.

ITEMS FROM BEYOND SEAS.



THE Arthurlie Biscuit Factory, the largest in Scotland, burned April 1. Loss, about $100,000.

EMIL TREITEL, one of the largest grain dealers in Berlin, has suspended payment. His liabilities amount to 6,000,000 marks. The failure affects the corn exchanges of Vienna, Pesth, Amsterdam, Paris and New York.

THE Fletcher Patent Process for making bread, which is being extensively introduced in Great Britain, consists in the addition to the dough of malt diastase, for which it is claimed the bread is thereby rendered sweeter and moister and that it keeps much longer.

THE gambling mania which has taken hold of South Africa is well shown up in an advice from the Paarl. In fifteen minutes fifteen men formed themselves into a gold prospecting syndicate in 65 shares of £100 each. Immediately after the formation there was a rush for shares at £100 premium; the original syndicate gaily sold, and the proprietors are in the proud position of having paid through the nose for a privilege which belonged to them already. All they can do is to go and hunt for gold.

OUR bright contemporary, *The British Baker and Confectioner*, takes the bakers to task for underselling each other and thereby demoralizing trade. It strongly urges the British bakers to combine and form one united body all over the U. K. "If this were done," it says, "we should have little complaint of the now too rampant *underseller*."

We fear that *The British Baker* will have to do a great deal of missionary work before a thorough "combine" is established.

THE *British and Foreign Confectioner*, in its issue of April 1, says:

"Having dealt with the way the millers mix flour, we will now refer to the loose manner in which the millers purchase foreign flour on the English market. Flour is sold on Mark Lane Market not so much by its value to the baker as by its appearance. For example, we were 'on market' last week when we observed two samples of Hungarian flour being offered to a well-known buyer. One sample was much darker in shade than the other, although the two samples were manufactured from the same wheat. The only difference was in the 'grinding.' The buyer pressed out the flour with a 'spatula' and then gave one shilling more for the flour that was of the lighter shade. The buyer had refused the best sample and taken the inferior one. The reason why the best flour had a dark tint was simply the reflection of the dark prisms between the coarse particles of flour, and if the color had been tested it would have been found that there was a greater amount of "yellow" which denotes a gluten, rich in strength. American flour is usually bought by millers in the same loose way, and it is the bakers who suffer."

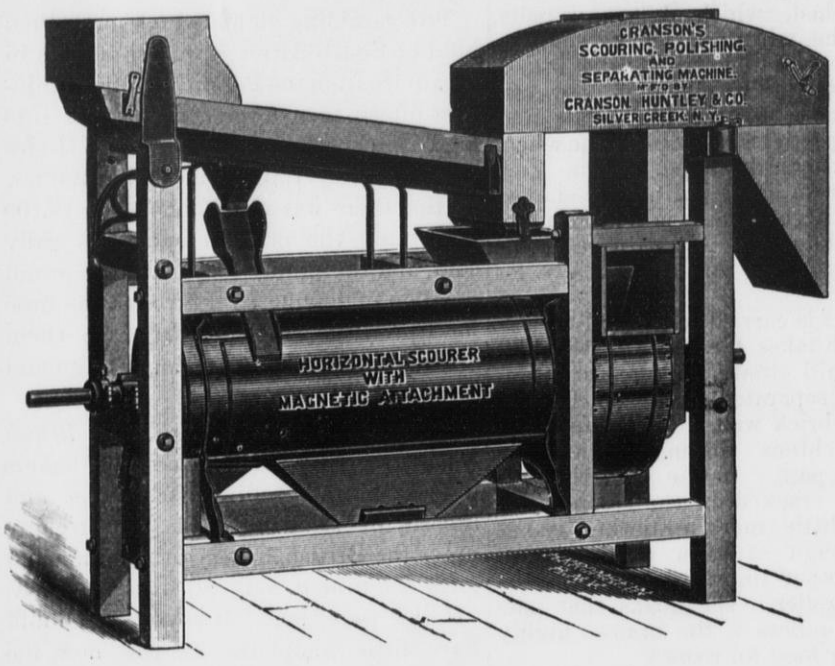
HAVE you a wife, daughter or sweetheart? If so, send $1.10 for a copy of *The Ladies' Home Companion* and THE UNITED STATES MILLER. Both papers for one year for $1.10. The former is published twice a month, and is a beautiful 16-page paper. Address THE U. S. MILLER, Milwaukee, Wis.

INK FOR HAND STAMPS.—To make an ink for hand stamps that will not injure the color, mix and dissolve 2 to 4 drams aniline color, 15 ounces alcohol and 15 ounces glycerine. The solution is poured on the cushion and rubbed in with a brush.

SPECIAL STAMPERS OF SHEET METALS.
We do Stamping and Pressing of Sheet Metals for All Classes of Work. Also Tinning, Galvanizing & Japanning.
—ALSO SOLE MANUFACTURERS OF—
SEAMLESS STEEL BUCKETS
INSIST on having this Bucket furnished when ordering.
Ask your dealer for the Avery Pat. Seamless Steel Elev. Bucket.

We do not advertise Seamless Elevator Buckets and fill orders with "Pieced Ones"
We will make Special Prices rather than move stock to our new factory. Send for discounts.
THE AVERY STAMPING CO.,
—SUCCESSORS TO—
AVERY ELEVATOR BUCKET CO., CLEVELAND, OHIO, U. S. A.

THE
CRANSON SCOURER
—IS ACKOWLEDGED TO BE—
The Leading Scouring, Polishing and Separating Machine
ON THE MARKET TO-DAY.
Two of these Machines are being placed to one of any other make.



WE ALSO HAVE THE BEST
Dustless Receiving and Elevator Separator
Ever Placed in any Mill.

Write for Rock Bottom Prices and Full Information.

OUR HEADERS:
CRANSON'S WHEAT SCOURER AND POLISHER, With Magnetic Attachment.
CRANSON'S BUCKWHEAT SCOURER AND POLISHER, With Magnetic Attachment.
CRANSON'S ROLLER BUCKWHEAT SHUCKER.
MONITOR DUSTLESS RECEIVING AND ELEVATOR SEPARATOR.
DIAMOND DUSTLESS CORN SHELLER AND SEPARATOR.
DIAMOND CORN SHELLER.

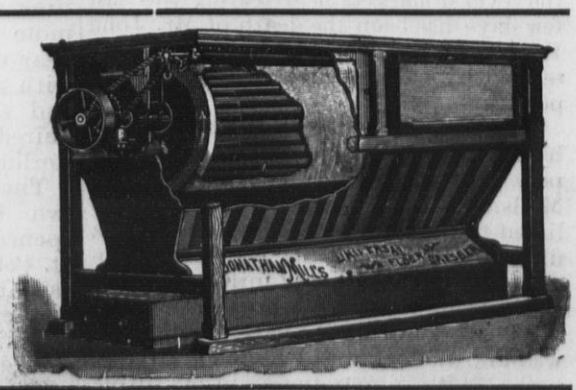
Huntley, Cranson & Hammond,
Succesors to CRANSON, HUNTLEY & CO.,
SILVER CREEK, NEW YORK.

The Best is Always the Cheapest.
THE CELEBRATED
DUFOUR BOLTING CLOTH
Is admitted by all millers to be the VERY BEST BOLTING CLOTH in the market, and so far ahead of any other brand that, as a matter of economy, they cannot afford to use inferior brands.

$2,000 REWARD Will be paid to any person who will furnish evidence to convict the unprincipled dealers who are selling poor and inferior cloths by representing them to be GENUINE DUFOUR.

R. P. CHARLES,
13 South William Street, - - - - - - - - - NEW YORK CITY.

MILLERS Of the United States and Canada, write us for our new pamphlet and revised price list of our
Jonathan Mills Universal Flour Dresser
The BEST machine on the market. Giving satisfaction everywhere, in the best Mills of this country. Thousands in use. We carry a full line of CROWN SILK ANCHOR BOLTING CLOTH AND GRIT GAUZES.
JONATHAN MILLS MFG. CO., CLEVELAND, OHIO, U.S.A.
—We Solicit Your Orders.—



STILL ON TOP! Perhaps the highest compliment that could be paid the **"SALEM"** Bucket. is the fact that, during the past few years, **its shape has been so closely imitated** by other manufacturers, as to infringe our patented rights; but experience reveals **the imperfections of imitations,** and, we therefore, take it as a **further compliment** to the **"SALEM"** Bucket, that some of its old patrons who were **induced to try the imitations, have now returned to the Salem Bucket, thereby acknowledging it to be the most satisfactory.** Don't be deceived by other makes of Buckets that are claimed to be "just as good." Insist upon having the **original and reliable "SALEM" Bucket.** All legitimate **"Salem"** Buckets are plainly marked with the word **"SALEM."**
W. J. CLARK & CO., Sole Manufacturers, SALEM, OHIO.
THORNBURG & GLESSNER, General Agents, CHICAGO, ILL.

NEWS ITEMS OF ALL SORTS.

BURNED, Apr. 9, Matteson & Son's mill at Cherry Creek, N. Y.; loss $5,000; insurance $3,200.——A 50-barrel mill is being built at Nettleton, Ohio, by Harrison & Loundenbeck. ——The steam roller flour mills of Fred Kurtz & Son at Center Hall, Pa., were burned on the 6th inst.; loss $22,000; insurance $5,000.—— H. F. & A. E. Rozier are about to build a mill at Sparta, Ga.——A custom flour mill is being built at Putnam, Ga., by Chas. Knowlton.—— Geo. Willis is preparing to build a mill at Horse Cave, Ky.—— A 40-barrels flour mill is contemplated by W. M. Bergmann at Oxford, Md.——Peter Jung and Fred Clayton have purchased the 250-barrel steam mill, known as the Prairie Mill, at Perham, Minn., for $20,500.——H. D. Towner's mill and elevator at Hays City, Kans., were burned Apr. 3; loss $17,000; insurance $2,500.——The Henderson Milling Co. of Sheffield, Ala., are making good progress towards the completion of their 250-barrel steam roller mill, and it is expected to be in readiness before the receipt of the new crop begins.——Fergus Bros. whose mill was recently burned at Nashville, Tenn., will rebuild.——A 75-barrel roller mill is about to rebuilt by Showers, Murphy & Co. at Madisonville, Ky.——A 50-barrel flour mill has been contracted for by Carr & Tolle at Maysville, Ky.——Frank Lannot, whose mill was recently burned at Glen Falls, Md., will rebuild.——Casky, Christian Co., Ky., is desirous of a flour mill and give a bonus to the builder.——A flour mill is contemplated by S. W. Kelly & Son at Charleston, S. C.——C. Crow, late manager of the Omaha Milling & Elevator Co. is about to build a roller mill at Whitewood, Dak.——Kilarney, Manitoba offers a bonus for the erection of a flour mill at that place.——The Trumpet Milling Co. has been incorporated at Covington, O. The incorporators are Barney Lempker, August Pieper and J. Graziani. Capital stock, $75,000.——J. S. Heffner of Kutztown, Pa., is building a 75-barrel roller mill for the manufacture of wheat and rye flour.——Hartsock & McGrew of Nokomis, Ill., whose mill was recently destroyed by fire, will immediately build a new mill of 150 barrels capacity.——The contract has been let for a 40-barrel flour mill for the Houston Milling Co., Houston, Mo. ——A stock company has been organized for the purpose of erecting a 150-barrel roller flour mill at Climax, Mich. Shelton & Ault are successors to R. C. Lockhart, miller, Odessa, N. Y.——Burns & Co. will build an oatmeal mill at St. Joseph, Mo.——Geo. B. Coxon's flour mill at Baltimore, Md., was recently burned. Loss, $15,000; insurance, $5,000.——C. C. Whitaker of Principio Furnace, Md., has let the contract for a 40-barrel roller mill.——The flour and feed mill of Chas. Bullard & Co., East Aurora, N. Y., was recently destroyed by fire. Loss, $6,000; insurance, $4,000.——The Trimble Roller Mill Co. of Trimble, Tenn., have placed their contracts for a 75-barrel roller mill.——A bonus of $5,000 is offered to the party who will build a flour mill at Russell, Manitoba.——A grist mill at Warren, Mass., owned by J. B. Gould was burned March 26. Loss, $7,000; insurance, $3,500.——The Rockwall Milling Co., Rockwall, Tex., with a capital stock of $50,000, has been chartered, and will build a 200-barrel mill. ——Neely & McCord are building a 60-barrel flour mill at Pulaski, Tenn.—— Chase & Wells succeed Huntington Bros. in the milling business at Leonardsville, N. Y. ——The firm of Stone & Campbell, millers, Rochester, N. Y., is succeeded by Henry D. Stone.——Drawer & Schaupp are building a 75-barrel roller mill at Alliance, Neb., at an estimated cost of $25,000.——Wellington, Schalk & Co. of Anderson, Ind., are enlarging and remodeling their mill. When completed it will have a capacity of 125 barrels. ——Ferguson Bros., whose mill near Nashville, Tenn., was recently burned, causing a loss of $8,000, will rebuild. J. W. Gilbert is building a 50-barrel flour mill at Owensboro, Ky.——The flour mill near Hempstead, Md., owned by M. Brilhart was burned on the 1st inst. Loss, $7,000; insurance, $3,500.——The contract has been awarded for a 50-barrel roller mill at Eldon, Iowa, for R. Ritz.—— The Fayette Milling Co. has been incorporated at Fayetteville, Ark.; capital stock, $30,000. Directors: J. W. Massengale, H. T. Massengale and G. D. Oberschels.——The new mill building for L. Duerer & Bro., at Stanford, Ky., is completed and the machinery being placed. The mill will have a capacity of 50 barrels.——W. P. Bowman of St. James, Mo., is building a 50-barrel roller mill.——J. B. Kehl's flour mill at Chippewa Falls, Wis., was recently burned. Loss, $35,000.——Gilbert, Howells & Co. of McKenzie, Tenn., have contracred for the necessary machinery to complete a 50-barrel roller mill.——The Excelsior Milling Co. of Chicago has been incorporated to conduct a general flouring mill business. The incorporators are William H. Kane, W. Yates Selleck and Harry F. Crawford; capital stock, $30,000.——The Mercantile and Milling Co. of Echo, Oregon, has been incorporated with a capital stock of $50,000, having for its object the building of a large flouring mill at once, and the selling of grain and merchandise. The incorporators are F. W. Hendly, John Barker, J. H. Koontz and James Taylor.——The Mt. Pleasant Milling Co., Mt. Pleasant, Iowa, has filled articles of incorporation. The parties interested are Frank H. Ketcham, W. B. Ketcham, Leander Ketcham, Winfield Ketcham and A. W. Warren, and the capital stock is $50,000.—— W. A. Latham is present owner of the Crown Roller Mill at Bloomington, Ill., he having concluded a purchase on March 23 for $17,000.——W. Ewald, a former partner in the City Roller Mills at Delphi, Ind., has purchased and will operate the Eagle Mills at Red Ridge, Ind.——Wesley Henderson, Christian Nordling and C. V. Nordling are the incorporators of the Anna Milling Co. of Anna, Ill., with a capital stock of $18,000, and its object, to deal in grain and transact a general milling business.——Fort Worth, Texas, is to have a large roller flouring mill, some of the citizens of that place having formed themselves into a stock company under the name of The Liberty Hill Roller Mill Co., with a capital stock of $10,000, made up by issuing shares at $50 each. It is expected to have the mill ready for operation by next fall.——W. H. Howell & Co.'s flouring mills on the east side of the Fox River, near Geneva, Ill., were recently burned. Loss, $10,000; insurance, $5,500.——Johnson, Erickson & Co. of St. Peter, Minn., will build a 200-barrel steam flouring mill at Marshall, Minn., having accepted a bonus of $2,000 offered by the citizens of the latter place.—— The American Company is building a flouring mill at Nashville, Tenn., which will have a daily capacity of 1,500 barrels, and will be the largest flouring mill south of the Ohio River..——Zacharias Bros. of Odessa, Minn., have awarded the contract for a 75-barrel mill at that place.——The Star Mills at California, Mo., was recently sold by the sheriff to O. F. G. Hoberecht for $8,000.——A stock company is being organized at Graham, Va., with a capital stock of $20,000, to erect a roller flour mill.——J. B. Lillie, whose mill at Franklin, Tenn., was recently burned, is rebuilding. The new mill will have a daily capacity of 300 barrels.——The flouring mill at Newton, Iowa, formerly owned by J. B. Mershon & Sons, is now owned by the People's Co-operative Association of Jasper County.——The Alliance Flouring Mill Co. is a late organization at Greenville, Texas. Capt. H. H. Wade is general manager.—— The Constantine Milling Co. of Constantine, Mich., has recently been incorporated, with a capital stock of $30,000.——H. J. Stedman will rebuild his mill recently burned at Sauk Centre, Minn.——A 50-barrel roller flour mill will be built by Gussom, Ritchey & Williams at Burkesville, Ky.——The Prague Milling Co. is the name of a new organization at Wahoo, Neb., with a capital stock of $50,000.——A 100-barrel flour mill is contemplated at Huntington, W. Va., by a company, with C. E. Gwinn as leader.——A 40-barrel water power roller mill will be built by O. J. Dundas at Kelso, Tenn.——Muncie, Ill., is promised a $10,000 flouring mill by parties from Homerville. A 300-barrel flouring mill is being built by the Merritt Milling Co. at Morristown, Tenn.

WM. BLAIR and others are building a mill at Russell, Kan.

GOOD reports reach us from a large number of Ohio mills.

KRAFT & SHERER will build a 50-barrel mill at Mendon, O.

R. S. CONNER & Co, Sheridan, Oregon, are remodeling their mill.

W. J. CRONK will build a 75-barrel mill at Harbor Springs, Mich.

C. D. PERFECT & SONS, Marysville, O., will increase capacity to 140 barrels.

THE damage by fire to the Victoria Mill in St. Louis is being rapidly repaired.

BURNED—Dorwin, Rich & Stone's mill at Owego, N. Y. Loss, $45,000; insured.

JOHNSON, Erickson & Larson will build a 200-barrel roller mill at Marshall, Minn.

TAYLOR BROS.' mill at Farmington, Wash., will soon be remodeled to the roller system.

J. B. HUTTON & SON of Perry, N. Y., are having their mill changed to the roller system.

THE Zenith Roller Mill Co. of Bloomington, Ill., has incorporated with a capital of $40,000.

A NUMBER of changes in mills and milling firms have taken place in Northwestern New York.

M. W. GLENN of Minneapolis has moved to Duluth, where he has started a large boiler shop.

J. S. BEATTIE has leased the steam mill at East Victor, N. Y. Its capacity is about 50 barrels daily.

THE Baltimore flour market has recently been worked by a number of representatives of prominent Western mills.

S. HOWES of "Eureka" machine fame, was recently elected president (mayor) of his native town, Silver Creek, N. Y.

ADAM G. GROFF, a prominent miller near Lancaster, Pa., has made an assignment. Liabilities, $27,000; assets, $20,000.

A SHIPMENT of 486,000 bushels of corn was made recently in one day from Detroit—the largest shipment ever made in one day from that port.

IT is said that very nearly all Minnesota and Dakota wheat now being received is used by Minnesota millers to fill their current demand for flour.

A NEW mill in place of the one burned in February will be built at Shelbyville, Tenn. The "Victor" Mills of that place are running full time, and business is good.

TWENTY Ohio millers got together in Dayton recently and held a pleasant little State Association meeting. They concluded to unite with the Central Millers' Association.

AT Baltimore, Md., March 30, the four-story grain and flour store of Luke Smith, Nos. 2105, 2107 and 2109 Eastern avenue, was burned at 10 p. m. The loss is estimated at $10,000, and is fully insured.

DIED—Charles L. Gratiot of Platteville, Wis., of apoplexy, aged 40. He leaves a family of wife and child. Mr. Gratiot, like his father, Col. Gratiot, was a well-known inventor of milling machinery.

A SHOWER of ashes and powder resembling emery powder, accompanied by rain, fell in the vicinity of Green Bay, Wis., recently. It is thought that a prairie fire in the county was the primary cause of the peculiar phenomenon.

THE extensive freight houses of the Boston and Lowell division of the Maine road at Boston were burned April 10, with forty loaded freight cars, large quantities of flour and grain, and other merchandise. The loss is placed at $500,000.

AT a recent meeting of the Michigan State Millers' Association, which was fairly well attended, it was agreed to aid in securing the passage of a bill in the legislature providing for a State grain inspector and deputies for inspecting all grain received at public elevators in the State.

THE city of Watertown, Wis., has finally, after nearly thirty years of litigation, won a victory in the United States Supreme Court freeing it from a debt of about $500,000 with interest, that amount having been voted to a railroad that soon after getting the cash went into bankruptcy.

AT the J. I. Case Threshing Machine Co. engine shops, Racine, a new patent machine for boring holes in cast iron engine wheels has been introduced. It is a patent of Mr. J. Walrath, the superintendent, and works to perfection. Recently ten holes were bored in three minutes, where it formerly took over thirty minutes.

THE Harrison-Switzer Milling Co., Belleville, Ill., have taken out articles of incorporation, with a capital of $50,000. The incorporators are Johnson Beggs, Michael Reis and Wm. B. Switzer. The company will operate the old Harrison mill on West Main street, which will be at once equipped with machinery for making flour by the roller process.

THE J. B. Allfree Co., Indianapolis, Ind., have closed contracts with Bennett & Gates, Geneva, Ill., for a 200-barrel mill; with Stephen Hoerner, Germantown, O., for a 40-barrel short system mill; with J. J. Moore, Trafalgar, Ind., for a 25-barrel short system mill, and report the sale of special corn milling machines, to replace machines of other makes, to J. H. Hodapp, Seymour, Ind.; the sale of Allfree sieve scalpers for three breaks to Knoblock, Gimy & Co., South Bend, Ind. They are also placing scalpers in the Hoosier State Mills at Indianapolis, Ind.

THE Iron Bay Manufacturing Co. will remove their entire plant from Marquette, Mich., to Duluth, Minn., immediately. It now employs 200 men, principally skilled laborers. It is a large manufacturer of engines, mining machinery, hoisting engines and the like, as well as of general foundry castings and of boilers of all styles. It has been in business many years, and has worked up a tremendous trade with the Michigan iron ranges, the Gogebic and the Vermillion and the silver and copper mines of Montana, besides a very large general business. The company will have a paid in capital of $300,000 and employ 350 men, meaning an addition to Duluth of about 1,000 people.

SPECIAL NOTICE.

WE will furnish any one in the United States or Dominion of Canada, for one year, with THE UNITED STATES MILLER and *The Northwestern Miller*, for $3.25; including "50 novels," $3.75.

NO MILLERS IN HELL.

A QUAINT OLD LEGEND.

A strange legend bearing the stamp of mediæval manufacture is said to be still current in Lower Austria, and as this tale is concerned with millers and bakers, it may be worth relating here. Once on a time, so the peasants of Lower Austria say, the arch enemy of mankind took stock of his dominions. He found all sorts and conditions of men, but noticed to his great mortification that there was not a single representative of either the milling or baking trades. He accordingly dispatched one of his trustiest messengers, with peremptory instructions to visit the earth and bring down with the least possible delay a member of each of the unrepresented branches of industry. Now Satan's emissary, accustomed to implicit obedience, made no remark, but at once spread out his wings and made his way upon earth; yet he felt extremely puzzled how to act, as he had never even seen a miller, which speaks volumes in favor of the probity of the mediæval representatives of the dusty craft in Lower Austria. Like a prudent individual he made inquiries, as soon as he reached the earth, concerning the appearance and habits of millers, and he was told that they were quite white, and usually found in the neighborhood of brooks. This intelligence pleased the fiend very much; he had come from a sultry clime, and the idea of a trip to green pastures and bubbling brooks was inexpressibly grateful to him. He soon got on a country road, and, as luck would have it, he had not walked a quarter of a mile before he passed a meadow in which a white horse was contentedly grazing on the sweet spring grass. The fiend looked long and hard at the horse; he saw something that was perfectly white; he could also hear close by the song of a rivulet as it tumbled down a hillside, splashing for very glee the pebbles that lay in its path, and he might well be excused for jumping to the conclusion that at last his prize was before him. He said to himself: "The miller has left his brook for once, and I may as well take him off his guard." So he crept up with slow and stealthy steps to the white shape and seized it by the hindquarters, but only to recive a kick on the shin, from which, according to the story, he has limped ever since. At any rate, he was so injured that he was compelled to return without either miller or baker, and over his reception from his master the legend draws a discreet veil. But we are informed that those servants of the destroyer who were sent to carry out the errand which the first messenger failed to accomplish had no better success, and it is said that up to the present time the infernal regions know neither a miller nor a baker. This is indeed flattering unction; but the thought will obtrude itself that peradventure in Lower Austria undersellers and long-firm traders may be unknown. —*The Miller* (*London*).

CEMENT FOR MACHINERY FOUNDATION, ETC.—London *Industries* says that the cement by which many stone buildings in Paris have been renovated is likely to prove useful in preparing the foundations for machinery. The powder which forms the basis of the cement is composed of two parts oxide of zinc, two of crushed hard limestone, and one of pulverized grit, together with a certain proportion of ochre as a coloring agent. The liquid with which this powder is to be mixed consists of a saturated solution of six parts of zinc in commercial muriatic acid, to which is added one part of sal ammoniac; this solution is diluted with two-thirds of its volume of water. A mixture one pound of the powder to two and a half pints of the liquid forms a cement which hardens quickly and is of great strength.

The Link-Belt Machinery Co.

SHAFTING · PULLEYS HANGERS GEARS.

Are Prepared to Furnish Machinery and Appliances for

Transmission of Power

After the most approved Plans, by use of

MANILLA ROPE.

For Particulars and Estimates apply to them at

CHICAGO: 11 to 23 S. Jefferson St. **MINNEAPOLIS:** 200 to 202 Washington Ave. S.

THE

RICHMOND FLOUR PACKER

—MANUFACTURED BY THE—

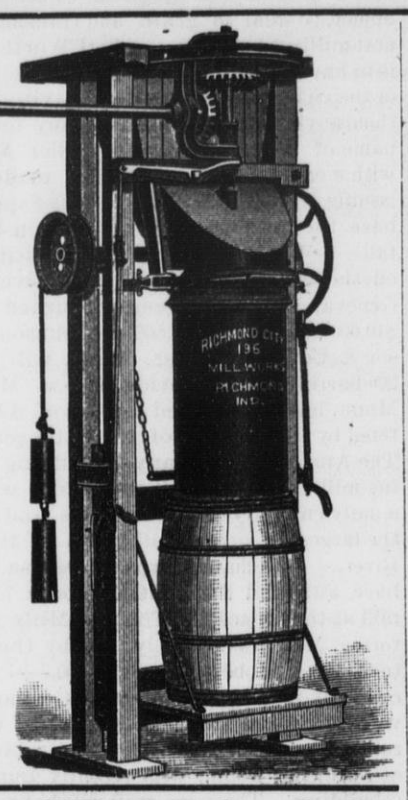
Richmond City Mill Works,

General Mill Furnishers,

RICHMOND, - - - INDIANA.

Recent Improvements Combine to make this the Best Flour Packer on the Market.

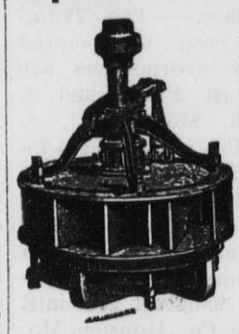
SEND FOR DESCRIPTION AND PRICES.



BURNHAM'S NEW IMPROVED STANDARD TURBINE WHEEL

PATENTED MAR. 27, 1883. and MAY 1, 1888. ADDRESS YORK PENN. for PRICE &c&c.

Improved ✣ Walsh ✣ Double ✣ Turbine



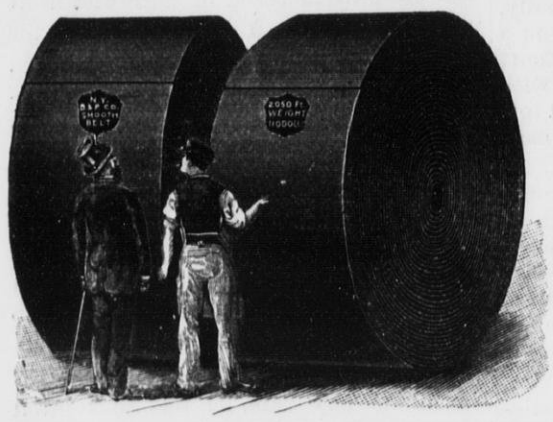
This wheel has a perfect fitting cylinder gate and draft tube combined, and allows no water to escape when closed.

POWER GUARANTEED

equal to any wheel on the market using equal amount of water. Address for particulars,

B. H. & J. SANFORD,
Phœnix Iron Works,
Sheboygan Falls, Wis.

NEW YORK BELTING & PACKING CO.



JOHN H. CHEEVER, Treasurer. J. D. CHEEVER, Deputy Treasurer.

15 PARK ROW, NEW YORK.

Oldest and Largest Manufacturers in the U. S. A. of

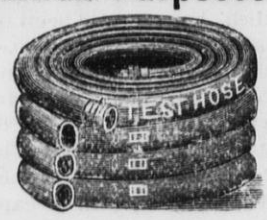
Vulcanized Rubber Fabrics for Mechanical Purposes

MILLERS' HOSE A SPECIALTY.

Also a Good **STEAM HOSE.**

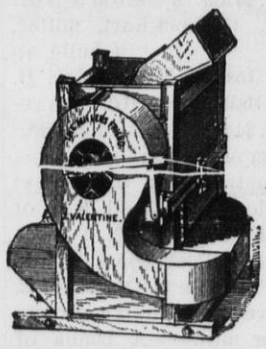
RUBBER MATS, RUBBER MATTING, and STAIR TREADS.

RUBBER BELTING, PACKING AND HOSE.



BRANCHES: W. D. Allen & Co., Chicago; H. D. Edwards & Co., Detroit; W. H. H. Peck & Co., Cleveland; Post & Co., Cincinnati; Ripley & Bronson, St. Louis; W. S. Nott Co, Minneapolis; Hall Rubber Co., Boston; D. P. Dieterich, Philadelphia; Arnett & Rivers, San Francisco; Hendrie & Botthoff, Denver; Pickhuben (Freihafengebiet), 5 Hamburg, Germany.

IMPROVED CORN SHELLER,



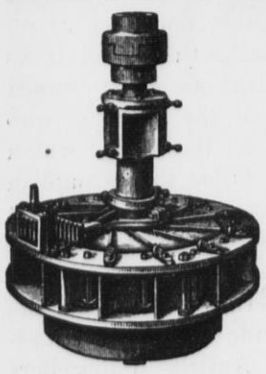
IT IS THE **BEST CORN SHELLER** MADE FOR MILL USE.

IT IS **Simple in Construction Almost Noiseless,** —AND— **Requires Little Power**

HUNDREDS ARE IN USE.

For descriptive circular, price list, etc., Address

JACOB VALENTINE,
Gorham, Ontario Co., N. Y.



JAMES LEFFEL'S IMPROVED

Water Wheel

Fine New Pamphlet for 1889.

The "OLD RELIABLE" with Improvements, making it the **Most Perfect Turbine now in use,** comprising the **Largest** and the **Smallest** Wheels, under both the **Highest** and **Lowest** Heads in this country. Our new Pocket Wheel Book sent free. Address,

JAMES LEFFEL & CO., Springfield, Ohio,
and 110 Liberty St., New York City.

[Please mention this paper when you write to us.]

EVERY MILLER

Whether using Water or Steam Power, who wants

To Save His Machinery

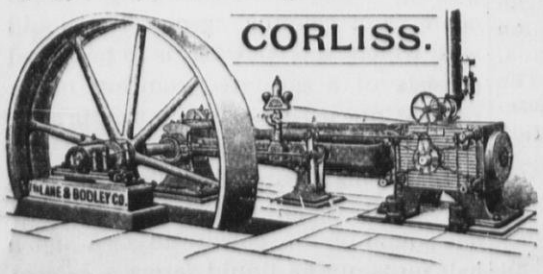
And reduce the cost of running expenses, should have a copy of a Pamphlet on Lubrication, which will be **SENT FREE** on application to

VACUUM OIL CO., ROCHESTER. N. Y.

MANUFACTURERS OF HIGH-GRADE OILS.

☞Branch Offices and Warehouses in all the Leading Cities.☜

THE LANE & BODLEY CO.,



MANUFACTURERS OF

AUTOMATIC CUT-OFF

ENGINES

From Heavy Patterns and of Unexcelled Workmanship.

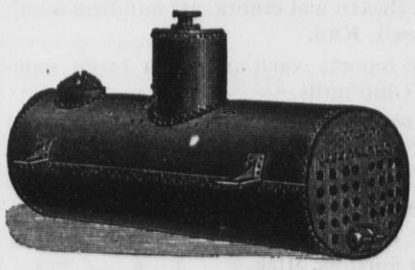
Steel Boilers, Feed Water Heaters Shafting, Pulleys and Gearing.

THE LANE & BODLEY CO., Cor. John and Water Sts., Cincinnati, Ohio.

BASS FOUNDRY AND MACHINE WORKS,

FORT WAYNE, INDIANA.

—MANUFACTURERS OF—



First Class Steam Boilers,

INCLUDING

Locomotive, Upright, Flued and Tubular

—AND—

Portable Boilers of all Sizes and Styles.

TWO SHEET BOILERS A SPECIALTY.

Contracts taken for Complete Power Plants. *Prices furnished on Application.*

Hughes Bros. Steam Pump Co.,

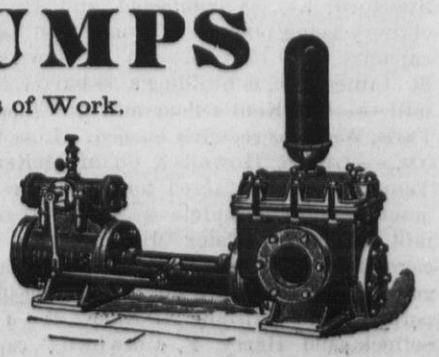
CLEVELAND, OHIO.

Builders of Single and Duplex

STEAM * PUMPS

Of Every Description for all kinds of Work.

Satisfaction Guaranteed.

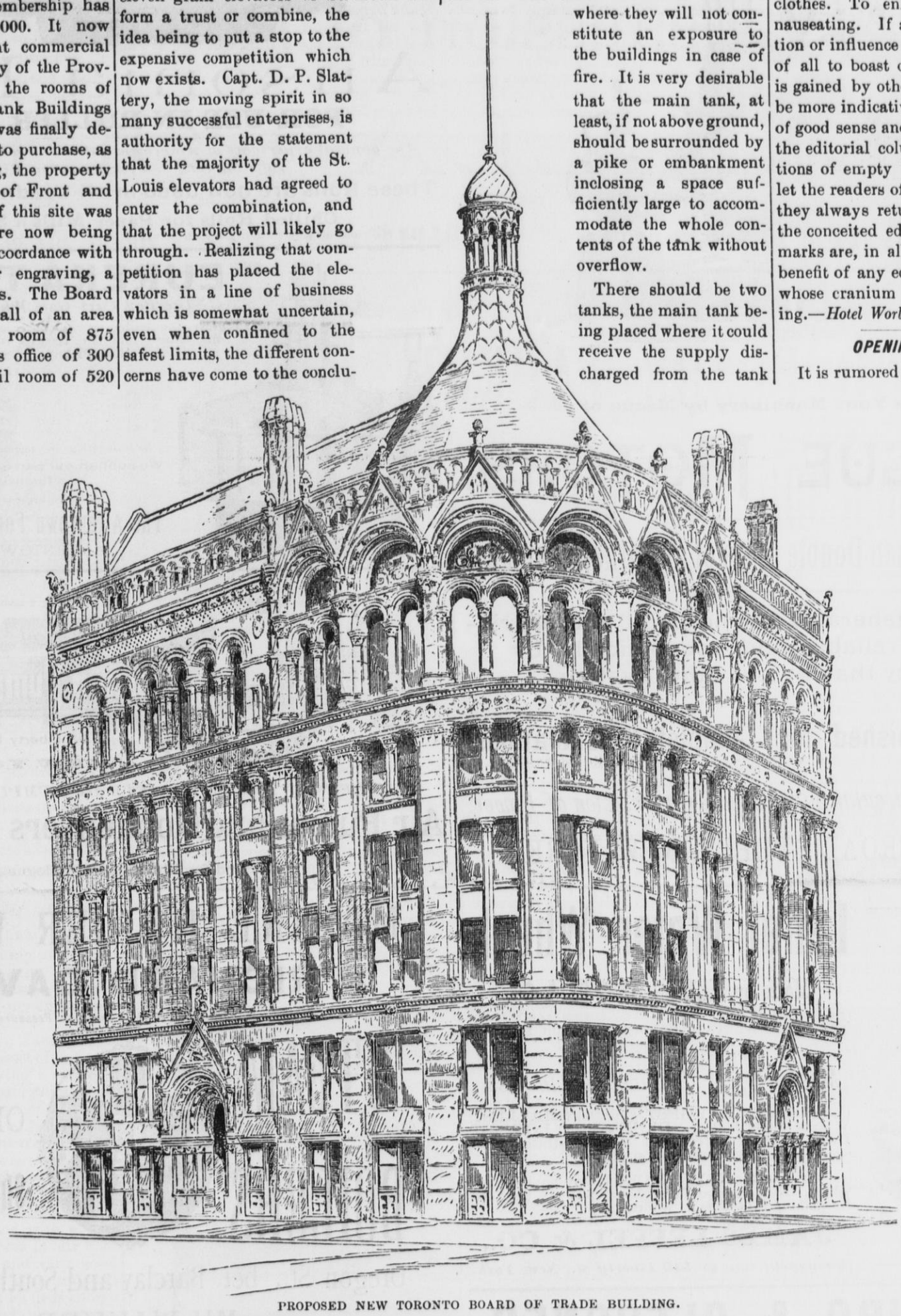


Send for 1888 Catalogue.

PROPOSED NEW TORONTO BOARD OF TRADE BUILDING.

The Toronto Board of Trade, five or six years ago, was an uninfluential body compared with what it is to-day. Since its amalgamation with the Toronto Corn Exchange, in 1884, its membership has increased from 200 to 1,000. It now represents every important commercial and manufacturing industry of the Province. For some time past the rooms of the Board in Imperial Bank Buildings have been too small. It was finally decided about two years ago to purchase, as the site for a new building, the property on the northeast corner of Front and Yonge streets. The cost of this site was $55,000. Arrangements are now being made to erect thereon, in acocrdance with the design shown in our engraving, a building of some six stories. The Board of Trade requires a large hall of an area of 1,925 feet, a reading room of 875 square feet area, a clerk's office of 300 square feet area, a council room of 520 feet area, a grain inspector's room of 300 square feet area. The rest of the building is to be divided into large and small offices. There are to be two elevators placed together, running from the basement to the top. The building is to be heated with steam, and grates are to be placed in the principal offices.

We are indebted to the publisher of *The Dominion Mechanical and Milling News* of Toronto, Canada, for the illustration and description as above.



PROPOSED NEW TORONTO BOARD OF TRADE BUILDING.

AUSTRALASIAN FLOUR MILLS.

In Australia at the present time a number of flour mills are being constructed on or remodeled to the gradual reduction system of manufacturing flour by rollers. During the past month the successful starting is announced of Maryborough Flour Mills, which have been reconstructed to the Simon system of milling by Messrs. E. C. Elliott & Co. of Sydney, the Australian agents for Mr. Henry Simon of Manchester. These mills, which are the property of Mr. Cadwallader, an advanced Australian miller, were taken in hand by the contractors on the 4th of December, 1888, and the installation was completed and put to work in the short space of six weeks, notwithstanding the difficulty of obtaining workmen at that season of the year. The machinery is disposed on the three floors of the mill in the following order: On the ground floor are the bottoms of the fourteen elevators, arranged in one line; second floor is given up to six double roller mills and a large dressing machine, and the dressing and purifying machinery is located on the top floor. The motive power required to drive the mill is obtained from a steam engine with a 13-inch cylinder and a 24-inch stroke. William Hancock, the milling expert, was in charge of the mill, and writes that the roller plant was very successfully put to work on the 21st of January, the machinery starting as if it had been working for months, and flour produced three hours after the feed had been turned on was sent out to customers. The mill is capable of producing 200 bags of flour in twenty-four hours, and is a credit to all those who had the work in hand. After starting the mill it was open for public inspection for one week.—*The Miller (London)*.

A ST. LOUIS ELEVATOR TRUST.

It is about definitely settled that the eleven grain elevators of St. Louis will form a trust or combine, the idea being to put a stop to the expensive competition which now exists. Capt. D. P. Slattery, the moving spirit in so many successful enterprises, is authority for the statement that the majority of the St. Louis elevators had agreed to enter the combination, and that the project will likely go through. Realizing that competition has placed the elevators in a line of business which is somewhat uncertain, even when confined to the safest limits, the different concerns have come to the conclusion that, if competition was removed and the elevators assumed the certain profits they might make as warehouses, the saving in many other directions would in the long run make the business more profitable than it is now, and wholly remove the hazard to which the business is now exposed. It is figured that $75,000 per year can be saved in switching charges alone, while $100,000 per year of a reduction would be made in the expense of operating. The size of the syndicate which will manage the elevators will naturally be large, for the original value of the property is about $4,000,000.

HO TO SAFELY USE PETROLEUM FOR FUEL.

The Associated Factory Mutual Insurance Companies have something to say out of their experience with petroleum for fuel, which is of interest to underwriters

The hazards attending the use of petroleum as fuel are largely of a controllable nature, and are dependent almost entirely upon the precautions taken in regard to its storage and use. The tanks should be of iron, placed upon solid foundations and fitted with tight covers provided with ventilating pipes for the removal of any vapor passing off from the oil. The tanks should be situated where they will not constitute an exposure to the buildings in case of fire. It is very desirable that the main tank, at least, if not above ground, should be surrounded by a pike or embankment inclosing a space sufficiently large to accommodate the whole contents of the tank without overflow.

There should be two tanks, the main tank being placed where it could receive the supply discharged from the tank cars by gravity, whence it may be pumped into the smaller or distributing tank which feeds the oil directly to the burners.

An overflow pipe in the distributing tank should be placed so as to discharge any excess of oil back into the reservoir tank.

Pipes should be placed underground as far as possible; the various connections should be supplied with valves for cutting off the flow of oil when desired.

If the oil is admitted to the burners before a flame is placed in the furnace, flashes or explosions are almost sure to follow, and it is absolutely necessary for safety that a burning torch or other flame be placed in the furnace before the oil is let on to the burners.

The above requ rements may be modified as needed, according to the circumstances pertaining to the use of oil fuel for metal working and other purposes.—*Price Current.*

THE paper or publication that must continually boast of its own wonderful circulation and influence, its merits and superiority over all others, is not unlike the boy who whistles to keep up courage. Self-praise in newspaperdom is about as consistent in true journalism as a man is who brags about his talent, wealth or fine clothes. To enlightened readers it is nauseating. If a paper has any circulation or influence it should be the last one of all to boast of the fact; true esteem is gained by other means. Nothing can be more indicative of weakness or a lack of good sense and breeding than to see in the editorial columns of a paper exhibitions of empty boasting. It is better to let the readers of a journal be the judge; they always return a just verdict, while the conceited editor may not. These remarks are, in all sincerity, given for the benefit of any editor or publisher upon whose cranium the cap is most becoming.—*Hotel World.*

OPENING UP SIBERIA.

It is rumored that an American syndicate, with a capital of $50,000,000, has been formed to construct a railway in Siberia, and that several former and present diplomatic and consular American agents are interested in the undertaking. It is singular how thoroughly these gentlemen share with Sir Robert Morier the view that there is money to be made by the development of Siberia.

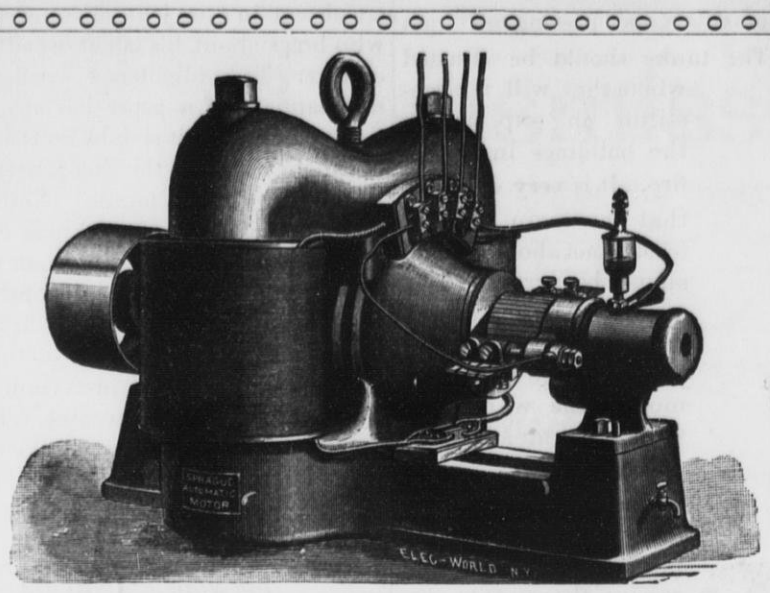
A MILLION BUSHELS.

People talk glibly about a million bushels of wheat, but very few of them realize what a vast amount that is. A wheat broker says "that if a million bushels were loaded on freight cars, 500 bushels to a car, it would fill a train over 15 miles long; if transported by wagon, 44 bushels per wagon, it would make a line of teams 142 miles long. If made into bread, reckoning a bushel to every 60 pounds of flour, it would give each man, woman and child in the United States a 2-pound loaf of bread.

THE MOTION OF THE TOP AND THE BOTTOM OF A WHEEL.—If the top of a buggy wheel, when in motion, went no faster than the bottom, the wheel would go around in the same place. Here is the reason: No forward or backward motion of a vehicle is possible unless the top moves faster than the bottom. There is a fixed ratio in this as immutable as the law of the Medes and Persians. In a wheel on a fixed axle the bottom moves backward as fast as the top moves forward; but in a wheel that is going forward drawn by a progressive axle, the bottom does not go back at all, but remains almost stationary until it is its turn to rise and go forward.—*New York Sun.*

TO REMOVE RUST FROM STEEL.—To remove rust from steel, and at the same time restore its polish, the following is recommended by the *Chemist and Druggist:* Take of cyanide of calcium, 15 parts; of fatty soap, 15 parts; of whiting, 30 parts, and of water sufficient to make a stiff paste. The steel is first washed with a solution of one part cyanide of potassium in two parts of water, and then immediately rubbed with the above. Both of these formulæ should be carefully dispensed on account of their active poisonous qualities.

Sprague Electric Railway & Motor Co.



Operate Your Machinery by Means of

SPRAGUE MOTORS.

Our Sales More than Double those of any other Company.

Power can be generated at one point and distributed more reliably and economically by Electricity than by any other system.

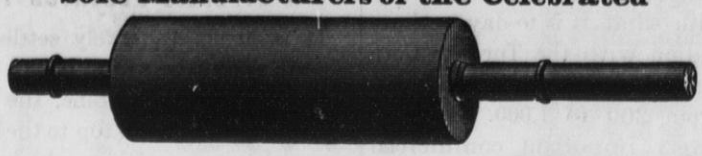
Estimates Furnished for Complete Installations.

Send for our new Circular on Electric Transmission of Power.

16 and 18 BROAD STREET, NEW YORK.

Farrel Foundry & Machine Company,

Sole Manufacturers of the Celebrated



Ansonia Rolls

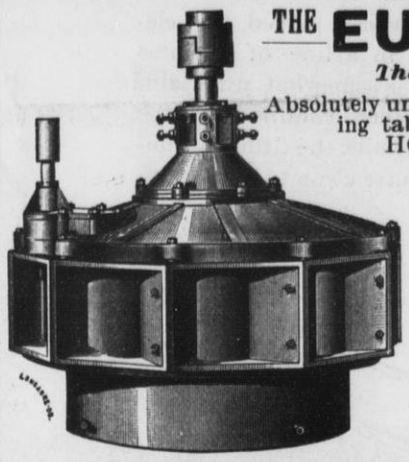
FOR USE IN ROLLER MILLS.

The general experience of American Millers unites in pronouncing these rolls the very best for Flouring Mill use.

These Rolls are now used in all Leading Flouring Mills

Chilled Rolls for Paper Mills a Specialty.

☞ Mention this paper when you write to us.



THE EUREKA TURBINE.

The Best Part-Gate Wheel Ever Built.

Absolutely unequalled in efficiency, is shown by the accompanying table from the records of actual tests at the HOLYOKE, MASS., TESTING FLUME.

	PERCENTAGE OF EFFICIENCY.			
	Full Gate.	⅞ Water.	¾ Water.	½ Water.
24" Wheel	.8436	.8416	.8202	.8002
24" Wheel	.8206	.7910	.7700	.7003
24" Wheel	.8078	.7578	.7275	.6796
34" Wheel	.8000	.8011	.7814	.6850

No other turbine ever approached the above figures at part-gate.

We publish our part-gate figures Others significantly omit them.

For Catalogue and information, address

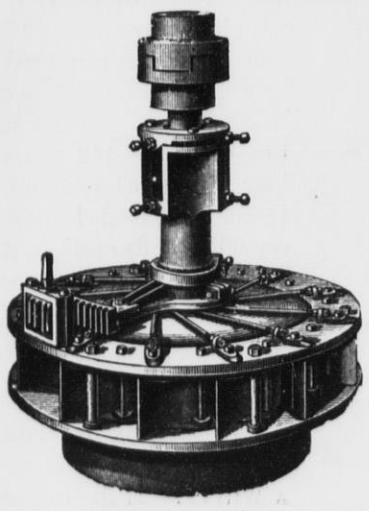
The Allentown Foundry & Machine Co.,

ALLENTOWN, PA., U. S. A.

BUILDERS OF EVERY VARIETY OF PUMPING MACHINERY.

Air Pumps and Condensers a Specialty.

☞ Send for Illustrated Catalogue. ☜



Leffel Water Wheel,

Made by JAMES LEFFEL & CO.

The "OLD RELIABLE" with Important Improvements, making it the

Most Perfect Turbine now in Use.

Comprising the **LARGEST** and the **SMALLEST** Wheels, under both the **HIGHEST** and **LOWEST** Head in this country. Our New Illustrated Book sent free to those owning water power.

Write us for **NEW PRICES** before buying elsewhere. New shops and New Machinery are provided for making this Wheel. Address,

JAMES LEFFEL & CO.,

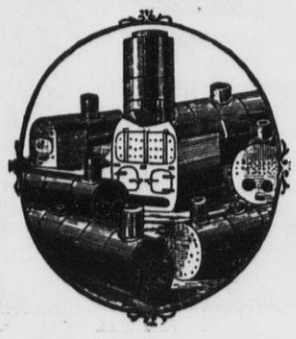
Springfield, Ohio or 110 Liberty St., New York.

MARINE BOILER WORKS,

RICHARD DAVIS,

Manufacturer of High and Low Pressure

STEAM BOILERS



LARD —AND— OIL TANKS —AND— **Sheet Iron Work** IN GENERAL.

Oregon St., bet. Barclay and South Water Sts.,

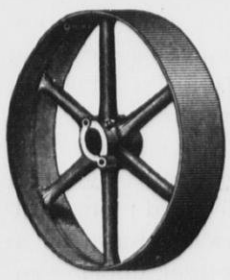
MILWAUKEE.

Particular Attention Paid to Repairs. Orders Solicited and Promptly Executed.

THORNBURG & GLESSNER,

CHICAGO, - ILLINOIS.

MAKE A SPECIALTY OF



PULLEYS, SHAFTING

AND HANGERS.

CORRESPONDENCE SOLICITED.

ESTABLISHED 1846

J. B. A. KERN & SON,

Merchant Millers,

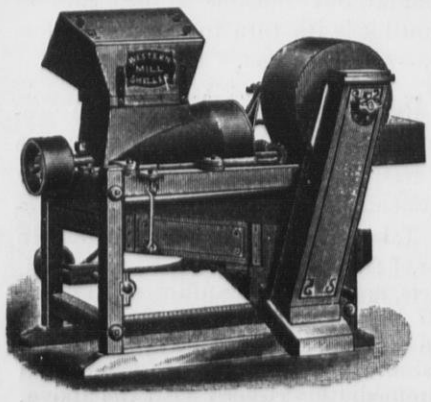
Capacity 2,000 Barrels Per Day. MILWAUKEE, WIS.

Manufacturers of Choice Minnesota and Dakota Hard Wheat Flour.

RYE FLOUR

By most approved roller process, guaranteed the best and purest rye flour manufactured.

WE INVITE CORRESPONDENCE FROM CASH BUYERS.



THE

"WESTERN"

MILL SHELLER.

The most Compact, Durable, Best Sheller and Best Cleaner.

Takes up but little room, runs at low rate of speed, requires no attention. It is in every respect the

Best Sheller ever offered to the Public.

Please mention this paper. Write for full particulars to

UNION IRON WORKS, - DECATUR, ILL.

Mfrs. of "Western" Shellers, Cleaners, Separators, and all kinds of Elevator Machinery.

ENGINE FOR SALE.

One 600 Horse Power Corliss Upright Compound Engine

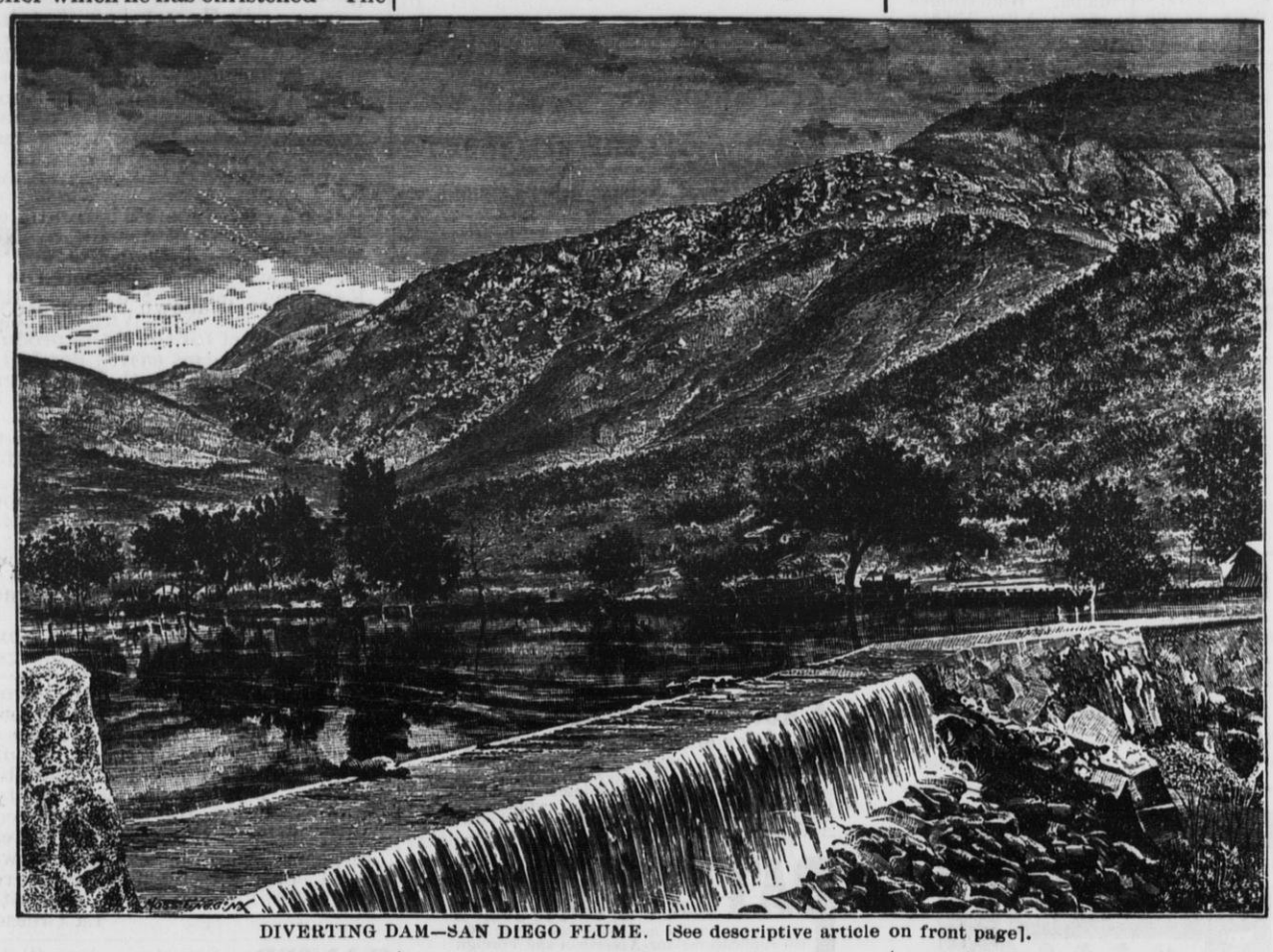
Diameter of high pressure cylinder 28 inches, 38 inch stroke. Diameter of low pressure cylinder 56 inches, 38 inch stroke. Length of crank shaft 11 feet. Diameter of journals, 15 inches. Diameter of fly wheel, 24 feet. Weight of fly wheel, 48,000 pounds. Boiler feed pump. Engine complete, in good working order; can make from 1,000 to 1,200 bbls. of flour in 24 hours; has made a barrel of flour with 20 pounds of coal. For particulars apply to

JOHN B. A. KERN & SON,

EAGLE FLOURING MILLS. **MILWAUKEE, WIS.**

A LETTER FROM AN OCTOGENARIAN MILLER AND MILLWRIGHT.

At the Millers Convention held in Buffalo in June, 1888, we had the pleasure of meeting Mr. Jacob Valentine of Gorham, N. Y., a practical miller and millwright of over half a century's experience, and asked him sometime to write us a chapter about milling as he found it in NewYork, fifty years ago. Mr. Valentine has invented a number of machines, and added improvements to many others, but his Corn-sheller which he has christened "The Millers' Friend," is the best known, and has secured a reputation for doing good and rapid work. It is no little trouble for a gentleman of Mr. Valentine's age to sit down and compose and write a long letter, and we here tender to him our hearty thanks for complying with our request. Here is Mr. Valentine's letter, *verbatim*:—

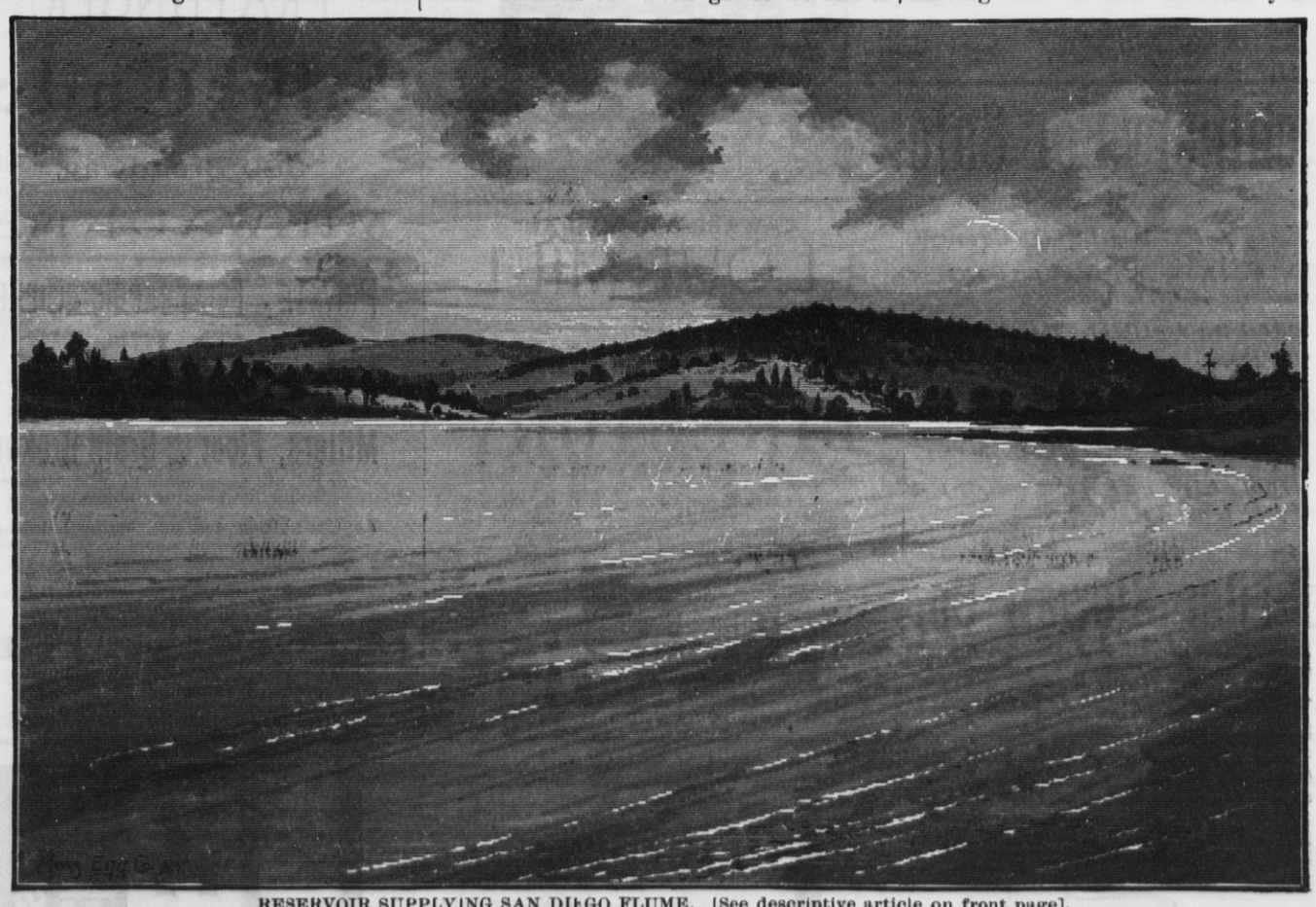


DIVERTING DAM—SAN DIEGO FLUME. [See descriptive article on front page].

Editor UNITED STATES MILLER:

Having been confined to my room most of the winter, the time dragging wearily, I concluded to answer a request often made to write a chapter of my experience in milling.

Over half a century ago, I started out to a cluster of eight mills most of them on a fine stream and occupying a space of about six miles diameter and doing most of the milling for a large section. I soon learned they had a supply of help for the winter, but was told that the old Red Mill was without a miller and was located near the center of the group, and as I had to pass near it on my way home I called to see it. It looked hard on the outside, but I found it had been repaired with a new wheel and the machinery was in fair condition. It had two new and very good bolts, 3 run of stones, a corn and cob crusher, a rolling screen and a little rotary fan on each curb constituted the machinery; and among the 8 mills the only cleaning works was the screen and little fan. I looked it over and the young man urged me to go and see the proprietor. I found him a fine old gentleman, infirm and confined to the house most of the time. He urged me to stop the night with him, and I did so. He talked up the situation and strongly urged me to stop with him and run the mill. I told him they were so thoroughly surrounded I feared we would get nothing to do, only a little neighborhood work. He finally made a proposition that he would board me and give half the mill earned till April, and as I knew of no other vacancy, I accepted it. I took possession the following Monday. I found the stones in a horrible condition, not having been dressed in over a year—furrows ½ in. wide, feather edge about as deep as the back, and the face in ridges. I worked on it a full week, got it faced and furrowed, and found it a splendid grinding run. As the other flouring run was put in 2 years before it was in very good face except a little high at the eye; the furrows were in the same size and shape which I dressed out to feather edge and proper width. I then started up and did the grinding as the work came in, which was rather slow for a few weeks. I soon learned the most of the wheat went to other mills, and gave out an invitation to try us. One of the largest farmers brought a grist to try and was well pleased. He told his neighbors and the current began to turn. January being very cold the small streams became frozen up and the grinding came in from a distance so that we had all the work the mill would do, and continued till the breaking up in the spring. In March a man came in the mill with a bag of wheat and wanted it ground; I opened the bag and it was nice plump wheat, but as black with smut as I ever saw. I told him I had nothing to clean it with and would not grind it, for he could not use it. I told him if he would wash it I could give him a good flour; he said he had no place to dry it and would not bother with it. I said bring a load and we will wash and spread it on the floor and rake it over a few days till in condition to grind. He did so, and we washed it and in about ten days ground it. He took it home and tried it, and took the trouble to report to his neighbors that it was the best flour he ever saw. Well, perhaps it was because we washed out that terrible *crease dirt* we read so much about in these latter days. The result was that it brought all the work to me from the village in which he lived.



RESERVOIR SUPPLYING SAN DIEGO FLUME. [See descriptive article on front page].

As the only cleaning works in any of the mills were a rolling screen and a fan on each curb, I conceived the idea of making a machine to scour and clean the grain. I told the proprietor that if he would furnish the material I would make the machine, to which he assented, and in June I got the machine in operation, and found it a complete scourer—it took the furz completely off of wheat, also the blossom off buckwheat and made a great improvement in the shade of the flour. That the machine was a success I was soon convinced, as customers frequently spoke of the improvement in the bread and the steady increase of custom from a distance, so that the manager and part owner of the new mill twelve miles distant called to see what it was; he was considered the captain among millers at that time, and was generally consulted when alterations and improvements were to be made. He came in and was very glad to see me; said he heard I had been making some improvements in the old mill, and as he had been to visit his brother living near there, and as he usually went around once a year to see what improvements were being made, he would like to look around. I took him around and showed the alterations I had made, and showed him the smut machine and started it up and ran through a few grists. He examined the wheat before and after the operation, said it must make a great improvement in the flour. I told him I meant to increase the motion as soon as I could get around to it, and invited him to call again when he came that way. After I increased the motion on the machine I could clean as fast as I cared to and it worked first rate, and the captain became a frequent visitor.

As the water was getting low in the small streams our work got so we had to run much of the night to keep along and accommodate customers from a distance making pretty severe work in running all day and most of the night, but we kept it up till a rain came that started up the small streams giving us some relief. The Captain came in one day and said he had made up his mind they would build a smutter, and called to see if I would go and run the mill for them and would make any repairs that I wanted. I told him if he gave me the same terms I had there I would, he said the owners would not consent to let the mill on shares. I told him I would not run a custom mill only on shares. He said "I will give you better wages than we have ever paid." I told him when he made up his mind to let the mill on shares I would talk with him. He kept calling occasionaly, until in February he came in and wanted to know if I had made up my mind to run the mill for them the next year as they should want a miller the first of April, I said, you know the conditions I will work on and as it is time we should know what we are to do, if you accept the conditions I will run the mill for you, on the further conditions that if either party becomes dissatisfied he is to give one months notice. "Well," he said, "I have talked with the proprietors and they have consented to accept the terms you demand, and shall require you when the work is crowding to start at 6 o'clock in the morning and run as late nights as necessary to keep the work along." I replied that I expected to run the mill to the best advantage to do the work. He invited me to go a week before the time to look into the run of the mill. I worked with the miller during the week and he never spoke to me only when I asked a question until the last day of his time, and that day he talked freely and said, it was probably the last day he would ever run a mill. The millers at that time generally ran about 120 revolutions and even that motion caused a deal of trouble filling up and dropping down in the eye. I ordered tin tubes about 8 inches in diameter and reduced the eyes and got rid of the trouble of loading in the eye and usually ran my motion up to 160, getting through fully a third more grain daily than they had been doing. The Captain came in one afternoon and said, he was going to stay and see me work. I told him, I did not like to be watched as I could work better without watching. That evening he told me he was satisfied. I was grinding about a third more grain daily than the mill had ever done before and he did not understand it as I did not seem to use any more water than they had always done. I told him I must use more water as I ran the mill faster and when needed, carried all the water the wheel would carry. When the books of the year were footed, they found the earnings nearly a third more than in any year previous. The next two years, 1832 and 1833 the crops were good and the earnings largely increased. The next year the weavil cut the wheat badly and the quality of what was left was very poor. In 1835 the crop was a total failure all through that section and milling suffered accordingly. Having over worked for some years, in 1834 my health gave away so that I had to quit the mill, the Doctor told me I could make up my mind, I was done working in a mill. I did not take his medicine, and as I had business out doors to keep me busy looking after it, I gradually regained my health and have run mills many years since.

J. VALENTINE,
Gorham, N.Y., April 25, 1889.

WINEGARD & Persons elevator with grain stored therein at DePere, Wis. burned April 30. Loss $40,000. Insurance $25,000.

AN AUTHENTIC BUYERS' GUIDE.

MILL AND ELEVATOR BUILDERS, MILL FURNISHERS, MANUFACTURERS OF AND DEALERS IN MILL AND ELEVATOR MACHINERY AND SUPPLIES.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year, cash with order. Additional lines, $1.00 each, per year.

Edw. P. Allis & Co., Milwaukee, Wis., builders of complete Flour Mills, manufacturers of Flour Mill Machinery, and dealers in Supplies of every description. [Mr.89.]

Garden City Mill Furnishing Co., Chicago, Ills., Mill Builders, manufacturers full line of Flour Mill Machinery, dealers in Mill Supplies, Bolting Cloth etc., etc. [Mr.89.]

Borden, Selleck & Co., 48 & 50 Lake st., Chicago, Ills., manufacturers of "HARRISON CONVEYOR" for Grain, Malt, etc., etc. [Mr.89.]

John C. Higgins & Son, 165 West Kinzie Street, Chicago, Ills., mfrs. of and dressers of Mill Picks. [Mr.89.]

H. P. Yale & Co., Milwaukee, Wis., Manufacturers' Agents of Engines and Boilers, New York Leather Belting Co.'s Leather Belting, Dodge Wood Pulley.

Poole & Hunt, Baltimore, Md., manufacturers of Steam Engines, Water Wheels, Flour, Corn, Paper, Saw and Cotton Mill Machinery.

W. J. Clark & Co., Salem, O., manufacturers of "SALEM" Elevator Buckets, etc.

Thornburgh & Giessner, 18–22 N. Clinton St., Chicago, Ills., manufacturers of Mill and Elevator Supplies.

R. C. McCulley, (P. O. Box 214) Lancaster, Pa., manufactures Cob Crushers, Cooper's Stoves, Castings, Patterns, etc. [Mr.89.]

B. H. & J. Sanford, Phoenix Iron Works, Sheboygan, Falls, Wis., manufacturers of the "IMPROVED WALSH DOUBLE TURBINE WATER WHEEL." [Mr.89.]

John C. Kilner, York Foundry and Engine Works, York, Neb. Mill and Elevator machinery of all kinds, Engines, Boilers, Pulleys, Shafting, etc. [Mr.89.]

The Gutta Percha and Rubber Mfg. Co., 159–161 Lake st., Chicago, Ill., Belting and Rubber Goods. [Mr.89.]

The Avery Elevator Bucket Co., sole owners and manufacturers of Seamless Steel Elevator Buckets, Wason, Lake and Dart sts., Cleveland, O. [Mr.89.]

Richmond Mfg. Co., Lockport, N. Y., manufacturers of Grain Cleaning Machinery, Bran Dusters etc. [89.Mr.]

N. Y. Belting and Packing Co., N. Y. Leather Belting Co., Goulds & Austin, Agents, 167 and 169 Lake Street, Chicago. [Apr.89.]

Weiler Bros., 94 Wendell st., Chicago. M'f'rs Mill and Elevator specialties, Cups, Boots, Spouts, Steel Conveyors, Power Grain Shovels; dealers in Cotton and Rubber Belting, etc. [Apr.89.]

The Shields & Brown Co., 240 and 242 Randolph st., Chicago, and 143 Worth st., New York. Mfrs. of Sectional Insolated Air Coverings for steam, gas, and water pipe, etc. [May 89.]

W. G. Avery M'f'g Co., 10 Vincent st., Cleveland, O., Specialties: Avery Lever Belt Punches, Avery Seamless Elevator Buckets, Belting, Elevator Bolts, &c. [May'89.]

The H. J. Deal Specialty Co., Bucyrus, Ohio. Headquarters for Flour and Grain Testing Appliances, and Specialties for the Milling, Flour and Grain trades.

EXPORT AND MERCHANT MILLERS AND MANUFACTURERS OF WHEAT, RYE AND BUCKWHEAT FLOURS, AND CORN MEAL AND CORN PRODUCTS. (WITH NAMES OF SPECIAL "BRANDS" MADE) DESIRING CORRESPONDENCE WITH SOLID HOUSES WITH A VIEW TO TRADE.

Cards will be inserted under this head in the UNITED STATES MILLER, not exceeding three lines, paper included, for FIVE DOLLARS per year. Additional lines, $1.00 each per year.

J. B. A. Kern & Son, "Eagle Mills," Milwaukee, Wis. WHEAT FLOUR BRANDS—*Patents:* "Success," "Kern's." *Bakers:* "Triumph," "High Ground," "Eagle." RYE FLOUR BRANDS—"A Rye," "1 Rye," "Rye." [Apr.'89.]

E. Sanderson & Co., "Phoenix Mills, Milwaukee, Wis., U. S. A. Manufacturers and Exporters of choice spring wheat flours. Daily capacity 1500 barrels. [Apr.'89.]

Bernhard Stern, "Jupiter Mills," Milwaukee Wis. Roller Mill. Hard wheat *Patents*. Principal brand, "Jupiter." [Apr.'89.]

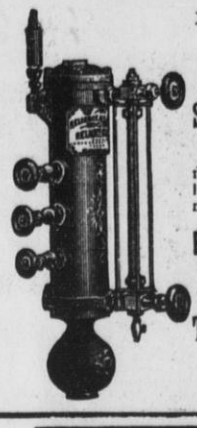
Faist, Kraus & Co., "Duluth Roller Mill," Milwaukee, Wis., Manufacturers and Exporters of choice spring wheat flours. Daily capacity 1500 barrels. [May'89.]

Russell, Andrews & Birkett Penn Yan, N. Y. Manufacturers of roller process Rye and Buckwheat flour. Absolute purity guaranteed. *Write for prices.* [Apr.'89.]

Prominent Flour, Grain and Provision Brokers, desiring correspondence with Millers of Wheat, Rye and Buckwheat Flours, and Cornmeal and Corn Products, with a view to Trade.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year. Additional lines, $1.00 each per year.

W. K. Sherwood, Flour and Grain Commission, 18 South Commercial Street, St. Louis. Mo. [Ap.89.]



Your Plant will be Imperfect Without

THE RELIANCE

Safety Water Columns.

They obviate all damage from either too much or too little water, and cost but little more than the common outfit.

Every Gauge Warranted.

Send for Illustrated Price List.

The Reliance Gauge Co.,

863 Sheriff St.,

CLEVELAND, OHIO.

SCIENTIFIC AMERICAN

ESTABLISHED 1845.

Is the oldest and most popular scientific and mechanical paper published and has the largest circulation of any paper of its class in the world. Fully illustrated. Best class of Wood Engravings. Published weekly. Send for specimen copy. Price $3 a year. Four months' trial, $1. MUNN & CO., PUBLISHERS, 361 Broadway, N.Y.

ARCHITECTS & BUILDERS

Edition of Scientific American.

A great success. Each issue contains colored lithographic plates of country and city residences or public buildings. Numerous engravings and full plans and specifications for the use of such as contemplate building. Price $2.50 a year, 25 cts. a copy. MUNN & CO., PUBLISHERS.

PATENTS may be secured by applying to MUNN & Co., who have had over 40 years' experience and have made over 100,000 applications for American and Foreign patents. Send for Handbook. Correspondence strictly confidential.

TRADE MARKS.

In case your mark is not registered in the Patent Office, apply to MUNN & Co., and procure immediate protection. Send for Handbook.

COPYRIGHTS for books, charts, maps, etc. quickly procured. Address

MUNN & CO., Patent Solicitors,

GENERAL OFFICE: 361 BROADWAY, N. Y.

For All Kinds IRON & STEEL **ROOFING**

CEILING, SIDING, IRON DOORS, SHUTTERS.

ADDRESS SCOTT & CO. CINCINNATI, OHIO.

FRATTINGER,

City Tailor

389 Broadway,

MILWAUKEE.

PRIVATE • TELEGRAPHIC • CIPHER

CODE

Compiled Expressly for the use of

Millers, Flour & Grain Brokers

For Private Telegraphic Correspondence, either for Land or Cable Lines.

1888 Edition, just out, March 1, 1888, revised, amended and added to, to meet all the requirements suggested by the members of the Miller's National Association, *who use more copies of the Code than all others combined.*

Published by the Riverside Printing Co., Milwaukee, Wis.

For terms, etc., address, stating number of Codes probably wanted,

RIVERSIDE PRINTING CO., Milwaukee, Wis.

FOR SALE AND TO RENT.

[Short ads. inserted in this column for $1 per insertion.]

FOR SALE. A steam roller mill, first-class in every respect, with daily capacity of 275 barrels. For full particulars address,
HUGH KELLY, Perham, Minn.

FOR SALE. A good water-power roller mill of about 50 bbls. daily capacity. Address for full information,
UEHLING & BODDEN, Afton, Wis.

FOR SALE. A steam and water-power 50 bbl. roller mill. Proprietor has other business. Go west for your health and buy a good business cheap. Address,
E. HAM & SON, Latah, Wash.

FOR SALE. The "Central Mills," of 300 barrel capacity, situated in the thriving city of Atchison, Kas., with a good wheat crop, and the business fully established to go right ahead. Satisfactory reasons for selling. For further information address
WM. BOWMAN, Atchison, Kas.

FOR SALE. One 100 barrel roller process Flour and Grist Mill, built by Nordyke & Marmon Co., in 1884, good as new and complete in every respect; situated on the great Kanawha river and the K. & O. R'y, in the center of the West Virginia coal region. Home market for the entire product. Will sell cheap. Terms easy. For full particulars address J. G. W. TOMPKINS,
Cedar Grove, Kanawha county, W. Va.

FOR RENT. A water-power 5-run mill, with land, etc. A good chance for a live miller. For particulars address,
S. D. NICHOLS, Panora, Iowa.

WANTED.

A situation in a flour mill, stone or roller. Eight years' experience. Recommendation furnished if desired. Address,
JOHN STUBER, P. O. Box 880.
[1t] Colorado Springs, Colo.

SITUATION WANTED A young man of 25 years, single, wishes to locate permanently, if he can find a suitable location. Prefer to take charge of a full roller mill, or a combined roller and stone mill, of from 50 to 150 barrels capacity. Good stone dresser, being thoroughly acquainted with the latest improvements. I can guarantee satisfaction. Any one in want of a good, sober, reliable man can address
J. P. WERNER, 118 South Third street,
La Crosse, Wis.

WANTED. A partner who will devote his time to the business, with some means, to rebuild a water power mill in Toledo, on the site of the Armada Mills (lately burned.) It is the best site in the city, and the best city in America for a flouring mill to grind either winter or hard spring wheat. Correspondence solicited.
F. N. QUALE, TOLEDO, OHIO.

WANTED. Wanted a competent man to build a mill. Address
[1t] WARREN FOSTER, Cheney, Kas.

"TRIUMPH" CORN SHELLER

CAPACITY

2000 BUSHELS PER DAY.

Shells wet or dry corn.

CHEAPEST AND BEST SHELLER.

PAIGE MANUF'G CO.,

No. 12 Fourth St., Painesville, O.

[Please mention this paper when you write to us.]

CAWKER'S AMERICAN

FLOUR MILL

—AND—

GRAIN ELEVATOR

DIRECTORY

Published once in two years.

Gives nearly 23,000 Addresses, P. O., County and State, Capacity, Power, System, etc.; also lists of Millwrights, Miscellaneous Mills, Millbuilders and Furnishers, Flour and Grain Dealers, Foreign Flour and Grain Importers, etc., etc.

1888-9 Edition, Issued March, 1888.

PRICE, $10 PER COPY,

post paid and registered to any part of the world. Address,

E. HARRISON CAWKER, Milwaukee, Wis.

DO YOU INTEND TO BUILD?

PRACTICAL LOW-COST HOUSES. HOW TO BUILD THEM.

A Large Atlas, containing **drawings** and **floor plans** of **40 Modern Houses with Correct Estimates** of cost of **building.** All kinds of buildings ranging from a **$400 cottage** to a **$10,000 residence.** The **latest, most complete, and only practical book** published. It is **false economy** to attempt to build without these plans. Price by mail, post-paid, **50 cts.** Stamps taken.

Address, UNITED STATES MILLER, Milwaukee, Wis.

Machinery For Sale

ONE PAIR 4-FT. MILLSTONES; new.

SEVEN PAIR 4-FT. MILLSTONES; used about three months.

ONE PAIR 9 x 18 CHILLED ROLLS; smooth.

ONE No. 1 THROOP SMUTTER AND SCOURER.

ONE 24-INCH MIDDLINGS MILL.

ONE 1000-LB. PALMER POWER SPRING HAMMER.

ADDRESS

The Filer-Stowell Co.

CREAM CITY IRON WORKS,

Milwaukee, - Wisconsin.

Better THAN THE *Best*

College

Charles Mayer's Commercial College,

Grand Avenue (Public Library Building), **Milwaukee.** Established 1876.

1876, 27 pupils; 1888, 328 pupils. Telephone 1575. **Day and Evening Sessions.**

Students of either sex received at any time for full course or any special branch of study.

DEPARTMENTS: Commercial, Preparatory, Shorthand (Graham's analytical system) and Typewriting (all styles of machines), Languages, Plain, Ornamental and Round Writing.

Best, Largest, Most Beautifully Equipped School of its kind. Eight teachers. Perfect Order. Liberal Terms.

Address, or call at College.

Scholars from the country 20 Per Cent. Discount allowed. Board procured. Further information, address College.

COMPOUND Condensing or Non-Condensing.

16 SIZES, 5 to 500 H. P.

Not yet equaled by any form of Engine for

HIGH FUEL DUTY AND SIMPLICITY.

STANDARD 13 Sizes in Stock. 5 to 250 H. P.

3000 in use in all parts of the Civilized World.

JUNIOR 6 Sizes in Stock, 5 to 50 H. P.

An Automatic Engine cheaper than a Slide Valve.

WELL BUILT. ECONOMICAL. RELIABLE.

Over 300 Sold the First Year.

All the above built strictly to Gauge with INTERCHANGEABLE PARTS.

REPAIRS CARRIED IN STOCK.

SEND FOR ILLUSTRATED CATALOGUES.

WESTINGHOUSE ENGINES

The Westinghouse Machine Co.

PITTSBURGH, PA. U.S.A.

SELLING DEPARTMENT IN THE UNITED STATES.

New York, Boston, Pittsburgh, Chicago,	17 Cortlandt St. Hathaway Building, Westinghouse Build'g, 156, 158 Lake St.	Westinghouse, Church, Kerr & Co.
Philadelphia,	608 Chestnut St.	M. R. Muckle, Jr. & Co.
St. Louis, Kansas City, Denver,	302, 304 Washington Av. 312 Union Avenue, 1330 Seventeenth St.	Fairbanks & Co.
Omaha,	1619 Capitol Avenue,	F. C. Ayer.
Pine Bluffs, Ark.		Geo. M. Dilley & Sons.
Salt Lake City, Butte, Mont.	259 S. Main St. 4 Granite St.	Utah & Montana Machinery Co.
San Francisco, Portland, Or.	21, 23 Fremont Street, 33, 35 N. Front St.	Parke & Lacy Co. Parke & Lacy Mch. Co.
Charlotte, N. C. Atlanta, Ga.	36 College St. 45 S. Prior St.	The D. A. Tompkins Co.
Dallas, Tex. Chattanooga, Tenn.,		Keating Imp. & Machine Co. C. E. James & Co.

[Translated from *Allgemeine Muehlen Zeitung* for THE UNITED STATES MILLER.]

COMPRESSED AIR AS A MOTIVE POWER.

Much time, labor and thought have been expended in producing or attempting to produce machines for small manufacturers. Engines run by water, gas and hot air have been constructed; the electricians are also at present very busily engaged in devising cheap electro-motors, but a new source of power is now proposed—*the use of compressed cold air.* In Birmingham (England) a strong company has been organized for the purpose of supplying people with compressed cold air motors at a reasonable rate. This company has secured a franchise for laying pipes in the streets, and will endeavor soon to put the scheme into practical use. There are many well-informed men, however, who doubt the success of the enterprise. We hope the doubters may be disappointed.

The company will by means of pipes lead the air into the shops and houses where it will be made to propel suitable engines. Compressed air has the property of expanding like steam, and can thus furnish power to do work in proportion to its density. In a central station, engines having a capacity of 8,000 horse-power are placed to compress the air with pumps specially constructed so that it will indicate a pressure of 45 pounds to the square inch, and is conducted by piping to the places desiring to use it. The company claim that ordinary steam engines now in place can be connected with the air supply pipes and successfully and economically run, dispensing entirely with the furnace, boiler, coal, dirt, smoke, etc. There will be no danger from explosions. The space heretofore occupied by boiler, coal storage, etc., can be otherwise utilized, and as the power is ready for use at any time, only requiring to be turned on when wanted and turned off when not wanted, no enigneer or fireman is required. The compressed air can be used to drive elevators in hotels or residences, sewing machines or electric light dynamos—in short, many of the innumerable things that can be done with an ordinary amount of power. If the scheme works as promised by the company, it will no doubt come into use in many cities.

THE EDWARD P. ALLIS ESTATE.

Wm. W. Allis and Charles Allis, temporary administrators of the estate of the late Edward P. Allis, filed an inventory of the estate in the Probate court April 26. No values are placed on any of the property except as regards the machinery, material, bills receivable, book accounts and cash on hand April 2, which are as follows:

Articles manufactured, partly manufactured and raw material, about	$500,000 00
Bills receivable, as per books	170,480 71
Book accounts	512,585 42
Cash on hand as per cash book	24,593 04
The Western Worsted mills	4,794 12

The real estate comprises a long list of properties scattered from Michigan to California. It begins with the Reliance Iron Works, blocks 33, 116, 115, and lots 1, 2, 3, 4, 9, 10 and 12 in block 109, on the south side of the city; the Bay State Iron works, lots 3 to 10, inclusive, on the south side; the south side foundry with seven and one-fourth acres of land which it occupies in the Twelfth ward. All machinery and implements used in these establishments are included in mention of them.

The other city property enumerated embraces thirty-two lots in blocks 2 and 3 in the Twelfth ward; lots 7 to 10 in block 67, known as dock lots, on the south side; lots 1, 2, 3, 4, 13 and 14 in block 107 in the Seventh ward—the homestead property; part of lots 5 and 7 and all of lot 6 in block 233 in the First ward, and the Daisy Roller mills, on the south side.

The foreign realty includes the North Dakota Roller mills, at Hillsboro, North Dakota; Isinour's Stock farm, at Isinour's, Minn.; real estate at Aurora, Neb.; flour mill at Sanborn, Ia.; real estate at Indianola, Ia; flour mill, interest in gas and milling property, and real estate at Westfield, Ia.; four and one-half acres in Big Stone City, Dak; 160 acres in Barnes county, Dak.; 160 acres in Holt county, Neb.; 360 acres in Kidder county, Dak.; what is known as Chicago Park, in Los Angeles county, Cal.; two-thirds interest in 68,000 acres in Michigan; property at Lakeside, Wis.; Reliance Land and Mining Company, and Arizona mining claims, in Arizona.

TRADE NOTES.

No. 2 of "The Kind of Mills we Build" has been issued by Edw. P. Allis & Co. of Milwaukee. It shows graphically what the Reliance Works have done and can do.

It is said that the "EUREKA" OAT CLIPPER, manufactured by S. Howes of Silver Creek, N. Y., has been in great demand by oat dealers throughout the West.

MR. G. W. AVERY, president of The W. G. Avery Mfg. Co., Cleveland, O., has just received notice from the commissioner of patents for Canada, that a Canadian patent was issued to him April 2, '89, covering elevator buckets both welded, braised and fused.

MESSRS. STOUT, MILLS & TEMPLE, Dayton, O., have just issued their Water Wheel book for 1889, which is one of the finest wheel books we have seen of late years. The book contains 120 pages, is handsomely printed and beautifully illustrated. Any water wheel user desiring it will be sent a copy on application.

THE Stilwell & Bierce Mfg. Co., the well-known milling and hydraulic engineers of Dayton, O., have recently written as follows to the Avery Stamping Co., of Cleveland: "We take pleasure in expressing to you our high opinion of the merits of your seamless elevator buckets. They give satisfaction, both to us and our customers."

COL. C. A. WINN, the well-known milling engineer, has become associated with and financially interested in the J. B. Allfree Co., of Indianapolis, Ind. This firm is making rapid strides to prosperity and we consider the acquisition of Col. Winn to their present staff an important one. He has built several of the largest mills in this country and the success those mills have met with is unprecedented. We wish the Col. and his firm the best of success.

The Milwaukee Bag Co., dealers in flour and grain sacks of all descriptions, printed or plain, found their establishment on West Water street altogether too small for their rapidly growing business and have purchased and now occupy a large substantial brick structure at No. 236 East Water Street, Milwaukee. We take pleasure in commending this house to the trade and feel assured that they will fully please any and all of their patrons. Their printing department is fully up to the modern demand for good and tastily designed work.

WE are pleased to note that Messrs. Huntley, Cranson & Hammond of Silver Creek, N. Y., have established a Western agency at No. 66 South Canal street, Chicago, Ill., of which Mr. B. F. Ryer is manager. Mr. Ryer is personally known to thousands of mill owners in this country, especially in the West and South, and under his experienced management we predict that the firm will rapidly extend its already very large business. Among the specialties manufactured by Messrs. Huntley, Cranson & Hammond are the following: Cranson's wheat scourer and polisher, Cranson's buckwheat scourer and polisher (with magnetic attachments), Monitor dustless receiving and elevator separator, Monitor dustless milling separator, Diamond corn sheller, Roller buckwheat shucker. They also make a specialty of selling EXCELSIOR bolting cloth.

MILWAUKEE ITEMS.

HON. HENRY SMITH, millwright, is preparing plans for a malt kiln for A. L. Zinn, Milwaukee, Wis.

IMPROVEMENTS of a substantial nature have been made in the "Eagle," "Daisy" and "Duluth" mills during the past month.

MRS. C. E. BIRGE, wife of the well-known Milwaukee millwright, died March 23. She had been in poor health for some time.

MR. J. FLETCHER, a prominent London, flour broker, spent a few days in Milwaukee recently. He will visit all the principal flour producing points.

AT the recent election of officers of the Chamber of Commerce Mr. Oscar Mohr was chosen president and Messrs. E. P. Bacon and John Foley first and second vice presidents.

WILLIAM MALONE met with a fatal accident while at work in E. P. Allis & Co.'s works March 23. He was highly spoken of by his associates. He was buried with military honors by the Sheridan Guard, of which he was formerly lieutenant.

CARLTON HOLLAND, the retiring grain inspector of the Chamber of Commerce, has held the office for about thirty years, having been elected in the fall of 1858, when the present organization was made. During his term of office Mr. Holland has seen Milwaukee occupy the position of being the greatest primary wheat market in the world.

A ROTARY engine invented by J. M. Farmer, a Stevens Point, Wis., mechanic, has been on exhibition at the machine shop of Pauling & Harnishfeger, Milwaukee. It is claimed that an eight horse-power of this patern can be manufactured for $20. Henry B. Munson, W. A. Meyer, O. A. Finck and John Decker of this city are organizing a stock company to manufacture the new engine.

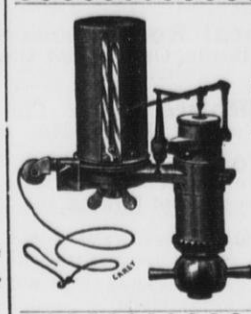
ARCHITECT FRED WOLFE, of Chicago, is drawing plans of a refrigerating and ice machine building for the Joseph Schlitz Brewing Company, Milwaukee. The first named building will be six stories in height, 79x170 feet, of Milwaukee pressed brick, stone, and iron, with tin roof, and the latter three stories, 25x65, of the same material, in which Mr. Wolf will put one of the ice machines of his own manufacture. The cost will be about $70,000.

WE called on the Prinz & Rau Mfg. Co. recently and were gratified to find their works busy in all departments. It appears that there is a brisk demand (notwithstanding the dull times in milling circles) for the "Iron Prince" Smutter. Wherever millers have introduced it, they express themselves well pleased. Brewers and malsters have taken an especial fancy for the barley machine made for their use and orders are coming from many places.

A PARTY of South Americans, consisting of Pablo Insentli, Luis Infante Cerda, Pastor Fernandez Cencha and Jose Luis Vial Carralli, of Chili, and Dominigo Fernandez Concha, of Santa Rita, arrived in the city, accompanied by Mr. J. F. Fowler, of New York. They visited a number of manufacturing institutions in the city and were treated with the utmost courtesy. Some of the party were especially interested in flour milling machinery.

HUGH L. JOHNSTON, senior member of the firm of Johnston Bros., proprietors of the large steam bakery at 270 to 274 Broadway, died March 24, at his residence, 142 Thirteenrh Street. Mr. Johnston was 45 years of age. He was a native of Buford, South Carolina, and came to this city in 1847, with his father, Alexander H. Johnston, who in that year established the bakery business which his sons have since developed. Hugh L. Johnston and his brother, Robert A. Johnston, succeeded to the business on the death of their father, some twenty-two years ago. The deceased was a progressive and successful business man.

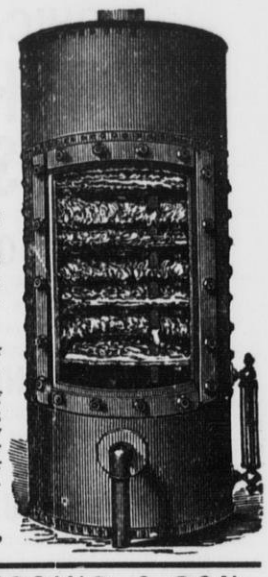
American Steam Guage Co.,
—SOLE MANUFACTURERS—
Bourdon Steam Guages,
WITH LANE'S IMPROVEMENT.



THOMPSON'S
Improved Indicator
Over 2,500 in Use.

American Pop Safety Valves,
For Locomotive, Stationary and Portable Boilers, and Instruments Incidental to the use of Steam. Send for Price List I.
36 Chardon St., BOSTON, MASS.
Send for Catalogue K.

Stilwell's Pat.
Lime Extracting
HEATER
—AND—
FILTER
COMBINED.
Is the only Lime Extracting Heater that will
Prevent Scale in Steam Boilers
Removing all Impurities from the water before it enters the boiler.
Thoroughly tested. Over 3,000 of them in daily use.
This cut is a facsimile of the appearance of a No. 5 Heater at work on ordinary lime water when the door was removed after the Heater had been running two weeks.
Illustrated Catalogues.
Stilwell & Bierce Mf'g Co.,
DAYTON, OHIO.



JOHN C. HIGGINS & SON.
Manufacturers and Dressers of
MILL · PICKS,
167 W. Kinzie St.,
CHICAGO, ILL.

Picks will be sent on 30 or 60 days' trial, to any responsible miller in the United States or Canadas, and if not superior in every respect to any other pick made in this or any other country there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is *manufactured expressly for me* at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct Importation References furnished from every State and Territory in the U. S. and Canadas. Send for Circular and Price List.

READ
—THE—
NEW YORK
Daily Commercial Bulletin
Its reputation as the most reliable commercial paper is conceded by all.
Sample Copies Free.
Its markets Reports are the most complete and trustworthy of any published and cover all trades.
Save Your Money
by subscribing to the "Daily Commercial Bulletin" and read its reports of the New York Markets.
PRICE:

	Per Year.	Six Mos.
Daily	$12 00	$6 50
Tri-Weekly	6 75	3 50
Semi-Weekly	5 00	2 75

ADDRESS:
New York Daily Bulletin Association,
No. 32 Broadway, - NEW YORK CITY.

Opposite the Plankinton House,
—MANUFACTURER OF—
FINE JEWELRY
A VERY LARGE STOCK OF
Diamonds, Fine Watches, Jewelry, Silverware,
Opera Glasses, Gold Spectacles, Canes, Umbrellas, etc.
Goods warranted as represented. Prices reasonable

THE CHICAGO MILWAUKEE AND ST. PAUL RAILWAY CO.

Fast Mail Line with Vestibuled Trains between Chicago, Milwaukee, St. Paul and Minneapolis.

Trans-Continental Route between Chicago, Council Bluffs, Omaha and the Pacific Coast.

Great National Route between Chicago, Kansas City and St. Joseph, Mo.

5700 Miles of Road reaching all principal points in Illinois, Wisconsin, Minnesota, Iowa, Missouri and Dakota.

For maps, time tables, rates of passage and freight, etc., apply to the nearest station agent of the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY, or to any Railroad Agent anywhere in the World.

ROSWELL MILLER, General Manager. A. V. H. CARPENTER, Gen'l Pass. and Tkt. Agt.

☞ For information in reference to Lands and Towns owned by the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY COMPANY, write to H. G. HAUGEN, Land Commissioner, Milwaukee, Wisconsin.

THE CHICAGO AND
NORTH-WESTERN RAILWAY.
OVER 7,000 MILES
Of steel track in Illinois, Iowa, Wisconsin, Michigan, Minnesota, Nebraska, Dakota and Wyoming, penetrates the Agricultural, Mining and Commercial Centres of the
WEST AND NORTHWEST.
The Unrivaled Equipment of the Line embraces Sumptuous Dining Cars, New Wagner and Pullman Sleepers, Superb day Coaches and
FAST VESTIBULED TRAINS
Running direct between Chicago, St. Paul and Minneapolis, Council Bluffs and Omaha, connecting for Portland, Denver, San Francisco and all Pacific Coast Points.
ONLY LINE TO THE BLACK HILLS
For Tickets, Rates, Maps, Time Tables and full information, apply to any Ticket Agent or address the Gen'l Passenger Agent, Chicago, Ill.
J. M. WHITMAN, General Manager. H. C. WICKER, Traffic Manager. E. P. WILSON, Gen'l Pass. Agt.

NOTES from the diary of tourists, commercial travelers, business men and others has revealed:
That the **Wisconsin Central** has the unqualified endorsement of all:
That the **Wisconsin Central** has to-day the most popular line between **Chicago** and **Milwaukee**, and **St. Paul, Minneapolis** and the **Northwest**;
That the **Wisconsin Central** is daily adding to its admirers as the recognized **Pullman** line between **Chicago** and **Milwaukee** and **Ashland, Duluth** and **Lake Superior**;
That the **Wisconsin Central** touches the most prominent points in Wisconsin, and that it has more important business centers on its through line than any other railway to and from the **Northwest**;
That the **Wisconsin Central** has made an enviable reputation with its peerless **Dining Car Service**;
That the **Wisconsin Central** runs fast trains on which all classes of passengers are carried with commodious and distinct accomodation for all:
That the **Wisconsin Central** has representatives distributed throughout the country, who will cheerfully give any information that may be desired and that its terminal Agents are specially instructed to look after the comfort of passengers who may be routed via its line.
For detailed information, apply to your nearest Ticket Agent; or to representatives of the Wisconsin Central Company.
WM. S. MELLEN, General Manager. JAMES BARKER, Genl. Passr. &. Tkt. Agt.
LOUIS ECKSTEIN, Asst, Genl. Passr. & Tkt. Agt.
MILWAUKEE, WIS.

ALL persons desiring to reach the entire milling and grain trade of America, by circular or otherwise, should obtain a copy of CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888.
WE shall be pleased to receive from any of our readers, short, crisp, sensible letters on subjects of interest to the flour and grain trade for publication.
EXPORTING millers should write to the Riverside Printing Co., Milwaukee, Wis., for the best Flour Cable Code ever published. There are more copies of this Code in use than of ALL other flour codes published. It is simple and accurate.

ASHLAND M.L.S.&W.RY. ROUTE
THE MILWAUKEE, LAKE SHORE & WESTERN R'Y
IS THE DIRECT AND MOST POPULAR LINE AND
Through Sleeping and Parlor Car Route
FROM
CHICAGO and MILWAUKEE
TO
SHEBOYGAN, MANITOWOC, APPLETON NEW LONDON AND WAUSAU,
TO ALL THE IMPORTANT TOWNS IN THE
Gogebic, Penokee and Montreal Iron Ranges,
HURLEY, BESSEMER, IRONWOOD, WAKEFIELD AND GOGEBIC,
TO
ASHLAND, SUPERIOR and DULUTH,
To all Fox River Manufacturing Cities
AND
The Lumbering Districts of Northern Wisconsin and Michigan.
SPORTSMEN The best Fishing and Hunting in the NORTHWEST reached by the **ASHLAND ROUTE**. Send to the General Passenger and Ticket Agent for Descriptive and Illustrated Publications. Maps, Folders, Time Cards and General Information.
Milwaukee Office, 95 Wisconsin St.
H. G. FLEITH, Com. Freight Agt. F. P. REGAN, City Pass. & Tkt. Agt.
H. F. WHITCOMB, General Manager. ERNEST VLIET, Gen'l Pass. & Tkt. Agt.
MILWAUKEE.

Milwaukee & Northern R. R.
SHORT LINE
—TO—
Marquette, Negaunee, Ishpeming, Hancock, Houghton, Champion, Republic, Iron Mountain, Menominee, Mich.
Marinette, Green Bay, Depere, Neenah, Menasha, Appleton, Wis.
THE TABLE OF EXPRESS TRAINS.

STATIONS.	DEPART.	ARRIVE.
Champion, Republic,	*1:35 A. M.	*3:20 A. M.
Iron Mountain, Menominee, Marinette, Green Bay, Depere,	*1:35 A. M. 3:10 P. M.	*3:20 A. M. 3:55 P. M.
Green Bay, Depere, Appleton, Menasha, Neenah,	†7:35 A. M. 7:55 A. M. 3:10 P. M.	3:55 P. M. 10:20 A. M.

*Daily. †Daily, except Monday. All other trains daily except Sunday.
Pullman Sleeping Cars are run on all night trains, and are ready for occupancy at 9:00 P. M.
New Passenger Station, Fourth Ward Park.
C. F. DUTTON, General Manager. W. B. SHEARDOWN, General Ticket Agent.

A NIGHT IN CHICAGO
—AND A—
NIGHT TRAIN
—TO—
INDIANAPOLIS.
—THE—
MONON ROUTE
LOUISVILLE, NEW ALBANY & CHICAGO RY.
HAS A TRAIN
Leaving Chicago
AT 11:40 P. M.
EVERY NIGHT (Sundays included), with THROUGH COACHES and PULLMAN SLEEPERS, ARRIVING INDIANAPOLIS at 7:30 A. M.
ADDITIONAL TRAINS leave Chicago for Indianapolis at 8:15 A. M. and 8:20 P. M.
Ask your home Agent to make your tickets read via the MONON ROUTE, so your comfort may be assured. For further information, Sleeping Car Berths, etc., call at
CITY TICKET OFFICE, No. 73 CLARK ST.
—OR AT THE—
DEARBORN STATION, CHICAGO.
E. O. McCORMICK, Gen'l Pass. Agent, CHICAGO.

HAMMOND
TYPE-WRITER AND DROP CABINET DESK.

The highest achievement and latest production in Writing Machines
As I am receiving requests for exchanges daily from parties who have the old style type-bar machines, and as I am thus securing hundreds of second-hand Remingtons and Caligraphs at *very low prices*, I am able to offer these latter machines in many cases *as good as new* at prices that defy competition. Write and see! Yours respectfully,
P. H. Sercombe, Prop. MILWAUKEE TYPE-WRITER AGENCY.

THE CH&D CINCINNATI, HAMILTON & DAYTON R.R.
THE THROUGH CAR LINE
—FROM AND TO—
CINCINNATI
WITH THROUGH CAR SERVICE BETWEEN
CINCINNATI and INDIANAPOLIS,
CINCINNATI and TOLEDO and DETROIT,
CINCINNATI and CHICAGO,
CINCINNATI and ST. LOUIS,
CINCINNATI and DAYTON and RICHMOND,
CINCINNATI and FT. WAYNE and GRAND RAPIDS,
CINCINNATI and GREENVILLE and VAN WERT,
With THROUGH RECLINING CHAIR CAR between
CINCINNATI, DECATUR and SPRINGFIELD, ILLS. and KEOKUK, IOWA, (daily)
PARLOR CHAIR CARS ON DAY, and SLEEPERS ON NIGHT TRAINS, "YEAR 'ROUND."
Ask for Tickets via C. H. & D. R. R.
For full information, Tickets, Sleeping Car Space, &c., Inquire of or Address,
W. H Fisher, Gen'l Agt., Indianapolis, Ind. W. H. Whittlesey, Central Pass'r Agt., Dayton, O.
John B. Stable, District Pass'r Agt, Toledo, O. D. B. Tracy, Northern Pass'r Agt., Detroit, Mich.
Wm. A. Wiggins, Southern Passenger Agent, Chattanooga, Tenn.
J. G. Mason, City Passenger Agent, Cincinnati, O.
Or General Passenger Agent's Office, - No. 200 W. Fourth St., Cincinnati, O.
C. C. WAITE, Vice-Pres't & Gen'l Manager. CHAS. H. ROCKWELL, Gen'l Pass'r & Ticket Agent.

THE
Chicago & Grand Trunk R'y
NIAGARA FALLS AIR LINE
Is the Shortest and Most Direct Route East.
THROUGH SLEEPING AND PARLOR CARS TO
New York, Montreal and Boston.
The Only Line running Through Sleeping Cars between
CHICAGO and PHILADELPHIA
Via NIAGARA FALLS Without Change.
Trains leave Dearborn Station at 9.05 a. m., 3.25 p. m. and 8.15 p. m. 8.15 p. m. train has elegant Pullman Sleeping Car to Detroit daily.
2nd class tickets good on all trains.
W. E. DAVIS, Gen'l Pass's & Ticket Agent, CHICAGO.
E. H. HUGHES, Gen'l Western Pass'r Agent, CHICAGO.
B. C. MEDDAUGH, Nor. Pass'r Ag't, 99 Wisconsin St., MILWAUKEE.
STEAMSHIP TICKETS
To or from Europe at lowest rates, by all lines. Cabin plans can be consulted and best accommodations secured as far in advance as desired.
Information furnished by mail or on application at office, 99 Wisconsin St., Southwest cor. Broadway.
B. C. MEDDAUGH, Gen'l S. S. Agent. MILWAUKEE, WIS.

CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1889, issued March 3, is meeting with much praise from all departments of the trade. While not claimed by the publisher to be perfect, it answers FULLY the requirements of the trade. It is the only list published. The demand is limited and the price (Ten Dollars per copy) is cheap, considering the labor required in compiling, printing and selling. It contains lists of flour mill and grain elevator owners, micellaneous kinds of mills such as corn, rye, oatmeal, rice and feed mills, millwrights, flour brokers and dealers in various sections of the United States and Canada, and a good list of European flour and grain importers. Kind of power used, rolls or stones, capacity and millers supposed to be worth $10,000 or *more* are indicated in thousands of cases.

Last Chance to Secure
THE "UNITED STATES MILLER" AND
50 Charming Complete Novels
—FOR—
ONE DOLLAR!
Orders must be received before June 1, 1889.
These Novels are printed in pamphlet form, on good paper. They would cost you in the form of "*Seaside*" or other libraries, $10.00. If you do not want to read the books yourself, divide them up among your friends. The regular subscription price of the U. S. MILLER alone is $1.00 per year, and it is worth the money. We have been able to make a good bargain with an Eastern publisher and propose to give our subscribers the benefit of it. The following is the list of novels:

A Bartered Life. By MARION HARLAND.
An Old Man's Sacrifice. By MRS. ANN S. STEPHENS.
A Wicked Girl. By MARY CECIL HAY.
A Low Marriage. By MISS MULOCK. *Illustrated.*
Under the Lilacs. By the author of "Dora Thorne."
The Strange Case of Dr. Jekyll and Mr. Hyde. By R. L. STEVENSON.
The Lawyer's Secret. By MISS M. E. BRADDON.
Fair but False. By the author of "Dora Thorne." *Illustrated.*
The Nine of Hearts. By B. L. FARJEON.
Doris's Fortune. By FLORENCE WARDEN.
A Playwright's Daughter. By MRS. ANNIE EDWARDS. *Illustrated.*
Forging the Fetters. By MRS. ALEXANDER.
The Poison of Asps. By FLORENCE MARRYAT.
Moat Grange. By MRS. HENRY WOOD.
Agatha's History. By MARGARET BLOUNT.
Out of the Sea. By CLARA AUGUSTA.
The Story of a Storm. By MRS. JANE G. AUSTIN
The Evil Genius. By M. T. CALDOR.
The Mystery at Blackwood Grange. By MAY AGNES FLEMING.
The Last of the Ruthvens. By MISS MULOCK *Illustrated.*
The Morwick Farm Mystery. By WILKIE COLLINS. *Illustrated.*
Out of the Depths. By HUGH CONWAY.
Retribution. By MARGARET BLOUNT.
A Tale of Sin. By MRS. HENRY WOOD.
A Fortune Hunter. By ANNIE THOMAS. *Illustrated*
In Cupid's Net. By the author of "Dora Thorne."
Wedded and Parted. By the author of "Dora Thorne."
The Knightsbridge Mystery. By CHARLES READE. *Illustrated.*
Ingledew House. By the author of "Dora Thorne."
A Passive Crime. By "THE DUCHESS."
Rose Lodge. By MRS. HENRY WOOD.
A Bridge of Love. By the author of "Dora Thorne."
The Fatal Marriage. By MISS M. E. BRADDON.
A Queen Amongst Women. By the author of "Dora Thorne."
The Blatchford Bequest. By HUGH CONWAY. *Illustrated.*
The Curse of Carew. By the author of "Dora Thorne."
A Shadow on the Threshold. By MARY CECIL HAY.
The Fatal Lilies. By the author of "Dora Thorne."
Carriston's Gift. By HUGH CONWAY. *Illustrated.*
More Bitter than Death. By the author of "Dora Thorne."
Missor Mrs.? By WILKIE COLLINS. *Illustrated.*
In the Holidays. By MARY CECIL HAY.
The Romantic Adventures of a Milkmaid. By THOMAS HARDY.
A Dead Heart. By the author of "Dora Thorne."
Dark Days. By HUGH CONWAY.
Shadows on the Snow. By B. L. FARJEON.
At the World's Mercy. By FLORENCE WARDEN.
Called Back. By HUGH CONWAY.
Mildred Trevanion. By "THE DUCHESS."
The Grey Woman. By MRS. GASKELL. *Illustrated.*

Fill out the blank below, enclose $1.00 and address plainly to
E. HARRISON CAWKER,
Publisher of the "United States Miller," Milwaukee, Wis.

$1.00. .....*1889.*
Publisher UNITED STATES MILLER, Milwaukee, Wis.
Send the UNITED STATES MILLER for one year and 50 Novels, post paid, for which find enclosed One Dollar.
Name.....
Post Office.....
County..... State.....
[Would be pleased also to have you mention any particulars about your mill or elevator, capacity power, system, etc., and the name of Head Miller, or any item of news of interest to the trade.

AN INTERNATIONAL CONGRESS OF MILLERS TO BE HELD AT PARIS, FRANCE, AUG. 20, 21 and 22, 1889.

The following correspondence received just as we are going to press explains itself.

National Association and Syndicate of the Millers of France.

PARIS, April 18, 1889.

To Mr. C. H. Seybt, Pres't of the National Association of American Millers:

Sir and dear brother Miller:—At a meeting on yesterday, the 17th of April, our Board set Tuesday the 20th, Wednesday the 21st and Thursday the 22nd of August for the holding of our annual meeting and it was decided that on account of the Universal Exposition it should take the form of an International Congress of Millers.

We therefore inform you of this resolution and request you to honor us with your official participation to said Congress, begging you to take the initiative of forming (getting up) to that effect, a delegation of the American millers.

The National Association of English and Irish millers have allready pledged their full and entire co-operation, we should therefore be happy to see your Country also represented at this brotherly feast of labor.

Believing also that your colleagues, upon your advice, will unite in your favorable proposition, and that through your kind services we shall be able to behold for the first time, representatives of our dear industry from all the principal countries of the world, assembled together at a solemn occasion, that can have no other result but that of tightening our bonds of concord and union to the benefit and prosperity of our respective countries.

As our Organization has to procure special meeting halls for each of the represented nations, we should be infinitely obliged to you to let us know as early as possible, the welcome that you and your colleagues may reserve to our friendly invitation.

In the meantime please accept, dear sir and brother, the expression of our sentiments of cordial and most sincere brotherhood.

For the National Association
Syndicate of the Millers of France,
A. DUBRAY, President.

HIGHLAND, Illinois, April 30, 1889.

Monsieur A. Dubray, President, Paris:

Sir and dear brother:—Your very kind letter of April 18th, sending an invitation to the Millers National Association of America to participate in an International Congress of millers, to be held on the 20th, 21st and 22nd day of August this year at Paris in connection with the Universal Exposition, has been received.

I have requested the Secretary of our Association to publish a translation of your esteemed letter in the milling Journals of the United States, and in this way the many thousand millers of our country will in the course of a few days have the pleasure to read your kind communication.

At the next meeting of the Executive committee of our Association official action will be taken in response to your letter, of which you will be notified at the earliest possible moment.

Meanwhile permit me to express the thanks of the milling fraternity of this country for the honor bestowed upon us by our esteemed confreres in France, a country which has in so many ways shown a generous love for our nation.

Please accept, dear sir and brother, the expression of my highest regard.

Signed,
C. H. SEYBT, President,
Millers National Association, U. S. A.

THE C., I., St. L. & C. Ry. (Kankakee line) is the best route to Florida. Close connections in Central Union Depot, Cincinnati with through express trains of C. N. O. & T. P. Ry. Queen & Crescent Route.

EDW. P. ALLIS & Co., through Mr. W. Gray, secured the contract April 12th for building the Duluth Imperial Mill company's flour mill at Duluth, Minn. This mill, when completed, is to have a daily capacity of 6,000 barrels and will be one of the largest mills in the world. It is the intention of the Mill Company to build only one-quarter of the mill this year and one-quarter each succeeding year until completed. This mill will be built under the personal supervision of Mr. Gray and, when completed, promises to be one of the finest mills in the world.

THE J.B. Allfree Co., Indianapolis, Ind., report the following contracts: R. Marquis, Oakford, Ind., a 40-bbl. short system mill, consisting of Key-stone rolls, Success bolters, bran-duster and Allfree sieve scalper; Butler & Taylor, Stanberry, Mo., a 50-bbl. full-roller short-system mill and corn-meal plant, consisting of Keystone corn and wheat roller mills, and other machinery of the Alfree manufacture, including an Allfree Automatic engine; R.L.Scearce, Moscow, Ky., a 70-bbl. full-roller, short-system mill, including Keystone rolls, 4-high corn mill and other Allfree machinery.

CAOUTCHOUC BELTING.

The employment of so-called rubber belting for machinery, or rather belting composed of cloth and caoutchouc, seems to be rapidly gaining ground in most industrial countries, since it appears that belting made of such materials presents greater homogenity and uniformity of thickness than can be obtained with leather. Moreover, the rubber belting adheres more closely to the pulley and it is not liable to stretch so much under severe tension, for instance under a strain of 2.52 kilos. per square millimetre it would give no more than a leather belt that has to stand a strain of only 1.66 kilos. Rubber belting can also be made of dimensions that it would be impossible to obtain with leather, and its manufacture has been brought to such perfection in America that nine-fold belts have been produced in that country 52 inches wide, 298 feet long, and weighing about 4,000 lbs. It is even stated that a monster rubber belt, 2,700 feet long, is employed in Jersey City for conveying grain from the vessels to the railways. Another advantage presented by these belts is that they have comparatively few joints. A rubber belt, for instance, of fully 60 feet in length can be manufactured with only one joint, while there would not be less than six seams in a leather belt of the same length, which would naturally be a source of weakness.—*Foreign Exchange.*

OUR readers will confer a favor by writing to us giving us any item of news such as new mills, elevators, etc., or improvements in the same, or giving information of a practical nature of general interest to the trade.

LUBRICATING OILS.

It is a mystery that men who are called upon to use lubricating oils—that is to do the work of using them, can never understand why, when an oil has been found just right for the purpose for which it is intended, a change is made by those who control the purchasing power. Valuable machinery is often sadly damaged by such changes. The highest priced oil is not always the best, but the best of common oils is generally the cheapest.

When a large quantity of machinery is operated, the quality of the oil used often has an important bearing on the amount of coal burned, and sometimes the rapid destruction of delicate machinery more than overbalances the cost of both coal and oil.

The reason, sometimes why a change of oil is made when the quality is in every way satisfactory, is that the new "oil man" has an insinuating way with him that captivates the purchaser, and sometimes, alas! the purchasing agent is captured by other means.

There are reputable dealers in oils who, a quality having by experiment been found that is best for the purpose, undertake to furnish it of a standard grade as long as desired. Lubricating oils are, at the present day, very commonly a compound of animal and mineral oils, and vary quite widely as compounded for different purposes. Many dealers have been to considerable trouble and expense in getting at the best mixtures, and can frequently give good advice when the purpose for which the oil is to be used is known to them.

THE advertisement of Messrs. Edw. P. Allis & Co. on another page is an index of the state of the mill building and furnishing trade in Milwaukee and the intelligent reader will see at a glance that it is good.

LATEST advices indicate, that the present rupture in the oat-meal trust is liable very soon to result in a reorganization, which will be more binding than ever.

THE Sanger & Rockwell planing mill was damaged by fire April 10th to the extent of about $30,000. Insured. A great number of firemen were seriously prostrated by the dense smoke.

CONDEMNATION OF COMPETITORS
IS THE MEASURE OF SUCCESS.

I CHALLENGE the wheat heater concern advertising their heater as "replacing the Welch" to publish the terms on which the Welch Wheat Heaters are replaced. I could replace any other make of heater by allowing a big price for it and selling mine low, which is equal to paying a bonus.

The "Welch" is fully guaranteed, sold on its merits and used more than any heater on the market.

823 SECOND ST.,
ST. LOUIS, MISSOURI.

A. B. BOWMAN.

WATER TO SUPPLY STEAM BOILERS.

It is a common practice to use waste steam for heating water before injecting into a boiler; in most cases the exhaust steam from the cylinder is condensed, and flows back again into the boiler. If the cylinder be lubricated with a compound oil containing a saponifiable oil or fat, serious consequences are likely to result, in consequence of "pitting" of the plates. Although this is so well known, I am not aware of any published statement on the chemistry of this subject.

A few years ago a sample of water drawn from a boiler was said to contain grease. Both the water and deposit from the boiler were repeatedly examined, with negative results. A sample of scum collected from the surface of the water was subsequently examined in the following way:

A weighed quantity of the dried scum was digested in warm dilute H Cl; the solution, on cooling, was coated with a dirty unctuous film. On filtering and washing, the soluble matter was removed, the dried residue was treated with CS_2, which, on evaporation, yielded four per cent, of a white solid fat, consisting principally of stearic acid.

As these earthy soaps float, they attach themselves to the boiler plates, and, being decomposed, leave a greasy spot on the plates. This grease prevents the water from coming in contact with the plate, which probably gets more strongly heated; however, the plates rapidly corrode at these spots, but how far the action is chemical or mechanical, or combined; it is not so easy to decide.

Petroleum or other non-saponifiable lubricators should be used in every case where it is intended to utilize waste steam, direct, in heating the feed water.

I brought this corrosion of boiler plates under the notice of the late Mr. Keats, chemist to the Metropolitan Board of Works, who said that this corrosion was due to sulphate of lime. If sulphate of lime be present in the scum, the corrosion may be more easily explained, as the generation of suphurous acid is by no means improbable.

Chloride of magnesium, if present in large quantity in a feed water, will generate H Cl, and which, escaping with the steam, will rapidly corrode the iron pipes conveying the steam. A water residuum heated to 260°F. evolves large quantities of H Cl, if much chloride of magnesium be present. Probably the reason why this corrosion is not perceptible with marine boilers is because the steam pipes are made of copper.—*Chemical News.*

AMONG the orders for NEW ERA SCALPERS received by the Superlative Middlings Purifier Co. of Milwaukee we note the following: Barry Milling Co., Barry, Ills.; Shakopee Mill Co., Shakopee, Minn.; Bedford Roller Mill Co., Bedford, Ind.; 16 machines for Ogilvie Milling Co., Winnipeg, Man.; The Dearborn Mill Co. order a GILBERT REEL; also Scalpers for Heilman Roller Mills, Evansville, Ind. and C. H. Guenther & Co., San Antonio, Tex.

WILLIAM Listman's 1000 barrel roller flour mill with grain elevator attached was completely destroyed by fire May 1. There was but little wheat in the elevator and only about 200 bbls. of flour in the mill. Loss $125,000. Insurance $80,000. A large amount of other valuable property was also burned.

GANZ & CO.
Budapest, Austria-Hungary.

We are the first introducers of the Chilled Iron Rollers for milling purposes, and hold Letters Patent for the United States of America. For full particulars address as above.

[Mention this paper when you write to us.]

EVERYBODY'S PAINT BOOK

A new work on INDOOR and OUT-DOOR painting which is designed to teach people how to DO THEIR OWN PAINTING and save the expense of a professional painter. The most practical and valuable work of the kind ever issued. Full directions are given for mixing paints for ALL PURPOSES. Tells all about PAPER HANGING, KALSOMINING, STAINING, VARNISHING, POLISHING, as well as how to RENOVATE FURNITURE, so that it will look as good as new. Tells all about HOUSE-CLEANING with paint and kalsomine. Full directions are given for making the beautiful SPATTER-WORK pictures in which the ladies are so much interested. Tells how to paint OUT-BUILDINGS, ROOFS, FARM WAGONS, FARM IMPLEMENTS and CARRIAGES as well as how to polish a PIANO or ORGAN; how to imitate GROUND GLASS or make paint for BLACKBOARDS; GRAINING in oak and black walnut, painting in imitation of EBONY, MAHOGANY and ROSE-WOOD stain, GILDING, BRONZING and SILVERING. Elegantly printed, beautifully bound. Will SAVE ITS COST in a short time. Sent by mail on receipt of price, One Dollar.

Address, UNITED STATES MILLER, Milwaukee, Wis.

A WATER-TANK BURNED IT, and this is the way it was. The tank was on the top of the building, and the pipes led from it in every direction. The water supply was abundant, and the arrangement was regarded as a perfect protection against fire, but the sequel proved that the very thing we relied on for safety, was the one that worked the destruction of the mill! During a thunder shower one day, the lightning struck the roof and set it on fire, the rain would have put it out had it not been for the shelter afforded by the large tank under which the fire worked until that part of the roof was burned and the wooden supports of the tank were eaten away and the iron ones bent, when the tank fell with a crash. It weighed, with its load of water, a good many tons, and when it struck the upper floor it went through as if it had encountered a sheet of paper, and it did not stop till it reached the cellar, carrying with it and scattering in every direction portions of the burning roof which quickly kindled each story of the building, and the whole place was soon in flames. A total destruction of the mill followed, and we had the mortification of knowing that not only did our scheme of protection not protect, but it was the direct cause of the loss.

WE will send the UNITED STATES MILLER and *American Miller* to any address in the United States or Canada for one year for $1.50, or both papers and "50 novel" premiums for $1.75.

HOW DETECT POTATO FLOUR IN WHEAT FLOUR.—Adulteration of flour with potato flour may be detected by means of acids. Take a spoonful and pour upon it a little nitric acid; if the flour be of wheat it will be changed to an orange yellow; if wholly of potato flour the color would not be altered but the flour formed into a tenacious jelly; if, therefore, the flour be adulterated with potato flour, it will not be difficult to decide. Again, take a spoonful of the flour and pour upon it a little muriatic acid; if the flour be of pure wheat, it will be changed to a deep violet color, without odor; but if potato flour be mixed in it, it will then have an odor like that of rushes.

THE publisher of the UNITED STATES MILLER is desirous of having the names and addresses of Head Millers, Millwrights and Head Engineers in all mills having a capacity of 150 bbls. per day or more.

EXCELSIOR BOLTING CLOTH.

Sole Importers HUNTLEY & HAMMOND. Corn Exchange MINNEAPOLIS MINN.

THE BEST · CLOTH · IMPORTED

Send for Our Prices AND Estimates on all kinds of Reels.

Sole Importers HUNTLEY & HAMMOND. SILVER CREEK. N.Y.

Sole Agents for Canada: J. & J. LIVINGSTON, Baden, Ont.

G. M. MANN. F. P. MANN

MILWAUKEE BAG COMPANY,

MANUFACTURERS OF

COTTON, PAPER AND JUTE

FLOUR SACKS

DEALERS IN

GRAIN BAGS, TWINES, CENTALS, ETC.

TELEPHONE NO. 427.

No. 236 East Water Street, MILWAUKEE, WISCONSIN.

SCHIEREN'S

OAK-TANNED

LEATHER BELTING

Cotton Belting and Hose

GOODYEAR RUBBER CO.

"Gold Seal" Rubber Belting.

PRICE LIST SENT ON APPLICATION.

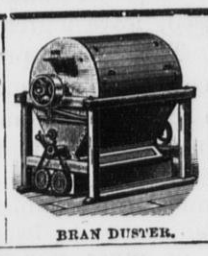
372 & 374 EAST WATER STREET
MILWAUKEE.

131 EAST THIRD STREET
ST. PAUL.

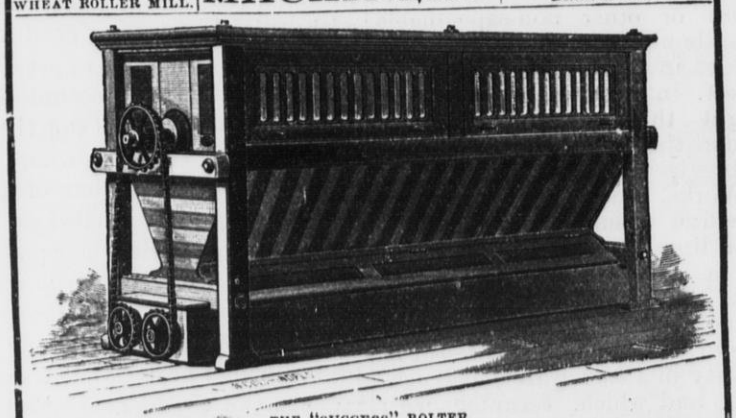
201 NICOLLET AVENUE
MINNEAPOLIS.

WHEAT ROLLER MILL.

THE J. B. ALLFREE COMPANY,
Indianapolis, Indiana,
manufacture this superior line
—OF—
MACHINERY



BRAN DUSTER.



THE "SUCCESS" BOLTER.

CORN MILL.

Also
AUTOMATIC ENGINES,
Purifiers,
SIEVE SCALPERS,
Corn Pearlers and Corn Cleaners,
Centrifugal Reels.

Address for prices, etc.,
THE J. B. ALLFREE COMPANY,
Indianapolis, Indiana,
Mill Builders and Mill Furnishers,

FLOUR PACKER.

ROBERT POOLE & SON CO.

Leffel Turbine Water Wheel

Made of best material and in best style of workmanship.

Machine Molded Mill Gearing

From 1 to 20 feet diameter, of any desired face or pitch, molded by our own SPECIAL MACHINERY. Shafting, Pulleys, and Hangers, of the latest and most improved designs.

Mixers and General Outfit for Fertilizer Works.

Shipping Facilities the Best in all Directions.

ROBERT POOLE & SON CO., BALTIMORE, Md.

N. B.—Special attention given to Heavy Gearing for Pulp and Paper Mills.

[Mention this paper when you write to us.]

WM. PLANKINTON, President.
FREDERICK D. DAY, Treasurer.

CAPITAL STOCK, $100,000.

GEO. N. SCEETS, V. Pres't
J. G. THOMPSON, Secretary.

Milwaukee Brass and Copper Works

MILWAUKEE, WIS.

BABBITT · METALS,

(Standard and Special Mixtures).

Brass and Bronze Castings. Ingot Metals.

Our "Badger State Metal" is the best anti-friction Metal on the market. We make a specialty of furnishing special mixtures to large consumers, putting on buyer's brand when desired.

MILWAUKEE BRASS AND COPPER WORKS, MILWAUKEE, WIS.

Send for Circular and Price Lists. Mention this Paper.

STILWELL & BIERCE MFG. CO.

DAYTON, OHIO, U. S. A.

MILLING ENGINEERS

Manufacturers of the Celebrated ODELL ROLLER MILLS and a full line of

Flour AND Corn Mill Machinery.

Mills built on THE ODELL SYSTEM.

Contracts taken for mills of any size, large or small, and results GUARANTEED.

1876. 1889.

The United States MILLER AND THE MILLING ENGINEER.

Fourteenth Year.—No. 5. MILWAUKEE, MAY, 1889. Subscription Price, $1.00 Per Year.

SIMON ON ROLLER MILLING.

Latest Development of Roller Flour Milling as viewed by the leading Milling Engineer of Great Britain, illustrated by its application to the recently completed great Flour Mills at Rio de Janeiro, South America.

AN IMPORTANT PAPER READ BEFORE THE BRITISH INSTITUTION OF MECHANICAL ENGINEERS AT LONDON IN APRIL '89.

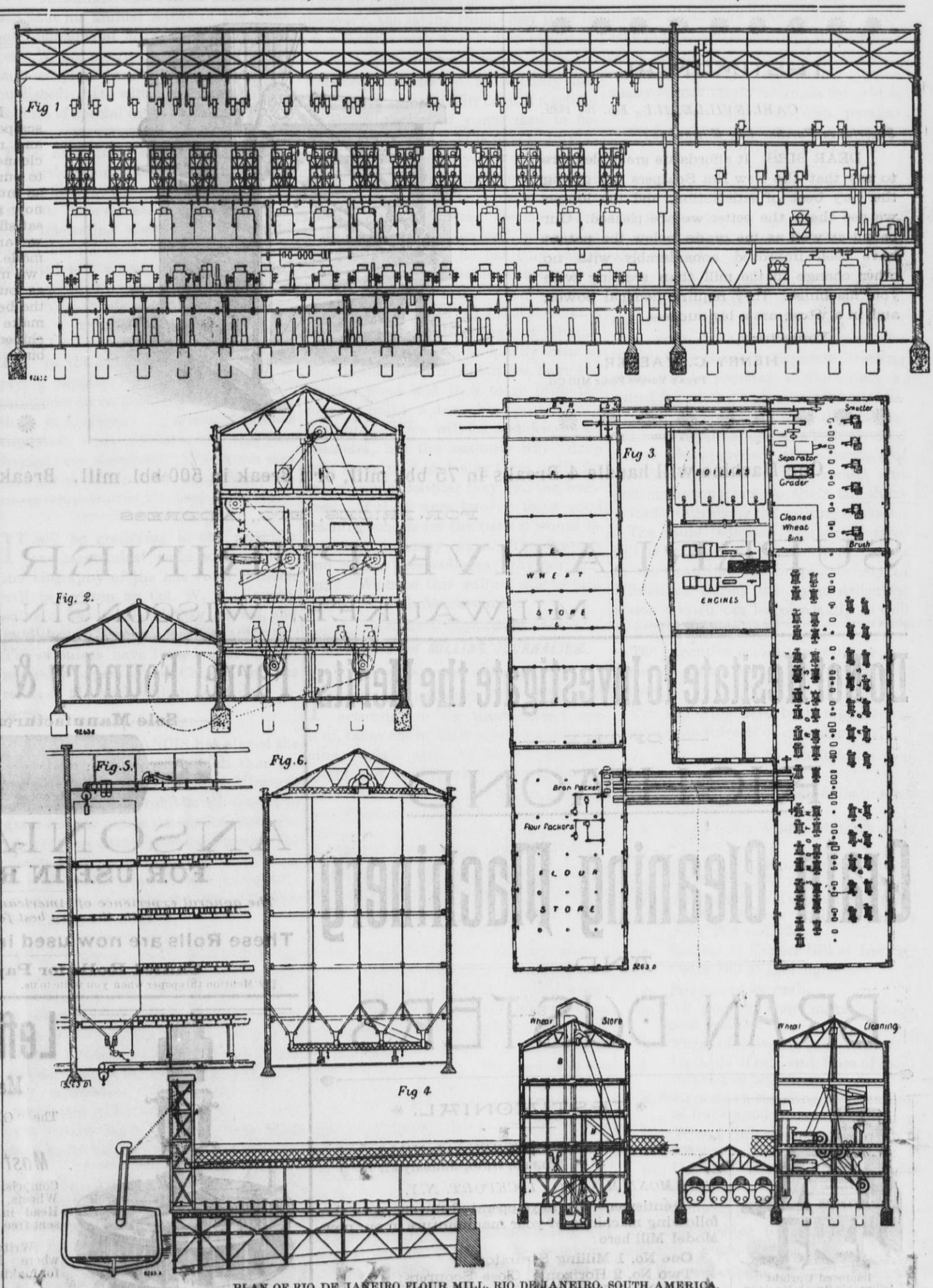
[By HENRY SIMON, M. E. of Manchester, England.]

NO Paper has yet been read before this Institution drawing attention to the very extraordinary revolution which, during the last ten years, has been in progress in the manufacture of flour by the substitution of the roller system for the ancient method of grinding by stones. In a paper presented by the writer six years ago to the Institution of Civil Engineers some historical and general notes on roller milling were given, which need not here be repeated; and the object of the present paper is simply to give some further information about the subsequent development and improvement of roller flour milling as carried out by the author.

The completeness of the revolution that has taken place is exemplified by the fact that in practically less than ten years the machinery and methods of milling have been radically and entirely altered, at the cost of an immense amount of capital. The millstone, dating from pre-historic times, has been almost wholly discarded; and the miller has been constrained to unlearn the old method of manufacture and take up one entirely new, based upon very different principles. The change has had the effect of replacing more or less rude mechanical appliances by machinery designed on scientific principles, and of a high class of mechanical construction and workmenship. The best kind of roller mills, as now used for the granulation of wheat and its reduction into flour, resemble in their appearance and in the accuracy of their construction the highest class of machine tools. This radical and important improvement in the character of the machinery employed, is nevertheless, not nearly so radical or important as the improvement in the mode of working, by the combination of roller mills with centrifugal dressers, purifiers, rotary scalpers, and other machinery, so as to produce the best results in a mill working automatically on the principle of gradual reduction. The principle of progress now recognised in milling is, indeed, the same as that followed in other industrial establishments or manufactories, such as spinning mills, weaving sheds, sugar factories, &c., namely, increased elaboration and more scientific treatment, combined with consistent arrangement and a proper proportion of auxiliary machines, for enabling the largest amount of work to be turned out, and of the best quality. This change has called forth an entirely new class of milling engineers, who have by experience, acquired special aptitude in following out the principle of gradual reduction; and even as early as 1878 the necessity for such special milling engineers was alluded to by Professor Kick, who is recognized as the leading Continental authority upon milling. A further striking difference between the present and the old style of milling flour is that, whereas formerly the intermediate products had to be repeatedly handled, they are now entirely treated without being touched by hand throughout the process. The wheat enters the mill at one end and goes through all the machines automatically, until it is delivered at the other end in the shape of such different grades of flour and offals as it may be desired to produce. The number of attendants required for the milling process proper is very much reduced in comparison with former times. Automatic action in roller milling has been attained almost simultaneously in the United States and in this country. In Austria-Hungary, formerly the leading school for milling, and the country in which roller milling originated, automatic action is not yet believed in; and accordingly very large numbers of mill attendants are still required there.

It has recently been ascertained beyond doubt by the writer that, owing to commercial necessities or facilities, Hungarian millers are at the present time giving their whole attention to the manufacture of from 45 to 50 per cent. of the very highest class of flour for export. This flour, which owing to the excellence of the Hungarian wheat is of splendid quality, still comes into England, although in very much smaller quantity than before the adoption of improved milling in this country. The purification and division of middlings and semolina for high-class flours is carried out in Buda-Pesth with great care; but the grinding of the remainder, whether by stones or by rolls, is not done at all so carefully as in good automatic roller mills in this country. In consequence of the large feed put upon their stones and rolls very much greater pressure is used than

CONTINUED ON PAGE 45.



PLAN OF RIO DE JANEIRO FLOUR MILL, RIO DE JANEIRO, SOUTH AMERICA.

The Greatest Success of the Day!

THE NEW ERA SCALPER

Read the following Testimonials and then write us for particulars:

TESTIMONIAL.

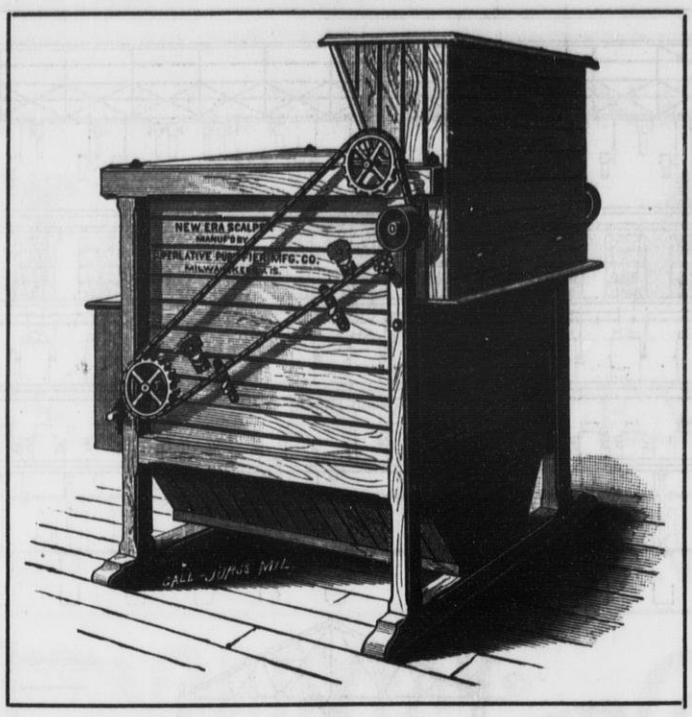
CARLINVILLE, ILL., Feb. 16, 1889.

Superlative Purifier Co., Milwaukee:

DEAR SIRS: It affords us great pleasure to say that the New Era Scalpers are giving the very best of satisfaction, and the longer we use them the better we are pleased. Our patent as well as the grade below the patent have been improved considerably with no other change in the mill than scalping with your machines. They require nominal power, and, in a word, are a big success.

Yours truly,

HENRY C. YAEGER.
Pres't Yaeger Flour Mill Co.



TESTIMONIAL.

YOUNGSTOWN, O., Dec. 7, 1888.

DEAR SIRS: In order to put in your scalpers on our 2d, 3d, 4th and 5th breaks and retain our hexagon scalpers for wheat cleaners, I was obliged to add another story to our roller room, at an expense of five times as much as the cost of the machines. Having now run the machines for thirty days, I feel satisfied with the expenditure made, as I think we are now making the nicest flour we ever made. Our 2d, 3d, 4th and 5th break flour (we make eight breaks) is as white and clean as our patent, while our flour all through is the best we ever made. Our hexagon scalpers make excellent wheat cleaners, and your machined make excellent scalpers. The two combines make excellent flour.

Respectfully yours,

HOMER BALDWIN.

One Machine will handle 4 Breaks in 75 bbl. mill, or 1 Break in 500 bbl. mill. Break Flour as white as any.

FOR PRICES, ETC., ADDRESS

SUPERLATIVE PURIFIER MFG. CO.

MILWAUKEE, WISCONSIN.

[Mention this paper]

Do Not Hesitate to Investigate the Merits

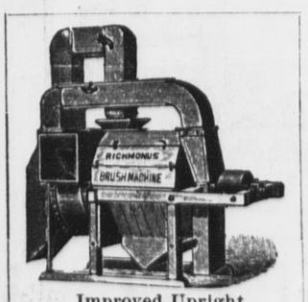
— OF THE —

RICHMOND

Grain Cleaning Machinery

AND

BRAN DUSTERS



Improved Upright Adjustable Brush Machine.

TESTIMONIAL.

THE CENTRIFUGAL MILLS,
TOLEDO, OHIO, January 31, '89.

RICHMOND MFG. CO., LOCKPORT, N. Y.:

Gentlemen—We have operated for one year the following machines of your manufacture in our new Model Mill here:

One No. 1 Milling Separator;
Two No. 2 Horizontal Close Scourers;
One No. 1 Empire Horizontal Bran Duster;
One No. 2 Empire Horizontal Bran Duster.

We frankly state, in our opinion they are the most thorough and complete line of Wheat Cleaning Machines and Bran Dusters offered the trade, and we will cheerfully show them to parties you may send here.

Yours Truly,

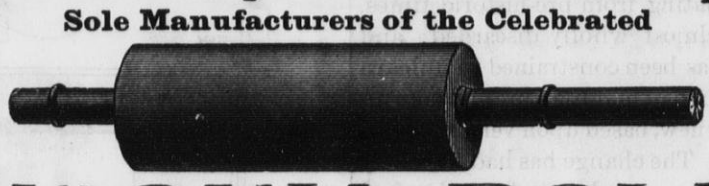
BECHTOL, CARNEY & CO.

Richmond Manufacturing Co.,

LOCKPORT, N.Y., U.S.A.

Farrel Foundry & Machine Company,

Sole Manufacturers of the Celebrated



ANSONIA ROLLS

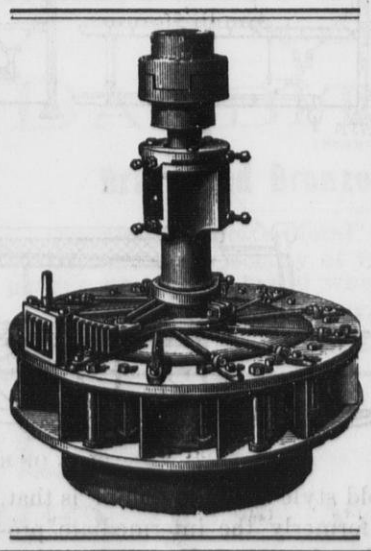
FOR USE IN ROLLER MILLS.

The general experience of American Millers unites in pronouncing these rolls the very best for Flouring Mill use.

These Rolls are now used in all Leading Flouring Mills

Chilled Rolls for Paper Mills a Specialty.

☞ Mention this paper when you write to us.



Leffel Water Wheel,

Made by JAMES LEFFEL & CO.

The "OLD RELIABLE" with Important Improvements, making it the

Most Perfect Turbine now in Use.

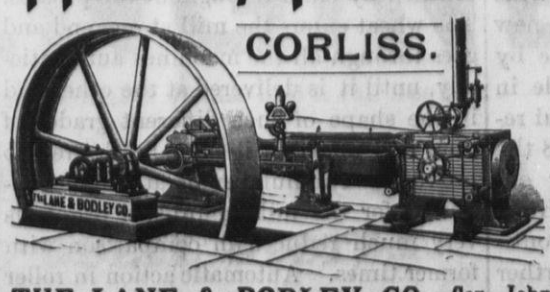
Comprising the LARGEST and the SMALLEST Wheels, under both the HIGHEST and LOWEST Head in this country. Our New Illustrated Book sent free to those owning water power.

Write us for NEW PRICES before buying elsewhere. New shops and New Machinery are provided for making this Wheel. Address,

JAMES LEFFEL & CO.,

Springfield, Ohio or 110 Liberty St., New York.

THE LANE & BODLEY CO.,



MANUFACTURERS OF

AUTOMATIC CUT-OFF

ENGINES

From Heavy Patterns and of Unexcelled Workmanship.

Steel Boilers, Feed Water Heaters Shafting, Pulleys and Gearing.

THE LANE & BODLEY CO., Cor. John & Water Sts., CINCINNATI, O.

UNITED STATES MILLER.

AND THE MILLING ENGINEER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.

OFFICE, NO. 124 GRAND AVENUE, MILWAUKEE.

SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.

To American subscribers, postage prepaid..... $1.00
To Canadian subscribers, postage prepaid..... 1.00
Foreign subscriptions..... 5s.

All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.

Bills for advertising will be sent monthly, unless otherwise agreed upon.

For estimates for advertising, address the UNITED STATES MILLER AND THE MILLING ENGINEER.

[Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE, MAY, 1889.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER AND THE MILLING ENGINEER. *You will thereby oblige not only this paper, but the advertisers.*

MILWAUKEE AMUSEMENTS.

ACADEMY OF MUSIC—First-class theatrical entertainments every evening. Matinees Wednesdays, Saturdays and Sundays, at 2 p. m.

GRAND OPERA HOUSE.—First-class theatrical entertainments every evening. Matinees Wednesdays, Saturdays and Sundays, at 2 p. m.

STANDARD THEATER (South-side)—Every evening; matinees Saturdays and Sundays, at 2 p. m.

GRAND AVENUE THEATER AND MUSEUM—Open daily from 10 a. m. to 10 p. m.

STADT THEATER (German)—Wednesday and Sunday evenings.

PEOPLE'S THEATER—Choice variety performances every evening; matinees Tuesdays, Fridays and Sundays, at 2 30 p. m.

PUBLIC MUSEUM, Exposition Building—Open daily; admission free.

LAYTON ART GALERY—Open daily. Free admission Tuesday, Thursday and Saturday.

AN IMPORTANT ANNOUNCEMENT.

MILWAUKEE, Wis., April 24, 1889.

To the Milling Public:

WE have this day disposed of our entire interest in the publication of THE MILLING ENGINEER to Mr. E. Harrison Cawker, publisher of THE UNITED STATES MILLER of this city, who will fulfill all of our unexpired contracts and subscriptions. In transferring this property with our good will to Mr. Cawker, we feel that we have placed it in capable hands, and that the interests of patrons of the paper will be carefully and conscientiously guarded. We bespeak for him the same generous measure of support which has been accorded to us in the past.

Respectfully,
EDW. P. ALLIS & Co.

FLOUR Mill Builders will find something interesting to them in our London letter elsewhere.

LITTLE or no flour will be exported from Australia this year, as it is selling at home now at the rate of from $5.45 to $5.60 per barrel.

ABERNETHY'S Treatise on Short System Milling" will be furnished to those of our readers desiring to investigate it on receipt of $2.00.

THE stream of immigration across the continent to Washington and Oregon shows no signs of diminishing, and promises to continue all summer. Wheat farming and milling interests are rapidly developing.

REPORTS reach us that the Paris Exposition is yet in a very incomplete and confused condition. American visitors will probably derive more pleasure and profit from visiting it after August 1.

WE desire to announce that this journal has secured a technical correspondent at the Paris Exposition; also, that in our next number we shall publish an article on a French system of modern milling, with illustrations prepared expressly for us.

AS evidence of increasing trade with our North and South American neighbors and West Indies, it is interesting to note that the increase of imports brought in cars and other land vehicles is about $5,000,000, and the increase of exports thus conveyed about $4,000,000 for the nine months.

AS we go to press the report reaches us from Detroit that in the suit of the Consolidated Roller Mill Co. against Coombs, of Coldwater, Mich., on account of use of the Mawhood Roller Mill, the decision fully sustains the Gray adjustment patents, and the same are held infringed by the Mawhood machine.

WM. J. LANGSON, secretary of the Milwaukee Chamber of Commerce, will issue his annual report of the trade and commerce of Milwaukee about June 1st. We are assured that it will be the most complete in all respect of any yet published. It will have some new features of special interest.

THE Executive Committee of the Millers' National Association is called to meet at the Plankinton House, Milwaukee, June 10. It is surmised that there will be some interesting dialogues. It is to be hoped that the entire milling press will be admitted to "a front seat on the ground floor" when the animated recitations begin. Well—"all's well, that ends well."

MILLS for the manufacture of cotton in the Southern States are multiplying rapidly. Within a short time 15 companies have been organized, three of them in Alabama. In several instances capitalists from Philadelphia and New England are concerned. The cotton seed oil mills of the South are becoming a vigorous competitor of the American Hog.

IT will be gratifying to the scientific and mechanical world to know that the biography of the late John Ericsson will be written by Col. W. C. Church, editor of *The Army and Navy Journal*, and published in *Scribner's Magazine* this year. The executors have turned over all the necessary papers to Col. Church and the result of his work will prove of deep interest.

GOVERNOR FRANCIS has signed the Grain Option bill, which thus becomes a law in the State of Missouri. The bill virtually prohibits all dealing in grain options unless the parties dealing in such options actually own the grain. The statute is so worded that the issue cannot be evaded, and grain dealers are greatly wrought up and claim the law will drive them to East St. Louis.

THE Western Traffic Association has granted a rate of a fare and a third for round trip over all lines to all millers or others visiting the Millers' Convention, June 11, 12 and 13. When purchasing tickets, notify the ticket agent issuing tickets, and he will give you the necessary certificate. The Central Traffic Association will doubtless give the same rate, though they have not been heard from up to time of going to press.

WE have the pleasure to announce that THE CASE MANUFACTURING CO., of Columbus, O., whose works were burned recently, will resume business at once. We take the liberty of quoting the following from a letter received from the Company, May 21st:

"We had a large number of contracts on hand when the fire occurred. We are now arranging for temporary quarters to fill our contracts, and expect, in the course of a very few days to commence a new plant from the foundation up, and when completed, our facilities will be much better than they have ever been before for our business. Our losses have been heavy; however, we have adjusted them with the insurance companies to our entire satisfaction, and will certainly, in a few months, be in splendid shape for future trade."

ELECTRIC BREAD," says *The Baker's Helper*, is spoken of on both sides of the water in about the same tone as "Electric Sugar" was a year ago. But there is this to be noted about the former: it has the backing of one of the strongest and most reliable baking firms in Great Britain—Messrs. J. and B. Stevenson, of Glasgow and London. It is now said that after a year of constant experiment, they have successfully applied electricity to bread-baking—producing bread equal in quality to any other, and greatly economizing time and money. Just how the subtle force is applied is what "no fellow can find out," but it will not take very long to decide as to its practicability, and in the meantime the incredulous will do wisely to refrain from sneering at the new discovery, and saying things they may in a few months wish were not on record.

THERE appears to be certainly one strong argument in favor of a school for the education of young men to become good millers. It is next to impossible for the average youth to enter one of our large merchant mills and learn the trade thoroughly. He is placed in some position and kept there. He may learn to do his particular part well, but of the business as a whole he has only vague ideas. The only available school now is the small country mill. There he may learn the business in all its departments tolerably well—well enough, if circumstances are favorable, to qualify him to run another small mill, but few have the ability, pluck and luck to go from the country mill to a desirable position in a city mill. A few will succeed despite all obstacles, but the majority will "drop into some rut" and stay there until for one reason or another they quit the business. If there were two or three good training schools for the trade it would be beneficial in many ways. The brewers and others have colleges; why not millers? We hope this subject will be discussed at the June convention.

REMARKS ON MILLING JOURNALISM.

[By the Arizona Kicker, Jr.]

IF our jaundice-hued E. C. of Buffalo, according to its time-honored custom, takes out in trade the patent medicine "ads." with which its columns abound of late, there is some reason to hope that either its bilious and fretful temperament may show improvement, or else that it may die under treatment. The result will doubtless be watched with interest by the makers of the "remedies," upon the ancient principal of "trying it on the dog first."

***

Our Kansas City contemporary after a protracted and gradually contracting diet, consisting largely of "pi," it would seem, has moved down to a level with its constituents of the Kaw bottoms, where the principal products are red mud, mosquitos and like pests. We hope that the remarkably clean past record of our friend may not become contaminated through surroundings, and that it may not become a "mud slinger" with the others. Kansas City dirt is too expensive, Cedric.

***

The St. Louis "Eli," it is reported, has laid an idea, and the resultant cackle will again resound through the neighborhood. Another mill is contemplated, and will be built with machinery taken in payment for advertising. The system and machines may constitute somewhat of a "happy family," it is true, but if enough of the "right sort of advertisers" hold out, "Eli" will doubtless "get there." If the miller is so fortunate as to be able to read, perhaps "Eli" may secure a second subscriber.

***

We wouldn't for the world be so downright ugly in disposition as the "old lady" of Chicago, who gets around fortunately but once a month among the neighbors, with her gossip and scandal. About so often she shakes her front curls, scowls and expresses her mind about someone, then sits back complacently and, wrapped in her old plaid shawl of envy and egotism, imagines that the victim cowers and trembles at her wrath. Did anyone ever see a complimentary or even amiable remark about a cotemporary in the editorial columns of the A. M.? If so, in the name of faith, hope and charity, let it be recorded.

***

As the time approaches for the annual convention of the Millers' National Association, expectancy and hope gladden the hearts of some of our E. C.'s with whom business has been "quiet" of late. There may be a show for "fine work" by July next and adequate support in an emergency means from two to four pages of extra advertising; advertising means money—that magic talisman for which we all strive after our own peculiar methods.

COMEBACK EVERYBODY.

MILLERS' NATIONAL ASSOCIATION.

THE following call was issued from the Secretary's office at Milwaukee, Wis., May 13, 1889:

The annual convention of the Millers' National Association will be held in Milwaukee on the 11th, 12th and 13th of June next, with headquarters at the Plankinton House. Separate meeting places will be provided to the extent required for spring and winter wheat millers, and it is desired that all sectional and local organizations, as also individual millers who appreciate the advantage of association, attend and by counsel and presence in numbers do their fair share towards improving the milling business.

The usual reduction in railroad fares will be arranged, and three or four days in the beautiful and hospitable city of Milwaukee during the most delightful season named can be pleasantly as well as profitably employed.

The executive committee will meet on Monday, June 10, at the Plankinton House.

The following have been suggested as appropriate subjects of consideration:

1. Organizations to include as National.
   - a. The Spring Wheat Mills Organizations.
   - b. The Winter Wheat Mills Organizations.
   - c. Foreign and domestic crop information, exclusively for members.
   - d. Delegation to International Congress of Millers at Paris August 20th, 21st and 22d.
   - e. Reform of Export Bill of Lading.
   - f. Order Bill of Lading.
   - g. Sales only for cash.
   - h. All flour to bear maker's name and location.
   - i. Form of domestic sale contract.
   - j. Methods of sale and rates of commission or brokerage.
   - k. Reports on standing and conduct of buyers and brokers.
   - l. Wheat inspection and elevator customs.
   - m. Uniform weights of sack packages.
2. Limiting production.
3. Establishing from time to time minimum prices.
4. Systematic canvass to induce millers to join respective associations.

If the result of intelligent discussion of these and other matters, which may be presented, take the shape of agreements binding individuals rather than as heretofore mere expressions by resolutions, the effect of our meeting cannot fail to be beneficial to the milling business.

[Signed] C. H. SEYBT, President.
S. H. SEAMANS, Secretary.
ALEX. H. SMITH, Chairman Ex. Com.

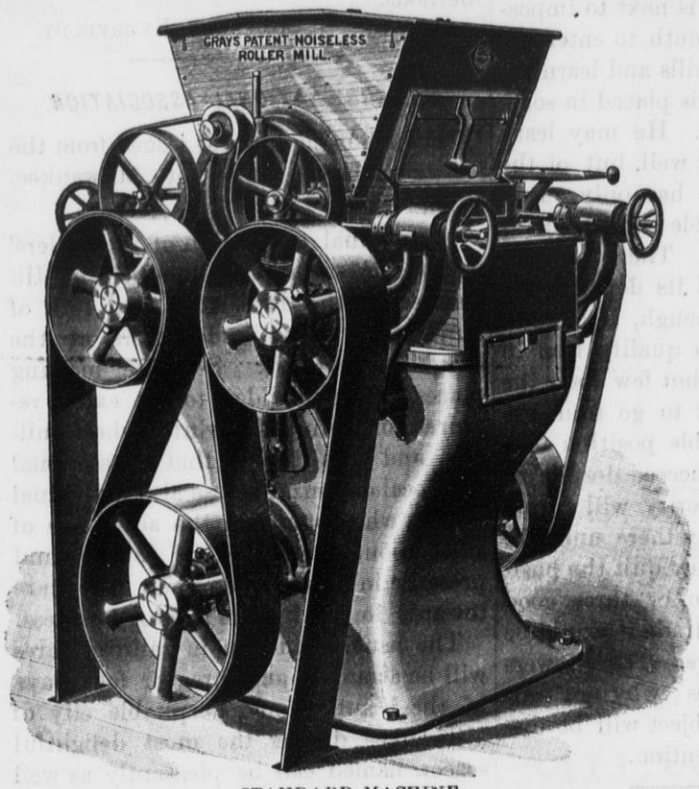
E. P. W. F. ALLIS & CO.

Milwaukee, Wis.

— SOLE BUILDERS OF —

GRAY'S PATENT NOISELESS ROLLER MILLS

(Licensed by the Consolidated Roller Mill Co.)



STANDARD MACHINE.

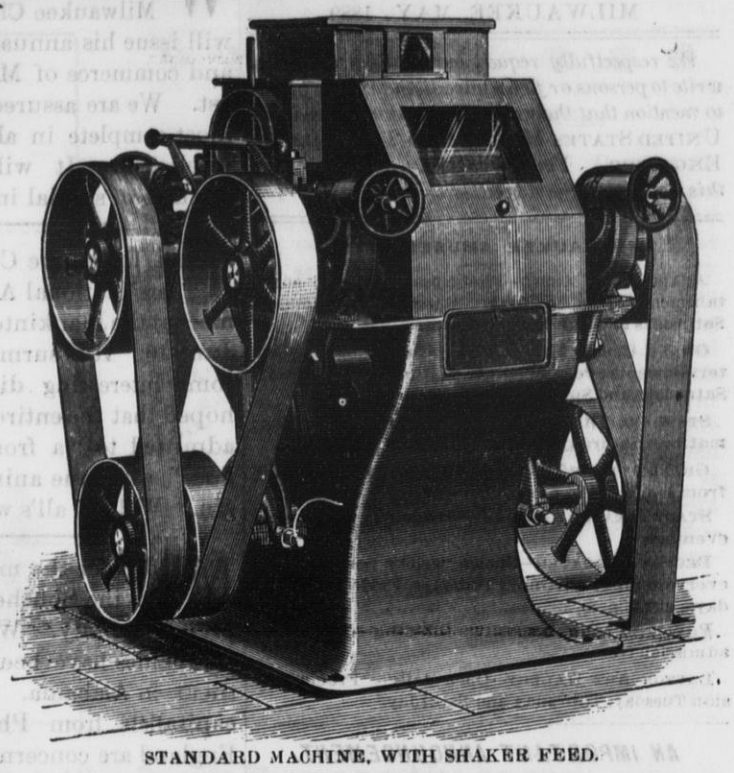
Perfectly Adapted to All Conditions and Requirements of Grinding.

The Most Perfect Adjusting and Feed Devices on the Market.

The Original and Best Solid Iron Frame Machine.

Over 26,000 Pairs in Use.

Write for Our Catalogues



STANDARD MACHINE, WITH SHAKER FEED.

IN order to meet the demand of millers who prefer to use a Shaker Feed, we have perfected and now furnish any style of the Gray Machines with the most substantial, and, in every way, the best Shaker Feed Device on the market. To accommodate customers who are using our Roller Mills with the old style Feeders, and who desire to change to Shaker Feeders, we have arranged to supply this Improved Shaker Feed, which may be substituted with very little trouble, at a special discount price.

NEW HARMONY, Ind., Feb. 13, 1889.

THE KNICKERBOCKER CO.:

GENTLEMEN—We are well pleased with the NEW ROUND REEL. It is simple, durable, effective. It is mild in action, capable of doing a large amount of work, and making close, dry separations. It is quiet, clean and easy running. We take pleasure in endorsing it as a standard machine, worthy of high commendation.

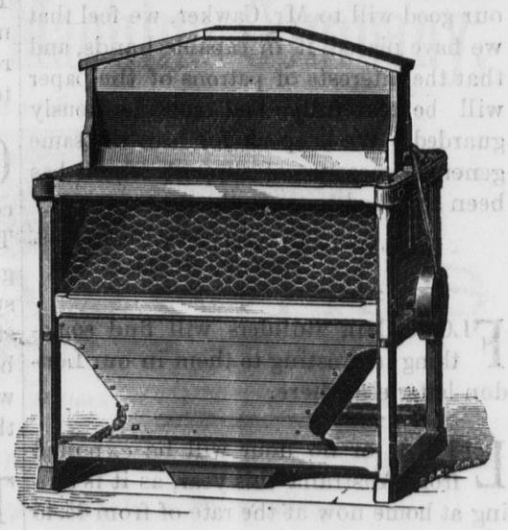
Yours Truly,

[Signed], CORBIN MILLING CO.

Cheap,

Durable and

Effective.



THE MORSE BREAK SCALPER

WE caution all parties against purchasing or using dust collectors which infringe our patents, and hereby give notice that we shall take proper legal steps to enforce our rights against all persons who infringe them, whether manufacturers or users.

No machine can be made after the pattern of the CYCLONE that does not infringe our rights.

The Knickerbocker Co.,

JACKSON, MICH.

would be necessary with anything like the proper feed, and thus the flour becomes unnecessarily heated. The greatest difference, however, between milling in Austria and in this country, is in the reduction of the tailings, siftings, and second-class products, which have been rejected during the manufacture of the highest class flour. To finish up these different products according to anything like a proper system is not even attempted in Buda-Pesth. As a consequence, anything after the first 45 or 50 per cent. of flour from the wheat is very much worse than in this country. With very little regard to size and quality, the material is ground and dressed, and re-ground and re-dressed, thus making out of their splendid wheat only very low brands of flour, all of which, however, find a ready and profitable sale in their own country. The contrast, therefore, stands thus between the English and the Hungarian method of milling: from the wheats used in Hungary as high a class of flour could be manufactured automatically in this country as is made at very much greater expense in Austria; whilst the last 30 per cent. of flour would be considerably improved under the best English roller system. It may, therefore, be stated that Hungarian milling as a whole no longer occupies the proud position it held up to a few years ago, before the roller process had reached its present development in this country. Austrian and German millers, and it is believed even some in America, still cling fondly to the use of millstones for grinding and finishing fine intermediate products, notwithstanding that it has been clearly demonstrated by the experience of the more progressive British millers, that there is no process of grinding which is not better performed by a roller mill properly constructed and properly worked having rolls of chilled iron, smooth or grooved according to their purpose. To this day there is scarcely a really complete automatic roller mill, the writer believes, either in Germany or in Austria.

The introduction of roller milling in this country has caused a rapid increase in the number of large mills. Those roller millers who were first in the field have not only doubled their output, but in some cases have increased it three, four, and even five times, with corresponding profit, and naturally at the expense of their less enterprising competitors. The fact is now fully established that in a well-constructed and well-managed roller mill, a larger percentage of superior flour can be made out of the same wheat than by millstones, and at much less cost and with much less expenditure of power. With regard to the power consumed by the various machines used in modern flouring mills under varying conditions, the writer may refer to a paper read by him before the National Association of British and Irish Millers at their London meeting last year, containing an account of what he believes to be the first and only complete series of trials which were conducted under his direction at the Kirkdale Roller Mills, Liverpool, with the assistance of Mr. Michael Longridge.

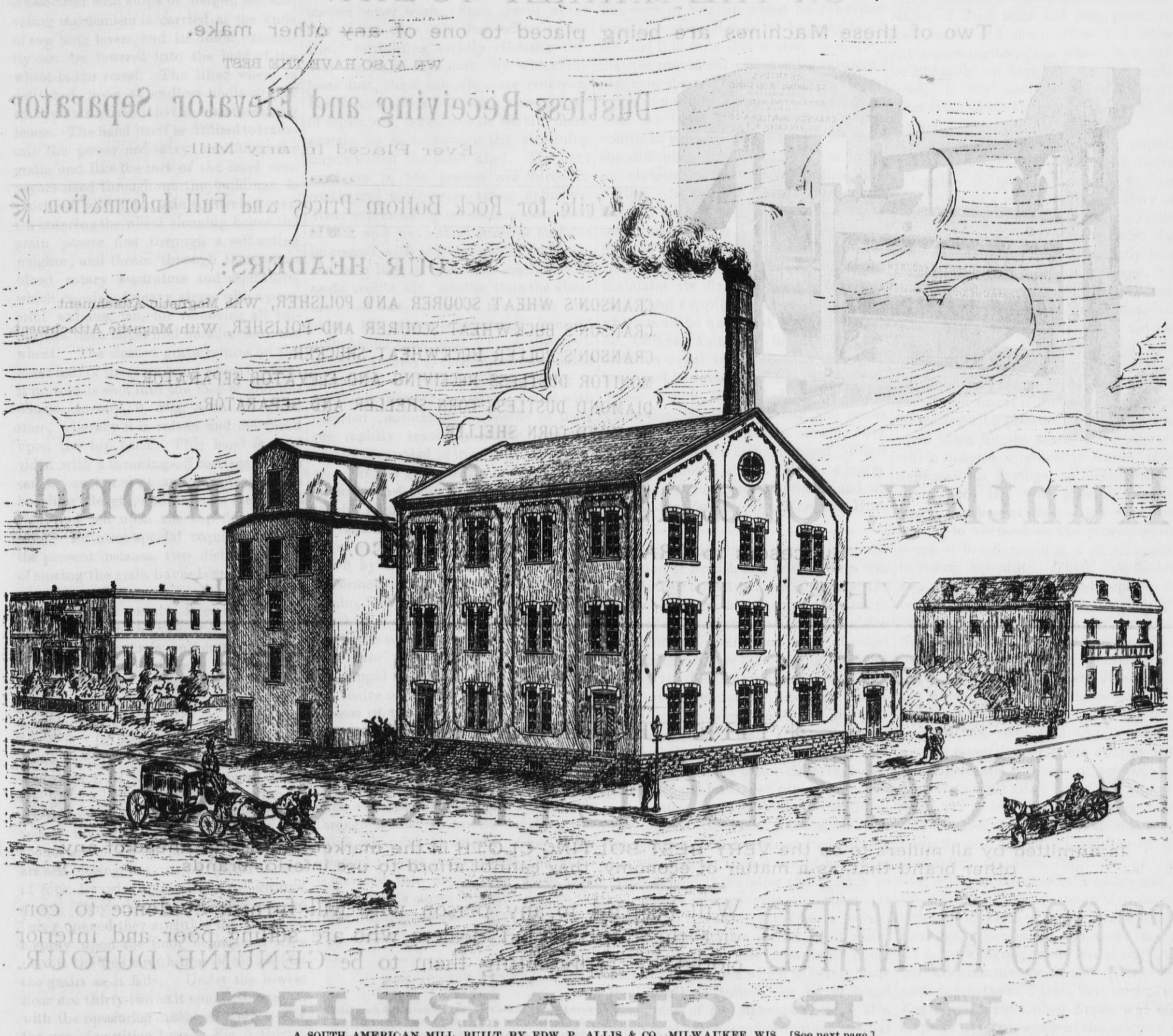
The first complete roller mill without the use of stones in England was built by the writer in 1878 for Mr. Arthur McDougall, of Manchester, and in Ireland for Messrs. E. Shackleton and Sons, of Carlow, in 1879; the first automatic roller flour mill in England in 1881 for Messrs. F. A. Frost and Sons, of Chester. The total number of complete mills, or important reconstructions of old mills, executed by the writer alone since 1878, amounts to considerably more than 200, varying in cost for machinery, exclusive of motive power, buildings, etc., from 1000*l.* to 40,000*l.* for each mill. Large roller mills can necessarily be fitted up with greater refinement, as well as with a larger number of appliances for saving labor, than small mills.

Roller Flour Mill and Granary at Rio de Janeiro.—The most recent improvements in roller milling will be best realized, the writer thinks, from a description of the machinery and arrangement of a large mill, carried out with the utmost regard to excellence of production, which is at present being erected in Brazil for the Rio de Janeiro Flour Mills and Granary Company of London.

Site.—In an enterprise of this nature a question of primary importance is the selection of a suitable site for mill buildings, as determined mainly by the facility with which wheat can be conveyed to it and flour be carried away. Such a site was fortunately secured on the shore of the bay of Rio de Janeiro, and within easy access of the city. The preparation and extension of the ground for the erection of the mill premises was a costly undertaking, inasmuch as the whole of the area comprised between the edge of the present wharf and the old high-water mark had to be filled in to an average depth of fifteen feet. And further, in order that the largest sea-going vessels may be able at all times to discharge their grain without the heavy constant expense of dredging, an iron jetty was constructed, projecting 125 feet from the wharf's edge. Fig. 4.

Buildings.—As shown in the plan, Fig. 3, there are two principal blocks of buildings, of which the one nearest the bay is used for the storage of grain and flour, and is called the store; while the other contains all the machinery for the preparation of wheat and production of flour, and is called the mill. Both are of the same dimensions, namely, 234 ft. long and 46 ft. wide; and each has five floors of an average height of 13½ ft. The framework of the walls, the girders, columns, roof principals, and roof covering are of cast and wrought iron, of which there a total weight of about 1,100 tons. The flooring is composed of two layers of 1¼ inch boarding, and the joints of the upper layer are at right angles to those of the lower, which not only prevents the passage of dust, but is also found by experience to be in a measure effectual in preventing the spread of fire. The flooring is supported on wooden joists; but the whole weight and vibration of the machines are transmitted direct to the main girders by heavy pitch-pine beams, which run from end to end of the building. The walls are composed of brick; their only duty is to make the buildings weather-proof, inasmuch as the iron stanchions of the framework take all the strains brought to bear upon the structure.

Motive Power.—The two engines are horizontal compound tandem condensing,



A SOUTH AMERICAN MILL, BUILT BY EDW. P. ALLIS & CO., MILWAUKEE, WIS. [See next page.]

CONTINUED ON PAGE 47.

SPECIAL STAMPERS OF SHEET METALS.

We do Stamping and Pressing of Sheet Metals for All Classes of Work. Also Tinning, Galvanizing & Japanning.

—ALSO SOLE MANUFACTURERS OF—

SEAMLESS STEEL BUCKETS

INSIST on having this Bucket furnished when ordering.

Ask your dealer for the Avery Pat. Seamless Steel Elev. Bucket.

We do not advertise Seamless Elevator Buckets and fill orders with "Pieced Ones"

We will make Special Prices rather than move stock to our new factory. Send for discounts.

THE AVERY STAMPING CO.,

—SUCCESSORS TO—

AVERY ELEVATOR BUCKET CO., CLEVELAND, OHIO, U. S. A.

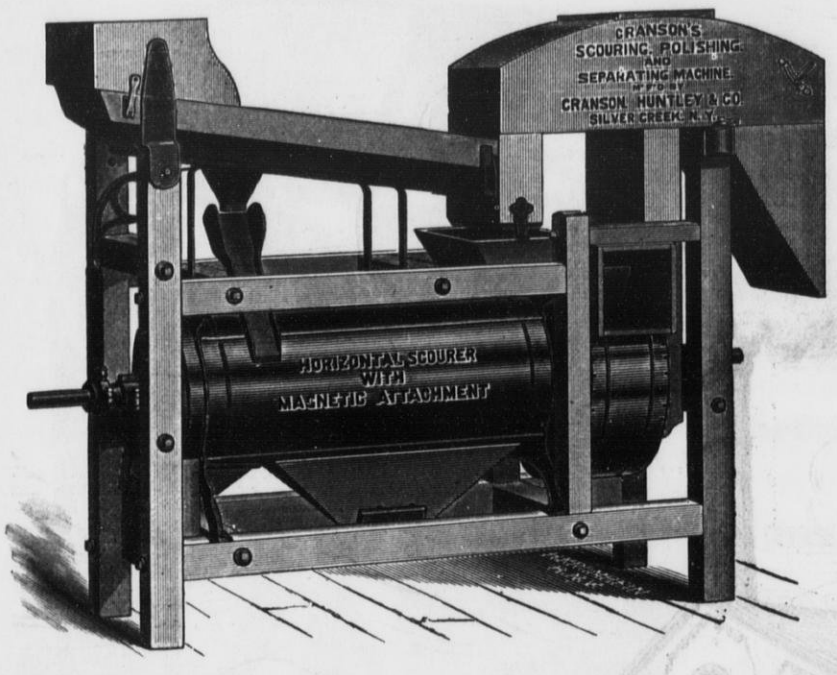
THE CRANSON SCOURER

—IS ACKOWLEDGED TO BE—

The Leading Scouring, Polishing and Separating Machine

ON THE MARKET TO-DAY.

Two of these Machines are being placed to one of any other make.



WE ALSO HAVE THE BEST

Dustless Receiving and Elevator Separator

Ever Placed in any Mill.

Write for Rock Bottom Prices and Full Information.

OUR HEADERS:

CRANSON'S WHEAT SCOURER AND POLISHER, With Magnetic Attachment.
CRANSON'S BUCKWHEAT SCOURER AND POLISHER, With Magnetic Attachment.
CRANSON'S ROLLER BUCKWHEAT SHUCKER.
MONITOR DUSTLESS RECEIVING AND ELEVATOR SEPARATOR.
DIAMOND DUSTLESS CORN SHELLER AND SEPARATOR.
DIAMOND CORN SHELLER.

Huntley, Cranson & Hammond,

Succesors to CRANSON, HUNTLEY & CO.,

SILVER CREEK, NEW YORK.

The Best is Always the Cheapest.

—THE CELEBRATED—

DUFOUR BOLTING CLOTH

Is admitted by all millers to be the VERY BEST BOLTING CLOTH in the market, and so far ahead of any other brand that, as a matter of economy, they cannot afford to use inferior brands.

$2,000 REWARD

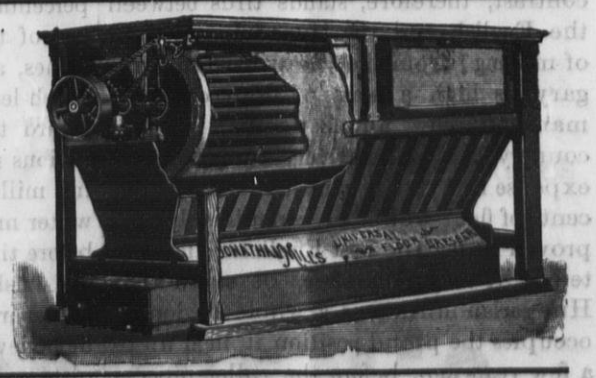
Will be paid to any person who will furnish evidence to convict the unprincipled dealers who are selling poor and inferior cloths by representing them to be GENUINE DUFOUR.

R. P. CHARLES,

13 South William Street, - - - - - - - - - NEW YORK CITY.

MILLERS Of the United States and Canada, write us for our new pamphlet and revised price list of our

Jonathan Mills Universal Flour Dresser



The BEST machine on the market. Giving satisfaction everywhere, in the best Mills of this country. Thousands in use. We carry a full line of CROWN SILK ANCHOR BOLTING CLOTH AND GRIT GAUZES.

JONATHAN MILLS MFG. CO., CLEVELAND, OHIO, U.S.A.

—We Solicit Your Orders.—

STILL ON TOP!

Perhaps the highest compliment that could be paid the **"SALEM"** Bucket, is the fact that, during the past few years, **its shape has been so closely imitated** by other manufacturers, as to infringe our patented rights; but experience reveals **the imperfections of imitations**, and, we therefore, take it as a **further compliment** to the **"SALEM"** Bucket, that some of its old patrons who were **induced to try the imitations, have now returned to the Salem Bucket, thereby acknowledging it to be the most satisfactory.** Don't be deceived by other makes of Buckets that are claimed to be "just as good." Insist upon having the **original and reliable "SALEM" Bucket.** All legitimate **"Salem"** Buckets are plainly marked with the word **"SALEM."**

W. J. CLARK & CO., Sole Manufacturers, SALEM, OHIO.

THORNBURG & GLESSNER, General Agents, CHICAGO, ILL.

each with cylinders of 19 in. and 35 in. in diameter and a stroke of 48 in., making 70 revolutions per minute, and together indicating 800 horse-power, with a guarateed consumption of 2½ lbs. of coal per horse-power per hour. The power of the engines is transmitted through one crankshaft to a rope pulley 20 feet in diameter, grooved for twenty 1¼ in. ropes. Steam is supplied by four Lancashire steel boilers, 7 feet in diameter and 30 feet long, the two flues being each 2 feet 9 inches in diameter, and fitted with nine Galloway tubes.

Storage of Grain.—The tower A at the end of the jetty, Fig. 4, contains a wheat elevator capable of lifting 65 tons per hour. As shown, it is of the ordinary construction of grain elevators for use in connection with ships or barges; the elevating mechanism is carried at the ends of two long levers, and its lower extremity can be lowered into the hold of the wheat-laden vessel. The lifted wheat is delivered upon an endless india-rubber band, which carries it to the wheat-cleaning house. The band itself is utilized to transmit the power necessary for lifting the grain, and like the rest of the band conveyors used throughout the buildings, is provided with automatic tightening gear. On entering the wheat cleaning house the grain passes first through a self-acting weigher; and thence through three combined rotary separators and aspirators, which consist of rotary sieves with a powerful exhaust fan, for removing all impurities both larger and smaller than the wheat. The cleaned grain returns on the lower half of the same band which brought it in, and is shot into the foot of another 65-ton elevator, B, Fig. 3, in the grain store, whereby it is raised and delivered upon the top band. This band is provided with a throwing-off carriage, which can be anchored at any position in the building's length, and delivers the wheat right and left upon the top floor of the store. To meet special requirements in the present instance, two distinct modes of storing the grain have been provided, namely, on floors and in silos. The latter plan has in certain cases marked advantages, of which the principal are that the silos are entirely self-emptying, and have a maximum storage capacity for space occupied. The tendency at the present time is to use silos only, the construction of which is shown in Fig. 5 and 6. In this granary there are four floors, each 107 ft. long and 46 ft. wide. Under each of the three upper floors are fixed a large number of drawing-off spouts, one in the centre of each 21 square feet of floor area. The outlets of these spouts are closed by valves, all of which are self-closing, but can be opened in sets of four by wire pulls from the ground floor. They are so constructed that upon being opened they sprinkle the wheat in a spray upon the floor below, and thus permit the free circulation of air amidst the grain as it falls. Under the lowest floor are thirty-two exit spouts, connected with the measuring machines, Fig. 4. By the use of partition boards, Fig. 3, thirty-two distinct qualities of grain can be stored; and by the aid of the measuring machines these several qualities can be drawn off in any desired proportions by means of the two conveying bands, Fig. 4, running lengthways of the granary. By these the mixed wheat is carried from the floor, as also from the mixers under the silos, at the rate of 10 tons per hour, to the elevator; and thence by the bands to the wheat-cleaning house. Wheat left to lie undisturbed for any length of time in a climate like that of Rio would, as a matter of course, mildew. To obviate this possibility the two bands are each large enough to carry 65 tons per hour; so that, whilst one is supplying the mill through the elevator, wheat can be carried off by the other band from the other half of the store, and be lifted by the elevator from the bottom to the top of the store. Thus a complete turning over and airing of the wheat is accomplished. This granary has sufficient capacity for the storage of about 5000 tons of wheat.

[NOTE.—We are informed that American grain-cleaning machinery is principally used in this mill—EDITOR.]

Final Wheat-Cleaning Machinery.—The wheat carried from the store by the band is first run again through an automatic self-registering weighing machine, and then passes through four cylindrical reels, which are provided with covers composed of steel wires, and with a contrivance whereby the spaces between the wires can be contracted or enlarged at will. The cylinders sort the wheat into three distinct sizes, which throughout the remaining cleaning process are treated separately; the treatment is the same for each size, but the sorting into separate sizes insures better work. Each size of wheat now passes to a "dustless wheat separator," containing rapidly-vibrating riddles and fan aspirators, by which the loose dust, chaff, oats, etc., are removed. It is further passed through a second set of separators, which can be set still more exactly, so as to remove the remaining impurities of the same kind. The next machines in the process are thirty-six cockle and barley separating cylinders. Their surrounding covers are composed of zinc, and have their interior surfaces impressed with indentations of such size and form that in the cockle machines all seeds, cockle, etc., smaller than the wheat are lifted out, whilst in the barley machines the wheat is separated from all grain longer than itself. From these cylinders it travels to three machines called "scourers," or "smutters," consisting of vertical stationary cylinders of steel with diagonal perforations. Inside of these run rapidly revolving shafts, carrying beaters composed of iron rods; the beaters scour the grain in its passage down through the cylinder, breaking and removing smut balls, loose bran, etc., which are then drawn away through the casing by an exhaust fan. The scouring is followed by a brushing process, which is performed in three machines, each containing four pairs of horizontal circular brushes on a vertical spindle. The upper brush of each pair is stationary, but the lower revolves rapidly; so that by centrifugal action the grain passes from the centre of the machine to the circumference of the first pair of brushes, and thence by gravity to each of the lower pairs in turns. The effect of the brushes is further to remove loose bran, dust, the beard of the grain, etc., and to polish the outer surface of the grain. After going through a final automatic weighing machine, whereby the amount of loss in the cleaning process is registered, the wheat is elevated into the cleaned wheat bins, in which it is stored in readiness for the roller milling process.

(*To be continued.*)

OUR LONDON LETTER.

British and Colonial Crop Conditions—International Millers' Convention at Paris in August—Large Government Mills to be erected in Portugal—A Hint to American Mill Builders.

THE weather during the past month has not been so favorable to farm work as the farmers could have wished, owing to the frequent heavy rains and cold weather. Tilling and sowing have consequently been interrupted and except in early districts there are still some grain crops remaining unsown. The rains, however have improved all the growing crops and with warmer weather, which we soon hope to have, the crops will come up with a rush. No doubt it would have been better for the farmers if the downpour had been deferred till they had finished sowing, but as it is, results prove it to have been beneficial. Pastures have seldom looked more luxuriant and promising and wheat already hides the ground. Behind as many farmers are, with spring sowing in the country, they are far less unfortunate in this respect than their fellows in most parts of Continental Europe. Even in France the work is relatively more backward than it is here, while in Germany and Austria-Hungary but little progress had been made up to the middle of the month, and in Germany, at any rate, further interruption has since occurred. In Italy and Switzerland too, sowing has been frequently interrupted.

The Easter of 1889 finds wheat already down in value, beyond the dreams of buyers, and since the holidays the apathy in the wheat trade continues. Millers are only buying what their wants compel them to, which, in face of the markets we have had lately, they have each time been able to do on more favorable terms. The stock of English wheat held by the farmers is still thought to be considerable, and it is from that source, no doubt, that the provincial millers are able to supply themselves. In harmony with wheat, prices of flour are rather lower, and even then the trade is quite retail. On the continent wheat is no doubt wanted, but the difficulties of finance continue to be an obstacle in the way of willing importers. In India the same difficulty exists and the high freights ruling, prevents sellers assimilating prices to buyers' views here, so that Indian wheat is quoted on "change" at 31 to 36 shillings, and fairly maintains its firm position. The Russian wheat supplies are steady and Danubian must be quoted at 26*s.* 6*d.* to 33*s.* 6*d.*, Crimean Azima 32*s.* to 34*s.* and other sorts on equal terms, so Russian wares keep well in favor with English buyers. There was a fair attendance at Mark Lane Corn Exchange to-day and prices of wheat and flour remain steady. For wheat there was a better demand. Flour must be quoted at 23*s.* 6*d.* for country and 26*s.* 6*d.* for good American, and up to 36*s.* for English top price and Hungarian.

A council meeting of the National Association of British and Irish Millers was held at their offices on April 10th, when the president—after the treasurer's appeal to the trade, the financial statement and the Technological awards had been disposed of—brought before the meeting the question of the best place in which to hold the next convention. After some discussion it was proposed, seconded and carried unanimously that "The 1889 convention be held in Paris on the 20th, 21st and 22d of August. A better time than August could not have been proposed to hold a convention in Paris, and as the Royal Agricultural Society's great show will take place in Windsor Great Park during the last week in June it would have been better to hold it the latter end of June as the millers always visit the show. It would also have been satisfactory to visit the Paris Exhibition earlier, as it would not be any way near complete. Some idea of the progress which is being made in the British Section can be gathered from some of the statements made at a meeting of the executive council of that section of the Paris Exhibition on the 21st of last month. We were told at the meeting that the total amount of space placed at the disposal of the British Section by the French authorities was 232,845 sq. ft., including, of course, the outside exhibits, the social economy section, the Cape, New Zealand, Victoria exhibits, the Ceylon Tea House and the Indian Pavilion. If more space had been granted it could have been filled twice or three times over. The Fine Art Section would do credit to the country and excite interest among the foreigners. The decoration of the courts was progressing satisfactorily and many of the corporations had sent their banners and coats of arms for exhibition. The Indian Pavilion would be one of the features of the section and of the Exhibition, and the social economy and the anthropological exhibits would also be worthy of attention and a source of great interest.

INDIAN WHEAT.—The English government have summoned a conference of representatives of the corn trade in London, Hull, Liverpool, Bristol and elsewhere, to meet at the Indian office on the 8th of May, in respect of the exhaustive enquiries they have made in regard to the impurities in Indian wheat. The object of the meeting is to discuss, among other theories, the impurities which interfere with the sale and commercial popularity of Indian wheat. This wheat is by nature a hard, strong, bright sort, but the native methods of threshing and winnowing fills it with all sorts of substances not good for food. A fortunate corn broker, for instance, wears at this moment a diamond ring which he lately took out of a sample; but in general, foreign ingredients consist rather of dead mice and rats, pieces of rock, camel and sheep refuse and other extraneous matter, from which it would be desirable to have the consignments freed. In my next letter I will report what takes place at this much talked of conference.

According to a Sheffield daily paper, the Portugese government in their desire to regulate and protect trade are finding themselves in a conflict with a variety of interests. The public here were made acquainted with their dispute with the port wine shippers and incidentally in a report on the finances of Portugal, Sir George Bonham refers to legislation, dealing with cereals. This legislation has been mainly experimental, with the object of inducing the millers who have practically a monopoly and are able to influence the price of bread, to use Portugese grown wheat in preference to foreign. In response to pressure brought to bear upon them by the agricultural interest, which in spite of protective duties, is as depressed in Portugal as elsewhere, the government last year passed a measure increasing the duty on foreign wheat, reserving to themselves the power in the event of bread reaching a certain point, to reduce the duty. Their calculation, according to which they had hoped to increase the consumption of home grown wheat, are not justified by the result. As the millers raised the price of flour, which renders a rise in the price of bread inevitable, the government met the action of the millers by importing large quantities of foreign flour. In December the duty on wheat was reimposed and in order to avoid a repetition of their contest with the millers, the government are about to erect state flour mills, for which purpose a bill will be introduced. It is contended in Portugal that the year was not a perfectly fair test of the efficacy of the government measures, coinciding as they did, with bad harvests in America and in the greater part of Europe, which caused a rise in the price of wheat. The duties have again been raised and now stand at 1.1*d.* per kilogramme for wheat and 1.45*d* per kilogramme for flour. With this news before them I trust that the Milling Engineers of the United States will take steps to get their share of the erecting of these new government mills.

L. MARGROVE.

LONDON, April 29, 1889.

A SOUTH AMERICAN MILL.

THE illustration on page 45 represents the flouring mill of Tiscornia Bros. & Co., at Marcos, Juares, Argentine Republic, South America. The main building is 50x65 feet, three stories and basement. An engine and boiler house 26x40 feet stands in the rear, and an elevator having a capacity of 40,000 bushels, on one side of the mill, and connected with it by means of a bridge. The mill has a capacity of 250 barrels of flour per 24 hours, was built and equipped by Edw. P. Allis & Co., Milwaukee, Wis. and is evidence of their deserving world-reputation as superior mill-builders and furnishers.

The Link-Belt Machinery Co.

SHAFTING · PULLEYS HANGERS GEARS ·

Are Prepared to Furnish Machinery and Appliances for

Transmission of Power

After the most approved Plans, by use of

MANILLA ROPE.

For Particulars and Estimates apply to them at

CHICAGO: 11 to 23 S. Jefferson St. **MINNEAPOLIS:** 200 to 202 Washington Ave. S.

THE

RICHMOND FLOUR PACKER

—MANUFACTURED BY THE—

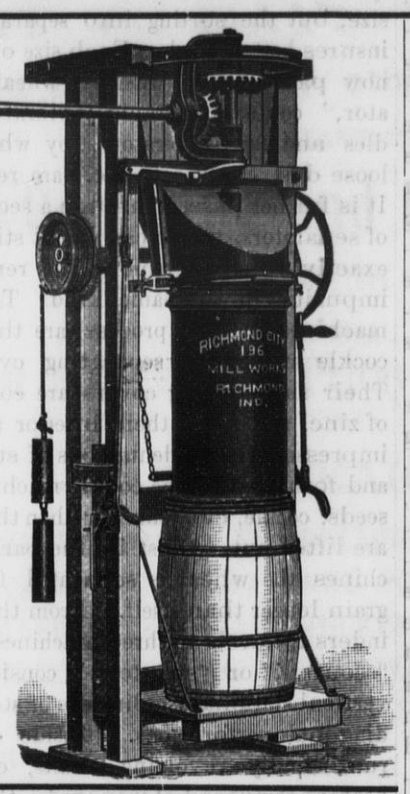
Richmond City Mill Works,

General Mill Furnishers,

RICHMOND, - - - INDIANA.

Recent Improvements Combine to make this the Best Flour Packer on the Market.

SEND FOR DESCRIPTION AND PRICES.



BURNHAM'S NEW IMPROVED STANDARD TURBINE WHEEL

Improved ✣ Walsh ✣ Double ✣ Turbine

This wheel has a perfect fitting cylinder gate and draft tube combined, and allows no water to escape when closed.

POWER GUARANTEED

equal to any wheel on the market using equal amount of water. Address for particulars,

B. H. & J. SANFORD,
Phœnix Iron Works,
Sheboygan Falls, Wis.

NEW YORK BELTING & PACKING CO.

JOHN H. CHEEVER, Treasurer. 15 PARK ROW, NEW YORK.

Oldest and Largest Manufacturers in the U. S. A. of

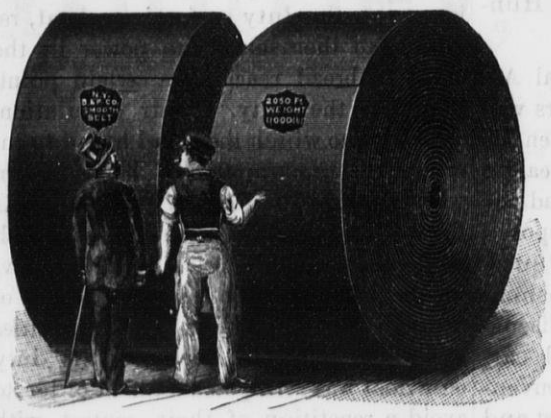
Vulcanized Rubber Fabrics for Mechanical Purposes

MILLERS' HOSE A SPECIALTY.

Also a Good STEAM HOSE.

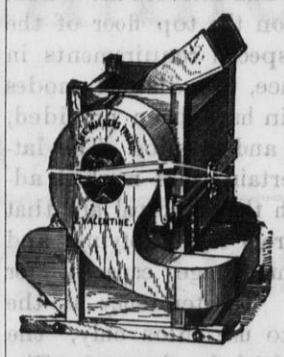
RUBBER MATS,
RUBBER MATTING,
and STAIR TREADS.

RUBBER BELTING, PACKING AND HOSE.



SALESROOMS: PHILADELPHIA, 308 Chestnut St.; BOSTON, 52 Summer St.; CHICAGO, 151 Lake St.; ST. LOUIS, 907-911 N. Main St.; DENVER, 1601-1611 17th St.; CHARLESTON, 160 Meeting St.; MINNEAPOLIS, 28 South 2d St.; CINCINNATI, 161-165 W. Pearl St.; ATLANTA, 16 Decatur St.; DETROIT, 16-24 Woodward Ave.; BALTIMORE, 12 N. Charles St.; BUFFALO, 124-128 Washington St.; NEW ORLEANS, 54 Canal St.; KANSAS CITY, 1311-1313 W. 12th St.; RICHMOND, 1206 East Main St.; European Branch, HAMBURG, GER., Pickhuben 5, (Freihafengebiet).

IMPROVED CORN SHELLER,



IT IS THE
BEST CORN SHELLER
MADE FOR MILL USE.

IT IS
Simple in Construction
Almost Noiseless,
—AND—
Requires Little Power

HUNDREDS ARE IN USE.

For descriptive circular, price list, etc., Address

JACOB VALENTINE,
Gorham, Ontario Co., N. Y.

✳ EVERY ✳ MILLER ✳

Whether using Water or Steam Power, who wants

To Save His Machinery

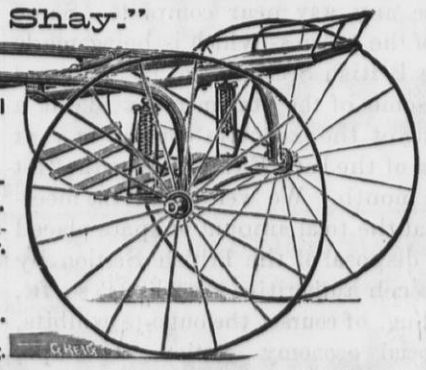
And reduce the cost of running expenses, should have a copy of a Pamphlet on Lubrication, which will be SENT FREE on application to

VACUUM OIL CO., ROCHESTER, N. Y.

MANUFACTURERS OF HIGH-GRADE OILS.

☞Branch Offices and Warehouses in all the Leading Cities.☜

The "One Horse Shay."



Light, Durable, Well Made, Steel Axle and Steel Tires, Good Hickory Stock.

Sold Only to Users.

The best made **ROAD CART** for the money.

PRICE $15.00. Send Postal or Express Order, Bank Draft or Registered Letter. Shipped promptly on receipt of money.

Address, THE "ONE HORSE SHAY" CO., STERLING, ILL.

Refer to the editor of this paper.
Mention this paper when ordering.

—ESTABLISHED 1846—

J. B. A. KERN & SON,

Merchant Millers,

Capacity 2,000 Barrels Per Day. MILWAUKEE, WIS.

Manufacturers of Choice Minnesota and Dakota Hard Wheat Flour.

RYE FLOUR

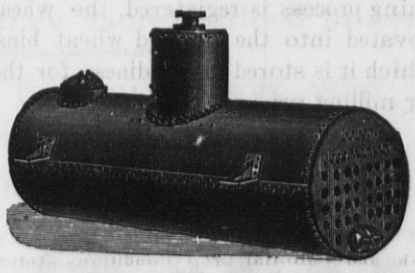
By most approved roller process, guaranteed the best and purest rye flour manufactured.

WE INVITE CORRESPONDENCE FROM CASH BUYERS.

BASS FOUNDRY AND MACHINE WORKS,

FORT WAYNE, INDIANA.

—MANUFACTURERS OF—



First Class Steam Boilers,

INCLUDING

Locomotive, Upright, Flued and Tubular

—AND—

Portable Boilers of all Sizes and Styles.

TWO SHEET BOILERS A SPECIALTY.

Contracts taken for Complete Power Plants. *Prices furnished on Application.*

Hughes Bros. Steam Pump Co.,

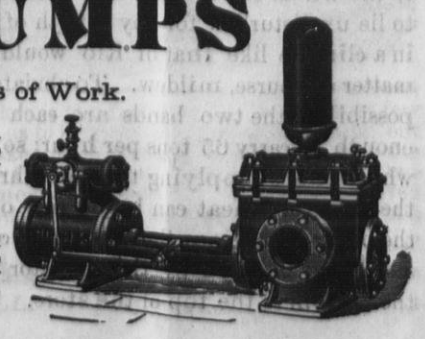
CLEVELAND, OHIO.

Builders of Single and Duplex

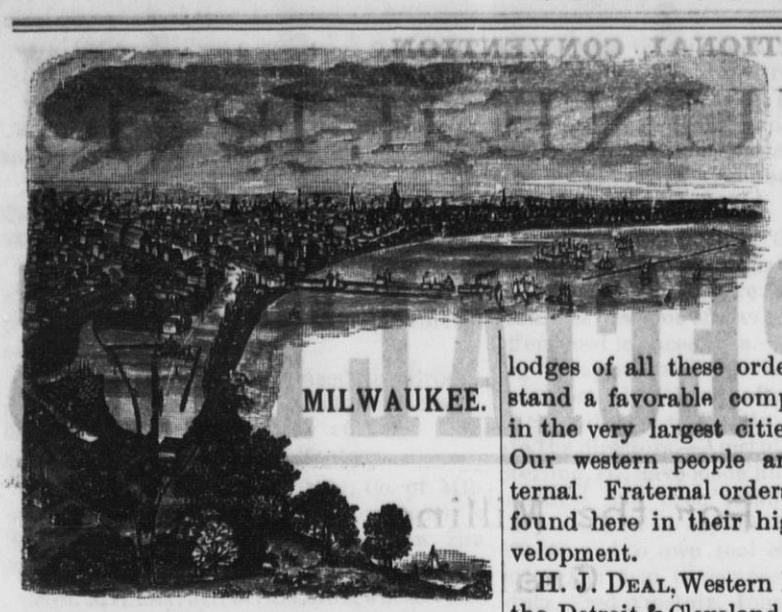
STEAM ✳ PUMPS

Of Every Description for all kinds of Work.

Satisfaction Guaranteed.



Send for 1888 Catalogue.



MILWAUKEE.

ALL the Roller Mill Manufacturers in the United States will probably be represented at the Millers' Convention here in June. The decision in the Coombs case, mentioned elsewhere is of GREAT IMPORTANCE to all manufacturers of roller mills, as well as to all *users* of such machines. The Association committee on patents will probably make a report, which will be very interesting, as it concerns almost every miller in the country. We regret that we have not a full copy of the Judges' decision, which covers very broad grounds and is far reaching.

EDW. P. ALLIS & Co.'s Reliance Works is always an unfailing source of attraction to millers and others visiting Milwaukee.

GEORGE TEITJEN, representative of THE PHŒNIX IRON WORKS Co., of North St. Paul, made us a call May 11. He reports business good.

A CORRESPONDENT writes us that Tennessee and Kentucky millers will be well represented here in June. They will meet with a hearty welcome.

A NOTABLE curiosity in this city is a wind-mill *run by water-power*. It was built as an ornament to perfect a wealthy gentleman's landscape garden.

MILLERS and grain dealers, when in Milwaukee, should not fail to visit the establishment of the Milwaukee Bag Co., No. 236 East Water st. They are continually getting out new and tasty designs to meet the wants of the trade.

A MILWAUKEE firm is introducing a new process of burning crude petroleum for fuel. in an extensive manufacturing plant in Neenah, Wis. The firm does not yet desire to make any public announcement of their process, but we are assured that it will be an entire success.

FOUR hundred delegates to the district meeting of the Brotherhood of Locomotive Firemen met in this city May 20. They did some good work and enjoyed themselves thoroughly. This is but one of the many conventions already booked for Milwaukee this season.

THE most liberal street railway company in the world is to be found in Milwaukee. It is the Hinsey Cable Line running half the length of Sixth street. The entire public is allowed to "pass" free over the entire length of the line (about four miles.) The Company has not yet declared a dividend.

THE G. A. R. committees are "working like beavers" to have everything in readiness for the great Re-Union of Veterans this summer. The great naval battle on Lake Michigan will be worth coming thousands of miles to see. Comparatively few people ever have seen a naval battle, and the graphic representation of one, on this occasion will be an event long to be remembered.

MILWAUKEE millers, like Milwaukee newspaper men, are invariably extremely modest and seldom brag of what they are going to do, but quietly proceed with improvements of importance and complete them with scarcely any mention of the event. We may say here that probably not less than $100,000 will be expended by Milwaukee millers this year in improving and in enlarging their plants.

WE would ask our millers intending to visit Milwaukee in June—Are you Elks, Free Masons, Knights of Pythias or Odd Fellows? If you are you will find lodges of all these orders here, that will stand a favorable comparison with any in the very largest cities of this country. Our western people are by nature fraternal. Fraternal orders therefore will be found here in their highest state of development.

H. J. DEAL, Western Passenger agent of the Detroit & Cleveland Steam Navigation Co., visited Milwaukee recently to make rates for the visiters at the coming millers' convention. Sec'y S. H. Seamans can give all necessary information. This magnificent line of steamers reaches prominent points on Lake Erie, Lake Huron and Lake Michigan, connecting with railway lines at prominent points. Eastern, Ohio and Michigan millers will certainly find this a pleasant route.

SOME of our contemporaries can hardly speak of Milwaukee without mentioning beer. It indicates the tone of their appetites no doubt. We would say that no one need to visit Milwaukee to drink Milwaukee beer. You can find it everywhere—not only in the United States, but all over the world. Milwaukee ships millions of barrels abroad every year. If you have a curiosity to to see how it is made, however, you can see the process of manufacture in its full perfection here.

THE Pabst Brewing Company is boring what is intended to be the largest artesian well in Milwaukee. A beginning has been made by sinking a cistern 20 feet in diameter and 20 feet wide, lined with brick. Below this is a well 200 feet deep and 8 feet in diameter, lined with boiler-iron ⅜ of an inch thick. From the bottom of this a shaft is to be sunk to as great a depth as may be necessary to get an ample supply of water for the use of the brewery. Five or six pumps will be employed in drawing the water from the cistern.

BUSINESS with the Reliance Works of this city is reported to be extremely active. Messrs. Allis & Co. have at present in process of construction 21 new flouring mill plants, and several for the manufacture of corn meal. Their department for the manufacture of special machines is kept busy with a steady rush of orders from all parts of the country. There are at present unfilled orders on the books for over 500 special flour mill machines, about 75 Reliance Purifiers being among the number. The Reliance Purifier has worked itself into public favor with wonderful rapidity, although it was put upon the market less than a year and a half ago, about 400 of these machines have been placed in operation.

AGAIN the citizens of Milwaukee will have the pleasure of welcoming the millers from all sections of this great country. They will assemble here in convention to discuss many matters of importance to the trade. It is believed that it will be one of the largest and in some respects the most important of the meetings of the MILLERS' NATIONAL ASSOCIATION. It is thought to be not only possible but probable that a thorough understanding will be arrived at between the Association of spring wheat and winter wheat millers. Members will ascertain why certain things proposed to be done at the Buffalo Convention last year have not been done, and will doubtless take such steps at this time as to ensure the success of plans agreed upon. But we will not anticipate their actions. We hope that their deliberations will lead to an harmonious conclusion. The trade in Milwaukee will not fail to maintain its reputation for hospitality, and we have no hesitation in promising our visitors a very pleasant time. *Verbum sat sapiente.*

DEATH OF EDWARD SANDERSON.

At 6 o'clock Monday evening, May 20. 1889 Edward Sanderson, one of Milwaukee's most prominent millers and a loved, honored and respected private citizen, after a very brief illness, breathed his last. His death-bed was surrounded by a portion of his family and some of his nearest friends.

Mr. Sanderson was well known to the milling fraternity not only in this country but abroad. He has been connected with the Millers National Association almost ever since it was organized, and was President of the Wisconsin Millers Association at the time of his death. He has contributed time, money and sound advice to the service of the milling trade.

Edward Sanderson was born at Great Barrington, Mass., sixty-one years ago. About thirty years ago he came to Milwaukee and started a modest flouring mill on the banks of the Milwaukee river, on the site of the present Phœnix mills, in which concern he held the largest interest up to the time of his death. It was chiefly due to his business sagacity that the mill of thirty years ago, with two runs of stone, has grown into an establishment with a capacity, for consuming 7,000 bushels of grain daily. Mr. Sanderson had also been a large and successful operator on 'Change. He was almost lavish in his generosity to persons in distress, but managed to amass a large fortune. It is estimated that he leaves an estate worth from half a million to $800,000. Those intimately acquainted with him say he left no will.

The immediate members of Mr. Sanderson's family are his wife; his son, Harry B. Sanderson, who was associated with him in business; three daughters Mrs. Otho W. Budd, wife of Capt. Budd. and the Misses Carol and Bessie Sanderson; Mrs. I. W. Van Schaick, an elder sister; John Sanderson, of Poughkeepsie, N.Y., a brother, who was last fall elected judge of his circuit; Howard Sanderson, another brother, and Will Sanderson, a nephew, both associated with him in business. Mr. Sanderson's partner in the grain trade was James Sawyer, a son of his old friend Amos Sawyer.

One of Mr. Sanderson's closest friends was Henry C. Payne, who was with him when he died. "I was intimately associated with Mr. Sanderson for more than sixteen years," said Mr. Payne "and his death touches me very deeply. Mr. Sanderson was one of the most liberal of men in many ways. He gave away more money in a quiet way than any man I know of, and it was often a mystery to me that he was able to amass anything for himself. He was imposed upon often, but never could say no, when appealed to for help. He will be missed by many people in this city. Those who knew him best appreciated him most. He was not a man of many words, and was sensitive about having any of his kindly actions reach publicity. He formed strong affections and would rejoice with his friends when they were successful and feel downhearted when the opposite was true. One could easily touch his sympathies, and I have seen him weep over misfortunes to friends that did not affect him personally."

Mr. Sanderson was a thorough Republican in politics and did much to make Wisconsin a strong Republican state. There is little doubt but that he could have been elected to any prominant office in the gift of the people if he had so desired but he would never consent to become a candidate for office. He was willing to aid his friends to secure political preferment but wanted nothing of the kind for himself. We extend to his family our sincere sympathy in this their hour of bereavment.

THE urban press everywhere are making urbane mention of the squabble for the location of the new million-dollar Government Building in this city. It is said that there two sides to every thing. Fortunately or unfortunately Milwaukee has three sides. It is evident that the location cannot be settled in any way satisfactorily except by a commission of disinterested citizens of other cities. Of course no location can be made that will please every one, but the great majority would accept such a decision gracefully.

MILWAUKEE appears to be entering upon a career of rapid advancement that was scarcely dreamed of a few years ago. There are many public and private improvements of great importance that are now underway. Five years ago there was little property in the city that would command a price of $300 per foot, yet sales have been effected this year at the rate of $1,000 to $1,500 per foot. Our present population is 225,000, and many good business men believe that that figure will be doubled in the next decade. We know of no better place for manufactories than this city.

THE managers of THE MILWAUKEE EXPOSITION and THE WISCONSIN STATE FAIR for 1889 assure us that preparations are being made for greater and more interesting displays than ever made before in this city. Since the completion of numerous lines of railroads to the farthest boundaries of the state, by means of which citizens at the remotest points can reach Milwaukee in a few hours, due encouragement is given for great and expensive displays, and our neighbors from the interior are not slow in finding out that occasional visits to the metropolis of the state are not only pleasant and instructive but profitable from a pecuniary point of view.

THE unexpected frequently occurs in advertising, just as the expected often fails to materialize. An evidence of this fact came to our attention recently. A certain firm of engravers in this city had been doing doing considerable work for a trade publication and purely out of compliment and without expectation of direct returns, for they argued, "advertising is money wasted *in our business*," they placed a small card in the advertising columns of the paper. Last week the publishers received an order for some engraving from a very prominent European manufacturing concern, with instructions that it be turned over to the engravers referred to. The remark is made that they wish their cuts executed in the same high standard of American art that is exhibited by the card presented by this firm.

THE Goodyear Rubber Co., Nos. 372 and 374 East Water st., Milwaukee, are making a specialty of Belting, both Leather and Rubber for mill supplies. They put their trade mark "Gold Seal" on first-class goods only. Their Gold Seal Rubber Belt is recommended as the best Rubber Belt made. The Goodyear Rubber Co. are agents for Schieren & Co.'s Leather Belt in Milwaukee. This firm make several specialties that cannot be had elsewhere. There are places where the Link belt will do better service than any other belt made. The Perforated Planer Belt is made expressly for Planing Machines and cannot be excelled by any belt made; while their Electric Belt made with patent screw fastener is conceded by all who have used it to be the best belt manufactured for extra heavy service. When in need of anything in their line, it would pay those interested to see the Goodyear Rubber Co. before making their purchases.

THE publisher of the UNITED STATES MILLER is desirous of having the names and addresses of Head Millers, Millwrights and Head Engineers in all mills having a capacity of 150 bbls. per day or more.

ON HAND AS USUAL AT THE MILLERS' NATIONAL CONVENTION,

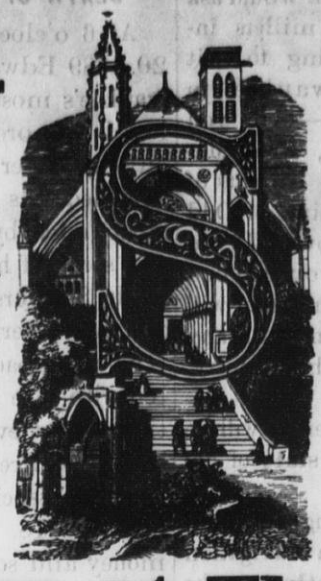
MILWAUKEE, WIS.

JUNE 11, 12 & 13

1889.

A FINE DISPLAY

DEAL'S SPECIALTIES



Flour and Grain Testing Appliances

For the Milling, Flour and Grain Trades.

Headquarters at The Plankinton.

The Clipper Baking Test. Deal's Improved Grain Tester. Triers Engraved to Order.

Take something home with you as a souvenir of the convention. This Company also has a Grand Exhibition at the Paris Exposition.

H. J. DEAL SPECIALTY COMPANY, - - - - - - - - - BUCYRUS, OHIO.

MARINE BOILER WORKS,

RICHARD DAVIS,

Manufacturer of High and Low Pressure

STEAM BOILERS

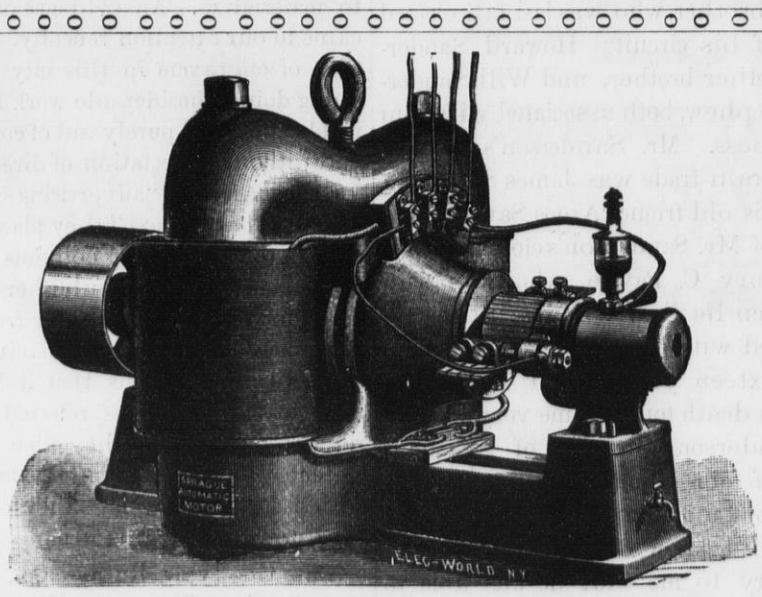
LARD —AND— OIL TANKS —AND— Sheet Iron Work IN GENERAL.

Oregon St., bet. Barclay and South Water Sts.,

MILWAUKEE.

Particular Attention Paid to Repairs. Orders Solicited and Promptly Executed.

Sprague Electric Railway & Motor Co.



Operate Your Machinery by Means of

SPRAGUE MOTORS.

Our Sales More than Double those of any other Company.

Power can be generated at one point and distributed more reliably and economically by Electricity than by any other system.

Estimates Furnished for Complete Installations.

Send for our new Circular on Electric Transmission of Power.

16 and 18 BROAD STREET, NEW YORK.

CONDEMNATION OF COMPETITORS

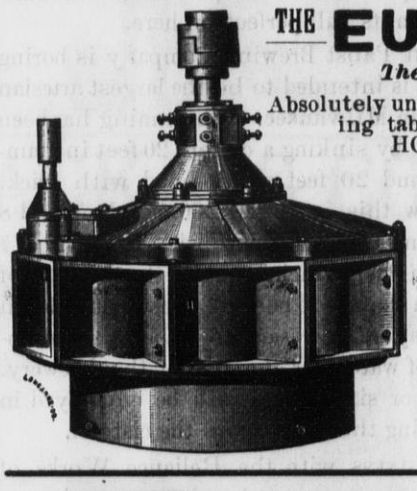
IS THE MEASURE OF SUCCESS.

I CHALLENGE the wheat heater concern advertising their heater as "replacing the Welch" to publish the terms on which the Welch Wheat Heaters are replaced. I could replace any other make of heater by allowing a big price for it and selling mine low, which is equal to paying a bonus.

The "Welch" is fully guaranteed, sold on its merits and used more than any heater on the market.

823 SECOND ST, ST. LOUIS, MISSOURI.

A. B. BOWMAN.



THE EUREKA TURBINE.

The Best Part-Gate Wheel Ever Built.

Absolutely unequalled in efficiency, is shown by the accompanying table from the records of actual tests at the HOLYOKE, MASS., TESTING FLUME.

PERCENTAGE OF EFFICIENCY.

	Full Gate.	⅞ Water.	¾ Water.	½ Water.
24" Wheel	.8436	.8416	.8202	.8002
24" Wheel	.8206	.7910	.7700	.7003
24" Wheel	.8078	.7578	.7275	.6796
34" Wheel	.8000	.8011	.7814	.6850

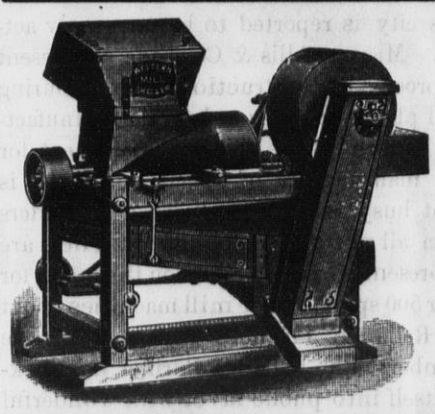
No other turbine ever approached the above figures at part-gate.

We publish our part-gate figures. Others significantly omit them.

For Catalogue and information, address

The Allentown Foundry & Machine Co.,

ALLENTOWN, PA., U. S. A.



THE

"WESTERN"

MILL SHELLER.

The most Compact, Durable, Best Sheller and Best Cleaner.

Takes up but little room, runs at low rate of speed, requires no attention. It is in every respect the

Best Sheller ever offered to the Public.

Please mention this paper. Write for full particulars to.

UNION IRON WORKS, - DECATUR, ILL.

Mfrs. of "Western" Shellers, Cleaners, Separators, and all kinds of Elevator Machinery.

BRANCH HOUSE, 1425 EAST MAIN ST., RICHMOND, VA.

Opposite the Plankinton House,

—MANUFACTURER OF—

FINE JEWELRY

A VERY LARGE STOCK OF

Diamonds, Fine Watches, Jewelry, Silverware,

Opera Glasses, Gold Spectacles, Canes, Umbrellas, etc.

Goods warranted as represented. Prices reasonable

GANZ & CO.

Budapest, Austria-Hungary.

We are the first introducers of the Chilled Iron Rollers for milling purposes, and hold Letters Patent for the United States of America. For full particulars address as above.

[Mention this paper when you write to us.]

FRATTINGER,

City Tailor

389 Broadway,

MILWAUKEE.

NEWS.—The Beatrice Oat Meal Co., Beatrice, Neb., have just placed an order with the Cockle Separator Mfg. Co. for one of their Cockle Separators.

Riggs & Rotch's mill dam in Duncan Creek at Bloomer, Wis., was washed out May 8.

The Phœnix Iron Works company of North St. Paul, Minn., are putting in a corn meal plant at Clayton, Ill., for Jacob Sall, formerly of Pekin, Ills.

L. J. Arthur has purchased the Brooks estate at Beloit, Wis., which includes a flouring mill, water power, etc. He will change the mill into a manufactory.

The Superlative Purifier Mfg. Co. of Milwaukee, Wis. have an order from Brock & Woods, Milan, Mo. for purifiers, New Era Scalper, Vortex Dust Collectors, etc.

Tom. Miller, Jr., of St. Louis, whose voice and face, is so well known to millers in the Central States, has located at Alma, Park Co. Colo. where he takes charge of the Phillips Mine.

The Columbia Mill Co. of Oakland City, Ind. have ordered two New Era Scalpers from the Superlative Purifier Mfg. Co. W. L. Kidder & Son of Terre Haute, Ind. have also placed their order for two Scalpers.

The Superlative Purifier Mfg. Co. of Milwaukee have an order for two New Era Scalpers for A. M. Hull, Ithaca, N. Y. They have just shipped one of their Scalpers to J. Allen Smith & Co., Knoxville, Tenn.

The J. B. Allfree Co., Indianapolis, Ind., have received the contract for a 50 barrel mill from E. A. Stevens, Northville, Illinois, who will also use the Keystone rolls, Success bolters, Allfree centrifugal reel, etc.

The Superlative Purifier Mfg. Co. of Milwaukee, Wis. have received an order through the Phoenix Iron Works of Minneapolis for a New Era Scalper for the Fountain City Roller Mill Co., of Fountain City, Wis.

The J. B. Allfree Co., Indianapolis, Ind., have taken contract for a 30 to 40 barrel mill, in which are to be used the Keystone rolls, Success bolters, Climax bran duster and Allfree sieve scalper and flour packer.

Messrs. Blackmore & Co., of Vincennes, Ind., have placed an order with the Superlative Purifier Mfg. Co. of Milwaukee, for 2 New Era Scalpers. Emison Bros. of the same place have also ordered one of the above machines.

Quite an accident happened in A. A. Begelow's mill at Baraboo, Wis., May 6th. The governer belt broke and the engine "ran away", the result of which was the breaking of a 33,000 pound fly-wheel. No one was seriously hurt.

The Standard Oil company have completed arrangements for building the largest oil refinery in the world at Whiting, Ind., seventeen miles from Chicago. The oil will be piped from Lima, O. The offices will be located in Chicago.

The Cockle Separator Mfg. Co. last month shipped a Cockle Separator to the Jackson Milling & Mfg. Co., Jackson, Tenn., have also recently furnished Nordkye & Marmon Co. of Indianapolis one of their combined Cockle and Oat Separators, and have received an order through James Pye of Minneapolis for a Cockle Separator for the Warner Mill Co., Warner, Dak.

The Vortex Dust Collector Co. of Milwaukee, Wis. report large sales for last month, among others to Dehner, Wuerpel Mill Bldg. Co. St. Louis: Case Mfg. Co., Columbus, O., Barnard & Leas Mfg. Co., Moline, Ill., J. B. Allfree Co., Indianapolis, Ind., Nordyke & Marmon Co., Indianapolis, Ind., Bradford Mill Co., Cincinnati, O., R. C. Stone, Springfield, Mo., and Diamond Iron Works, Minneapolis, Minn.

The Superlative Purifier Mfg. Co. of Milwaukee, Wis. have received an order from the Ogilvie Milling Co. of Canada for nine of their New Era Scalpers for the Ogilvie Mills at Glenora. This Makes 25 of the New Era Scalpers which the above company are using; An order for a New Era Scalper from Bravinder & Keats, Spokane Falls, W. T.; they have just shipped three of their Purifiers to the Des Moines Mfg. & Supply Co.

The J. B. Allfree Co., Indianapolis, Ind., report sales of special corn meal milling machinery as follows: One three reduction corn mill to Richwood Mill company, Richwood, Ohio; one huller and pearler to George Schroth & Co., Sacramento, Cal., and one to Halsey & Boysen, Galveston, Tex., and one corn bolt purifier and aspirator to J. S. Lycan & Son, Marshall, Ill.; one 7x18 four high corn mill to Springwater Distilling Company, Bowling Green, Ky.

The J. B. Allfree Co., Indianapolis, Ind., report sales of Keystone rolls to Mr. Bodgers, Judson, Ind.; Horizontal bran duster to Meek, Finger & Co., Marissa, Ill.; Success bolters to Crescent Milling Company, Hopkinsville, Ky; Allfree sieve scalpers to Waters & Manakee, Burnt Mills; Mary F. Thoman & Bro., Lansing, Mich., and Richardson & Evans, Indianapolis; one Success bolter to C. A. Campbell Manufacturing company, Baltimore, Md.

The Clowston Milling Company has been incorporated for the transaction of business at Latourell Falls, Ore.—Medicine Lodge, Kans., is desirous of having a flour mill and offers good inducements.—The Western Milling Company of Emporia, Kans., has been incorporated with a capital stock of $60,000; T. S. Fuller, R. G. Brodie and Chas. Fowler are the directors.—Amstutz & Co., millers at Sterling, O., have made an assignment. The business has been established since 1877; they claimed a capital in the business of $20,000, and to own real estate valued $200,000. The firm is composed of J. B. Amstutz, Fred Amstutz, John Amstutz, P. M. Good and Seth Baughman.—At Columbus, Ohio, May 10, the Case Manufacturing Company's establishment, manufacturers of milling machinery was burned. Loss, 75,000; insurance, $25,000, among twenty companies. Several adjoining residence buildings were destroyed.—R. Gardner's mill at Friend's Station, Tenn., was recently burned.—R. B. Myers succeeds to the milling business of C. A. Lower, at Table Rock, Pa.—The Pierce Mill Company, of Pierce, Neb., are about to increase the capacity of their mill by the addition of new machinery.—J. G. Fitch of Casberry, Monitoba, has gone out of the milling business.—Neyhart Bros. & Co., of Bodines, Pa., have sold their mill to Robert Innes.—D. Dodge & Son are the proprietors of two roller mills. One of 50 barrels capacity at Grinnell, Ia., formerly owned by Geo. Weaver, and named the Grinnell Roller Mills; the other located at Malcom, Ia., with a capacity of 50 barrels per day, and named the Powesbiek Roller Mills. The firm report wheat as being a very scarce article at present.—The mill at Bloomingdale, Mich., has been purchased by Eli Strong, millwright, of Kalamazoo.—Wise & Tuckey have purchased the Paw Paw mills at Paw Paw, Mich., formerly owned by J. D. Sherman, and have converted it into a first-class roller mill.—G. W. Farrar & Co. have bought the steam saw, gin and grist mill formerly owned by J. C. & J. W. Mewborn, at Macon, Tenn.—The flour mills at Eagle Harbor, N. Y., until lately owned by Danolds & Son, have been purchased by Powell Bros.—It is reported that Charles McWilliams has bought the mill at French Creek, Ia., formerly owned by John W. Hartley.—Frederick Kurtz & Son's mill at Centre Hall, Pa., was recently burned. A considerable quantity of wheat, rye, oats, flour and feed which were stored in the mill was also consumed. Loss, about $20,000.—The mill and elevator at Hays City, Kans., owned by H. D. Towner, was recently burned; loss, $17,000; insurance, $2,500.—The Minneapolis & Northern Co.'s elevator at St. Cloud, Minn., was recently burned with its contents; loss, $40,000.—The flouring mill at Washington, Ind., operated by Toney & Swing, and owned by Clement Lee, was, on April 16, totally destroyed by fire; loss, of Tony & Swing, $2,500. Mr. Lee's loss estimated at $22,500; no insurance.—E. M. Eckman has purchased C. S. Hershey's flour mill at Paradise, Pa.—O. A. Duke's grist mill at Clinton, Ala., recently burned; no insurance.—E. Allison's flour mill at New Cumberland, Md., recently burned; loss, $12,000; insurance, $8,000.—J. W. Peacock has purchased the mill of J. Frick & Co., at Canton, O., and will increase its capacity to 250 barrels per day.—The 100 barrel flour mill at Beaver Creek, Minn., owned by the Beaver Creek Milling Company, recently burned; loss, $25,000; insurance, $17,000.—The flour mill at St. Mary's, W. Va., has been purchased by R. H. Browse, who will hereafter operate it.—Pool Bros' elevator at Forreston, Ills., was, on May 3, destroyed by fire. A considerable quantity of grain and much other property stored in the building was also burned; loss, about $15,000.—The elevator at St. Joseph, Mo., which had a capacity of 150,000 bushels, was burned May 6. Loss, $20,000; cause supposed to be incendiarism.—Feldman Bros. & Co.'s mill at Arlington, Minn., was recently burned; loss, $12,000; insurance, $6,000.—The flouring mill and warehouse of Reader & Samuels, at Monroe, Ore., were burned April 2nd; loss on mill and machinery, about $8,000; on stock, about $17,000; insurance, $3,000.—The mill of the Harriett Roller Mill Company at Volin, Dak., was burned at the time of the almost total destruction of the village, on April 2. The burning of the surrounding prairie was the cause of the disaster.—Claremont, South Dakota, is desirous of a flouring mill of 100 barrel capacity, and will pay a bonus to the builder.—Belgrade, Minn., will pay $1,000 as a bonus to the builder of a flour mill at that place.—A bonus of $1,000 will be given to any good practical miller who will erect a flouring mill at Beemer, Neb.—Articles of incorporation have been filed by the Farmers' Milling Company of Ferdinand, Ind.; capital stock, $13,000.—The Waverly Milling Company of Waverly, Mo., have filed articles of incorporation; capital stock, $15,000.—Chas. Spies, L. Adler and C. Valier are the incorporators of the Enterprise Milling Company at St. Jacob, Ills.; capital stock, $20,000.—J. A. Dubois & Co. have bought the mill and all the real estate lying within the city limits of Sauk Centre, Minn., owned by the McClure estate. The new owners will, in addition to operating the mill, buy wheat for shipment.

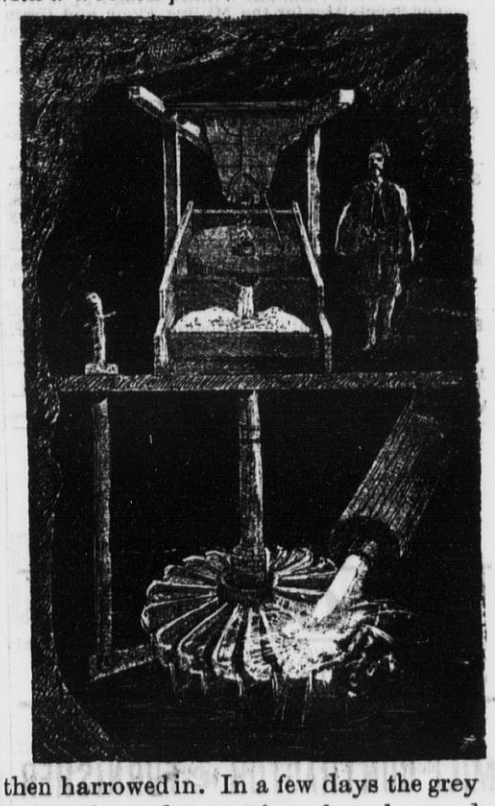
The following are some of the new mills built, being built or contemplated: A three story brick roller mill to cost $15.000, at Oberlin, Kans.—A roller mill by J. R. Yost at Holbrook, Kans.—A. C. Pierce of Alta Vista, Kans., is reported as about to build a mill there.—A party from Kansas City will build a $25,000 mill at Marshall, Mo.—H. T. Evans is building a flour mill at Summerville, Ga.—The Water Roller Mill Company will build a 40 barrel flour mill at Liberty, Tenn.—A stock company has been formed at Ennis, Tex., by J. Baldridge and others, with a capital stock of $20,000, for the purpose of building a 100 barrel roller flour mill.—A new 50 barrel full roller mill is being built at Keno, Klamath county, Cal.—Kelly & Lyle are about to build a 1,000 barrel roller mill at Leavenworth, Kans., the plans for which are completed.—Smith and Woodward will build a roller mill at Abilene, Tex.—J. C. Tune, whose mill at Shelbyville, Tenn., was recently burned, will rebuild.—A 200 barrel flour mill is contemplated by a corporation composed of citizens of Columbia, Tenn.; capital stock, $20,000.—A new 50 barrel flour mill, short system, is being built at Lydon, O., by J. Parrett.—F. B. Hancock is building a 50 barrel flour mill at Caskey, Ky.—M. Harner, Tyrone, Pa., is building a short system flour mill of 25 barrel capacity.—A 25 barrel roller mill is being built by J. Mack at McClellandtown, Pa.—Warner & Cubbage are building a 40 barrel roller mill at Cordova, Md.—A 40 barrel roller mill has been built at Germantown, O., by S. Hoerner.—A company consisting of S. R. Howks and others propose to build a 100 barrel roller mill at Lebanon, Ky.—A bonus of $1,000 has been paid by the citizens of Savannah, N. Y., to J. Mill, who will build a grist mill at that place.—C. R. Baer, Nickolaus Michael and Ernest Pahmeyer of St. Jacob, Ill., have incorporated the Citizens' Milling Company with a capital stock of $8,000, to operate a flour and meal mill.—A stock company is being formed at Graham, Va., by C. P. Greever and others to build a merchant mill; capital stock $20,000.—A 100 barrel roller mill at East Berlin, Pa., is being built for S. Morgan Smith, Sons & Co.—Mr. C. Crow, who until recently was manager of the Omaha Milling and Elevator Company, is building a mill at Whitewood, Dak.—Grimes & Morton of Moscow, O., are about to build a flour mill.—An oat meal mill will be built at St. Joseph, Nev., by Burns & Co.—James Parsons & Co., of Batavia, N. Y., are about to build a large roller flour mill.—A stock company has been organized at Mt. Olivet, Ky., to build a $5,000 flour mill.—A 25 barrel mill will be built at Easley, S. C., by G. W. Kelley & Son.—W. M. Bergman will build a flour mill of 30 barrel capacity at Oxford, Md.—A 50 barrel flour mill is being built by Hill & McCurray at Durham, Ark.—A roller flour mill will be built at Newport, Tenn., by J. H. Randolph.—C. A. Brown & Bro., will build a flour mill of 50 barrel capacity at Tunkhannock, Pa.—Hanson & Loundenbeck will build a roller mill with a capacity of 50 barrels at Nettleton, O.—The contract has been let for a 100 barrel flour mill for Raht & Bros. at Tullahoma, Tenn.—Woods Bros. & Elder of West Louisville, Ky., will build a 30 barrel flour mill.—Wilder, Moore & Co. of Union City, Tex., have built a 125 barrel roller flour mill.—A 250 barrel mill will be built by Henry McLemore and others at Columbia, Tenn.—A stock company with a capital stock of $50,000 has been organized to build a flour mill at West Point, Tenn.

[Translated and Condensed from the German by Mr. M. W. Thormaehlen for The United States Miller and Milling Engineer.]

THE PONOR MILLS IN HERZEGOVINA.

THE dukedom of Herzegovina formerly a part of Turkey in Europe, lies on the northern coast of the Adriatic Sea, between Monte negro on the south, Dalmatia on the west and Bosnia on the north and east. It is now under the dominion of the Austria-Hungarian Monarchy, in what is known as the Circuit of Mostar. Most of this section is rocky, desolate and generally uninviting. It has but two rivers of consequence—the Herzegovina and the Drina, which flow through step-like valleys from the mountains to the sea. The principal peculiarity of these mountains consists of the absence to a great extent of visible water flowing off. The water from the springs and melting snow accumulates in a succession of pot-shaped valleys, ranging down the decline from the mountain-tops to tide-water, without visible connections, which rarely overflow a certain height, except during the winter or rainy season. The water from these so-called (Ponore) pot-valleys doubtless pass to the river and sea through underground channels and this is the probable explanation of the great fresh-water springs in the sea about which much has been written.

The rainy season which causes the water in these pot-valleys, to flood adjacent farm lands, generally begins in November and ends in April, therefore if it starts too soon it will destroy or damage the unharvested crop; if too late it delays plowing and sowing. The principal grain raised is Kukurutz (Turkish wheat,) and Sirak (a sort of millet.) During the plowing and seeding season the valleys present a picturesque sight. Hundreds of families leave their homes taking their cattle with them and camp out until the planting is finished. The ground is plowed with a wooden plow, the seed sown and



then harrowed in. In a few days the grey soil is changed to patches of verdure and the farmers watch them with grave anxiety. If no floods come the crop is assured, but if floods come in May, the labor and seed is lost and the season is so far advanced that replanting is out of the question for the year. The September floads are then alone to be dreaded and often lives have been lost in attempting to rescue some of the crop from untimely floods.

The Herzegovnian miller utilizes the subterranean outlets of the waters which accumulate in these pot-valleys for running his little flour mill. To an underground cave or cellar he so arranges it, that the waters passes from one pot-valley to his crude little turbine wheel and then passes on to the next pot-valley below. The illustration herewith shows the arrangement of inlet, water wheel and grinding machinery. The whole arrangement is very simple. The miller is not bothered with any of the modern flouring mill systems or machinery. When the miller wants to stop his mill he simply raises the lever shown in the cut, up goes the wheel out of the water and the mill stops. At the Falls of Kravica, where a large quantity of water can be utilized, there are about thirty of these mills ranged along close together, forming a Herzegovinian "milling center," as it were. These mills are able to grind the Turkish wheat so as to meet all the demands of their customers who have not learned to desire anything better.

AN AUTHENTIC BUYERS' GUIDE.

MILL AND ELEVATOR BUILDERS, MILL FURNISHERS, MANUFACTURERS OF AND DEALERS IN MILL AND ELEVATOR MACHINERY AND SUPPLIES.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year, cash with order. Additional lines, $1.00 each, per year.

Edw. P. Allis & Co., Milwaukee, Wis., builders of complete Flour Mills, manufacturers of Flour Mill Machinery, and dealers in Supplies of every description. [Mr.89]

John C. Higgins & Son, 165 West Kinzie Street, Chicago, Ills., mfrs. of and dressers of Mill Picks. [Mr.89.]

H. P. Yale & Co., Milwaukee, Wis., Manufacturers' Agents of Engines and Boilers, New York Leather Belting Co.'s Leather Belting, Dodge Wood Pulley.

Robert Poole & Son Co., Baltimore, Md., manufacturers of Steam Engines, Water Wheels, Flour, Corn, Paper, Saw and Cotton Mill Machinery.

W. J. Clark & Co., Salem, O., manufacturers of "SALEM" Elevator Buckets, etc.

R. C. McCulley, (P. O. Box 214) Lancaster, Pa., manufactures Cob Crushers, Cooper's Stoves, Castings, Patterns, etc. [Mr.89.]

B. H. & J. Sanford, Phoenix Iron Works. Sheboygan, Falls, Wis., manufacturers of the "IMPROVED WALSH DOUBLE TURBINE WATER WHEEL." [Mr.89.]

John C. Kilner, York Foundry and Engine Works, York, Neb. Mill and Elevator machinery of all kinds, Engines, Boilers, Pulleys, Shafting, etc. [Mr.89.]

The Gutta Percha and Rubber Mfg. Co., 159-161 Lake st., Chicago, Ill., Belting and Rubber Goods. [Mr.89.]

Richmond Mfg. Co., Lockport, N. Y., manufacturers of Grain Cleaning Machinery, Bran Dusters etc. [89.Mr.]

N. Y. Belting and Packing Co., N. Y Leather Belting Co., W. D. Allen & Co., Agents, 151 Lake Street, Chicago. [Apr.89.]

W. G. Avery M'f'g Co., 10 Vincent st., Cleveland, O., Specialties: Avery Lever Belt Punches, Avery Seamless Elevator Buckets, Belting, Elevator Bolts, &c. [May'89.]

The H. J. Deal Specialty Co., Bucyrus, Ohio. Headquarters for Flour and Grain Testing Appliances, and Specialties for the Milling, Flour and Grain trades. [May 89]

A. B. Bowman, 823 Second St., St. Louis, Mo., manufacturers of Wheat Heaters.

Sprague Electric Railway & Motor Co., 16 and 18 Broad St., New York. Electric Motors. Electric Transmission of Power.

Stilwell & Bierce Mfg. Co., Dayton Ohio. Mill Builders-Manufacturers of and dealers in Water Wheels, Feed Water Heaters and Flour Mill Machinery and Supplies.

Milwaukee Bag Co., No. 236 East Water St., Milwaukee, Wis., manufacturers of plain and printed Flour and Grain Sacks of all kinds.

B. F. Ryer, 66 S. Canal St., Chicago. Mill Furnisher. Bolting Cloths made to order.

Jas. Leffel & Co., Springfield, Ohio. Water Wheels.

Vacuum Oil Co., Rochester, N. Y. Oils.

EXPORT AND MERCHANT MILLERS AND MANUFACTURERS OF WHEAT, RYE AND BUCKWHEAT FLOURS, AND CORN MEAL AND CORN PRODUCTS, (WITH NAMES OF SPECIAL "BRANDS" MADE) DESIRING CORRESPONDENCE WITH SOLID HOUSES WITH A VIEW TO TRADE.

Cards will be inserted under this head in the UNITED STATES MILLER, not exceeding three lines, paper included, for FIVE DOLLARS per year. Additional lines, $1.00 each per year.

J. B. A. Kern & Son, "Eagle Mills," Milwaukee, Wis. WHEAT FLOUR BRANDS—*Patents:* "Success," "Kern's." *Bakers:* "Triumph," "High Ground," "Eagle." RYE FLOUR BRANDS—"A Rye," "1 Rye," "Rye." [Apr.'89.]

E. Sanderson & Co., "Phoenix Mills, Milwaukee, Wis., U. S. A. Manufacturers and Exporters of choice spring wheat flours. Daily capacity 1500 barrels. [Apr.'89.]

Bernhard Stern. "Jupiter Mills," Milwaukee Wis. Roller Mill. Hard wheat *Patents.* Principal brand, "Jupiter." [Apr.'89.]

Faist, Kraus & Co., "Duluth Roller Mill," Milwaukee, Wis., Manufacturers and Exporters of choice spring wheat flours. Daily capacity 1500 barrels. [May'89.]

Russell, Andrews & Birkett Penn Yan, N. Y. Manufacturers of roller process Rye and Buckwheat flour. Absolute purity guaranteed. *Write for prices.* [Apr.'89.]

Prominent Flour, Grain and Provision Brokers, desiring correspondence with Millers of Wheat, Rye and Buckwheat Flours, and Cornmeal and Corn Products, with a view to Trade.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year. Additional lines, $1 00 each per year.

W. K. Sherwood, Flour and Grain Commission, 18 South Commercial Street, St. Louis. Mo. [Ap.89.]

FOR SALE AND TO RENT.

[Short ads. inserted in this column for $1 per insertion.]

FOR SALE. A steam roller mill, first-class in every respect, with daily capacity of 275 barrels. For full particulars address,
HUGH KELLY, Perham, Minn.

FOR SALE. A good water-power roller mill of about 50 bbls. daily capacity. Address for full information,
UEHLING & BODDEN, Afton, Wis.

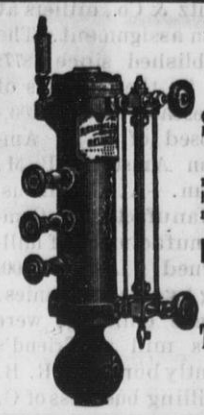
FOR SALE. A steam and water-power 50 bbl. roller mill. Proprietor has other business. Go west for your health and buy a good business cheap. Address,
E. HAM & SON, Latah, Wash.

FOR SALE. The "Central Mills," of 300 barrel capacity, situated in the thriving city of Atchison, Kas., with a good wheat crop, and the business fully established to go right ahead. Satisfactory reasons for selling. For further information address
WM. BOWMAN, Atchison, Kas.

FOR SALE. One 100 barrel roller process Flour and Grist Mill, built by Nordyke & Marmon Co., in 1884, good as new and complete in every respect; situated on the great Kanawha river and the K. & O. R'y, in the center of the West Virginia coal region. Home market for the entire product. Will sell cheap. Terms easy. For full particulars address J. G. W. TOMPKINS,
Cedar Grove, Kanawha county, W. Va.

FOR RENT. A water-power 5-run mill, with land, etc. A good chance for a live miller. For particulars address,
S. D. NICHOLS, Panora, Iowa.

WANTED. A partner who will devote his time to the business, with some means, to rebuild a water power mill in Toledo, on the site of the Armada Mills (lately burned.) It is the best site in the city, and the best city in America for a flouring mill to grind either winter or hard spring wheat. Correspondence solicited.
F. N. QUALE, TOLEDO, OHIO.



Your Plant will be Imperfect Without

THE RELIANCE

Safety Water Columns.

They obviate all damage from either too much or too little water, and cost but little more than the common outfit.

Every Gauge Warranted.

Send for Illustrated Price List.

The Reliance Gauge Co.,
863 Sheriff St.,
CLEVELAND, OHIO.

How to Keep a Store.

By S. H. TERRY. 406 Pages, 5 x 7½ inches.

This book should be in the hands of every one interested in the selling of goods at retail. Among the subjects discussed are: The selection of a business; choice of a locality; buying a stock of goods; examining, marking and arranging goods; how to advertise; employment of clerks; selling for cash and credit; keeping accounts; expenses; copartnership; losses by fire, theft, etc.; influences of social life on business; buying at auction; investment of profits; insolvency; business qualifications. Every branch of the retail trade is treated upon in a direct, business-like manner. It is a thoroughly practical book for merchants and clerks.

PRICE, $1.50. Sent, prepaid, on receipt of price, by
E. HARRISON CAWKER, 124 Grand Ave., Milwaukee

"TRIUMPH" CORN SHELLER

CAPACITY
3000 BUSHELS PER DAY.
Shells wet or dry corn.
CHEAPEST AND BEST SHELLER.

PAIGE MFG. CO.
No. 12 Fourth St., Painesville, O.
[Please mention this paper when you write to us.]

CAWKER'S AMERICAN
FLOUR MILL
—AND—
GRAIN ELEVATOR
DIRECTORY

Published once in two years.

Gives nearly 23,000 Addresses, P. O., County and State, Capacity, Power, System, etc.; also lists of Millwrights, Miscellaneous Mills, Millbuilders and Furnishers, Flour and Grain Dealers, Foreign Flour and Grain Importers, etc., etc.

1888-9 Edition, Issued March, 1888.

PRICE, $10 PER COPY,
post paid and registered to any part of the world. Address,

E. HARRISON CAWKER, Milwaukee, Wis.

SCIENTIFIC AMERICAN
ESTABLISHED 1845

Is the oldest and most popular scientific and mechanical paper published and has the largest circulation of any paper of its class in the world. Fully illustrated. Best class of Wood Engravings. Published weekly. Send for specimen copy. Price $3 a year. Four months' trial, $1. MUNN & CO., PUBLISHERS, 361 Broadway, N.Y.

ARCHITECTS & BUILDERS
Edition of Scientific American.

A great success. Each issue contains colored lithographic plates of country and city residences or public buildings. Numerous engravings and full plans and specifications for the use of such as contemplate building. Price $2.50 a year, 25 cts. a copy. MUNN & CO., PUBLISHERS.

PATENTS

may be secured by applying to MUNN & Co., who have had over 40 years' experience and have made over 100,000 applications for American and Foreign patents. Send for Handbook. Correspondence strictly confidential.

TRADE MARKS.

In case your mark is not registered in the Patent Office, apply to MUNN & Co., and procure immediate protection. Send for Handbook.

COPYRIGHTS for books, charts, maps, etc. quickly procured. Address
MUNN & CO., Patent Solicitors,
GENERAL OFFICE: 361 BROADWAY, N. Y.

Stilwell's Pat.

Lime Extracting
HEATER
—AND—
FILTER
COMBINED.

Is the only Lime Extracting Heater that will

Prevent Scale in Steam Boilers

Removing all Impurities from the water before it enters the boiler.

Thoroughly tested. Over **3,000** of them in daily use.

This cut is a facsimile of the appearance of a No. 5 Heater at work on ordinary lime water when the door was removed after the Heater had been running two weeks.

Illustrated Catalogues.

STILWELL & BIERCE MFG. CO.
DAYTON, OHIO.

For All Kinds IRON & STEEL
ROOFING
CEILING. SIDING. IRON DOORS. SHUTTERS.
ADDRESS SCOTT & CO. CINCINNATI, OHIO.

EDW. C. ORDWAY,
MILL CONTRACTOR AND FURNISHER
—OF—
ROLLER MILLS, GRAIN ELEVATORS,
New Process Corn Meal Mills, etc.
Plans and Specifications on Short Notice. HARTLAND, WIS.

JOHN C. HIGGINS & SON
Manufacturers and Dressers of
MILL PICKS
167 W. Kinzie St.,
CHICAGO, ILL.

Picks will be sent on 30 or 60 days' trial, to any responsible miller in the United States or Canadas, and if not superior in every respect to any other pick made in this or any other country there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is *manufactured expressly for me* at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct Importation. References furnished from every State and Territory in the U. S. and Canadas. Send for Circular and Price List.

Machinery For Sale

ONE PAIR 4-FT. MILLSTONES; new.
SEVEN PAIR 4-FT. MILLSTONES; used about three months.
ONE PAIR 9 x 18 CHILLED ROLLS; smooth.
ONE No. 1 THROOP SMUTTER AND SCOURER.
ONE 24-INCH MIDDLINGS MILL.
ONE 1000-LB. PALMER POWER SPRING HAMMER.

ADDRESS

The Filer-Stowell Co.

CREAM CITY IRON WORKS,
Milwaukee, - Wisconsin.

PRIVATE · TELEGRAPHIC · CIPHER
CODE

Compiled Expressly for the use of
Millers, Flour & Grain Brokers
For Private Telegraphic Correspondence, either for Land or Cable Lines.

1888 Edition, just out, March 1, 1888, revised, amended and added to, to meet all the requirements suggested by the members of the Miller's National Association, *who use more copies of the Code than all others combined.*

Published by the Riverside Printing Co., Milwaukee, Wis.
For terms, etc., address, stating number of Codes probably wanted,

RIVERSIDE PRINTING CO., Milwaukee, Wis.

DO YOU INTEND TO BUILD?

PRACTICAL LOW-COST HOUSES. HOW TO BUILD THEM.

A Large Atlas, containing **drawings** and **floor plans of 40 Modern Houses with Correct Estimates of cost of building,** all kinds of buildings ranging from a **$400 cottage** to a **$10,000 residence. The latest, most complete, and only practical book** published. It is **false economy** to attempt to build without these plans. Price by mail, post-paid, **50 cts.** Stamps taken.

Address, UNITED STATES MILLER, Milwaukee, Wis.

WESTINGHOUSE ENGINES

The Westinghouse Machine Co. PITTSBURGH, PA. U.S.A.

COMPOUND Condensing or Non-Condensing.
16 SIZES, 5 to 500 H. P.
Not yet equaled by any form of Engine for
HIGH FUEL DUTY AND SIMPLICITY.

STANDARD 13 Sizes in Stock. 5 to 250 H. P.
3000 in use in all parts of the Civilized World.

JUNIOR 6 Sizes in Stock, 5 to 50 H. P.
An Automatic Engine cheaper than a Slide Valve.
WELL BUILT. ECONOMICAL. RELIABLE.
Over 300 Sold the First Year.

All the above built strictly to Gauge with INTERCHANGEABLE PARTS.
REPAIRS CARRIED IN STOCK.
SEND FOR ILLUSTRATED CATALOGUES.

SELLING DEPARTMENT IN THE UNITED STATES.

New York, Boston, Pittsburgh, Chicago,	17 Cortlandt St. Hathaway Building, Westinghouse Build'g, 156, 158 Lake St.	Westinghouse, Church, Kerr & Co.
Philadelphia,	608 Chestnut St.	M. R. Muckle, Jr. & Co.
St. Louis, Kansas City, Denver,	302, 304 Washington Av. 312 Union Avenue, 1330 Seventeenth St.	Fairbanks & Co.
Omaha,	1619 Capitol Avenue,	F. C. Ayer.
Pine Bluffs, Ark.		Geo. M. Dilley & Sons.
Salt Lake City, Butte, Mont.	259 S. Main St. 4 Granite St.	Utah & Montana Machinery Co.
San Francisco, Portland, Or.	21, 23 Fremont Street, 33, 35 N. Front St.	Parke & Lacy Co. Parke & Lacy Mch. Co.
Charlotte, N. C. Atlanta, Ga.	36 College St. 45 S. Prior St.	The D. A. Tompkins Co.
Dallas, Tex. Chattanooga, Tenn.,		Keating Imp. & Machine Co. C. E. James & Co.

CARE OF WATER WHEELS.

WHEN a mill owner buys a water wheel and puts it out of sight under his mill, he expects that wheel to "keep right along eating shad" fifty-two weeks per year and never stop for bones. Some men have been known to purchase a steam engine, and, after once starting up, run the machine 130 hours per week as long as the engine held together. Occasionally, way back in saw mills, this sort of thing is tolerated now-a-days, but the increased price of coal has induced most steam users to become progressive, even when other considerations failed to move them.

It would be barbarous to treat an engine as above described, yet water wheels are subjected to just that kind of care, year in and year out. The "best wheel in the world" is purchased and dropped into the wheel pit. Nothing more is thought of that triumph of hydraulic engineering until the gears fall out of mesh, and the mill stops running through the burning out of a step. Repairs, in such cases, often consist merely of a new step, a new bolt or two, and a hurry to get out of the wheel pit.

Water wheel repairs are not often called for, except to the case or penstock, but, like many other repairs, could be made valuable. A water wheel is a rusty looking concern, not at all interesting to the owner, who too often gives it a poke with his cane, decides that it is "all worn out," and listens to the smooth tongued agent of another "best wheel made." If the old wheel could have $10 laid out on it for repairs, it would have done good work for ten years longer, and perhaps have delivered more power than the new wheel.

It will pay to let Mike clean the rust off the old wheel and polish it up with a wire scratch brush, such as is used in the foundry. A vigorous use of this tool, reinforced by a cold chisel and hammer, will work such a transformation in the old turbine that its owner would even forget to give it the conventional poke with his cane.

A water wheel, once clean, should be painted with boiling hot gas tar and allowed to dry at least two hours—better two days—before being put back into the pit. The case should receive the same treatment. Lumps of rust on the chutes of turbine wheel cases do not add to the power derived from the water, and the cleaner the chutes, the better the per centage available.

It pays to shut out the water once in three months and crawl into the wheels. If a man takes with him on these occasions two quarts of brains, a monkey wrench, a cold chisel and a hammer, he can crawl out of the wheel in two hours time knowing that the turbine is many dollars better than when he went to it.

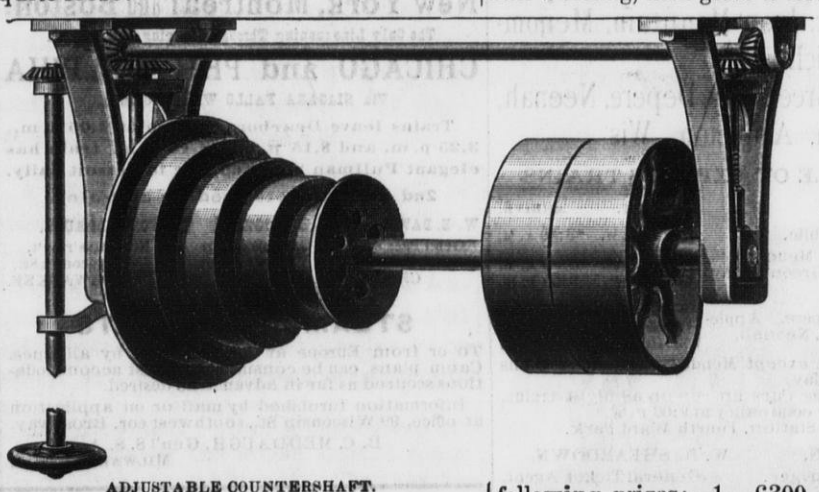
Perhaps a crank-rod is broken, which allows one of the gate-chutes to remain open or shut, as it may chance to lie. In this case waste of water is taking place when the wheel is idle, or a fraction of the wheel's entire power is lost by the chute remaining closed at all times. To determine this fraction, regard the numerator as one and the entire number of chutes in the wheel, or gate, as the denominator. The segment gears, if there are any in your make of wheel, may become badly worn, and they will wear badly under water, causing only a partial opening or closing of the gate, and quite a loss of power and water thereby.

A little bolt may get loose, fall out or rust off, letting the end of a lever get loose. Perhaps this may cause a leak of water or of power, or it may cause a tremendous breakdown, which might ruin the wheel, its case, and perhaps the main gears as well. The quarterly visit to the wheel enables the millwright to nip in the bud many of these incipient breakdowns. He applies new parts, and, in fact, does the repairs "just before they are needed." He prevents breakdowns by anticipating repairs.

The whole turbine business may be summed up as follows: If a manufacturer would treat his water wheels half as well as all his other machinery is treated, they would do more work with less water, last longer, need replacing less frequently, and cause fewer breakdowns than they do under existing methods of careless handling. Every mill owner ought to make his millwright a New Year present of $10 or $20, with the request to pay it back by "taking care of the water wheels" during the coming year. It would repay the investment many fold.—*Paper Trade Journal.*

AN ADJUSTABLE COUNTERSHAFT.

EVERY machinist knows that it is best to keep driving belts just as loose as the nature of the work will admit, for by so doing the friction and wear upon the journals is much reduced, the life of the belt is greatly increased, and it is much more easily handled and shifted from step to step of the cone pulleys when changing speed. Where only one thing is done upon a machine, it is, of course, possible to keep the belt about as loose as the work it has to do will permit; but in the case of a lathe, milling machine or, in fact most machine tools upon which a variety of work is done, there are times when it is necessary to have the belt as tight as possible, and yet, perhaps, most of the time it could be quite loose.



ADJUSTABLE COUNTERSHAFT.

We illustrate above an improved countershaft—invented by a machinist—Frank R. Hynes, 109 Ambrose street, Rochester, N. Y., to enable the belt to be instantly adjusted to the degree of tension necessary for the work in hand. The boxes are in one piece, provided with flanges to keep them in place, and are moved up or down in the hangers by means of screws which are turned by the gears and shaft passing over the countershaft which in turn is moved by means of the vertical shaft, upon which is a handwheel placed within easy reach of the operator.

By the use of such a countershaft no greater tension need be upon the belt at any time than is absolutely necessary to make it pull the cut, and thereby, as every machinist will know, a great deal of destructive wear and tear upon belts, and machine, and countershaft journals may be avoided, besides effecting a saving of power, time (otherwise spent in lacing and unlacing belts,) and of patience.

DOG LABOR IN WORKSHOPS.

In old times dogs were in constant use as turnspits, and, at a blacksmith's shop in Stanton, N. Y., dogs are used to supply power for a furnace. A wheel eight feet in diameter has been constructed, and it is of sufficient width to admit of one dog standing in it. Four dogs are used, each working for one hour and resting for three. When not at work the dog on duty stands in the wheel facing the forge until told to "go ahead." He then sets the wheel spinning merrily round, and by means of a crank and lever the bellows are worked. Large numbers of spikes are turned out at this smithy, and the furnace is seldom idle. The proprietor is a German who has himself trained the dogs, and their use saves him a considerable sum yearly in wages.

ITEMS FROM BEYOND SEAS.

AUSTRALIAN MILLS.—The flour mills in Australia are generally worked 24 hours per day during six months in the year, and 22 hours per day during the other six months. The wages of a foreman miller are set down as £3 per week; stoneman, £4; engine-driver, £2 10s; office clerk, £1 10s. per week. Constant employment, however, is uncertain.

A FULL-BLOODED Maori patriarch, named Ngauah, of Te-Aute pah, was asked his opinion of missionaries. He thus expressed himself:—"Missionary very good man, yes, very good man—for himself. He hold one hand up to the sky, you look up—then he collar your land, your crop, your house, cow and pig with the other. Oh, missionary, very good man."

HIGHEST WATER-POWER HEAD IN THE WORLD.—France claims the honor of utilizing a higher water pressure than that recently put in operation in the Chollar shaft on the Comstock lode, in Nevada. At Brignoud, two kilometers from the valley of Gresivaudad, near Grenoble, a turbine 9 feet 10 inches in diameter was put in operation in the year 1875, utilizing a head of 1638 feet. It is still working, and gives a force of 1500 H. P., with a flow of 300 litres of water per second.

PRIZES FOR MECHANICAL RESEARCH.—The German Society for the promotion of Industry offers the following prizes:—1. £300 and a silver medal for the best solution of the question—To what extent is the chemical composition of steel, especially the amount of carbon contained therein, to be regarded as a standard in the matter of cutting and edge tools? 2. £250 and a silver medal for the best treatise on mechanical engineering applied to the construction of machinery. 3. £200 for an essay on hoisting elevators, their construction, security, etc. Answers to the above must be sent in before November 15th, 1890.

A PHOTOGRAPHIC PHONOGRAPH.—M. Leon Equille, a Mexican, it is stated, has perfected a marvelous invention in electricity and photography. By speaking in a photophone transmitter, which consists of a highly polished diaphragm, reflecting a ray of light, this ray of light is set into vibrations, and a photograph is made of it on a traveling band of sensitized paper. Now comes the wonderful part. If the image of this photographic tracing is projected by means of an electric arc or oxy-hydrogen light upon a solenium receiver, the original speech is then heard. It is evident that there is no limit to the development of this peculiar combination of methods.

A laughable scene was enacted at Montreal last Sunday morning. A drunken man sent in a false alarm of fire and ran off laughing heartily at the joke. He was chased, and finally caught just as the police came up with a line to rope off the ground, when thinking that he was to be lynched he fell upon his knees and piteously prayed the guardians of the peace not to hang him to a lamp post. They generously refrained, and contented themselves with locking him up.

OUR readers will confer a favor by writing to us giving us any item of news such as new mills, elevators, etc., or improvements in the same, or giving information of a practical nature of general interest to the trade.

American Steam Guage Co.,

—SOLE MANUFACTURERS—

Bourdon Steam Guages,

WITH LANE'S IMPROVEMENT.

THOMPSON'S

Improved Indicator

Over 2,500 in Use.

American Pop Safety Valves,

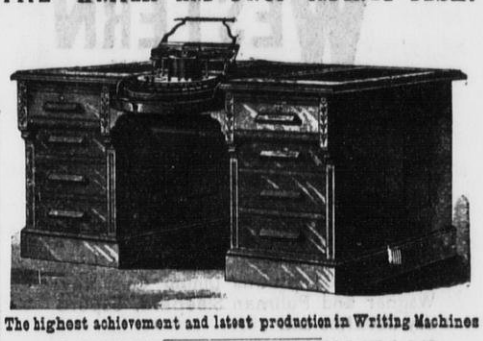
For Locomotive, Stationary and Portable Boilers, and Instruments Incidental to the use of Steam. Send for Price List I.

36 Chardon St., BOSTON, MASS.

Send for Catalogue K.

HAMMOND

TYPE-WRITER AND DROP CABINET DESK.



The highest achievement and latest production in Writing Machines

As I am receiving requests for exchanges daily from parties who have the old style type-bar machines, and as I am thus securing hundreds of second-hand Remingtons and Caligraphs at *very low prices*, I am able to offer these latter machines in many cases *as good as new* at prices that defy competition. Write and see! Yours respectfully,

P. H. Sercombe, Prop. MILWAUKEE TYPE-WRITER AGENCY.

READ

—THE—

NEW YORK

Daily Commercial Bulletin

Its reputation as the most reliable commercial paper is conceded by all.

Sample Copies Free.

Its markets Reports are the most complete and trustworthy of any published and cover all trades.

Save Your Money

by subscribing to the "Daily Commercial Bulletin" and read its reports of the New York Markets.

PRICE!

	Per Year.	Six Mos.
Daily.	$12 00	$6 50
Tri-Weekly.	6 75	3 50
Semi-Weekly.	5 00	2 75

ADDRESS:

New York Daily Bulletin Association,

No. 32 Broadway, - NEW YORK CITY.

THE *Canada Baker* says: One barrel of flour should turn out 260 one-pound loaves, and quantity of loaves is regulated by the quality of flour; good flour always produces the most pounds of bread, as in all cases it will retain the most water.

A farmer in Terrell county, Ga., went out the other night to wash a fine Jersey cow in kerosense to cure her of the itch. He had just got her well saturated when a clumsy little negro, who was holding the light, accidentally set fire to her. The cow started off through the darkness on a jump. She was finally captured and taken home, and has entirely aecovered from the burning she received, but the farmer omits to state whether she was cured of the itch or not.

THE C., I., St. L. & C. Ry. (Kankakee Line) is the best line to Cincinnati, Richmond, Va., Newport News, Washington, Baltimore, Chattanooga, Atlanta, Savannah, Charleston, Jacksonville, St. Augustine, Thomasville, Pensacola, Mobile, New Orleans, and all points in the South and South-east.

THE CHICAGO MILWAUKEE AND ST. PAUL RAILWAY CO.

Fast Mail Line with Vestibuled Trains between Chicago, Milwaukee, St. Paul and Minneapolis.

Trans-Continental Route between Chicago, Council Bluffs, Omaha and the Pacific Coast.

Great National Route between Chicago, Kansas City and St. Joseph, Mo.

5700 Miles of Road reaching all principal points in Illinois, Wisconsin, Minnesota, Iowa, Missouri and Dakota.

For maps, time tables, rates of passage and freight, etc., apply to the nearest station agent of the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY, or to any Railroad Agent anywhere in the World.

ROSWELL MILLER, General Manager. A. V. H. CARPENTER, Gen'l Pass. and Tkt. Agt.

☞ For information in reference to Lands and Towns owned by the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY COMPANY, write to H. G. HAUGEN, Land Commissioner, Milwaukee, Wisconsin.

THE CHICAGO AND
NORTH-WESTERN RAILWAY.
OVER 7,000 MILES

Of steel track in Illinois, Iowa, Wisconsin, Michigan, Minnesota, Nebraska, Dakota and Wyoming, penetrates the Agricultural, Mining and Commercial Centres of the

WEST AND NORTHWEST.

The Unrivaled Equipment of the Line embraces Sumptuous Dining Cars, New Wagner and Pullman Sleepers, Superb day Coaches and

FAST VESTIBULED TRAINS

Running direct between Chicago, St. Paul and Minneapolis, Council Bluffs and Omaha, connecting for Portland, Denver, San Francisco and all Pacific Coast Points.

ONLY LINE TO THE BLACK HILLS

For Tickets, Rates, Maps, Time Tables and full information, apply to any Ticket Agent or address the Gen'l Passenger Agent, Chicago, Ill.

J. M. WHITMAN, General Manager. H. C. WICKER, Traffic Manager. E. P. WILSON, Gen'l Pass. Agt.

NOTES from the diary of tourists, commercial travelers, business men and others has revealed:

That the **Wisconsin Central** has the unqualified endorsement of all:

That the **Wisconsin Central** has to-day the most popular line between **Chicago** and **Milwaukee**, and **St. Paul, Minneapolis** and the **Northwest**;

That the **Wisconsin Central** is daily adding to its admirers as the recognized **Pullman** line between **Chicago** and **Milwaukee** and **Ashland, Duluth** and **Lake Superior**;

That the **Wisconsin Central** touches the most prominent points in Wisconsin, and that it has more important business centers on its through line than any other railway to and from the **Northwest**;

That the **Wisconsin Central** has made an enviable reputation with its peerless **Dining Car Service**;

That the **Wisconsin Central** runs fast trains on which all classes of passengers are carried with commodious and distinct accomodation for all:

That the **Wisconsin Central** has representatives distributed throughout the country, who will cheerfully give any information that may be desired and that its terminal Agents are specially instructed to look after the comfort of passengers who may be routed via its line.

For detailed information, apply to your nearest Ticket Agent; or to representatives of the Wisconsin Central Company.

WM. S. MELLEN, General Manager. JAMES BARKER, Genl. Passr. & Tkt. Agt.

LOUIS ECKSTEIN, Asst. Genl. Passr. & Tkt. Agt.

MILWAUKEE, WIS.

ALL persons desiring to reach the entire milling and grain trade of America, by circular or otherwise, should obtain a copy of CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888.

WE shall be pleased to receive from any of our readers, short, crisp, sensible letters on subjects of interest to the flour and grain trade for publication.

EXPORTING millers should write to the Riverside Printing Co., Milwaukee, Wis., for the best Flour Cable Code ever published. There are more copies of this Code in use than of ALL other flour codes published. It is simple and accurate.

ASHLAND ROUTE M.L.S.&W.RY.

THE MILWAUKEE, LAKE SHORE & WESTERN R'Y

IS THE DIRECT AND MOST POPULAR LINE AND Through Sleeping and Parlor Car Route FROM

CHICAGO and MILWAUKEE

TO SHEBOYGAN, MANITOWOC, APPLETON, NEW LONDON AND WAUSAU, TO ALL THE IMPORTANT TOWNS IN THE Cogebic, Penokee and Montreal Iron Ranges, HURLEY, BESSEMER, IRONWOOD, WAKEFIELD AND GOGEBIC, TO

ASHLAND, SUPERIOR and DULUTH,

To all Fox River Manufacturing Cities AND The Lumbering Districts of Northern Wisconsin and Michigan.

SPORTSMEN The best Fishing and Hunting in the NORTHWEST reached by the **ASHLAND ROUTE.** Send to the General Passenger and Ticket Agent for Descriptive and Illustrated Publications, Maps, Folders, Time Cards and General Information.

Milwaukee Office, 95 Wisconsin St.

H. G. FLEITH, Com. Freight Agt. F. P. REGAN, City Pass. & Tkt. Agt.

H. F. WHITCOMB, General Manager. ERNEST VLIET, Gen'l Pass. & Tkt. Agt.

MILWAUKEE.

Milwaukee & Northern R. R.

SHORT LINE

—TO—

Marquette, Negaunee, Ishpeming, Hancock, Houghton, Champion, Republic, Iron Mountain, Menominee, Mich.

Marinette, Green Bay, Depere, Neenah, Menasha, Appleton, Wis.

THE TABLE OF EXPRESS TRAINS.

STATIONS.	DEPART.	ARRIVE.
Champion, Republic,	*1:35 A. M.	*3:20 A. M.
Iron Mountain, Menominee, Marinette, Green Bay, Depere,	*1:35 A. M. 3:10 P. M.	*3:20 A. M. 3:55 P. M.
Green Bay, Depere, Appleton, Menasha, Neenah,	†7:35 A. M. 7:55 A. M. 3:10 P. M.	3:55 P. M. 10:20 A. M.

*Daily. †Daily, except Monday. All other trains daily except Sunday.

Pullman Sleeping Cars are run on all night trains, and are ready for occupancy at 9:00 P. M.

New Passenger Station, Fourth Ward Park.

C. F. DUTTON, General Manager. W. B. SHEARDOWN, General Ticket Agent.

A NIGHT IN CHICAGO

—AND A—

NIGHT TRAIN

—TO—

INDIANAPOLIS.

—THE—

MONON ROUTE

LOUISVILLE, NEW ALBANY & CHICAGO RY.

HAS A TRAIN

Leaving Chicago

AT 11:40 P. M.

EVERY NIGHT (Sundays included), with THROUGH COACHES and PULLMAN SLEEPERS, ARRIVING INDIANAPOLIS at 7:30 A. M.

ADDITIONAL TRAINS leave Chicago for Indianapolis at 8:15 A. M. and 8:20 P. M.

Ask your home Agent to make your tickets read via the MONON ROUTE, so your comfort may be assured. For further information, Sleeping Car Berths, etc., call at

CITY TICKET OFFICE, No. 73 CLARK ST.

—OR AT THE—

DEARBORN STATION, CHICAGO.

E. O. McCORMICK, Gen'l Pass. Agent, CHICAGO.

EVERYBODY'S PAINT BOOK

A new work on INDOOR and OUT-DOOR painting which is designed to teach people how to DO THEIR OWN PAINTING and save the expense of a professional painter. The most practical and valuable work of the kind ever issued. Full directions are given for mixing paints for ALL PURPOSES. Tells all about PAPER HANGING, KALSOMINING, STAINING, VARNISHING, POLISHING, as well as how to RENOVATE FURNITURE, so that it will look as good as new. Tells all about HOUSE-CLEANING with paint and kalsomine. Full directions are given for making the beautiful SPATTER-WORK pictures in which the ladies are so much interested. Tells how to paint OUT-BUILDINGS, ROOFS, FARM WAGONS, FARM IMPLEMENTS and CARRIAGES as well as how to polish a PIANO or ORGAN; how to imitate GROUND GLASS or make paint for BLACKBOARDS; GRAINING in oak and black walnut, painting in imitation of EBONY, MAHOGANY and ROSE-WOOD stain, GILDING, BRONZING and SILVERING. Elegantly printed, beautifully bound. Will SAVE ITS COST in a short time. Sent by mail on receipt of price, One Dollar.

Address, UNITED STATES MILLER, Milwaukee, Wis.

THE THROUGH CAR LINE —FROM AND TO— **CINCINNATI**

C H&D — CINCINNATI, HAMILTON & DAYTON R.R.

WITH THROUGH CAR SERVICE BETWEEN

CINCINNATI and INDIANAPOLIS,
CINCINNATI and TOLEDO and DETROIT,
CINCINNATI and CHICAGO,
CINCINNATI and ST. LOUIS,
CINCINNATI and DAYTON and RICHMOND,
CINCINNATI and FT. WAYNE and GRAND RAPIDS,
CINCINNATI and GREENVILLE and VAN WERT.

With THROUGH RECLINING CHAIR CAR between

CINCINNATI, DECATUR and SPRINGFIELD, ILLS. and KEOKUK, IOWA, (daily)

PARLOR CHAIR CARS ON DAY, and SLEEPERS ON NIGHT TRAINS, "YEAR 'ROUND."

Ask for Tickets via C. H. & D. R. R.

For full information, Tickets, Sleeping Car Space, &c., Inquire of or Address,

W. H Fisher, Gen'l Agt., Indianapolis, Ind. W. H. Whittlesey, Central Pass'r Agt., Dayton, O.
John Bastable, District Pass'r Agt, Toledo, O. D. B. Tracy, Northern Pass'r Agt., Detroit, Mich.
Wm. A. Wiggins, Southern Passenger Agent, Chattanooga, Tenn.
J. G. Mason, City Passenger Agent, Cincinnati, O.

Or General Passenger Agent's Office, - No. 200 W. Fourth St., Cincinnati, O.

C. C. WAITE, Vice-Pres't & Gen'l Manager. CHAS. H. ROCKWELL, Gen'l Pass'r & Ticket Agent.

THE

Chicago & Grand Trunk R'y

NIAGARA FALLS AIR LINE

Is the Shortest and Most Direct Route East.

THROUGH SLEEPING AND PARLOR CARS TO

New York, Montreal and Boston.

The Only Line running Through Sleeping Cars between

CHICAGO and PHILADELPHIA

Via NIAGARA FALLS Without Change.

Trains leave Dearborn Station at 9.05 a. m., 3.25 p. m. and 8.15 p. m. 8.15 p. m. train has elegant Pullman Sleeping Car to Detroit daily.

2nd class tickets good on all trains.

W. E. DAVIS, Gen'l Pass's & Ticket Agent, CHICAGO. E. H. HUGHES, Gen'l Western Pass'r Agent, CHICAGO. B. C. MEDDAUGH, Nor. Pass'r Ag't, 99 Wisconsin St., MILWAUKEE.

STEAMSHIP TICKETS

To or from Europe at lowest rates, by all lines. Cabin plans can be consulted and best accommodations secured as far in advance as desired.

Information furnished by mail or on application at office, 99 Wisconsin St., southwest cor. Broadway.

B. C. MEDDAUGH, Gen'l S. S. Agent. MILWAUKEE, WIS.

CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1889, issued March 3, is meeting with much praise from all departments of the trade. While not claimed by the publisher to be perfect, it answers FULLY the requirements of the trade. It is the only list published. The demand is limited and the price (Ten Dollars per copy) is cheap, considering the labor required in compiling, printing and selling. It contains lists of flour mill and grain elevator owners, micellaneous kinds of mills such as corn, rye, oatmeal, rice and feed mills, millwrights, flour brokers and dealers in various sections of the United States and Canada, and a good list of European flour and grain importers. Kind of power used, rolls or stones, capacity and millers supposed to be worth $10,000 or *more* are indicated in thousands of cases.

HOW ROLLERS WEAR.

ROLLERS cannot be expected to retain their original form; hard and truly finished as they may have been, the effect of continuous work is to wear them out of truth. They usually wear hollow from the ends, that is to say, if rollers after working, say three years, are taken out and tested by a straight edge, it will be found that the ends are higher than the rest of the length; this is also proved in the lathe. The reason for this wear is that the feed never runs quite to the extreme edge, consequently day by day a slight depression is worn by the feed until it is great enough to be seen, and may often also be detected by the imperfect work done. Of course the average work of the roller gets worse as time goes, because the ends of a pair being high, and the rest of the surface low, the feed passes through with gradually less pressure until the difference becomes noticed. The attendant may attempt to solve the difficulty by applying extra force, but seeing that it is a case of iron versus iron, the net result is not satisfactory, the energy being, as too often happens, thoroughly misapplied. The real remedy is to take the rollers out, say once in two years, and if untrue have them ground true with the emery wheel. If the ends are sunk a shade under the rest of the length, say, for ¼in. each end, better work may be done. It is obviously better to have nine-tenths of the surface in contact at the loss of the rest, rather than that all should be reduced in efficiency.—W. R. V. in *The Millers' Gazette* (London.)

A PNEUMATIC RAILWAY.

Jules Verne, the wonderful French inventor of scientific fairy tale, has published a little sketch founded on the idea of Colonel Pierce, the American engineer, who has promulgated the notion of connecting Europe and America by a pneumatic railway under the Atlantic. Verne tells how in America he is most courteously received by the chairman of the Pneumatic Tube Railway Company at the terminus of the Boston-Liverpool railway; the chairman says to him: "The rails of our submarine line run through a huge tube of the size of an ordinary tunnel, two such tubes connecting America and England. Through one, the line runs to and through the other from each country. The number of the sections in each tube is 1,600,000, with a total weight of 13,000,000 tons. In sinking the tubes 200 ships of 2,000 tons each have been employed. The trains are worked in the same manner as pneumatic letter post, by air, the current for moving the train being produced by two enormous steam blowers. Furthermore the rotation of the earth assists the trains. The rate at which the train travels is 1,800 kilometres per hour, so that the journey from Boston to Liverpool is accomplished in two hours and forty minutes." This enormous speed, Verne goes on to show, causes some curious confusions. Thus, as the difference of time between Liverpool and Boston is four hours and fourteen minutes, a train leaving the American city at 9 o'clock in the morning arrives in the former at 3.54 in the afternoon—that is, being 4h and 14m late. On the other hand the trains of the Anglo-American railway moving 900 kilometres per hour quicker than the sun the train leaving Liverpool at noon arrives in Boston the same day at 9.26 a. m.—that is, two hours and twenty-six minutes before it is started.

THE C., I., St. L. & C. Ry. (Kankakee line) is the best route to Florida. Close connections in Central Union Depot, Cincinnati with through express trains of C. N. O. & T. P. Ry. Queen & Crescent Route.

TRADE NOTES.

THE Avery Stamping Co., Cleveland, Ohio, have just issued a vest pocket diary of unique design for the especial use of traveling men. It also contains their price list. They will send it free to all traveling men writing for it and mentioning this JOURNAL.

THE Knickerbocker Co., of Jackson, Mich., are finding a good demand right along for their excellent machines, of which they are selling from 125 to 150 per month. Among their recent orders for "CYCLONES" we note the following: Jones & Co., New York, 11; W. C. Mansfield & Co., Cleveland, Tenn., 4; Great Western Mfg. Co., Leavenworth, Kan., 9; Novelty Mill Co., Parkersburg, Va., 7; C. A. Gambrill Mfg. Co., Baltimore, Md., 19; Clay Milling Co., Liberty, Mo., 3; Williams & Groat, Portland, Ore., 5; Lincoln Roller Mills, Lincoln, Ill., 8; James Pye, Minneapolis, Minn., 13; Columbia Mill Co., Columbia, Tenn., 11; Edw. P. Allis & Co., Milwaukee, Wis., 9.

THE H. J. Deal Specialty Co., of Bucyrus, O., make a specialty of supplying millers with the useful and ornamental specialties required by the trade, such as flour triers, magnifying glasses, flour and grain testers, trade jewels, etc., etc. It is the only establishment of its kind in the world. Mr. H. J. Deal, the founder of the company, has, we believe, been present at every important gathering of millers in the last dozen years, and his genial presence on these occasions is always welcome to a host of members of miller associations. His displays are always unique and attractive, and we are pleased to note that he will be in Milwaukee in June with a full line of novelties.

AMONG the larger concerns who have recently adopted the Reliance Safety Water Columns, manufactured by the Reliance Guage Co., of Cleveland, O., are the Salisbury Mfg., Salisbury, Md.; The Gorrie Ice Mfg. Co., Savannah, Ga.; The Collins Co., Collinsville, Conn.; S. W. E. D. Springer, South Creek, N. C.; The Hill Clutch Works, Cleveland, O., and the Brooklyn Line of Electric Ry., Cleveland, O. The Reliance Company have also received a second order from Haldeman, Grubb & Co., of Chickies, Pa., who had been using these safe-guards for over a year, and a third order from the Walker Mfg. Co., of Cleveland, who bought their first column about three years ago. They are sold on their merits, and seem to be giving remarkable satisfaction.

THE attention of our readers is called to the advertisement of the Westinghouse Machine Company, of Pittsburg, Pa., whose card will be found in another column of this issue. On May second one of our editorial staff visited Pittsburg, and while there availed himself of the opportunity afforded to make a tour through the works of the Company referred to.

The Company's establishment is located on Liberty and Penn. avenues, 24th, 25th and 26th streets. It covers two and one-half large squares, and over $700,000 are employed in conducting its business. For boldness of design, and thoroughness of its system of manufacture, we doubt if this establishment is equalled in the whole manufacturing world. At all events, its peculiarities have been sufficient to attract visitors from all the manufacturing centers of America and Europe, chief among whom have been the Company's own competitors in the manufacture of steam engines. Nearly all of the large engine builders of Ameriea have visited the company's establishment—some of them many times—while the largest builders of Great Britain, it is said, have visited Pittsburgh principally with this object in view. The company seems to make no secret of its system of manufacture, so that all visitors (even its most prominent competitors) are cordially received. Its product consists exclusively of steam engines, whose distinctive feature is that they are capable of transmitting their entire power on to actual work. In other words, one of their 100 H. P. engines will deliver 100 H. P. on to the belt, and requires only a 100 H. P. boiler to operate it, and the regular consumption of coal necessary to produce 100 H. P. It is claimed by the management of the company that where other engines are employed, the "speeding-up" devices which must necessarily be used, consume so large a proportion of the engine's power that, to obtain 100 H. P. of actual work, it is frequently necessary to use an engine of 150 H. P. capacity, with its accompanying investment for 150 H. P. boiler and the regular consumption of fuel to operate the larger engine. All the engines built by this Company are built in quantity, to hardened steel templates, with thoroughly interchangeable parts throughout. The smaller engines are built in lots of 50 to 100 of one size, at one time, on one shop order, and are carried in stock, without much regard to the orders on hand. The larger engines are built in lots of 12 to 30 of one size, at one time. Each engine is thoroughly tested before shipment. They are all marketed through the medium of general agencies whose selling rights are exclusive in their respective districts. Agencies are now in full operation in all parts of the United States, Maritime Provinces of Canada, Mexico, Central America, South America, Australia, Italy, Spain, France, Holland, Denmark, Norway and Sweden, Russia and the Kingdom of Prussia, while agency contracts are now in negotiation for England, India, Turkey, Japan, &c.

A TEST FOR WATER.—Prof. Angell, of Michigan University furnishes the following as a test of the purity of water for drinking. "Dissolve about half a teaspoonful of the purest white sugar in a pint bottle completely full of the water to be tested, and tightly stopped; expose it to daylight and a temperature up to 70 degrees Fahrenheit. After a day or two examine, holding the bottle against something black for whitish floating specks, which will betray the presence of organic matter in considerable proportion."

IMPROVED WALSH DOUBLE TURBINE WATER WHEEL.

NEARLY all users of water power, especially in the older parts of the country, cannot but notice the average supply of water gradually diminishing each year. Streams that a few years ago afforded ample power for all purposes, even in the dry seasons, have since been abandoned altogether, hence the necessity of more economical water wheels.

The time has arrived when the old style, cheaply constructed wheels with poor joints and leaky gates, must take a back seat for something giving greater economy. A wheel that will return power for every drop of water furnished is what the demand calls for at the present time, one which allows no water to escape when the gate is closed, and yet works perfectly free at all times and under all circumstances.

Nothing about a mill or factory is more disagreeable than the job of repairing a water wheel, especially in cold weather, and a wheel requiring such repairs every few years is something to be avoided. The Improved Walsh, which the accompanying cuts illustrate, it is claimed, possesses the great essentials of perfect construction and maximum power, requiring no repairs, except it be to replace some breakage caused by accident.

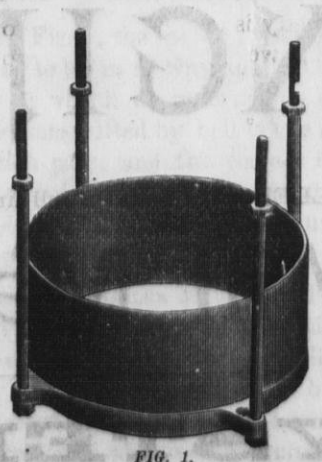


FIG. 1.

Figure 1 is the Cylinder Gate and Draft-Tube combined, a combination fully covered by letters patent. In this combination the cylinder passes down, admitting the water to the upper set of buckets first, and at the same time forming the draft-tube for the wheel.

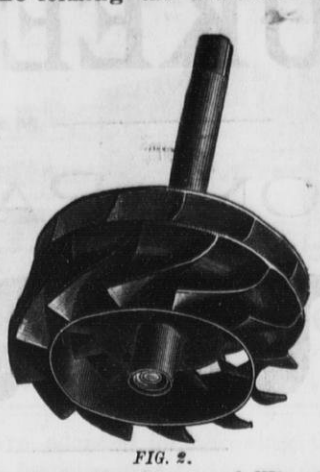


FIG. 2.

Fig. 2 shows the Improved Wheel on its shaft, removed from the case. As will be seen the wheel is strictly a double turbine in two sections, each having a set of buckets of cast iron, and is entirely different from any other wheel made. The buckets are quarter twist, receiving the waier from the extreme outside, carrying it slightly toward the center and discharging downward and backward, the line of discharge occupying the entire diameter of the wheel, exclusive of the hub, and the water always strikes the buckets at right angles at all stages of the gate. The chutes in the outer case being tunnel-shaped stationary, direct the current the same at all times to the extteme outer end of the bukets, where the greatest amount of leverage is obtained. The hub of the wheel is made concave in order to relieve the step from all downward pressure, and the peculiar formation of the buckets also aids in this respect, thereby employing the force of the water to lift the wheel from the step, consequently furnishing a very free and light running wheel of high speed and great power.

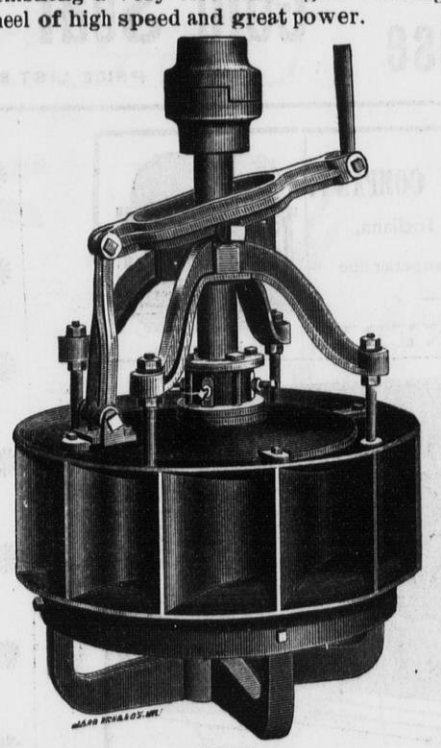


FIG. 3.

Fig. 3 shows the wheel complete, ready for shipment or to be set in a flume. The four-armed spider or bridge-tree attached to the bottom of the outer case has in its center the wooden step prepared by a special process of the manufacturers.

The particulars concerning this wheel, together with much useful additional information, may be had by writing to the manufacturers, B. H. & J. Sanford, Sheboygan Falls, Wis., for their latest catalogue.

A MILL-BUILDING PLANT BURNED.

WE regret to announce that the extensive mill-building and mill-machinery works of the Case Manufacturing Co., of Columbus, O, were almost completely destroyed by fire on the evening of May 10. Most of the patterns, however, were saved, also books and valuable papers. A large amount of machinery, either finished or in course of construction, was also destroyed. Many employes lost their kits of tools. The loss is estimated at about $75,000 and insurance at $25,000.

The *Ohio State Journal* of May 11 says: The works were established in 1879 by Mr. J. M. Case, who recently retired from the company and is now in Europe. The establishment at that time was operated on a small scale The late Otway Watson soon joined Mr. Case in the business and more recently a company was organized with a capital of $100,000, with Colonel James Watson president, Hon. John F. Oglevee vice-president and David Greene, son of the late M. M. Greene, secretary and treasurer. The widow of the late Otway Watson, D. K. Watson, Charles E Burr and Mr. Brown, who traveled in the interest of the institution, were the more prominent stockholders. Their line of manufacture was of such a character that it was a success from the start for the reason that the company devoted itself to the manufacture of one line of goods, that of milling machinery for the manufacture of flour and cornmeal, and their patents were of such a valuable character that the trade soon grew to large dimensions and ramified all parts of the country. Europe and Mexico and other countries were being worked in the interest of the trade with considerable success. The business had been on such a boom and the order-book had filled up so rapidly recently that among the most prominent items of loss for which the company can secure no remuneration will be that of the trade. Some idea of the extent of the business and the demand for the goods can be gained from the fact that nine car loads were standing on the tracks ready to be shipped and a large supply was in a finished state in the building ready to be placed on the road for its destination. There were on hand orders for the complete machinery for twenty or more mills in differnt parts of the country which were ready to go into operation, and the company was making extra efforts to meet these orders.

WATER POWER FROM THE OCEAN.

THE following paper was read at the last meeting of the California Academy of Sciences by Theodore H. Hitthell:

Recent visitors to the Cliff House, in casting their eyes down to Adolph Sutro's unfinished marine aquarium, may have observed a very large stream of water running out of it. This stream has a fall of several feet, and is powerful enough to run a mill. But though thus observed it may not have occurred to the observers to inquire where that water comes from or to ask themselves why the level of the salt water in the aquarium is several feet higher than the high-water mark in the adjoining ocean. The answers to these questions are, however, exceedingly interesting, and exhibit a new and most ingenious adaptation of water-power well worthy the attention, not only of scientists, but of practical men.

The explanation of where the aquarium water comes from and why its level is higher than that of high tide in the ocean is very simple. Those who have carefully observed the aquarium have noticed that it is on the lee side, so to speak, of a jutting rock; and that through this rock, and leading out to its exposed face, is a short tunnel, through which the water flows into the aquarium. At the outer end of this tunnel, and on the face of the rock most exposed to the rollers of the ocean, is an excavated hollow place or basin, the bottom of which is several feet above high-water mark. As the rollers come in they dash violently against the face of the rock, rise in mingled water and foam to a very considerable height and splash over into the basin. The water thus caught in the basin does not fall back into the ocean, but runs through the tunnel into the aquarium and maintains its high level. Between that level and the level of the ocean, in the cave, where there is no rock to dash against and no splashing, there is a fall, as indicated by the running stream above mentioned, of several feet, enough to furnish very valuable water power.

It is obvious at glance that the principle of gaining a head of water thus applied may be made of great importance not only to Point Lobos, but at many other points along the coast. Though the main body of water to be caught is only during high tide, there is hardly any limit to the amount that may be thus secured, provided the basin is large enough and not too elevated. The stream running from Mr. Sutro's aquarium is large enough, as has been stated, to run a mill; and it is evident that it can be relied on with certainty as long as the ocean maintains its level, and its rollers come in as they have been coming in for uncounted ages. With the stream thus secured and capable of increase by simply enlarging the basin, it is plain that great practical ends may be easily and cheaply subserved.

G. M. MANN. F. P. MANN

MILWAUKEE BAG COMPANY,

MANUFACTURERS OF

COTTON, PAPER AND JUTE

FLOUR ⁘ SACKS

DEALERS IN

⁘ Grain Bags, Twines, Centals, Etc. ⁘

TELEPHONE NO. 427.

No. 236 East Water Street, MILWAUKEE, WISCONSIN.

SCHIEREN'S

OAK-TANNED

LEATHER BELTING

Cotton Belting and Hose

GOODYEAR RUBBER CO.

"Gold Seal" Rubber Belting.

PRICE LIST SENT ON APPLICATION.

372 & 374 EAST WATER STREET
MILWAUKEE.

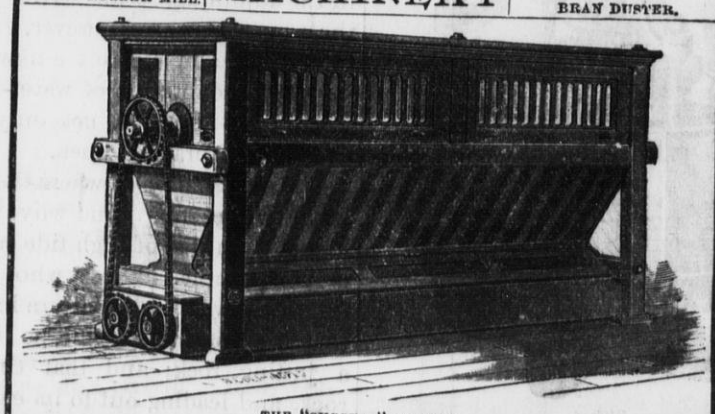
131 EAST THIRD STREET
ST. PAUL.

201 NICOLLET AVENUE
MINNEAPOLIS.

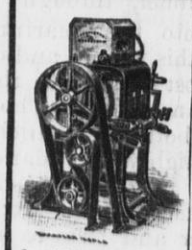
WHEAT ROLLER MILL.

THE
J. B. ALLFREE COMPANY,
Indianapolis, Indiana,
manufacture this superior line
—OF—
MACHINERY

BRAN DUSTER.



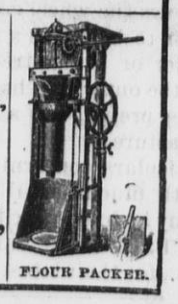
THE "SUCCESS" BOLTER.



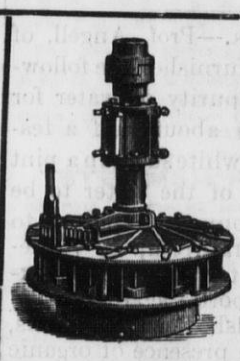
CORN MILL.

Also
AUTOMATIC ENGINES,
Purifiers,
SIEVE SCALPERS,
Corn Pearlers and Corn Cleaners,
Centrifugal Reels.

Address for prices, etc.,
THE J. B. ALLFREE COMPANY,
Indianapolis, Indiana,
Mill Builders and Mill Furnishers,



FLOUR PACKER.



ROBERT POOLE & SON CO.,

Leffel Turbine Water Wheel

Made of best material and in best style of workmanship.

Machine Molded Mill Gearing

From 1 to 20 feet diameter, of any desired face or pitch, molded by our own SPECIAL MACHINERY. Shafting, Pulleys, and Hangers, of the latest and most improved designs.

Mixers and General Outfit for Fertilizer Works.

☞ Shipping Facilities the Best in all Directions.

ROBERT POOLE & SON CO., BALTIMORE, Md.

N. B.—Special attention given to Heavy Gearing for Pulp and Paper Mills.

[Mention this paper when you write to us.]

WM. PLANKINTON, President.
FREDERICK D. DAY, Treasurer.

CAPITAL STOCK, $100,000.

GEO. N. SCHEETS, V. Pres't & Mgr.
J. G. THOMPSON, Secretary.

Milwaukee Brass and Copper Works

MILWAUKEE, WIS.

BABBITT ⁘ METALS,

(Standard and Special Mixtures).

Brass and Bronze Castings. Ingot Metals.

Our "Badger State Metal" is the best anti-friction Metal on the market. We make a specialty of furnishing special mixtures to large consumers putting on buyer's brand when desired.

MILWAUKEE BRASS AND COPPER WORKS, MILWAUKEE, WIS.

☞ Send for Circular and Price Lists. Mention this Paper.

STILWELL & BIERCE MFG. CO.

DAYTON, OHIO, U. S. A.

MILLING ENGINEERS

Manufacturers of the Celebrated ODELL ROLLER MILLS and a full line of

Flour and Corn Mill Machinery.

MILLS BUILT ON THE

ODELL SYSTEM.

☞ Contracts taken for mills of any size, large or small, and results GUARANTEED.

1876. 1889.

The United States MILLER

AND THE MILLING ENGINEER.

Fourteenth Year.—No 6. MILWAUKEE, JUNE, 1889. Subscription Price, $1.00 Per Year.

SIMON ON ROLLER MILLING.

Latest Development of Roller Flour Milling as viewed by the Leading Milling Engineer of Great Britain, illustrated by its application to the recently completed great Flour Mills at Rio de Janeiro, South America.

AN IMPORTANT PAPER READ BEFORE THE BRITISH INSTITUTION OF MECHANICAL ENGINEERS AT LONDON IN APRIL '89.

[By HENRY SIMON, M. E., of Manchester, England.]

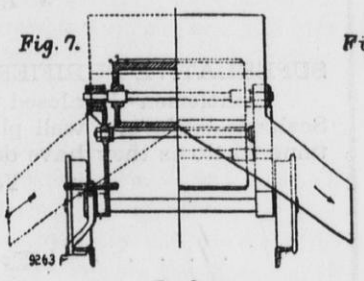
(Concluded from May Number.)

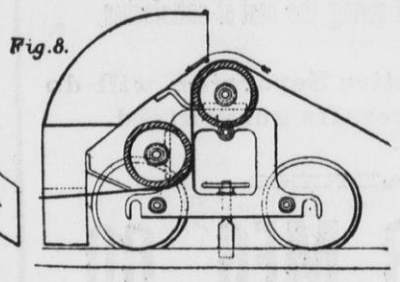
ROLLER MILL MACHINERY.—A few of the principal machines, which have played an all-important part in the realization of the great change in the manufacture of flour by rolls instead of stones, are represented in their most recent development in Figs. 9 to 13. In Fig. 10 is shown a roller mill with four fluted rolls, each 32 in. long and 10 in. in diameter. Fig. 11 shows a three-high roller mill with three smooth rolls, each 32 in. long and 10 in. in diameter. "Reform" purifiers for middlings, built in pairs with oscillating sieves, are shown in Fig. 12; and centrifugal dressing machines in Fig. 13.

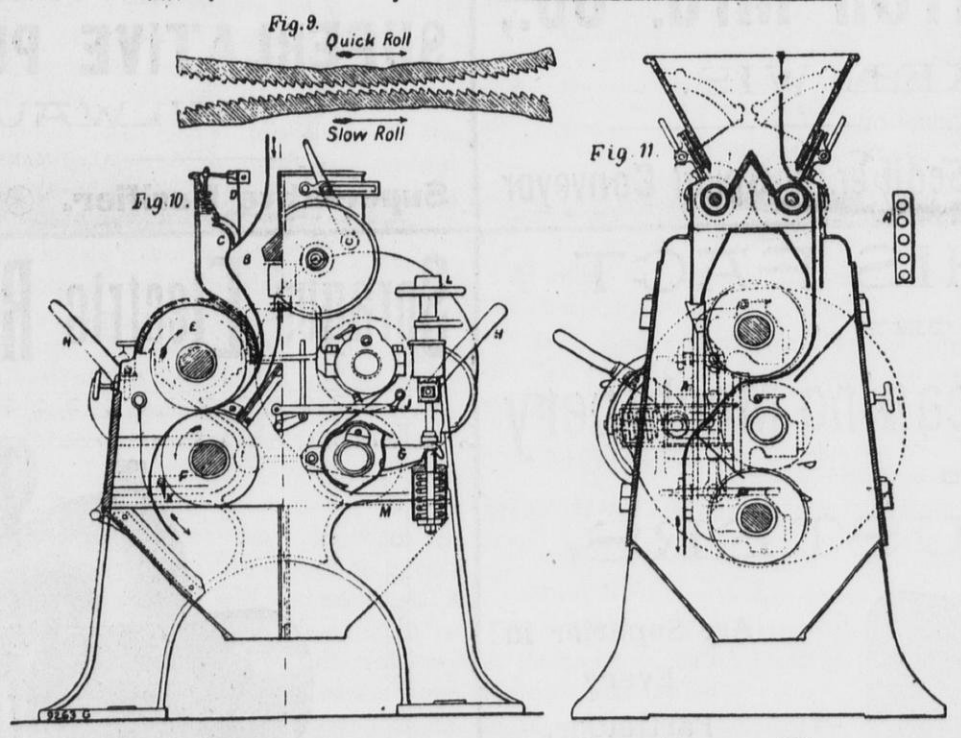
Roller mills, which have replaced grinding stones are of two kinds, and are used for two distinct purposes; namely, break mills with fluted rolls, for extracting the kernel of the wheat from the bran; and reduction mills with smooth rolls, for reducing to flour the broken kernel which constitutes the middlings and semolina. In the Rio mill, four-roller mills are used for the breaks, and three-high roller mills for the reductions; in both cases the rolls are made of the hardest chilled iron.

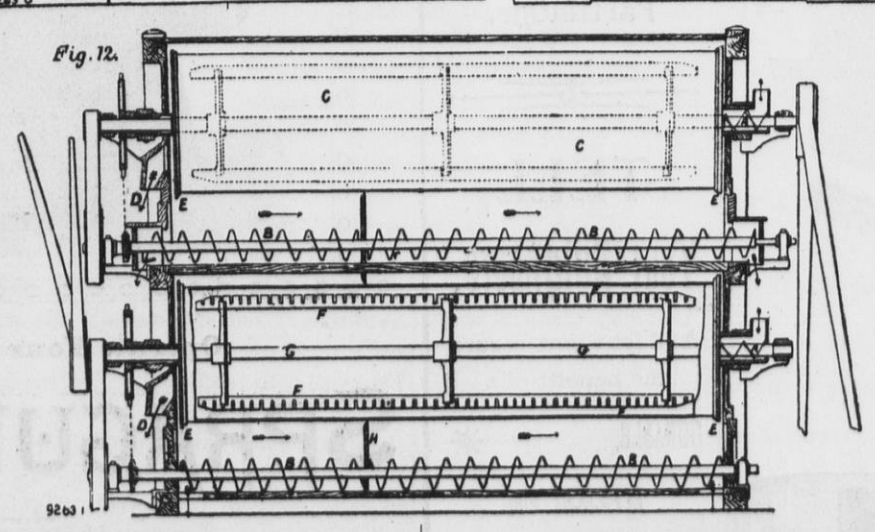
FOUR-ROLLER MILL.—In Fig. 10 is shown a transverse section of the four-roller break mill with fluted rolls, for breaking the kernel of the wheat from the bran. The two pairs of rolls are entirely independent of each other, and if required can be used for grinding two distinct qualities of material. The course of the material through the machine is indicated by the arrows, starting from the feed hopper and feed roller B, which are provided with a feed regulator C adjusted by hand, and an automatic feed-plate D balanced by a spring. The top grinding roll E, which runs at a higher speed, revolves in fixed bearings, and the slow-running lower roll F in bearings carried in the adjustable levers G. For throwing the rolls apart a combined lever and eccentric H is provided, with which is connected a link arrangement shown at J, whereby a clutch on the feed roller is thrown out of gear, and thus the flow of material is stopped. The surfaces of the rolls are kept clean by scrapers K. A magnified section of the fluted surfaces of the rolls is shown in Fig. 9.

The balanced automatic feed-plate D is adjusted with a sufficient spring pressure to give the proper feed upon the roller mill when opened by a certain weight of feed in the hopper at the back of the plate. The action of the feed-plate keeps the quantity of feed in the hopper, and consequently the feed upon the roller-mill, almost constant; if the feed increases temporarily the balanced plate opens till the quantity in the hopper is reduced; or if the feed decreases, the plate closes until the quantity is increased to the proper amount, thus keeping practically regular the amount of feed passing over the feed roller to the grinding rolls E and F. The advantage gained by having the lower roll F adjustable is that all wear in the working parts connected with the adjustment is taken up by the weight of the roll itself; and the distance apart of the working or grinding surfaces, which is the most important point in any roller-mill, can be absolutely assured by the adjusting gear. The handwheels L are for setting exactly each end of the lower roll F, so that its surface may always be truly parallel with that of the upper roll E. The boxes M contain spiral springs, which can be set to any required tension and so give the requisite grinding pressure. As seen from Fig. 7, the spring pressure is so applied as to be in no way affected by the distance at which the rolls are set apart. Power is transmitted by belt to the upper roll of each pair; and the correct differential speed of the lower roll is maintained by double helical toothed wheels running in oil-tight casings.









THREE-HIGH ROLLER MILL.—In Fig. 11 is shown a transverse vertical section of the three-high roller reducing mill with smooth rolls, for reducing the broken grain to flour. The center roll here runs in fixed bearings, and the upper and lower roll are carried in adjustable levers; and similar means to those in the four-roller mill are that, the downward grinding pressure on the center roll is counteracted by an equal upward pressure, so that the friction due to pressure is eliminated in the bearings of the center roll; and there are thus only four bearings under pressure, as against eight in the four-roller mill. Furthermore the three-high roller mill occupies but little floor space.

PURIFIER.—In Fig. 13 is shown a longitudinal section of the "Reform" purifier, the use of which is of vital importance in modern milling, for by its application a perfect purification of all middlings, from flour to the coarsest semolina, is possible without waste. From the feed hopper A, by means of the feed roller B, the middlings are fed upon an oscillating sieve C, which is hung from the suspension rods E, and is moved rapidly to and fro by eccentrics on the shaft D. Above and close to the silk of the sieve is fixed the grid of channels F. Underneath the sieve the traveling brush G keeps the mesh of the silk clear. Exhausting fans are placed at H H, inside an endless traveling filter cloth J. The middlings to be purified are fed in a continuous stream upon the head of the oscillating sieve, and throughout the whole length of their travel along it are subjected to the action of air currents passing upwards through the silk direct to the fans H. The intensity of the air currents is so regulated as to allow all the good pure middlings to fall through the silk mesh into the worm conveyor K; but the semi-pure middlings are lifted up by the suction of the fans, the object of the grid of channels F being so to contract and intensify the air current immediately it leaves the silk that the unsound middlings shall be lifted clear of the silk and deposited in the channels themselves, whilst all light branny particles still remaining in the air are deposited on the under surface of the filter cloth J, traveling overhead: thus the air passing into the fan and thence back to the mill is free from dust. By the oscillation of the sieve the unsound middlings deposited in the channels F are carried into one main central trough, which delivers them at the tail end of the machine. The stive and branny particles are continuously removed from the filter cloth by the action of a portion of the strong blast discharged from the fans H, supplemented by suitable beating apparatus in the chamber L, and are delivered thence by the conveyer M.

CENTRIFUGAL DRESSING MACHINE.—In Fig. 12 is shown a longitudinal section of a double centrifugal dressing machine. Centrifugal machines have almost entirely replaced the large and cumbersome reels which not many years ago were the only machines at the miller's disposal for separating the flour from the other products of grinding. A two-high machine is here shown, because this form is the most useful in mills of large output, not only on account of the saving in floor space, but also because the upper machine is enabled to feed the one beneath it. The material to be dressed is fed by a worm conveyer at A into the interior of the dressing cylinder C. The flour or other product dressed through the silk or wire clothing of the cylinder is collected by the worm B underneath; while material too coarse to pass through the clothing is discharged from the end of the cylinder through the spout D. The silk or wire clothing is stretched tightly upon a cylindrical frame-work, being laced together along its longitudinal seam, and secured by cords at its ends to encircling rings E. The cylinder carrying the silk revolves slowly, whilst inside it revolves rapidly the finger beaters F mounted on the shaft G. The construction of these beaters is such that, whilst offering but a slight resistance they can be twisted more or less so as to hasten or retard the travel of the material along the cylinder. Transverse partitions are frequently added underneath the cylinder, as shown at H, so

CONTINUED ON PAGE 61.

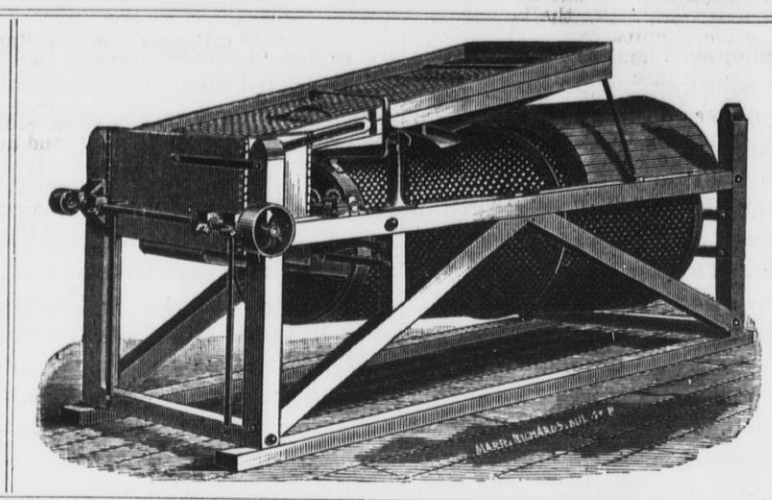
THE OLD RELIABLE.

KURTH'S PATENT

Cockle Separator

Made in Three Styles.

With or Without Oat Separator Attachments.



Thousands in use in the best mills in the country, and giving the best of satisfaction.

Millers desiring a thorough and effective Separator will do well to write us. Prices low and results guaranteed.

FOR PRICES, ETC., ADRESS

COCKLE SEPARATOR MFG. CO.,

MILWAUKEE, WIS.

MANUFACTURERS OF

The Gilbert Reel. ⁘ Morgan Scourer. ⁘ Spiral Conveyor

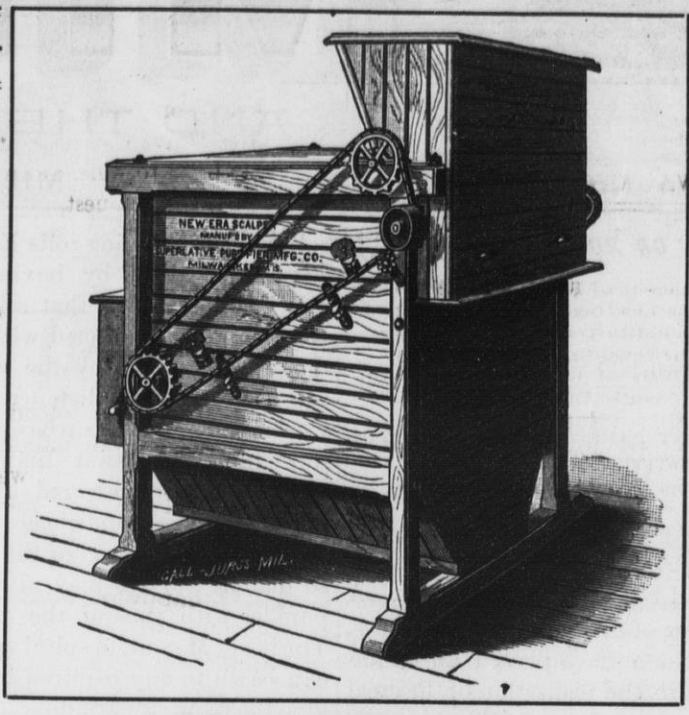
HERE'S ANOTHER.

The New Era Scalper

Most Successful Machine on the Market To-day.

Little Power and Room.

Break Flour as White as Any.



One Machine will handle one Break in 500 bbl. mill, or four Breaks in 75 bbl. mill.

TESTIMONIAL.

EVANSVILLE, IND., June 6th, 1889.

SUPERLATIVE PURIFIER MFG. CO., MILWAUKEE, WIS.:

Gentlemen—Enclosed we hand you settlement in full for two New Era Scalpers. We are well pleased with the machines, and trust they will continue to do as they have done.

Yours very truly,

THE HEILMAN ROLLER FLOUR MILLS.

For Prices, etc., address

SUPERLATIVE PURIFIER MFG. CO.,

MILWAUKEE, WIS.

ALSO MANUFACTURERS OF

Superlative Purifier. Superlative Bran Duster.

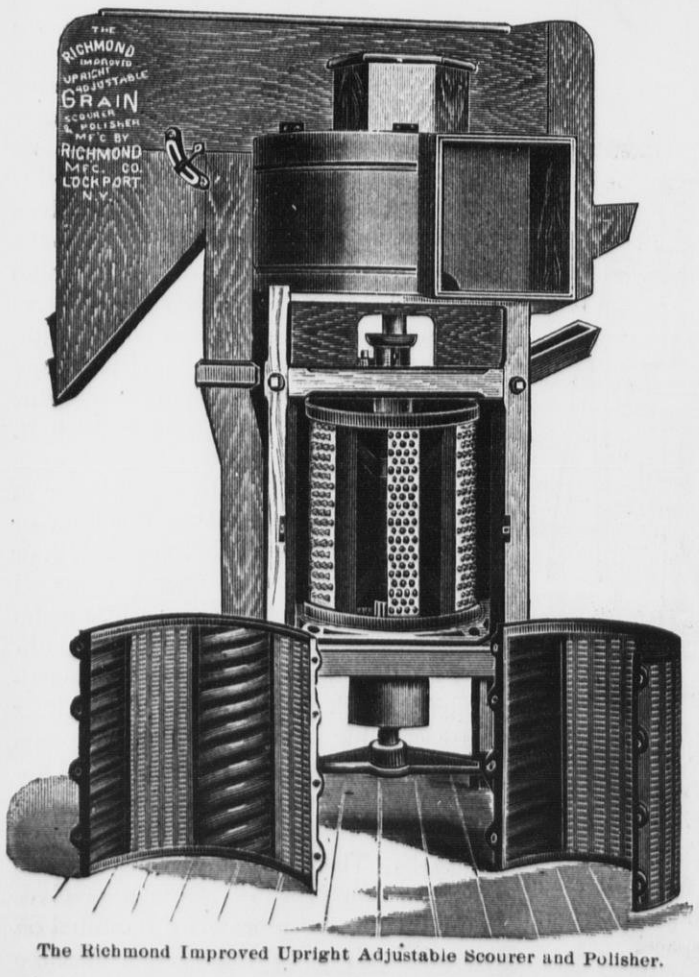
VOICE THIS FACT

THAT THE

Richmond Grain Cleaning Machinery

AND

BRAN DUSTERS



The Richmond Improved Upright Adjustable Scourer and Polisher.

Are Superior in Every Particular.

TELL

Your Neighbors,

And let them secure the benefit of a

DURABLE,

EFFICIENT and

ECONOMICAL

line of

Grain Cleaning Machinery

— AND —

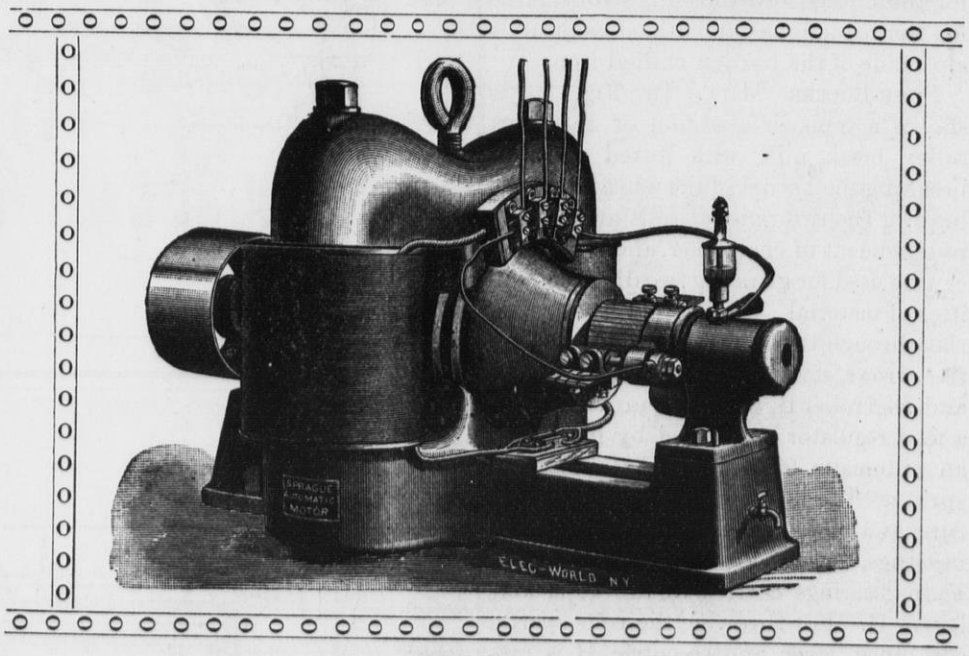
BRAN DUSTERS.

MANUFACTURED BY THE

RICHMOND MANUFACTURING CO.,

LOCKPORT, N. Y., U. S. A.

Sprague Electric Railway & Motor Co.



Operate Your Machinery by Means of

SPRAGUE MOTORS.

Our Sales More than Double those of any other Company.

Power can be generated at one point and distributed more reliably and economically by Electricity than by any other system.

Estimates Furnished for Complete Installations.

Send for our new Circular on Electric Transmission of Power.

16 & 18 BROAD STREET, - - NEW YORK.

UNITED STATES MILLER
AND THE MILLING ENGINEER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.
OFFICE, No. 124 GRAND AVENUE, MILWAUKEE.

SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.

To American subscribers, postage prepaid..... $1.00
To Canadian subscribers, postage prepaid..... 1.00
Foreign subscriptions..... 5s.

All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.

Bills for advertising will be sent monthly, unless otherwise agreed upon.

For estimates for advertising, address the UNITED STATES MILLER AND THE MILLING ENGINEER.

[Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE, JUNE, 1889.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER AND THE MILLING ENGINEER. *You will thereby oblige not only this paper, but the advertisers.*

IT is said that a tupentine well has recently been discovered in Laurens Co., Ga., near Donaldson. Next.

THERE are some persons who would like to know what has become of the "proxies" given by the millers of Missouri.

NEBRASKA State Millers' Association will meet at Willard's Hotel, Omaha, Neb., June 18 and 19. D. H. Harris, of Bennet, Neb., is Secretary.

NOT having discovered anything worth kicking at, during the past month, our facetious correspondent, "The Arizona Kicker, Jr.," has retired to take a quiet nap.

THE title of *The Dominion Milling and Mechanical News*, of Toronto, Canada, has been changed to *The Electrical and Mechanical Milling News*. It will endeavor to represent electrical manufacturing interests in Canada.

THE first two carloads of new wheat of the crop of 1889 was received in San Francisco from Tulare and Stanislaus counties, May 24. The earliest delivery heretofore was in 1875, June 2; and the latest in 1863, July 25.

THE Millers' Convention has brought to light the fact that there are some big legal fights on hand. The most important of these is in regard to roller mills; and a close second is the war of the Dust Collector machines. There will no doubt, in view of these circumstances, be a rush of millers not members of the association now, to get under the mantle of its protection at the earliest possible moment.

CANADIAN millers are becoming somewhat aroused over the tariff question as applied to wheat and flour. It is proposed to call a meeting to consider the matter. If they expect to accomplish anything they will find that simply meeting and passing resolutions will not be all that is required. There must not only be thorough organization, but committees composed of men with energy, brains and MONEY to work with.

WE think our readers will concede that there is a good deal of very interesting matter in this number of the U. S. MILLER AND MILLING ENGINEER, and we have every reason to believe that succeeding numbers will be pregnant with facts of grave importance to the trade. In this connection, we would rise to remark that, if you are not now a regular subscriber, you will score a point by getting "on the list" at the earliest date possible.

OUR readers will find our NEWS department worth careful attention. It is boiled down from items received from our own correspondence to which is added condensed items from our milling and other exchanges from all parts of the country. Our aim is to print the substance of the news in such a shape as to be of the greatest practical service to our readers. In this connection we would say to all of our readers, send us any items of trade news that you can.

THERE is a painful subject well known to members of the Millers' National Association and the representatives of the milling press, on which we ought perhaps to make some comments, but we prefer to throw the mantle of charity over the matter and consign it to oblivion. Suffice it to say that we believe the light of day has been thrown on some things during the Milwaukee Convention, the effect of which will be to bind together more firmly than ever before the honest, efficient officers and members of the Association and the ENTIRE MILLING PRESS of the UNITED STATES.

THE annual excursion of the millers and flour merchants of St. Louis and vicinity, with their families and friends, took place May 23, in which about 2,000 persons took part. The party went down the river to Montesano, where the picnic took place. Music, dancing, singing and feasting was the order of the day, and at 11 p. m. 2,000 happy and tired people landed again in St. Louis. The publisher of this Journal returns thanks for invitation sent and regrets exceedingly his inability to form one of the party. Success to St. Louis millers and flour dealers, and may they enjoy many more annual excursions.

THE most appalling disaster which was ever experienced in this country, occurred at Johnstown, Pa., June 1, at which time the whole town of 1,500 houses or more was completely destroyed by the bursting of the dam on the Conemaugh river, caused by an immense fall of rain. The artificial lake formed by the dam—over a mile in width, three miles long and 100 feet deep—was emptied into the town, sweeping it out of existence and destroying lives estimated as high as 10,000. The devastation in the valley was terrible. At Johnstown it was complete.

A rough estimate places the property loss at from fifteen to twenty millions of dollars. The loss to the railroad alone is placed at not less than a million and a half. The loss of life is not yet known, but is certainly more than ten thousand.

THE great June floods in the East are represented to have damaged the Chesapeake and Ohio Canal to such a great extent that it will be abandoned. A century ago, President Washington regarded the completion of this waterway as the great natural highway of the future which would not only fully meet the demands of commerce, but would be an imperishable bond of union of the States. "Perhaps" says the *N. Y. Commercial Bulletin*, "no more striking presentation of the national growth, the progress of invention and the evolution of commerce and transportation could be made than that suggested by the contrast between Washington's conception of this connecting link between the Chesapeake and the Ohio as the great highway of American commerce, and the actual development that preceded and accompanied the execution of this project, and is now undisturbed and unaffected by the report that the canal will probably be abandoned in preference to paying a bill of repairs."

THE NATIONAL FLOWER.

THE selection of some of our native flowers to be known as a National flower has agitated a considerable portion of the public for some time. It is not surprising. Men like, occasionally, to turn aside from the practical things of life, and in a sentimental spirit recall the memories of youth—the days of love, of hope and romance. For a brief period they yearn to forget even their puts and calls and per cents, and take to the country and consider the flowers of the field. Anent this subject an Ohio brother writes as follows:

"The mere mention of the nation's flowers, the arbutus, the golden rod, the honeysuckle, the wake robin, the dogwood, the apple blossoms, the dandelions, the clover, the heartsease, and even the pussy willows, brings with each memories tender, sad or sacred, and the haunting sense of hunger for one hour of the days of youth and vigor and carelessness when the frost was on the pumpkin, the breezes rustling the corn tassels, the golden rod waving in the fence corners and the yellow billows of wheat rolling away under the autumn sun, while the bobolink bubbled over in boisterous hilarity, and the sweetheart peeped with shy and roguish eyes from out the shadow of her calico sun bonnet.

To what New England man does not the arbutus bring recollections of the seasons when the earth awoke from her long winter sleep to the low soft note of the bluebird and the pipings of the robin from the bare limbs of the apple-trees?

Those were the days before one discovered the saw-dust in the doll, before the liver made itself disagreeable, rheumatism stuck a prod under a knee-cap or a shoulder-blade, a crow left tracks upon the face or heart, and when the bile trotted along its usual course without blue mass for a driver.

So it is not surprising that grown-up men take an interest in the wild flowers of their spring-time, except the wild oats, and like to talk about a national flower for America.

Of course, however, the wild oats are barred, though they are the most general flowers in the country, and could come nearer filling the bill in that respect.

Lapsing into poetry Miss Rachel Littell writes the pretty little sketch below:

COLUMBIA'S FAVORITE FLOWER.

Fair France has her Fleur-de-lis,
And Albion has her rose;
And braw are the hearts of Scotia
Where the silk plumed thistle blows.

The thistle, the lilly, the rose,
The shamrock, the Kasier's bloom,
Have gleamed o'er many a battle
Where brave men met their doom.

But "Land of the brave and free,"
What blossom is thine alone?
What emblem of freedom and peace
In the light of thy glory is known?

Columbia, on banners thine
And on thy scrolls and shields,
Engrave the graceful maize flowers
As they waive in all thy fields.

From ocean unto ocean,
Each summer in thy land,
The serried ranks of Indian corn
A peaceful legion stand.

The rustling of their bright, green swords,
The nodding of their plumes,
Each year pledge new our freedom
On a scroll that God illumes.

In all our Nation's record
The maize has been the sign
Of peace—of hope—of freedom;
Now name it, Columbia, thine.

A miller of Teutonic extraction caps the climax by writing

"Say! What's der matter wid wheat fur der National Flour? I dink dot vhas all right."

MORE TROUBLE.

INTERESTING TO USERS OF ROLLER MILLS

BIG 4! BIG 5! BIG 17!

What Will Be Done About It?

IN our last issue mention was made of the decision just rendered by the U. S. Circuit Court for Eastern district of Mich. in the case of The Consolidated Roller Mill Co. vs. Wm. A. Coombs. The following circular has recently been issued by The Consolidated Roller Mills Co., and expresses pretty clearly its views and intentions:

AN OPEN LETTER TO MILLERS.

CONSOLIDATED ROLLER MILL CO.
No. 53 Honore Block,
204 Dearborn Street.

CHICAGO, ILL., June 6, 1889.

To the Millers of the United States:

We are the owners of a very large number of patents for various improvements in Roller Mills, among which we mention more particularly the following:

W. D. Gray.....	No. 222,895	John Stevens...	No. 236,643
"	" 228,525	" ...	" 240,252
"	" 235,761	" ...	" 252,705
"	" 238,677	" ...	" 268,567
"	" 251,217	" ...	" 304,468
"	" 261,337	U. H. Odell, Reissue	" 10,139
"	" 264,454	U. H. Odell.....	" 260,225
"	" 266,488	"	" 260,226
"	" 271,331	"	" 260,705
"	" 273,065	"	" 264,559
"	" 283,339	"	" 306,945
"	" 303,369	"	" 339,927
"	" 311,829	D.W. Marmon..	" 274,508
"	" 337,161	" ..	" 277,307
"	" 339,162	" ..	" 275,335
"	" 339,163	" ..	" 276,440
"	" 339,164	" ..	" 281,707
F. Wegman, Reissue.....	" 10,579	Marmon & Warrington, Reissue	" 10,493
F. Wegman.....	" 294,418	Marmon & Warrington.....	" 266,490
R. Birkholz.....	" 255,715	Marmon & Warrington.....	" 275,055
"	" 257,647	Marmon & Warrington.	" 277,525
H. Birkholz.....	" 269,623	Marmon & Warrington.....	" 305,320
S. R. Campbell..	" 247,301		
Wescott & Karns	" 258,832		
John Stevens...	" 221,371		
" ...	" 225,770		
" ...	" 230,834		
" ...	" 236,104		

Besides a large number of less important patents, which need not be named in this connection.

You will observe at a glance that the above list contains all the patents of Gray, Odell, Stevens, Marmon, and others, who are universally recognized as the leading milling engineers of this country, and who were the pioneers in the improvement and construction of modern roller mills.

We believe these patents effectually cover every valuable feature of the modern roller mill; and we doubt the possibility of building a successful roller mill—such a machine as the requirements of the trade demand—without infringing some of them.

Four of the leading mill furnishers of the country, viz: E. P. Allis & Co., of Milwaukee, Wis.; Stilwell & Bierce Mfg. Co., of Dayton, Ohio; The John T. Noye Mfg. Co., of Buffalo, N. Y., and Nordyke & Marmon Co., of Indianapolis, Ind., recognizing the scope and strength of our combination of patents, and desiring to afford their customers absolute security in the use of their Roller Mills, have taken out licenses from us, but there remain a large number of unlicensed Mill Furnishers, who with an utter disregard of our rights have appropriated our inventions, and are manufacturing and selling Roller Mills which grossly infringe our patents.

We propose to establish and maintain our vested rights under these patents, and to that end have brought a number of suits in various Districts of the U. S. Circuit Court, some of which have been carried to a successful conclusion; others are still pending, and none of which have been decided against us.

The first of these suits we will refer to was brought by U. H. Odell *et al.*, against Stout, Mills & Temple in the U. S. Circuit Court for the Southern District of Ohio, before District Judge Sage, and Justice Matthews of the U. S. Supreme Court. The defendants manufactured the "Livingston Roller Mill," and the suit was for infringement of Odell's Reissue Patent No. 10,139. The patent was sustained and the defendant's machine held to infringe it, and its manufacture was discontinued.

The next case brought to a decision was that of The Consolidated Roller Mill Co. vs. The Miller Mfg. Co. *et al.*, in the U. S. Circuit Court for the Northern District of Ohio. The patents sued upon were the Gray Patents No. 222,895 and 238,677. The defendants entered an appearance in the case, and at first seemed confident of being able to make a successful defense, but subsequent and more thorough investigation convinced them of the hopelessness of their case, whereupon they admitted the validity of our patents and their infringement of the same, and consented to a decree and perpetual injunction against them, and retired from the business of making Roller Mills.

The next case to which we will now refer (and the one which has attracted the most attention, because five prominent manufacturers of Roller Mills are understood to have joined in the defense, which was most stubbornly, thoroughly and ably conducted) was that of The Consolidated Roller Mill Co. vs. Wm. A. Coombs in the U. S. Circuit Court for the Eastern District of Michigan. Mr. Coombs owns a mill at Coldwater, Mich., in which he was using the "Mawhood Roller Mill," manufactured by The Richmond City Mill Works, of Richmond, Ind., and suit was brought against him for infringement of the Gray Patent No. 222,895, and two other patents of minor importance. It was evident there could be no escape from the charge of infringement provided the Gray Patent was sustained, hence a most vigorous, thorough and determined effort was made to break down his patent and have it declared invalid for the various reasons set up in the defense. We need not go into details, which are accessible to all who care to investigate, but will simply state that the Gray Patent No. 222,895, which relates to the most necessary and valuable adjustment in Roller Mills, and which we think is more generally infringed than any other, was *broadly and unequivocally sustained in each of its claims*, and the Mawhood machine was held to infringe the same, and a decree for an injunction and reference to a Master in usual form was granted. In discussing this question of infringement, after having passed upon the validity of the patent, the Court used the following language: "In "short, we regard the defendant's entire ma-"chine as simply a rearrangement of the Gray "combination, for the obvious purpose of an "attempt to avoid his patent."

We have several other suits pending, which we shall push to a hearing at the earliest possible day.

We have not been fighting our battles in the newspapers, but in courts of competent jurisdiction, whose decisions must be respected; neither have we annoyed the millers with threats or proclamations of any sort, but having established our rights in the courts, we shall now compel a full recognition of them, and we feel confident that your sense of justice and fair dealing will approve of our course.

Millers purchasing or using Roller Mills that have been or may be hereafter licensed by us have nothing to fear in this connection, but all who purchase or use unlicensed infringing Roller Mills do so at their own proper peril.

Very Respectfully submitted,
CONSOLIDATED ROLLER MILL CO.

The Consolidated Roller Mill Co. have also sent us the following letter from their counsel which we take the liberty of publishing:

(*36 Moffat Block, Detroit, Mich., June 7, 1889.*)

THE CONSOLIDATED ROLLER MILL CO.,
CHICAGO, ILLS.

GENTLEMEN: You ask my opinion—

1st. As to your rights under the Gray Patent No. 222,895, under which you recently recovered a decree affirming the validity of the patent, and its infringement by the Mawhood Roller Mill, and by Mr. Coombs, the defendant, and

2nd. As to whether your rights are in any manner effected by bonds of indemnity given by manufacturers to millers using their infringing machines.

As to the first, I reply that you have by that decree, establishing the validity of the patent and its infringement, secured the right to have injunctions on application, at

CONTINUED ON PAGE 63.

EDW. P. ALLIS & CO.

Milwaukee, Wis.

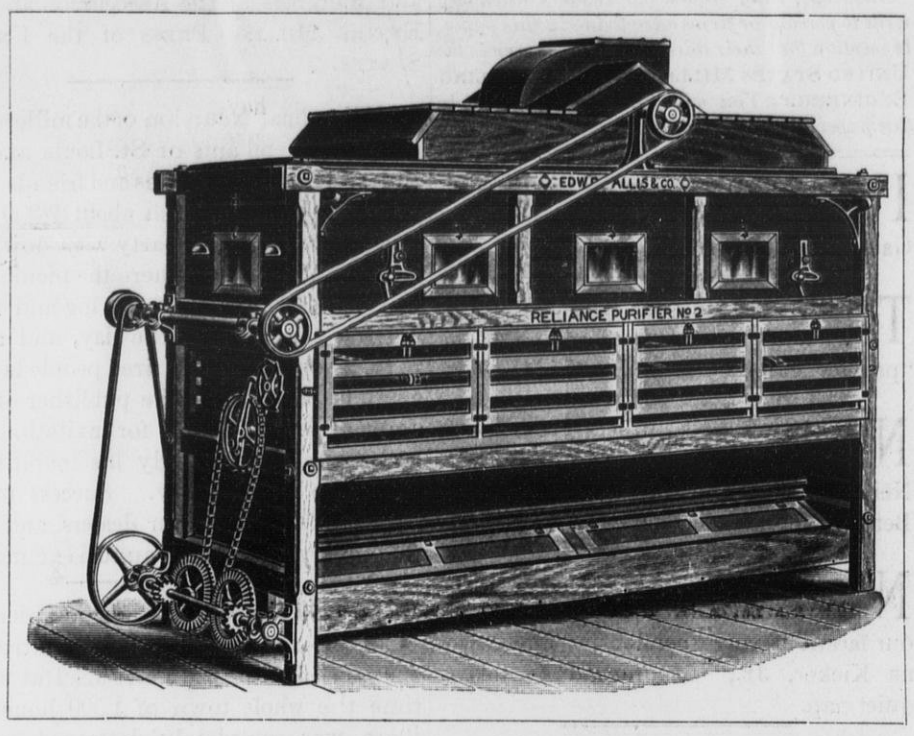
SOLE MANUFACTURERS OF

THE

RELIANCE PURIFIER

"A Model of Perfection."

The Most Perfect Cloth-Cleaning Device Ever Adopted.



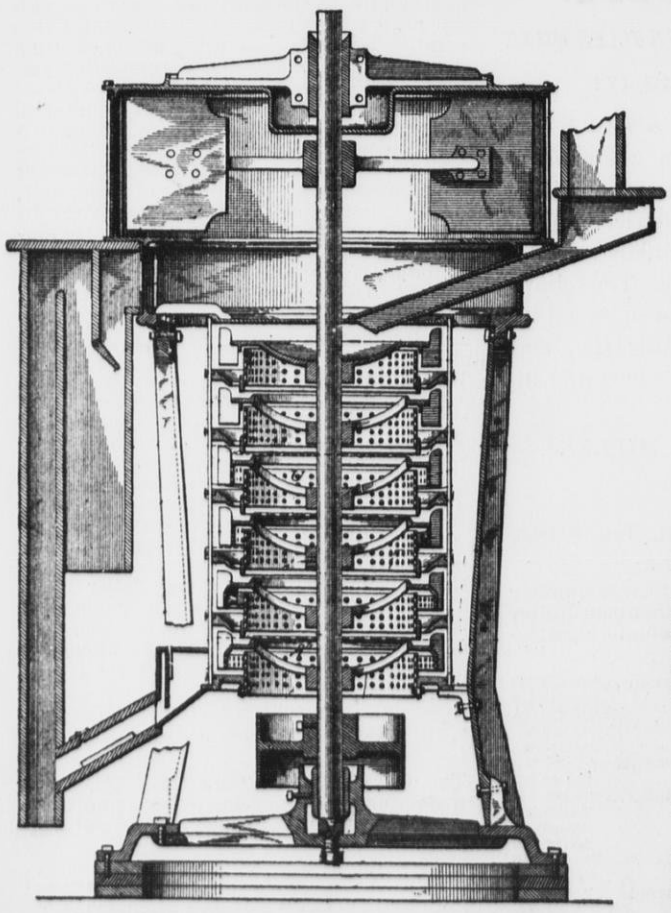
ALL RESULTS ARE GUARANTEED.

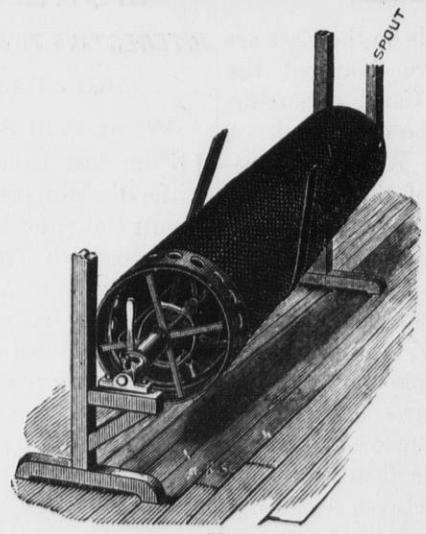
WE are receiving a large number of letters from millers throughout the country, who have tried and proved this machine. They all unite in the verdict that it is the best purifier in every respect ever offered to millers. Write for Circular of Testimonial Letters.

SEND FOR OUR LATEST CATALOGUE OF FLOUR MILL MACHINERY.

THE GREATEST SUCCESS OF THE DAY!

THE PRINZ GRAIN CLEANING MACHINERY.





KIEL, WIS., January 21, 1889.

The Prinz & Rau Mfg. Co., Milwaukee, Wis.:

GENTLEMEN—The No. 2 Iron Prince Smutter which I bought of Mr. Prinz over two years ago has been very satisfactory to me, as it does the best work of any smutter that I ever saw work. It has caused me no trouble whatever. and if any person would like to see it run or know anything more about it, you may refer him to me.

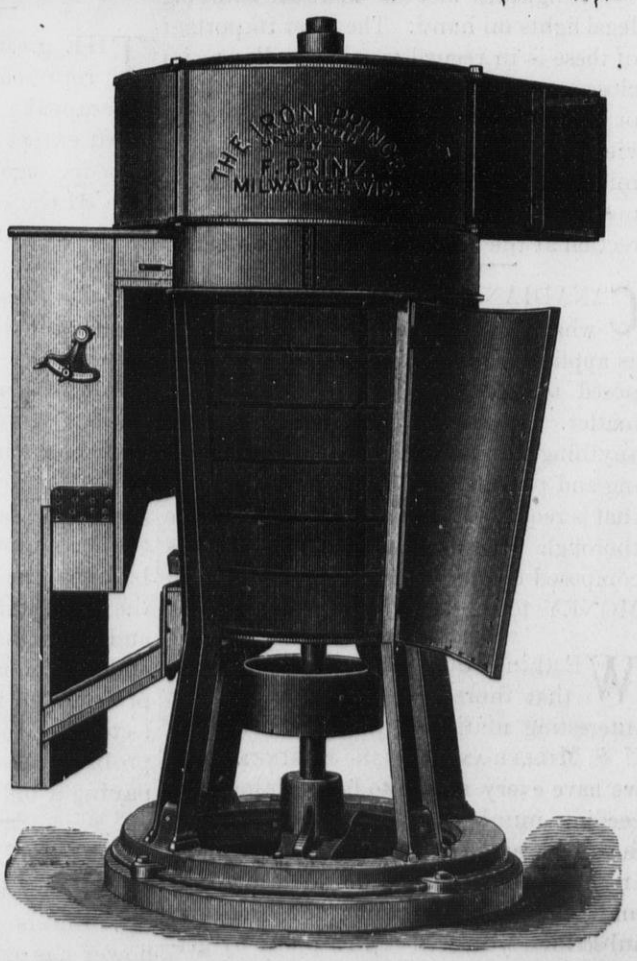
Yours truly, HENRY STOLL

NEW TROY MILLS,
NEW TROY, MICH., May 20, 1889.

The Prinz & Rau Mfg. Co., Milwaukee, Wis.:

GENTLEMEN—We have had your cockle machine running for some time. and it certainly is a grand success, and here is your money for same. I am perfectly satisfied with it, and can highly recommend it to any one.

Yours respectfully, F. H. MORLEY



The Iron Prince and the Prinz Imp'd Cockle Machine

MANUFACTURED BY

THE PRINZ & RAU MFG. CO.,

Write for Catalogue and Discount.

MILWAUKEE, WIS.

as to separate two or more sizes of flour and middlings along the length of the machine.

THROWING-OFF CARRIAGE.—In Figs. 7 and 8 is shown a throwing-off carriage for delivering grain to either side from a traveling band.

MILLING PROCESS.—From the cleaned wheat bins the grain is elevated to rotary graders, which sort it into three sizes. Each sort passes between fluted rolls set with great nicety so as to break every individual wheat grain as near as possible along its crease. The broken grain is next lifted into centrifugal dressers, which take out a small percentage of flour that is contaminated with the dirt released from the crease or rubbed from the surface, and has also larger particles mixed with it. The broken wheat thence passes to other roller mills, each with finer flutes, which further open out the berry and extract the kernel until the bran is clean. After each break the granulated kernel is sifted and separated from the bran by rotary scalping or sifting machines, the aim being to produce the smallest possible percentage of flour, and the largest possible percentage of groats and granular particles, technically known as middlings or semolina. This process is continued through a series of six sets of fluted roller mills, each set being followed by scalpers. The duty of the last set of rolls, which are very finely fluted, is to clean from the bran as far as possible the last adhering portions of the kernel. The main object of the gradual reduction is to separate the kernel from the bran in as large particles as possible, with a view to the greater facility thereby secured for freeing it from the bran and germinal impurities, and afterwards reducing it into flour of the highest quality, uncontaminated by the presence of particles of bran. Any flour made during the breaking process is necessarily of rather a low quality, being contaminated by admixture of bran and germ, &c., which it is impossible afterwards to separate from it entirely. In recent mills the writer has succeeded in reducing the proportion of this break flour to as little as 5 per cent. of the total flour produced. So excellent a result has been attained by improvement in the system of gradual reduction by fluted rolls, and by separation of the breaks by rotary scalpers, the action of which is peculiarly adapted to such work. The extracted kernel or break meal varies very much in value according to the break from which it comes. In the Rio mill it is divided into four distinct qualities, each of which is conveyed to reels and rotary graders, which dress out the break flour, and sort the middlings, or particles nearest in size to flour, into as many as about eight distinct sizes; and also into the same number of sizes the semolina or larger portions of the kernel, which are somewhat like rough sand. Each size of middlings goes into a purifier of the kind shown in Fig. 13, to be freed from fluff and all branny portions before further rolling. Each size of the semolina is conveyed to one of the semolina or gravity purifiers, in which, while falling in a thin stream over zig-zag louvre boards, it is subjected to a blast of air, whereby the lighter portion or stive is blown away. The heavier pure semolina falls separately upon an oscilating seive, by which it is further subdivided into four sizes. Each of these again passes down zigzag louvre boards, while a current of air drawn across the running material by a fan separates it into semolina of first and second quality, the small bran and light stive being drawn away through the fan. The germ being of equal specific gravity with the best middlings and semolina, is still contained in them. These therefore are all now conveyed according to their size and quality, to separate smooth roller mills, which are so set that they reduce the semolina and middlings, but only flatten the germ; the latter is therefore readily and automatically separated in the dressing or separating process that follows each rolling. The extraction of the germ is desirable, because the presence of this oily body spoils the flour if stored for a long period, and also adversely affects its taste. No flour will stand a long journey by sea if the germ is not extracted; and the separated germ brings a good price for cattle food. The gradual reduction is continued even in the treatment of semolina and middlings, partly because the flour produced by high grinding or gradual reduction is better in color and in baking quality than that produced by low grinding or rapid reduction; and partly because the more gradual is the reduction into flour, the greater is the facility for again separating and removing further particles of bran, germ, and other foreign matter, which are still present among the particles of kernel, however careful may have been the purification. It is in the elaboration of the best means of effecting this object by automatic appliances that the modern improvement in roller milling mainly consists. After each careful reduction of the purified semolina by smooth chilled iron rolls, the rolled product is passed into centrifugal dressing machinery with silk coverings, through which the flour and reduced middlings are dressed and separated out. The flour goes to the flour-packing machinery; but the middlings and tailings from the dressing machines are first separated and purified by dusting reels and purifiers, and are then further reduced by rollers, and redressed and repurified, until the separation of the flour from the offals is completed. In the Rio mill this reduction by smooth rolls, apart from the granulation by fluted rolls, entails operations which while perfectly automatic are also perfectly under control.

Fig. 13. Purifier

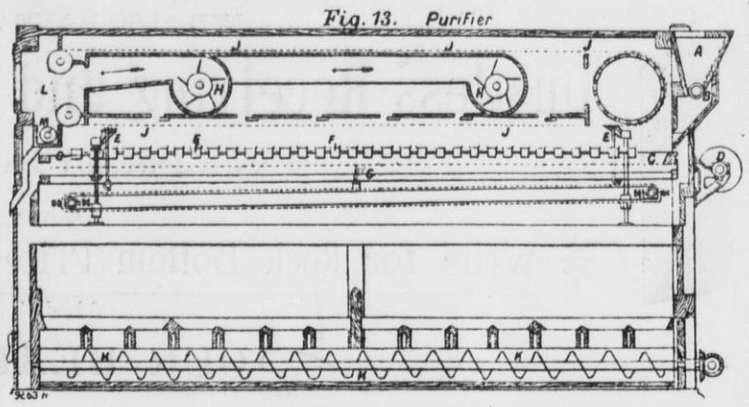
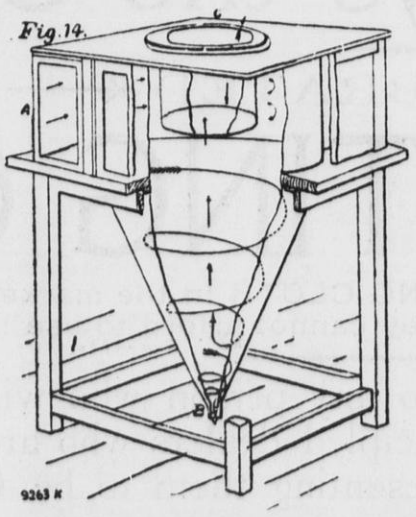


Fig. 14.



The flour from each of the dressing machines is delivered at will into any one of the four main flour conveyers, which run from end to end of the mill. This arrangement enables the miller to combine the different kinds of flour into any number of qualities desired. Four distinct qualities of offal are also collected. From the mill the flour is conveyed across the yard by bands and the offal by other bands to the flour store, where they are all taken off and packed into barrels or sacks by mechanical packers. The last part of the process only, namely the weighing of the flour and its storage and distribution, is performed by manual labor; up to this point every portion of the work described from the unloading of the wheat from the vessel to the packing of the flour, is done altogether automatically. The flour store has a capacity of 30,000 sacks of flour, and besides the packing and weighing machinery, contains three double friction hoists, for raising the flour for storage in the upper floors and for loading it into carts.

DUST COLLECTOR.—For the purpose of collecting the dust with which the air in flour mills is laden, a contrivance has recently been invented in the United States, which is applicable also to any manufactures where it is desired to free the air from dust or fluff, with a view either to the comfort of the workpeople or to the prevention of waste. The field for its application is thus an extensive one, and will become the more so when its simplicity and advantages are more generally known.

The machine, which is called the "Cyclone" dust collector, consists mainly of a plain inverted conical chamber of sheet iron, as shown in the sectional drawing Fig. 14, from which it will be seen that the dust-laden air, collected as usual by an exhaust fan and propelled through a wind-trunk, enters the dust collector through the inlet spout A, and being forced against the surface of the cone, is made to revolve in a spiral direction downward, as shown by the arrows. By the action of the air current and by centrifugal force the particles of dust keep close to the conical surface, and are swept round and round, gradually reaching the opening B at the bottom, where they pass out and are collected into any desired receptacle. The volume of purified air, on the other hand, finding itself confined as it works down the cone, turns upward in the centre and escapes through the central tube C at the top of the apparatus. The process is so simple and effective, that without actually seeing the machine at work, it is difficult to credit the result, and still more to realize the complete manner in which, in most cases, the separation of the dust from the air is accomplished.

From the engraving it will be seen that the machine has no moving parts, requires in itself no driving power, and is practically free from wear and tear. It also does away with the great objection to all previous dust collectors which strain the the air through cloths and flannels, namely that the latter obstruct the free passage of the air, and gradually, but inevitably, in spite of care and cleaning devices, become filled up with soft adhesive dust, which with the moisture of the atmosphere forms a paste, and renders the filter cloth useless after periods varying from a few weeks to a few months, according to circumstances. This objection is all the more serious in flour milling, because by the gradually increasing resistance offered to the air-current other machines, depending upon the regularity of the exhaust, are affected in the quality of their work and otherwise. The cyclone dust collector has the great advantage that it works without impairing the constant wind pressure. It has already been most extensively applied to many industries in the United States, and for flour milling and wood working alone over 3,000 machines are there in use.

MILLING AND MECHANICAL NOTES.

AN English firm of engine builders have recently placed upon the market a portable engine and boiler with removable fire-box and tubes.

THE old, old question "Can a Millstone be used to advantage in a modern flour mill?" has recently sprung up again in some of our exchanges on both sides of the water and it brings out anew all the old arguments and prejudices on that subject. The conclusion reached, founded on the arguments we have heard and read, is that there is a place in the course of reduction where millstones will give more satisfactory results than rollers and it is a fact that many of the best roller mills in the country find a few runs of stone extremely desirable.

MILL REPAIRS.—On this subject which is one of considerable importance to the mill-owner, W. R. V. writes in *The Millers Gazette*, (London,) as follows: I advocate having a programme for repairs at regular periods. There may not be entire unanimity as to how often these times of repairs should be taken. A mill working every possible hour both day and night evidently requires more attention than one operating days only. Mills of the former class need a thorough inspection and adjustment twice a year. Besides this, on boiler cleaning days something can be done to any machines where special wear is noticed. Local circumstances would determine the most suitable times for these half-yearly stops. It may be mentioned that in most places it is bad policy to select a holiday time, because the machinists often close their shops at such times, therefore the skilled mechanics are less easily obtained than at ordinary periods. The shafting should be levelled, bearings tested, gearing trimmed and renewed if required; roller mills thoroughly taken apart, every bolt, pin, spring, or other part cleaned and fitted, —the rollers tested in the lathe if any noticeable wear is observed. The covers of dressing machinery, of purifiers and sieves, would naturally receive attention. Any alteration to spouting or frameworks would have been previously arranged for and the new parts prepared. Floors may be mended, walls and ceilings whitewashed or painted; in short, a very complete and general clean out may be carried through. The chief point to note is that, having known beforehand when this stoppage was due, every possible detail would be made to fit in. Mechanics of all necessary trades in waiting, new parts prepared, a few extra laborers for cleaning, the engine cleaned and repaired, and generally a useful programme filled.

TRADE NOTES.

"MR. David B. Parsons writes from Waterville, a growing town in Southern Minnesota that there is an opening there for a custom flouring mill and exchange, and that he would be glad to answer any enquiry that might be addressed to him about the locality."

MESSRS. STOUT, MILLS & TEMPLE, of Dayton, Ohio, the builder of the celebrated NEW AMERICAN TURBINE, have just issued a handsome catalogue, well edited, illustrated and printed. It contains a great amount of information of value to users of water power. Write to them for a copy and mention this notice.

ON account of the increased demand for their Safety Water Columns, and consequent necessity for larger manufacturing facilities, the Reliance Gauge Co., of Cleveland, O., have found it necessary to put up an addition to the three story block which they leased a little over a year ago, under the impression that same would be ample for their purposes for at least five years.

THE Chicago representatives of the *New York Belting & Packing Company*, Messrs. W. D. Allen & Co., have just issued a new and attractive catalogue, containing description of a full line of vulcanized rubber goods, including belting, packing and hose. The cover, a buff tint, is very attractive and is printed in red and bronze. A view of the company's extensive warehouse and salesrooms 151 Lake Street, is shown on the back. It is a pamphlet of forty pages, profusely illustrated, typographically correct in every particular, and great care and much labor has evidently been bestowed in its preparation and production. Its possession can not fail to be of benefit to those interested in the line of goods which Messrs W. D. Allen & Co. handle. Messrs. Allen & Co. also represent the famous Hoyt leather belting, at Chicago.

SPECIAL STAMPERS OF SHEET METALS.

We do Stamping and Pressing of Sheet Metals for All Classes of Work. Also Tinning, Galvanizing & Japanning.

—ALSO SOLE MANUFACTURERS OF—

SEAMLESS STEEL BUCKETS

INSIST on having this Bucket furnished when ordering.

Ask your dealer for the Avery Pat. Seamless Steel Elev. Bucket.

We do not advertise Seamless Elevator Buckets and fill orders with "Pieced Ones"

We will make Special Prices rather than move stock to our new factory. Send for discounts.

THE AVERY STAMPING CO.,

—SUCCESSORS TO—

AVERY ELEVATOR BUCKET CO., CLEVELAND, OHIO, U. S. A.

THE

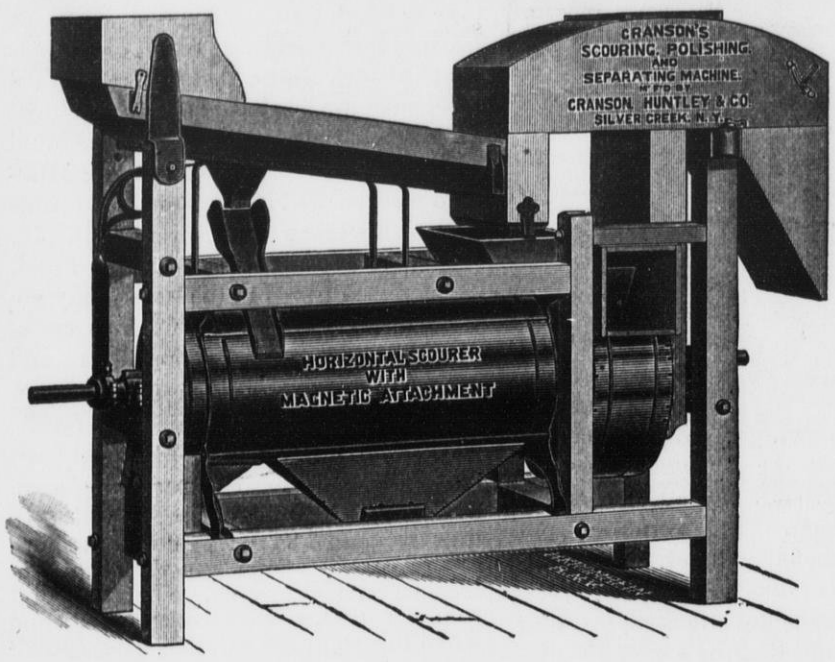
CRANSON SCOURER

—IS ACKOWLEDGED TO BE—

The Leading Scouring, Polishing and Separating Machine

ON THE MARKET TO-DAY.

Two of these Machines are being placed to one of any other make.



WE ALSO HAVE THE BEST

Dustless Receiving and Elevator Separator

Ever Placed in any Mill.

Write for Rock Bottom Prices and Full Information.

OUR HEADERS:

CRANSON'S WHEAT SCOURER AND POLISHER, With Magnetic Attachment.
CRANSON'S BUCKWHEAT SCOURER AND POLISHER, With Magnetic Attachment.
CRANSON'S ROLLER BUCKWHEAT SHUCKER.
MONITOR DUSTLESS RECEIVING AND ELEVATOR SEPARATOR.
DIAMOND DUSTLESS CORN SHELLER AND SEPARATOR.
DIAMOND CORN SHELLER.

Huntley, Cranson & Hammond,

Succesors to CRANSON, HUNTLEY & CO.,

SILVER CREEK, NEW YORK.

The Best is Always the Cheapest.

THE CELEBRATED

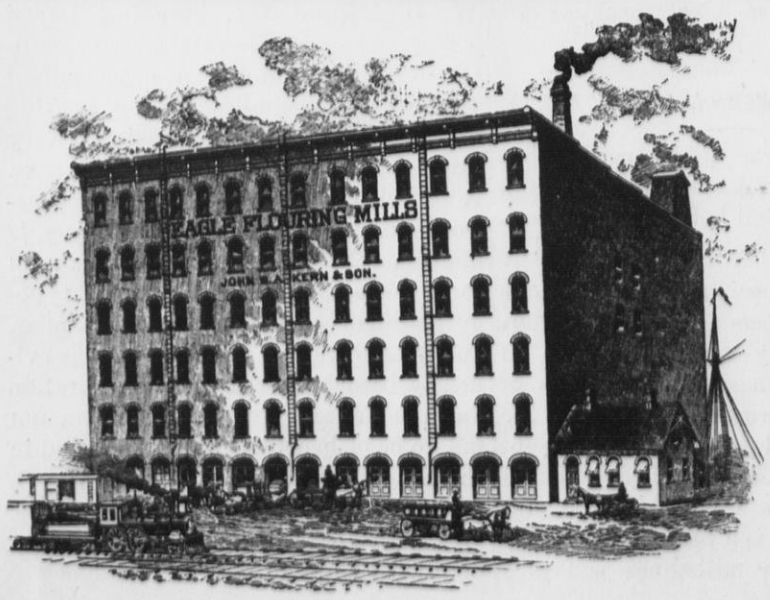
DUFOUR BOLTING CLOTH

Is admitted by all millers to be the VERY BEST BOLTING CLOTH in the market, and so far ahead of any other brand that, as a matter of economy, they cannot afford to use inferior brands.

$2,000 REWARD Will be paid to any person who will furnish evidence to convict the unprincipled dealers who are selling poor and inferior cloths by representing them to be GENUINE DUFOUR.

R. P. CHARLES,

13 South William Street, - - - - - - - - - NEW YORK CITY.



ESTABLISHED 1846.

J. B. A. KERN & SON

Merchant Millers,

Capacity 2,000 Barrels Per Day. **MILWAUKEE, WIS.**

Manufacturers of Choice Minnesota and Dakota Hard Wheat Flour.

RYE FLOUR

By most approved roller process, guaranteed the best and purest rye flour manufactured.

We Invite Correspondence from Cash Buyers. [When writing, mention this paper].

any time after a bill is filed against *any one* who makes, uses, or sells an infringing machine, on presenting a copy of the record in that case and proof of infringment. So thorough was the defense made in that case, prepared by able counsel, supplied with unlimited money, after exhaustive examinations of the patent offices of this country and of Europe, and backed by the knowledge of the "Big Five," who united in the defense, that it is in the highest degree improbable that any new defense will ever be produced. Under the circumstances you may expect that the decision of Judge Brown, made after full argument and thorough consideration during the four months while he held the case under advisement, will be accepted in all the U. S. Circuit Courts as conclusive upon the validity, construction and infringement of the patent.

As to the question of infringement by other unlicensed machines, you will remember that three years ago, when I advised you as to the validity and construction of that patent, which opinion has now received judicial confirmation, I was then furnished with exact drawings of the principal Roller Mills then in the market, and advised you that every one of them infringed Gray's Patent No. 222,895. My opinion then formed remains unchanged, and, having been reviewed since this decision, is not only comfirmed, but is extended to include every Roller Mill I have since seen or have had distinctly presented by drawings, and now manufactured in the United States.

How far you will press your rights to injunctions against those making or using such machines is a matter of expediency which I submit to you.

As to whether you are affected by indemnifying bonds given by manufacturer to millers, I answer, in no respect whatever, unless it may be to increase the certainty of your security of recovering any money recovery for profits, damages, or costs which you may recover.

Such bonds may give the miller protection fully in case a successful defense is made, and in case of failure, as to the expenses of defense and the money recovery, but no protection whatever against the injunction, which, after all, is the great thing to be looked to in such cases. *The injunction issues, bond or no bond*, and when it is issued the further use of the particular machine must then and there be instantly stopped, and if that stops the mill, then it must stay stopped until some non-infringing machine is supplied to replace it; and that means in this case, until a licensed machine has been obtained, or somebody invents a machine that does not infringe.

When a preliminary injunction is obtained, that runs until final hearing, and if the action is sustained a perpetual injunction issues, which is not suspended by the appeal of the case to the Supreme Court of the United States, and remains in force till the Supreme Court reverses the decree below. What may happen three or four years after the grant of the injunction will not be of much interest to the miller; he can't wait the tardy action of that over-laden Court, which may after all sustain the action of the lower Court.

While on this subject I may as well add that it is a common fallacy that a recovery, with satisfaction of the judgemnt, in an action against the maker, relieves the user from liability. Not so; the maker only pays for his profits, the user remains liable *for his*, and *both* will be enjoined; for no one can obtain the right to use a patented invention without the consent of the patentee, to whom the law and the grant of the United States has given the exclusive right to make, use and vend, the invention. This is now the settled law both in England and the United States.

It may seem to you that the law is severe but the patent law was not made for the encouragement and protection of infringers, but of inventors, to whom society owes its great improvement in the current century. To reverse the rule would be to relapse into torpor, decadence and death in the arts.

The Supreme Court has repeatedly said that a man's rights under his patent for an invention is as absolute as under a patent for lands, and no one would say that one should lose his right to his house, because some one else saw fit to take possession of it against his will.

Youry Very Truly,
R. MASON.

It appears to us, after several conferences with members of the "Big 4," that their intention is to push their claims vigorously, and to effect as fair and amicable a settlement with makers and users of infringing machines as possible. It remains with the Courts alone to decide which of the many makes of roller mills now upon the market shall be considered as infringing.

During the Convention of the Millers' National Association just held in Milwaukee, many significant remarks were heard regarding "work ahead," for the organization, and the general impression prevails that there may be an opportunity for the Association to once more prove its usefulness and value to millers of the country.

WAXED paper bags are now being made in New York, the interior surfaces of the paper being lined with a thin coating of parafine, which renders the bag substantially air-tight and waterproof. Bags made of paper thus prepared would doubtless be of great value for keeping flour sweet and clean.

MILLERS' NATIONAL ASSOCIATION.
1889.

ANNUAL MEETING HELD AT THE PLANKINTON HOUSE, MILWAUKEE, JUNE 11, 12 and 13.

AT 11 a. m., June 11, members of the Millers' National Association met in club room of the Plankinton House. Mr. F. L. Greenleaf, vice-president, called the meeting to order, and after a few appropriate remarks called for the reading of the report of the secretary and treasurer. Sec'y S. H. Seamans then read his report, which was duly accepted and ordered placed on file.

SECRETARY AND TREASURER'S REPORT.

Financial Statement for year ending June 1, 1889:

June 1st 1888, Balance on hand as per annual statement					$3285 86
Received Membership fees:					
Missouri	1 firm	5 units		$ 25 00	
Tennessee	2 "	10 "		50 00	
Kentucky	1 "	3 "		15 00	
Iowa	2 "	2 "		10 00	
Illinois	19 "	60 "		301 25	
New York	5 "	12 "		60 00	
Dakota	2 "	3 "		15 00	
Michigan	6 "	18 "		90 00	
Minnesota	6 "	19 "		95 00	
Wisconsin	6 "	7 "		35 00	
Ohio	8 "	53 "		265 00	
Penn.	4 "	5 "		25 00	
Indiana	11 "	25 "		125 00	
Kansas	4 "	5 "		25 00	
Total 77 firm 227 units					1136 25
Grand Total,					$4422 11

EXPENDITURES:

Postage and Telegrams	$ 22 66
Printing and Stationery	311 65
Stenographers: Bishop, $28 00; E. L. Burdick, $30 00	58 00
Express charges	3 40
Exchange: checks and drafts	3 00
Travelling and Hotel expenses (Ex-Com. and Officers)	224 25
Secretary and Office expenses	1200 00
Funeral, Mr. N. Ellis, floral tribute	25 00
	$1847 96
Balance on hand in Bank	2574 15
	$4422 11

Mr. A. H. Smith, chairman of the Executive Committee, then read his report, which was as follows:

REPORT OF EXECUTIVE COMMITTEE.

At our meeting in Buffalo, a year ago a resolution was adopted as follow:

"That this Association, in convention assembled hereby agrees to adopt the following bill-of-lading prepared by the joint committee of millers and foreign delegates and that a committee be appointed with full power to bring about its adoption by the carriers."

This resolution was disposed of by reference to the executive committee pending the organization of the Central office.

A previous resolution provided that when a certain stated sum had been accumulated in the treasury and not before, the Central office should be established. The necessary funds were expected to be realized through initiation fees from new members, on the reduced basis of five dollar on each hundred barrels daily capacity of mills.

The proposition was broadcast to the millers of the country through the milling press and by special address to five thousand millers, the meagre returns from which were about seventy-five new members, failing to reach the limit required for starting the Central office, thus clearly inuicating that the millers generally did not approve of the proposed expenditure, consequently no action has been had on the bill-of-lading and other matters which it was expected the Central office would take up. On mature reflection, and considering the vast amount and variety of work laid out for the Central office, together with the requirement that millers should report thereto their daily shipments to make the proposed service of value, we conclude that the office, if it had been established, as contemplated, would have failed of its object.

The millers are proverbially negligent in the matter of furnishing details of their business for aggregate general use, as has been proven time and again by various efforts to procure information as to capacity, crops or trade, to which appeals only a small minority ever reply.

Referring again to the proposed reform of the export bill-of-lading, in our opinion, any committee that undertakes to negotiate this on other reasonable terms can only succeed if backed by a majority of the millers interested, to the extent if necessary, of refusing to ship or do business on any other terms.

This policy might cause a temporary supension of shipments at some slight sacrifice to individual millers, but if the demands were only reasonable, as in this case, they would probably be granted without great delay. Many other suggestions made at the last meeting have been effective, in limiting credits, promoting uniform weights of packages and, more than all, in encouraging local and sectional organization, which has proven of much benefit to their members. These associations should become part of and support the National Association for the protection of millers in the matter of patents and as the focus to which the entire milling strength of the country can at any time be rallied for protection of mutual interests however threatened. Every miller in the country can help himself and his brother millers by belonging to local or sectional associations and by living up strictly to such rules and regulations as he may participate in making, and the aggregate force of the Associations should be, for the common good, centered in the National Association, the prestige and power of which should be increased. To reach this it may become necessary for the National Association to expend more money than for a few years past, since patent litigation has been suspended, and to provide funds the constituency Associations should agree to such assessments on capacity as may be necessary; they should do this even if no immediate cash benefit is apparent, they cannot tell in advance what this may be, but they can and do appreciate what the National Association has done in the past to protect all the millers of the country, whether members or not. The organization through which this has been accomplished exists in full force, only requiring the emergency to act, and should be heartily sustained as herein indicated.

Except in the matter of limiting prices, which this association cannot undertake, its recommendations as to policy and customs has heretofore been largely adopted and adhered to by local associations and by individual millers, and it is therefore important that any new propositions shall be thoughtfully considered and discussed before adoption, as our action will continue to have almost the binding force of orders to the millers of the country, we must adopt nothing that will not meet their approval.

Milwaukee, June 10, 1889.

ALEX. H. SMITH, Chairman.

An invitation was extended by the Chamber of Commerce to the millers to visit them in a body at 12 M. On motion the meeting adjourned until 2:30 P. M.

Upon adjournment of the convention the visitors formed in line and marched to the Chamber of Commerce. Upon their entrance Clauder's orchestra struck up a spirited march. The visitors greeted friends and those unacquainted were introduced. A little time was thus spent in making and renewing acquaintances. When President Mohr, of the Chamber of Commerce, called for order, Vice-President Greenleaf, of the Millers' National Association, and Chairman Smith, of the executive committee of the association, Mayor Brown and President Kelly, of the advancement Association, occupied seats on the platform.

President Mohr's speech of welcome was as follows:

GENTLEMEN OF THE NATIONAL MILLERS' ASSOCIATION: Allow me on behalf of the Chamber of Commerce of Milwaukee, to bid a hearty, cordial welcome to an association so closely allied with us through ties of of interest and sympathy, and let me assure you that we feel proud of the privilege of gueeting, in our hall, a body of men representing one of the greatest and most useful industries of this and other countries. A factor of civilization—it has been one of the most beneficial of all to mankind,, from the time when a hand-mill was the only known machinery, or a single horse on a tread-wheel had to furnish the motive power, to the living present when milling has become identical with absolute science, and the American merchant miller of to-day, in order to be successful, needs not only to be an expert theoetically and practically in his pursuit, but also a first-class man of business, to meet all contingencies, changes of trade, conditions, and the compensation of the world. And you gentlemen, and your organization represent business ability and talent in such a degree and marvelous enterprise that we may well feel honored through your visit.

Permit me to express the hope that your honored organization may long live and strive, and that your business meetings in Milwaukee may contribute toward bringing about desired results. Again let me say, welcome!

President Mohr's speech was warmly received. Mayor Brown, introduced by President Mohr, extended a cordial welcome to the visiting committees. He alluded to the fact that all trades and professions have their organizations, which generally proves beneficial. He said that there is no calling more ancient, more necessary, more honorable, than that of the millers. After this warm tribute to the milling industry, the speaker gave a short and interesting sketch of the evolution, told a couple of illustrative stories, and concluded: "Gentlemen, you have the freedom of the city; if you see anything you want, take it; if you want anything you do not see, apply to my friend, President Mohr, who, though modest and quiet, is like the still water."

Acting President Greenleaf, of Minneapolis, responded on behalf of the association. The hospitality of the people of Milwaukee, he stated, during the informal meeting here last December, appeared boundless, and the millers felt somewhat delicate about coming again so soon, but were glad to be here. He spoke of the beauty of Milwaukee, and said that he and other millers thought of coming here when the "boom" year that all millers hope for finally materialized. He paid a warm tribute to the late Edward Sanderson, declaring that the milling fraternity had suffered an irreparable loss in his death. He then called upon George Bain, of St. Louis, formerly president of the association, to make a further response.

There were loud calls for Mr. Bain, and he appeared on the platform. He made a very witty speech, speaking of the cold reception accorded him by the statute of Juneau, of the stiffness of Lief, to whom he said he was sincerely grateful for discovering America before Columbus. He stated that he assisted in the location of the post-office in St. Louis, and got off some happy hits concerning the Milwaukee post-office case. He closed by speaking in highly eulogistic terms of the late Edward Sanderson.

President Kelly, of the Advancement Association, was intrsduced by President Mohr. Mr. Kelly cordially welcomed the dusty millers, who, by the way, are not dusty in the least, to Milwaukee. If they got into any trouble while in the city, he said, and Mayor Brown would not help them out, he wanted them to come to him. He invited them all to come to him. He invited them all to come to Milwaukee and live. His remarks, like those of the other speakers, appeared to greatly please the millers.

President Mohr called upon Alexander H. Smith, chairman of the executive committee of the Millers' National Association. Mr. Smith ascended the platform, and said that having been president of a board of trade himself he knew that the most popular member is the one whose speech is the shortest. He briefly thanked Mayor Brown, the members of the Chamber of Commerce, and the people of Milwaukee generally. President Mohr dismissed the meeting by informing millers that they had Mayor Brown's permission to turn to and scalp.

Clauder's band then discoursed some very fine music, boxes of fragrant Havanas were passed around and after lingering for a little while the members gradually withdrew to go to their dinners.

AFTERNOON SESSION.

At 2:30 p. m., the convention again assembled in the Plankinton House club room for business.

The following we believe is a full list of those attending the convention:

MILLERS.

Chas. Albers, mgr. Warsaw Milling Co., Warsaw, Ill.
Homer Baldwin, Youngstown, O.
Geo. L. Bain, St. Louis.
Wm. Brazier, mgr. Daisy Roller Mill, Milwaukee.
J. A. Bailey, Minneapolis.
Wm. De la Barre, Minneapolis.
A. A. Freeman, La Crosse, Wis.
Faist, Kraus & Co., Milwaukee.
F. L. Greenleaf, Minneapolis.
John L. Heywood, St. Paul Roller Mill, St. Paul.
F. E. Holmes, mgr. Washburn Mill Co., Minneapolis.
L. R. Hurd, Fargo Roller Mill Co., Fargo, Dak.
D. H. Harris, Bennett, Neb.
A. R. James, Central Milling Co., Buffalo, N. Y.
J. B. A. Kern & Son, Milwaukee.
Henry Kern, Springfield, Ill.
F. B. Keene, Frederick Mill Co., Frederick, Dak.
E. J. Lachmann, of Krueger & Lachmann, Neenah, Wis.
J. H. Mennell, of Isaac Harter Co., Fostoria, O.
F. Magdeburg, Milwaukee.
S. H. Seamans, Milwaukee.
Bernhard Stern & Son, Milwaukee.
H. B. Sanderson, Milwaukee.
Wm. Sanderson, Milwaukee.
C. B. Salmon, of Huston Milling Co., Beloit, Wis.
D. R. Sparks, of Sparks Milling Co., Alton, Ill.
Geo. Tileston, St. Cloud.
Wm. Trow, Madison, Ind.
Geo. Urban, Buffalo.
John Washburn, Minneapolis.
S. K. Wambold, of Wambold & Son, Appleton, Wis.
S. R. Willey, Appleton, Wis.
H. C. Yeager, Carlinville, Ill.
Alex. Smith, St. Louis.
S. Goodlad, of Stanford, Logan & Co., Black Earth, Wis.
J. O. Kendall, Hartford, Wis.
A. W. Loughry, Monticello, Ind.
Wm. Listman, La Crosse, Wis.
Wm. Lang, Milwaukee.
F. Leadbetter, Rome, Wis.
H. H. Price, Black River Falls, Wis.
F. W. Upham, Marshfield, Wis.
N. O. Winter, Neenah, Wis.
W. Ward, Warsaw, Ill.

MILL FURNISHERS.

Wm. E. Sherer, of S. Howes & Co., Silver Creek, N. Y., Minneapolis.
Chas. Knickerbocker, of Knickerbocker Co., Jackson, Mich.
F. W. Howell, Hodge, Howell & Co., Buffalo.
Wilford & Northway, of W. & N. Mfg. Co., Minneapolis.
Prinz & Rau, of Prinz & Rau Mfg. Co., Milwaukee.
J. F. Harrison, of E. P. Allis & Co., Minneapolis.
Wm. Gray, of E. P. Allis & Co., Milwaukee.
F. W. Barry, of E. P. Allis & Co., Milwaukee.
H. J. Deal, Deal Specialty Co., Bucyrus, O.
B. F. Ryer, of Cranson, Huntley & Co., Silver Creek, N. Y.
. W. Dinsmore, of Godfrey & Clark, Chicago, Ill.
F. Mann, Milwaukee Bag Co.
O. P. Hurford, of the Link Belt Machinery Co., Chicago.
E. W. Pride of Johnston Mfg. Co., Neenah, Wis.
C. A. Wagner, of Superlative Pur. Mfg. Co, Milwaukee.
R. L. Downton of Climax Dust Coll. Co., St. Louis.
Andrew Hunter, of Superlative Pur. Mfg. Co., Minneapolis.
J. H. Walsh, of Superlative Pur. Mfg. Co., St. Louis.

COMMISSION.

Connover & Gee Company, Minneapolis.
Geo. W. Gardiner, of J. J. Blackman & Co., New York.
Crawford & Law, Glasgow.
Cornelius Dorr, Boston.
Snodgrass & Co., Chicago.

PRESS.

H. B. Mitchell, of American Miller, Chicago.
C. K. Reifsnider, of St. Louis Miller, St. Louis.
E. Harrison Cawker, of U. S. Miller, Milwaukee.
Al. Hoppin, of Stationery Engineer, Chicago.
W. C. Edgar, Bus. Mgr. Northwestern Miller, Minneapolis.
P. H. Litchfield, of Northwestern Miller, Minneapolis.
The Millstone, Indianapolis.
C. F. Hall, of The Modern Miller, Kansas City, Mo.

An invitation was read from Messrs. Edw. P. Allis & Co. to millers to visit the Reliance Works at any suitable time during their visit. On motion of Mr. Smith the invitation was accepted and the thanks of the convention tendered Messrs. Edw. P. Allis & Co. for their courtesy.

Homer Baldwin, of Youngstown, O., then read the following resolution which was unanimously adopted.

Resolved: That the resignation of the *Northwestern Miller* as the official organ of the Millers National Association be and is hereby accepted; that we extend the thanks of the Association to the *Northwestern Miller* for its past services in our behalf, and that we trust it will continue to represent our interests as faithfully in the future as it has in the past.

Mr. Baldwin then introduced the following resolution which was passed.

WHEREAS the Executive Committee of the Millers' National Association realize the fact that the best interests of this Association demand and require the support and good will of the entire milling press of America, and in order that peace and harmony may prevail, therefore be it resolved, that in all matters pertaining to this Association, no undue preference shall be shown to any one journal; but that each and every journal, so long as its conduct so justifies, shall be placed on an equality, and we hereby extend the right hand of fellowship to said journals and respectfully request their united support in all matters tending to the best interest of the Association.

Mr. H. Sanderson then inquired what the action of the executive committee had been in relation to the famous resolution adopted at Buffalo, about which so much had been said in the papers. Upon request of the president the secretary read the resolution which was pronounced to be authentic by the entire executive committee. The resolution read as follows:

Resolved, That the resolution as published and reading as follows.

"*Resolved*, That this Association extends its thanks to the mill-furnishers here and the mill builders of America, who have contributed so much to the pleasure and profit of those attending the meeting; to Mr. Geo. T. Smith for his magnificent stroke of enterprise and genius in placing upon the streets of Buffalo the unique and beautiful model mill which has been a source of pleasure to hundreds here; to The John T. Noye Manufacturing Co. for exhibits of machinery and courtesies extended; to the Bradford Mill Co.; to Cranson, Huntley & Co.; J. M. Case and H. J. Deal, as well as to all others who have, by sending their machinery and drivers here, enabled the millers in attendance to observe the marvelous progress being made by the inventors and manufacturers of flour mill machinery; to the Daily Northwestern Miller for its enterprise in providing us with a chronicle of the daily doings of the meetings.

Adopted. S. H. SEAMANS, Secy.,

be and is hereby affirmed and declared the official resolution passed by the convention at Buffalo.

The report being satisfactory to the convention, they proceeded to consider the invitation to appoint delegates to the International Millers' Convention to be held in Paris, France, in August next. The president was authorized to appoint representative millers who where going to Europe as delegates. Among the names mentioned were those of J. S. Pillsbury, of Minneapolis, and J. W. Matthews, of Buffalo.

The matter of regulating the weight of flour packages was then taken up, and after a general discussion was referred to a committee consisting of D. R. Sparks, Homer Baldwin and Geo. Urban, for further action. A spirited discussion of the credit system, black list, etc., then followed, and the conclusion appeared to be that these matters could only be satisfactorily handled by a Central Buaeau, to which members of this association could refer their grievances for adjustment. At this point it was moved that a committee of three be appointed to formulate a plan for the establishment of such a bureau, to report at the morning session, Messrs. Yaeger, Tileston and Brazier were appointed on said committee.

Convention then adjourned to 9:30 A. M., June 12.

During the session the following article was read:

THE COMPRESSING OF BRAN.

BY W. DE LA BARRE.

(Nagel & Kaemp's Patent.)

Of the various assortments of offals produced during the process of milling wheat the most important is undoubtedly the bran, since it forms upon the average at least 15 per cent. of the total weight of the grain. In addition to this the fact of the bran possessing a high market value enables it to exercise very great influence upon the success or otherwise of every milling establishment.

Whilst both grain and flour constitute large and increasing articles of commerce, bran, from an international point of view, is practically excluded owing to the difficulty and heavy cost of transporting it to

CONTINUED ON PAGE 65.

The Link-Belt Machinery Co.

Are Prepared to Furnish Machinery and Appliances for

Transmission of Power

After the most approved Plans, by use of

SHAFTING · PULLEYS HANGERS GEARS ·

MANILLA ROPE.

For Particulars and Estimates apply to them at

CHICAGO: 11 to 23 S. Jefferson St. **MINNEAPOLIS:** 200 to 202 Washington Ave. S.

THE

RICHMOND FLOUR PACKER

—MANUFACTURED BY THE—

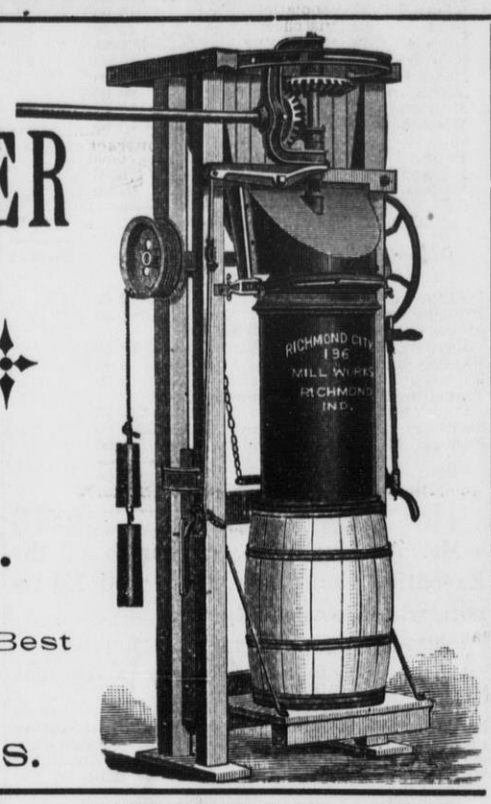
Richmond City Mill Works,

General Mill Furnishers,

RICHMOND, - - - INDIANA.

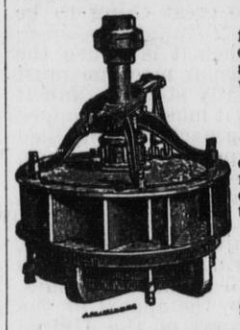
Recent Improvements Combine to make this the Best Flour Packer on the Market.

SEND FOR DESCRIPTION AND PRICES.



BURNHAM'S NEW IMPROVED STANDARD TURBINE WHEEL

Improved ÷ Walsh ÷ Double ÷ Turbine



This wheel has a perfect fitting cylinder gate and draft tube combined, and allows no water to escape when closed.

POWER GUARANTEED

equal to any wheel on the market using equal amount of water. Address for particulars,

B. H. & J. SANFORD,
Phœnix Iron Works,
Sheboygan Falls, Wis.

NEW YORK BELTING & PACKING CO.

JOHN H. CHEEVER, Treasurer. **15 PARK ROW, NEW YORK.**

Oldest and Largest Manufacturers in the U. S. A. of

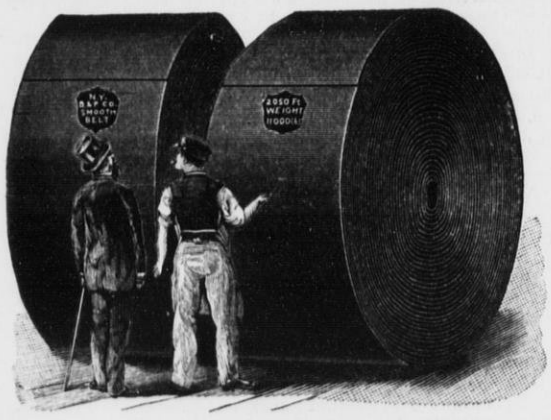
Vulcanized Rubber Fabrics for Mechanical Purposes

MILLERS' HOSE A SPECIALTY.

Also a Good **STEAM HOSE.**

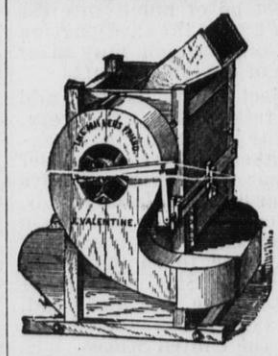
RUBBER MATS, RUBBER MATTING, and STAIR TREADS.

RUBBER BELTING, PACKING AND HOSE.



SALESROOMS: PHILADELPHIA, 308 Chestnut St; BOSTON, 52 Summer St.; CHICAGO, 151 Lake St.; ST. LOUIS, 907-911 N. Main St.; DENVER, 1601-1611 17th St.; CHARLESTON, 160 Meeting St; MINNEAPOLIS, 28 South 2d St.; CINCINNATI, 161-165 W Pearl St.; ATLANTA, 16 Decatur St; DETROIT, 16-24 Woodward Ave.; BALTIMORE, 12 N. Charles St.; BUFFALO, 124-128 Washington St.; NEW ORLEANS, 54 Canal St.; KANSAS CITY, 1311-1313 W. 12th St.; RICHMOND, 1206 East Main St.; European Branch, HAMBURG, GER., Pickhuben 5, (Freihafengebiet).

IMPROVED CORN SHELLER,



IT IS THE **BEST CORN SHELLER** MADE FOR MILL USE.

IT IS

Simple in Construction Almost Noiseless,

—AND—

Requires Little Power

HUNDREDS ARE IN USE.

For descriptive circular, price list, etc., Address

JACOB VALENTINE,
Gorham, Ontario Co., N. Y.

✳ EVERY ✳ MILLER ✳

Whether using Water or Steam Power, who wants

To Save His Machinery

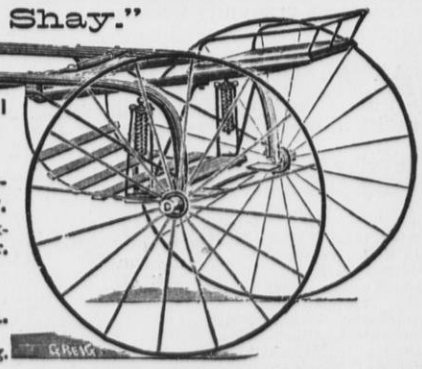
And reduce the cost of running expenses, should have a copy of a Pamphlet on Lubrication, which will be **SENT FREE** on application to

VACUUM OIL CO., ROCHESTER, N. Y.

MANUFACTURERS OF HIGH-GRADE OILS.

☞Branch Offices and Warehouses in all the Leading Cities.☜

The "One Horse Shay."



Light, Durable, Well Made, Steel Axle and Steel Tires, Good Hickory Stock.

Sold Only to Users.

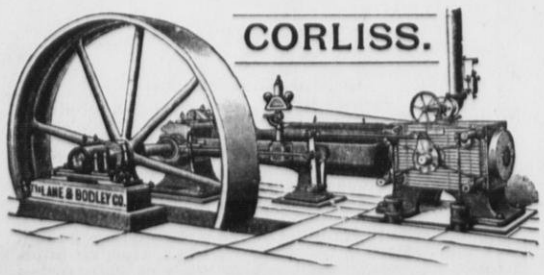
The best made **ROAD CART** for the money.

PRICE $15.00. Send Postal or Express Order, Bank Draft or Registered Letter. Shipped promptly on receipt of money.

Address, THE "ONE HORSE SHAY" CO., STERLING, ILL.

Refer to the editor of this paper. Mention this paper when ordering.

THE LANE & BODLEY CO.,



MANUFACTURERS OF

AUTOMATIC CUT-OFF

ENGINES

From Heavy Patterns and of Unexcelled Workmanship.

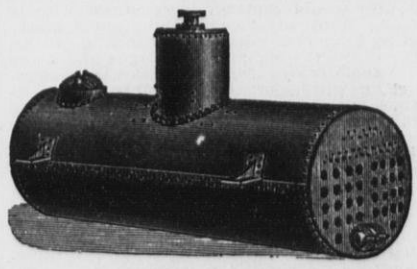
Steel Boilers, Feed Water Heaters Shafting, Pulleys and Gearing.

THE LANE & BODLEY CO., Cor. John & Water Sts., CINCINNATI, O.

BASS FOUNDRY AND MACHINE WORKS,

FORT WAYNE, INDIANA.

—MANUFACTURERS OF—



First Class Steam Boilers,

INCLUDING

Locomotive, Upright, Flued and Tubular

—AND—

Portable Boilers of all Sizes and Styles.

TWO SHEET BOILERS A SPECIALTY.

Contracts taken for Complete Power Plants. *Prices furnished on Application.*

Hughes Bros. Steam Pump Co.,

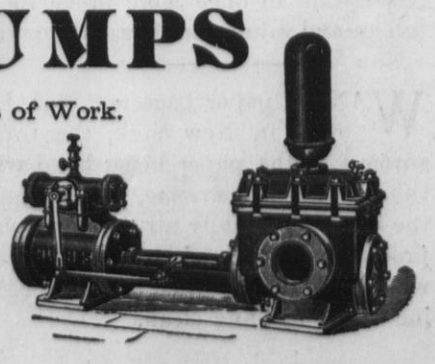
CLEVELAND, OHIO.

Builders of Single and Duplex

STEAM ✳ PUMPS

Of Every Description for all kinds of Work.

Satisfaction Guaranteed.



Send for 1888 Catalogue.

any great distance consequent to its large bulk as compared with its weight when packed in the ordinary manner.

In many foreign countries the profitable disposal of bran is impossible and a natural result of this is that the producers are heavily handicapped in their business. This state of things would be entirely reversed, were the bran, in place of being as heretofore loosely packed in sacks, etc., capable of being exported in the form of hard and dry cakes and thereby bring its weight and bulk into so close a ratio that the carriage of the material to long distances could be effected at a reasonable cost.

For years past endeavors have been made to form and press bran into cakes; but these have hitherto proved all more or less unsuccessful, and it has been reserved for the Finke-Lesshafft process to demonstrate the fact of the possibility of pressing bran and similar products into cakes of a hard and durable nature by the judicious application of heat and superheated steam to the material before commencing the process of pressing.

The object is to produce a firm and properly coherent cake, which shall keep well under various circumstances, which, even though chipped at the corners and edges, shall not readily fall to pieces, and which shall at the same time present the advantage of being small in volume, whereby it may conveniently be packed and readily transported.

Attempts have heretofore been made frequently to work the exterior portions, husks, shells or cortex of grain and the cereals, especially bran, into a firm or solid mass by simple pressure; but these attempts have not been so far as known productive of good results. As a general thing, the cakes which it was desired to make fell to pieces as soon as pressure was relieved, since the particles out of which it was desired to make the same, especially when these are of bran, will not adhere or cohere of themselves. In order to get greater firmness of the cake it has been proposed to moisten the substance from which it is to be made, with water, which would put the glutinous matter into solution, and then to form the cake by pressing the mass in a hot press; but under this procedure only a coherent crust was formed upon the surface of the cake, so that upon any injury to this crust the cake fell apart. Furthermore, cakes of this kind retain so much water in their interior that decay readily sets in. By the present procedure all these defects are remedied.

The present invention consists in a mode of forming dry cake from the husks, shells or cortex of the cereals, or from bruised or broken grain itself, especially from bran, which consists in dissolving the glutinous substances contained in the material named, especially though the gum, only on the surface of separate particles thereof, and this by means of hot steam, so that the body of the particles of the bran or other material shall remain dry, and then pressing the mass hot, whereby a coherent and dry cake will be formed.

It is obvious that this invention can be carried into effect in various ways, and that any suitable press will serve the purpose.

The salient feature of the invention resides in the presentation of the proper conditions, to secure by the use of steam at such high temperature, that without wetting their interior, the agglutination of the particles of the mass may be secured to cause them to cohere into a firm and dry cake upon pressure.

The steam dissolves the glutinous matters on the surface of the separate particles at once and in sufficient quantity, so that upon the application of pressure a firm cohesion of all the parts is effected and the production of solid dry cake achieved. The quantity of steam to be introduced into the apparatus is governed by the kind and quantity of material to be treated. As the bran passes to the press in a heated condition, the contained or inherent heat causes the cake to come from the press in an absolutely dry state, so that the same, even when stored in a place not perfectly dry, will not spoil.

There is no subsequent falling apart or crumbling of the cakes, since the material becomes unitary—in all parts a firmly-cohering mass; hence any breaking off or injury to the corners of a cake has no deleterious effect upon the holding together, firmness or cohesion of the same. It is clear that to attain this result it is essential that the bran should be pressed while dry and hot, and that therefore the admission of steam must be so regulated that nothing like a pulpy mass will be formed. In such case upon pressing, the crust which would be formed upon the surface of the cake would prevent a thorough drying, so that moisture would remain in the interior, which would be productive of speedy spoiling.

Although reference has been made chiefly to the pressing of bran into solid bodies, it will be apparent that by the same procedure coarse unbolted flour or meal or broken grain may likewise be converted into firm and solid cakes.

Bran and similar materials possess within themselves the necessary properties for securing the required adhesion of the various particles when acted upon by warmth and moisture in a suitable manner and it is upon this fact that the Finke-Lesshafft process has its foundation.

The formation of cakes by pressing bran is not new. This has even been done with a warming and steaming of the bran; but it is new in the procedure that directly before pressing, the bran or the like is steamed, and to that point that the glutinous matter therein contained, especially the gum, is so far dissolved that the separate particles of the bran upon pressing into cake will firmly stick together without leaving the cake moist.

Messrs Nagel & Kaemp of Hamburg have devised a machine of ingenious construction, which embodies the Finke-Lesshafft process and which produces a constant stream of compact and durable bran cakes in a simple and expeditious manner.

The compressing apparatus as devised and patented by Messrs Nagel & Kaemp resembles somewhat an iron planing machine in its outward appearance.

There is a solid iron frame with a crankshaft which sets in motion two or more plungers which work into pressing cylinders arranged horizontally on this frame, and each time the plungers are drawn towards the crank a measured quantity of bran falls into these pressing cylinders. Upon the advance of the stamp this material is forced into a long and suitably formed mould, and from this the finished cakes are discharged somewhat after the manner of moist bricks in a brick press.

The crank works within a link to which the stamps or plungers are attached and the whole is driven by a belt pully and geared wheels. The material to be pressed enters first into a separating chamber and is thence discharged into the heating and steaming apparatus below. This aparatus is furnished with a steam jacket and contains a series of plates placed one over the other in such a manner that the material falling upon them is minutely subdivided and in this condition is subjected to the heating and steaming process already referred to before passing into the pressing cylinder.

The stamp or plunger, before mentioned, carries the material through the pressing cylinder into a mould from which the finished cakes are discharged in a fit condition for storage either in single cakes or in layers.

The pressing cylinder is constructed with a view to the removal, during the pressing process, any of superfluous air or moisture which may be in the material, and the mould can be adjusted to give any required degree of compactness to the cakes. The cakes formed by Messers Nagel & Kaemp's Bran Press average in bulk only 1-5 or 1-6 that of a similar weight of wheat bran when packed in the ordinary manner and in the case of bran from rye the bulk is reduced one-half.

The capacity of this bran press is equal to about 1500 to 2000 pounds weight of bran per flour.

The machine requires for its operation from 5 to 7 horse power and one man as attendant.

Cakes formed by this process weigh upon the average one ton per cubic metre (35 cubic feet) and form a feeding material much better adapted to storage or transport than bran packed in the usual manner. The cakes are eaten by horses in a dry state whilst for other animals they are broken up and prolonged tests have demonstrated the fact that cakes are quite as nutritious as loose bran whilst the advantage in the matter of storage and transport will be self-evident to every one engaged in the trade.

The specimen of samples which I submit to your critical inspection have now been over a year in my possession; they have been exposed to all sorts of atmospheric influences and have been somewhat abused by frequent handling. I take pleasure in showing you samples of compressed spring and winter wheat bran, shorts, rye bran, wheat dust and dirt from cleaning machines.

MORNING SESSION.

WEDNESDAY June 12th.

Upon the convention being called to order Mr. Bain presented a resolution of respect to the late Edward Sanderson of Milwaukee, which was adopted by a rising vote. Resolution was ordered engrossed and presented to Mr. Sanderson's family.

Mr. Alex. H. Smith then introduced a resolution of respect to the late Nicholas Elles of Evansville, Ind., which was adopted.

Mr. Smith also introduced resolutions of respect to the late Edward P. Allis of Milwaukee. Adopted.

Chairman Yaeger, of the committee to consider the advisability of having a Central Bureau, made the following report, which on motion of D. R. Sparks was unanimously adopted:

The committee to whom was referred the consideration of methods by which the interests of the Association may be furthered believe it unwise for the association to attempt too much at first, but that the scope of the work can be gradually extended and with this view respectfully submit the following resolutions:

Resolved: That, this Association employ a secretary who shall give his entire time and attention to the business of the Association and who will be subject to the advice and instructions of the Executive Committee. One of the objects and work of the secretary shall be to take charge of complaints from members of the Association in good standing, of unjust transactions on the part of flour buyers and of unreasonable delays in transit of flour to destination.

Resolved: That, a member making a complaint should present his grievance or contract of sale, clearly set forth to warrant the expectation that the Executive Committee will entertain it. It should be the aim of the Association to avoid litigation and resort to it only after all other efforts have failed to sustain the rights of its members.

HENRY C. YEAGER.
W. H. BRAZIER,
GEO. TILESTON.

Resolution recommending to President Harrison the appointment of Hon. Geo. Bain, of St. Louis, as U. S. consul to Glasgow was adopted.

Resolution of thanks to the citizens of Milwaukee were adopted.

Resolutions to appoint a committee to examine closely into all foreign transportation questions was adopted.

The committee on nomination reported, and the convention proceeded to the election of officers, with the following result:

President—F. L. Greenleaf, Minneapolis
1st Vice-President—A. R. James, Buffalo.
2d Vice-President—Wm. Sanderson, Milwaukee.
3d Vice-President—Geo. H. Plant, St. Louis.
S. H. Seamans, Milwaukee, Wis., Secretary and Treasurer.

Secretary Seamans announced a carriage drive, lunch at Soldiers' Home and opera at Schlitz Park.

EXECUTIVE COMMITTEE REPORT.

At the meeting of the executive committee held at the Plankinton House, May 10, the subject of patent infringements was generally discussed. The first was on the patent claimed for changing from hexagon to round reels. Further action was deferred until the patent had been examined.

The "Cyclone" business was then taken up. Secretary Seamans said that matter was adjusted. The Knickerbocker Co. has put up with us a bond of $50,000 to protect every member of the Association, who was a member at that date, from any infringement of their patent and parties buying machines of any one else must look to the seller for safety.

Discussions brought out the statements that Downton of St. Louis and a Lockport, N. Y., company, and also the John S. Smith Dust Collector Co., of Jackson, Mich., had announced their intention of making a fight. Mr. Downton arrived just at this moment from St. Louis and said his lawyers were at work preparing a test case. Upon inquiry the secretary announced that no other dust collector manufacturing company had yet filed a bond aside from the Knickerbocker Co.

Secy. Seamans said: The bond put up by the "Big Four" is bearing fruit. Their patents are sustained as far as the Gray patent is concerned in the changing of rolls—leveling them up. We have a bond up for $100,000, and every member of the association, no matter what rolls he was using at the time settlement was made is free—that is, he is not liable to them for infringement; but any rolls he buys after that time he is liable for infringement. That bond also is to guarantee any person using rolls of the "Big Four" against any other patents. We also had an agreement with seventeen outside manufacturers of roller mills. They agreed to put up a bond, but backed right square out and refused to carry out the agreement, with one exception—the Phoenix Iron Works of North St. Paul. Other parties claim to have put up a bond for $250,000 with Mr. Pillsbury, they publishing his acknowledgement. A representative of the manufacturers outside of the "Big Four" requested that the association would stand neutral and let this fight be fought out between the roller mill manufacturers.

The following was the communication of the Knickerbocker Co.:

JUNE 11, 1889.

The Sub. Exec. Com. of the Millers' Nat. Ass'n.

GENTS:—In accordance with our conversation with you to-day, we submit the following proposition as to terms of settlement for infringements of our patents on the well-known Cyclone Dust Collector.

We will license any member of the Millers Nat. Ass'n. who now owns any machine which infringes our patents, upon the payment to us of twenty-five dollars for each of such infringing machines provided the payment is made within sixty days from this date. Our license to others will be fifty dollars per machine.

Yours Respectfully,

(*Signed.*) THE KNICKERBOCKER CO.,
by R. H. Emerson, Treas.

Various other matters were discussed among which was the "thanks resolution" mentioned elsewhere.

5 P. M.

After the return of the millers from the carriage drive the convention re-assembled.

The following communication from the Vortex Dust Collector Co., of Milwaukee, was read:

Gentlemen—In view of the notices and circulars of other parties manufacturing dust collectors, and the communications that have been handed in to this convention, we take the liberty of informing all users and future purchasers of the Vortex Dust Collector that we have been allowed patents No. 397,048 Jan. 29th, 1889, and 400,391 March 26th, 1889, and also one in the last issue of which we have not yet received the number, and have others pending. The patents which have been granted us fully cover the machines we manufacture and we are prepared to protect all customers in the use of our collector and to defend all suits for infringement, should any be entered.

John Washburne moved that the next meeting be held in Minneapolis. Carried.

R. L. Downton's communication was read, which was as follows:

To Millers, Mill Furnishers and all Manufacturers Using Dust Collectors:

My attention has been called to the advertisements and threatening letters of certain manufacturers, who claim that Letters patent No. 403,362 and No. 403,363, dated May 14th, 1889, that they are the exclusive owners of Dust Collectors into which the air is passed through a tangential spout, the dust passing out through the nozzle at the small end or bottom of the machine, and the air discharging at the top. Now this invention is not their property, and when this is tested in the Courts, in my belief it cannot admit of any other interpretation.

This method, which is the principle on which this class of machines work is shown clearly in my patent No. 162,158, dated April 20th, 1875; and whilst I did not claim the combination of the dog, and the wag of the dog's tail, yet the claim is broad enough to cover all uses in Mills where the Middlings are graded, purified and the Dust settled in the above described method.

As I stated a long time ago to the Secretary of the Millers' Association, my idea was to make and sell the machines that worked the best, and this I can say I have done, without a doubt.

By my patent No. 383,801, dated May 29, 1888, giving me broadly the perforated cone placed in the interior of the machine for equalizing the air and destroying the syphonic action in pulling out the dust and blowing it through the Mill, I made a marked improvement in the workings of this class of machines, whether built by me or other parties; and by these and other patents that will shortly issue, I have a machine that is a Dust Collector and not a Dust Distributor, that saves a part of the dust and plows the rest out into the Mill.

Under combination of my own patents is constructed the machine known as the Climax Dust Collector, and the success and perfect working of this machine has been so marked that we are running night and day in our factory, and have sold with little advertising and traveling, a very large number of these machines, displacing many machines of other manufacturers.

Now imagine my surprise at the audacious advertising of the parties referred to, who threaten my customers for using my own machines. I say to that I will defend my customers against any suit; and furthermore, I will prosecute all users of Dust Collectors with the improvement made and patented by me; and I am bringing suit in the U. S. Court for an infringment of my rights, and will guarantee all users and purchasers of my machines agaist damages for infringment,

R. L. DOWNTON,
Manager, Climax Dust Collector Co., St. Louis

After passing resolutions of thanks to the officers of the Association for their service during the past year, the convention adjourned *sine die*.

NEWS.—CORN and flour merchants of Baltimore have asked the Northern Central Railroad to erect an oats elevator and hay storage accommodations.

BURNED.—W. H. Thorne's mill at Littleton, N. C., loss $3,000.

MINNEAPOLIS millers sent 2000 barrels of flour to the Johnstown sufferers.

THE old steam grist mill at Saratoga, N. Y., is to be turned into a pill factory.

A 300 barrel mill is being built at Morristown, Tenn., by the Merritt Milling Co.

THE DeLoach Mill Manufacturing Co., Atlanta, Ga., report business excellent.

RAHT BROS., of Tullahoma, Tenn., are increasing the capacity of their mill to 200 barrels.

HENRY MERCORD is building a large merchant flouring mill on the Geo. Dill point at Prescott, Wis.

J. T. SMITH, who is building a 75 barrel mill at Keno, Ore., expects to have it in readiness by Sept. 1.

R. MCCARROLL'S mill at Lucknow, Ont., rented by Mitchell Bros., was recently burned; loss $4,500; no insurance.

IT is reported that the National Linseed Oil Company will erect a large linseed oil mill and flax seed elevator at Duluth.

J. B. LILLIE, whose roller mill at Franklin, Tenn., recently burned, has let the contract for a new mill of 300 barrels capacity.

CROW & YOUNG have sold out their business at Alexandria, Tex., and are now located under a new firm name at Wichita Falls, Tex.

AT Monroeville Ind., May 25, a large grist mill owned by D.S. Reidelsheimer, was totally destroyed by fire. Loss, $10,000; small insurance.

JOHN SWANSON & SON, millers at Hydetown, Pa., are in the hands of the sheriff. Their real estate is said to be heavily mortgaged.

AT Adairville, Ky., May 29, Carroll & Barclay's flouring mill was struck by lightning and burned to the ground. Loss, $20,000; insurance, $12,000.

DIED, April 23, Hon. Casper Schmidt, of Oshkosh. He was a member of the Wisconsin Legislature and of the milling firm of Schmidt Bros. at Oshkosh.

THE Wichita Roller Mill Co., composed of N. S. Crow, Lee Young and A. W. Mines, has been chartered at Wichita Falls, Tex., with a capital stock of $50,000.

THE J. B. Allfree Co. have taken a contract from Tobrock, Aldenhagen & Co., Waymansville, Ind., to build them a 50 barrel mill, including all the Allfree machinery.

THE Schumacher Milling Co., Akron, O., have been making some very extensive improvements to their water power by the construction of an immense tunnel and culvert.

H. A. MCELMORE, Wm. E. Baird and others of Columbia, Tenn., have formed the Columbia Milling Co., with a capital stock of $30,000 and will build a 250 barrel roller mill.

JUNE 1st, Riley Bowser, a young man, employed at E. J. Sherman's flour mill at North Columbus, O., was drowned in the Olentangy river while repairing the mill-dam.

Marion, Ind., offers $50,000 dollars in cash, thirty-five acres of land and a natural gas well for the location at that place of the Toledo, St. Louis and Kansas City machine shops.

THE Devine Mfg. Co., of Devine, Tex., with a capital stock of $10,000, has been formed to operate a grist mill. The company consists of Byrd Smith, W. A. Cole and J. H. West.

THE flour mill at Adrian, Minn., recently purchased by Gilbert & Randall, together with a barn and about 400 bushels of grain which was stored in the mill, was burned; loss about $16,000; insurance $2,000.

NEAR Logansport, Ind., May 21, the large flouring mill owned by Kittmiller & Cunningham was entirely destroyed by fire. There was a small insurance, but it is learned that the loss will reach fully $10,000.

F. F. MARCY, of Palmer, Mass., is to build at once an extensive addition to Cutler & Co.'s mill, to be usod for storage and for bagging oats. The new quarters being built for the post-office are nearly ready for occupancy.

DAVIS & CUMMINGS, proprietors of the Rome Foundry and Machine Works, Rome, Ga., say that business was never better than it is this season and that they are meeting with a lively demand for turbine waterwheels.

THE Ennis Roller Mill Co. has been formed at Ennis, Tex., with a capital stock of $15,000, to build a 100 barrel roller mill, which is now in course of construction. The incorporators are J. Baldridge, J. W. Weatherford, P. Freeman and others.

J. M. GAMBILL & Co., of Roanoke, Va., are building a grain elevator of 75 bushels capacity. They will also build a roller mill for the manufacture of flour, feed and meal; the daily capacity will be 100 barrels of flour, 1200 bushels of feed and 200 bushels of meal.

THE J. B. Allfree Co. have taken the contract for W. J. Meyers & Bro., of Princeton, Ky., to build a 75 barrel mill at Troy, Tenn., including the Keystone Rolls, "Success" Bolters, Allfree Purifier, "Climax" Bran Duster, etc., etc. Also an Allfree Automatic Engine and complete power plant; also corn meal outfit of the Allfree manufacture.

NEAR Simcoe, Ont., May 31. the Lynn Valley grist mills and grain storehouse owned by A. McCall and run by Dalrymple & Shrubsole, were burned. A large quantity of flour and feed was destroyed, but was fully covered by insurance. The mill had been lately rebuilt and was worth $8,000; insured in Royal Canadian and Canadian Millers' Mutual for $5,500.

WM. F. SNOOK, formerly head miller in the "Daisy" roller mill, and later with Messrs. Faist, Kraus & Co. in the "Duluth" roller mill, Milwaukee, Wis., has accepted a position with Kehlor Bros. of St. Louis, Mo., and is at present in charge of their mill at Edwardsville, Ill. Messrs. Kehlor Bros. are to be congratulated for having secured the services of so experienced and able a man.

AT Ashfield, Ill., May 27, the large elevator and mill owned by Mrs. Sarah Richter and managed by Geo. Richter & Company was totally destroyed by fire. The building, along with the grain and office, was valued at $10,000. There was $1,600 insurance on the building in the London and Lancaster and Queen Company. It is supposed the fire originated from a spark from a railroad engine.

THE Cochrane Roller Mill Company of Escanaba, Mich., of which Valancy E. Fuller is President, has absorbed the W. F. Cochrane Roller Mill Supply Co. of Dundas, Ont. This was not an unlooked for event, as the former President of the Canadian Co., V. E. Fuller, the Superintendent, F. H. Brewster, and the Chill Roll Maker, Edward Condor, now occupy similar positions at Escanaba, in the American Co. We do not know whether the Dundas shops will be operated by the American Co. or not, but we understand that the Cochrane train of rolls will be manufactured and supplied to the millers in Canada.

PERFORATED · SHEET · METALS

FOR ALL KINDS OF

GRAIN CLEANING MACHINERY

Used in Elevators, Warehouses, Flour and Rice Mills, Cotton and Linseed Oil Mills, Etc., Etc., Etc.

ROLLING SCREENS—ROUND AND HEXAGON.

Iron and Zinc for Rolling Screens, Corn Screens, Grain Dryers, Perforated Floors for Kilns used in drying Oats, Corn, Fruit, etc. Smut Mill Jackets of all kinds and sizes made to order. We will RENEW YOUR SIEVES for Oat Separators, Receiving Riddles, Corn Screens, etc., at short notice.

THE HARRINGTON & KING PERFORATING CO.,

Nos. 224 & 226 North Union St., CHICAGO.

Condemnation · of · Competitors

IS THE MEASURE OF SUCCESS.

I CHALLENGE the wheat heater concern advertising their heater as "replacing the Welch" to publish the terms on which the Welch Wheat Heaters are replaced. I could replace any other make of heater by allowing a big price for it and selling mine low, which is equal to paying a bonus.

The "Welch" is fully guaranteed, sold on its merits and used more than any heater on the market.

823 SECOND ST.,
ST. LOUIS, MISSOURI.

A. B. BOWMAN.

Farrel Foundry & Machine Company,

ANSONIA, CONN.,

Sole Manufacturers of the Celebrated

ANSONIA ROLLS

FOR USE IN ROLLER MILLS.

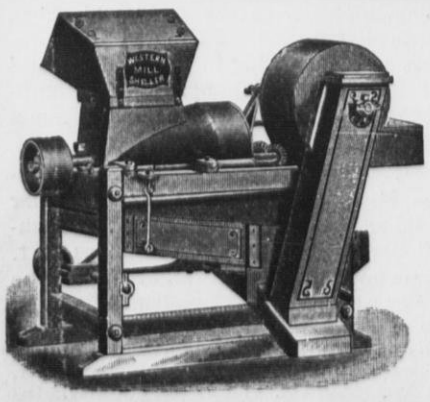
The general experience of American Millers unites in pronouncing these rolls the very best for Flouring Mill use.

These Rolls are now used in all Leading Flouring Mills

Chilled Rolls for Paper Mills a Specialty.

☞ Mention this paper when you write to us.

BRANCH HOUSE, 1425 EAST MAIN ST., RICHMOND, VA.



* THE *

"WESTERN"

MILL SHELLER.

The most Compact, Durable, Best Sheller and Best Cleaner.

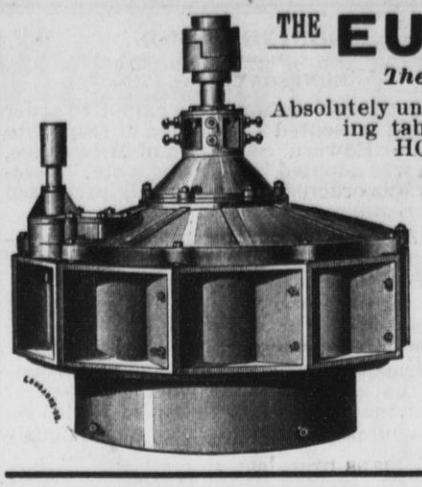
Takes up but little room, runs at low rate of speed, requires no attention. It is in every respect the

Best Sheller ever offered to the Public.

Please mention this paper. Write for full particulars to

UNION IRON WORKS, - DECATUR, ILL.

Mfrs. of "Western" Shellers, Cleaners, Separators, and all kinds of Elevator Machinery.



THE EUREKA TURBINE.

The Best Part-Gate Wheel Ever Built.

Absolutely unequalled in efficiency, is shown by the accompanying table from the records of actual tests at the HOLYOKE, MASS., TESTING FLUME.

PERCENTAGE OF EFFICIENCY.

	Full Gate.	⅞ Water.	¾ Water.	½ Water.
24" Wheel	.8436	.8416	.8202	.8002
24" Wheel	.8206	.7910	.7700	.7003
24" Wheel	.8078	.7578	.7275	.6796
34" Wheel	.8000	.8011	.7814	.6850

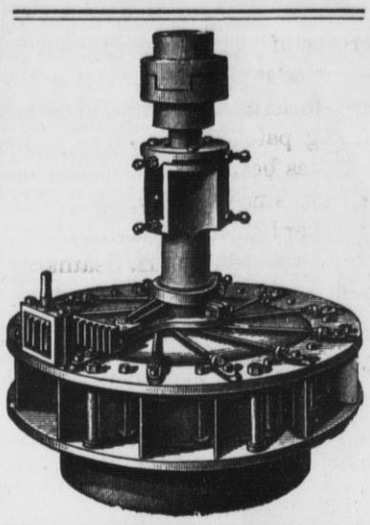
No other turbine ever approached the above figures at part-gate.

We publish our part-gate figures. Others significantly omit them.

For Catalogue and information, address

The Allentown Foundry & Machine Co.,

ALLENTOWN, PA., U. S. A.



Leffel Water Wheel,

Made by JAMES LEFFEL & CO.

The "OLD RELIABLE" with Important Improvements, making it the

Most Perfect Turbine now in Use.

Comprising the LARGEST and the SMALLEST Wheels, under both the HIGHEST and LOWEST Head in this country. Our New Illustrated Book sent free to those owning water power.

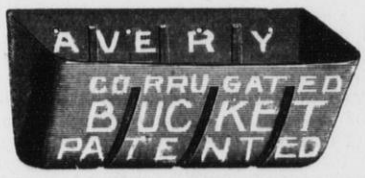
Write us for NEW PRICES before buying elsewhere. New shops and New Machinery are provided for making this Wheel. Address,

JAMES LEFFEL & CO.,

Springfield, Ohio or 110 Liberty St., New York.

A CARD.

THE AVERY STAMPING CO., of Cleveland, O., successors to the Avery Elevator Bucket Co., of the same city, have lately purchased of W. H. Caldwell of Chicago, Ill., (the patentee and manufacturer of the celebrated Caldwell Steel Screw Conveyer,) his patents for Corrugated Elevator Buckets and other sheet metal goods, whereby any article manufactured from sheet metals may be made stiff and rigid, thereby doing away with cross braces, that are found in the old style Elevator Buckets, and which interfere so with the filling and emptying. This corrugation will be a great benefit and improvement, especially in Elevator Buckets, as ear corn, slag or any rough or ragged material can be dipped upeasily, with less friction on a full load, as there are no braces to catch or seams to give way, that cause spilling material down the back leg, as all elevator men well know, braces retard the emptying of Elevator Buckets.



This bucket will make a great saving in time, labor and expense, while doing twice as much work as buckets heretofore used. For large Elevators, as in Chicago, Buffalo, Duluth and in many of the other principal grain ports, where speed and quick work is specially desired, this new bucket will take the place of the old style now used. They will be made of steel, perfectly seamless, without rivets, solder or seams, any parts of which are so liable to give away. Another great feature is that they will not be expensive in price, and will outwork three of the ordinary buckets now used. The sizes will be 10x5½, 11x6, 12x6½, 14x6½, 16x6½, 18x7, and 20x7, made of suitable gauges of steel, giving them with the corrugation, the full strength and stiffness desired. These buckets will be considerable lighter than the common ones now used, while they will be much stronger, and parties interested in improving their mills and elevators, desiring samples and prices, can have same by applying to the Avery Stamping Co., or any first-class mill furnisher or mill-supply house, as our goods have a world-wide reputation, and every mill furnisher can furnish same. Freight rates on our buckets are fourth-class, while other makes are first-class again a great saving to the buyer.

N. B. Please bear in mind that we have the only patents ever granted in the world for Seamless, drawn, stamped, pressed and forged Elevator Buckets, also the only patents ever granted for corrugating buckets, troughs, etc. On small sizes of our Elevator Buckets, taking the weight, boxing, cartage, freight into consideration, it is advisable to ship by express so far as possible to secure prompt receipt of goods.

Stilwell's Pat.

Lime Extracting

HEATER —AND— *FILTER*

COMBINED.

Is the only Lime Extracting Heater that will

Prevent Scale in Steam Boilers

Removing all Impurities from the water before it enters the boiler.

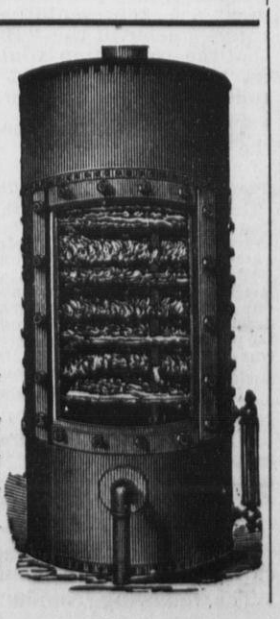
Thoroughly tested. Over **3,000** of them in daily use.

This cut is a facsimile of the appearance of a No. 5 Heater at work on ordinary lime water when the door was removed after the Heater had been running two weeks.

Illustrated Catalogues.

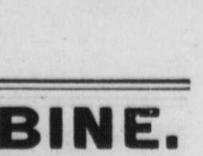
STILWELL & BIERCE MFG. CO.

DAYTON, OHIO.



"TRIUMPH" CORN SHELLER

CAPACITY
2000 BUSHELS PER DAY.
Shells wet or dry corn.
CHEAPEST AND BEST SHELLER.



PAIGE MFG. CO.
No. 12 Fourth St., Painesville, O.

[Please mention this paper when you write to us.]

EDW. C. ORDWAY,

MILL CONTRACTOR AND FURNISHER

—OF—

ROLLER MILLS, GRAIN ELEVATORS,

New Process Corn Meal Mills, etc.

Plans and Specifications on Short Notice. HARTLAND, WIS.

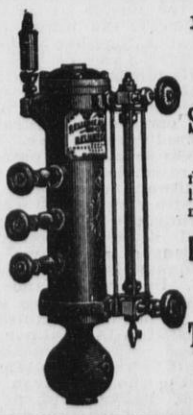
JOHN C. HIGGINS & SON.

Manufacturers and Dressers of

MILL PICKS

167 W. Kinzie St.,
CHICAGO, ILL.

Picks will be sent on 30 or 60 days' trial, to any responsible miller in the United States or Canadas, and if not superior in every respect to any other pick made in this or any other country there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is *manufactured expressly for me* at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct Importation References furnished from every State and Territory in the U. S. and Canadas. Send for Circular and Price List.



Your Plant will be Imperfect Without

THE RELIANCE

Safety Water Columns.

They obviate all damage from either too much or too little water, and cost but little more than the common outfit.

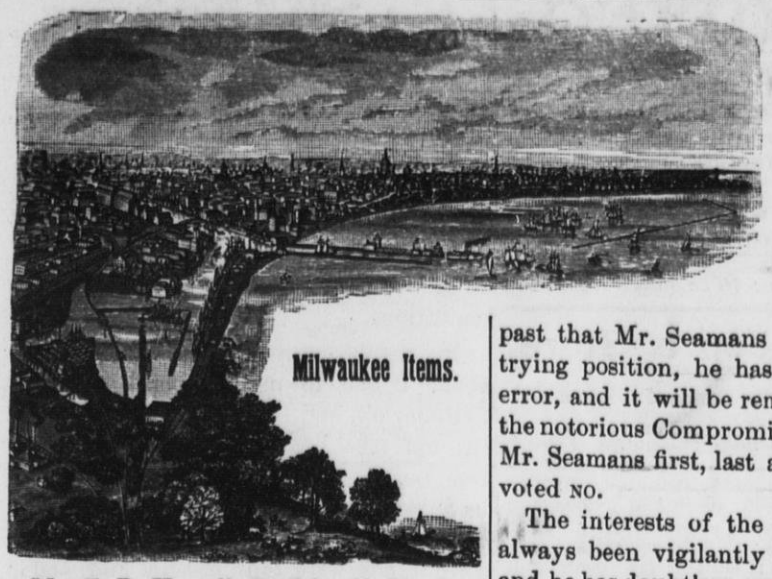
Every Gauge Warranted.

Send for Illustrated Price List.

The Reliance Gauge Co.,

863 Sheriff St.,

CLEVELAND, OHIO.



Milwaukee Items.

Mr. F. R. Howell, Buffalo, N. Y., had on exhibition one of his latest improved machines.

HUGO BROICH, the Milwaukee artist, (120 Grand av.) showed commendable enterprise in taking a group photograph of the Convention as they appeared after the banquet at Soldiers' Home Grounds.

THE Prinz & Rau Mfg. Co. of this city, did all in their power to make things pleasant for our guests, a number of whom visited the Phœnix Mills to see their large size grain cleaning machinery in operation.

AMONG the omnipresent delegates to the Convention was our old friend, George Washington Gardiner, of the well-known firm of N. Y. commission dealers, Messrs. J.J. Blackman & Co. His face is familiar to the majority of the millers in this country.

"DAMON AND PYTHIAS," otherwise known as Alex. H. Smith and Geo. Bain, ably represented the milling interest, not only of St. Louis and vicinity, but all of that section of the country embraced in the jurisdiction of the Central Millers' Association.

THE Committee on Reception and Entertainment, consisting of millers, grain and flour commission dealers and agents of transportation companies, deserve all praise from their fellow citizens for the perfect manner in which they performed their pleasant but laborious duties.

H. J. DEAL, of the Deal Specialty Co., Bucyrus, O., had an elegant display of millers' specialties, in the lobby of the Plankinton House. This is the only firm in America that makes a business of this kind. This line of goods includes every thing from a plain flour-trier to a baker's oven or a diamond set of millers' jewelry.

MR. WM. J. LANGSON, Secretary of the Milwaukee Chamber of Commerce, has just issued his annual report for the fiscal year, of the Chamber of Commerce, ending April 2, 1889. It is complete in every department, which is saying a great deal, but an inspection of its pages will verify our our assertion. In another place we make an extract of interest to the trade, entitled "MILWAUKEE FLOUR."

THE day after Edward Sanderson's death the millers of this city met and adopted the following resolutions:

Whereas, the Honorable Edward Sanderson has obeyed that supreme mandate to which one and all must sooner or later respond, we, his trade business friends and colleagues, desiring to give expression of our sorrow at his early demise, and our respect and esteem for him, have met in formal meeting and

Resolved, That by the death of Edward Sanderson the millers of Milwaukee are deprived of the friendship and counsel of one of their most respected brothers; one whose always well-expressed opinions commanded their attention; one whose marked ability in prominent and honorable positions was so particularly pronounced that it may be truly said—"a leader has been taken;"

Resolved, That as a token of our respect for our departed associate, and of the high esteem we held him in, we attend his funeral in a body;

Resolved, That the secretary transmit these resolutions to the afflicted family.

IT is with much pleasure that we record the re-election of Mr. S. H. Seamans of Milwaukee, as Secretary of The Millers' National Association, and also as member of the Sub-Executive Committee. It is not in us to speak words of fulsome praise of any one, but we cannot restrain ourselves from saying that, in the many years past that Mr. Seamans has occupied his trying position, he has NEVER made an error, and it will be remembered that, in the notorious Compromise made long ago, Mr. Seamans first, last and all the time, voted NO.

The interests of the Association have always been vigilantly guarded by him, and he has doubtless made some powerful enemies among patent-right men. His motto always has been: "*Right wrongs no one.*" We can sincerely say, that The Association never had or can have a truer, more faithful servant than S. H. Seamans. "He has been tried by fire and found not wanting."

THE Millers' National Association for 1889 have concluded a successful convention in this city. Numerically the number of attendants was not large, but in its representative capacity, its delegates represented the interests of mills with an aggregate capacity of many hundred thousand barrels of flour. In another portion of this issue the UNITED STATES MILLER AND MILLING ENGINEER has the pleasure of making the first full report published, to the millers of this country. It is not a *verbatim et literatim* report, but contains, we believe every salient feature of the proceedings. The weather was propitious as we promised it should be, and some of our visitors said that here they saw the first streak of sunshine they had seen for a fortnight. The results of the Convention will also let sunshine into the paths of many millers throughout this broad land.

***

Wednesday afternoon from noon to midnight was spent almost entirely by visiting millers in social enjoyment. At noon a tally-ho coach and seventy-five carriages decked with National Flags drove up to the Plankinton House, and were filled quickly with guests, and local millers, mill-furnishers, members of the Chamber of Commerce, railroad and steamship officials, mayor and city officers, and members of Congress and State officers. The drive was along the lake shore to North Avenue, thence on North to Eleventh—to Chestnut—to Ninth—to Grand Avenue and thence to the Soldiers' Home grounds, where an elaborate lunch with a *quantum suf.* of Mumm's Extra Dry and Garcia Perfectos, was had. After lunch a group picture was taken, and after an hour of pleasant leisure the party again took to the carriages and proceeded to return via National avenue, to the Reliance Works of Edw. P. Allis & Co., where many stopped to go through the great mill-building establishment. After due inspection the party returned to the hotel. Visitors were provided with tickets to the opera—"The Merry War" at Schlitz Park. Many attended and enjoyed not only a good performance, but as to weather as fine and balmy an evening as there ever was anywhere. After the opera our reporter, after handing in his copy retired to rest, and his example was, no doubt, followed by all the delegates, as the police have reported no nocturnal disturbances.

MILWAUKEE FLOUR.

[From Secretary Langson's 1888-89 Report of the Trade and Commerce of Milwaukee.]

Receipts and production of flour at Milwaukee during the year 1888 amounted to 3,848,594 barrels—an increase of 283,591 barrels over the amount received and manufactured in 1887. The total shipments as reported by lake at the Custom House and by rail as reported to the Chamber of Commerce were equivalent to 3,410,289 barrels, an increase of 99,776 barrels, leaving about 200,000 barrels unaccounted for, after making due allowance for local consumption.

The total movement, exclusive of through shipments by rail, was as follows:

	Barrels.
Total receipts billed to Milwaukee	2,427,336
Output of Milwaukee mills	1,421,258
In store beginning of year	159,871
Total supply	3,998,465
Total shipments	3,410,289
In store end of year	76,000
Local trade and unaccounted for	512,176
	3,998,465

The direction of shipments of flour from Milwaukee during the year 1888 will be seen by the following statement:

DIRECTION OF SHIPMENTS.

	Barrels.
By lake eastward	1,818,268
By lake to Chicago	1,187
By lake along shore	668
By transit lines across Lake Michigan	1,167,660
By railroad via Chicago	413,418
By railroad west and north	9,088
Total shipments	3,410,298

The output of flour by Milwaukee mills in 1888 shows an increase of 206,610 barrels over the production of the preceding year. The capacity of all the large mills was materially increased, and had it not been for the interruption of the export trade by the advanced price of wheat based on the unfavorable results of the last harvest in the Northwest, a much larger amount of flour would have been manufactured by our millers. The present daily capacity of the mills of Milwaukee is 9,100 barrels—an increase of 2,100 barrels over the capacity of the same mills in 1887.

Milwaukee holds the third position among the milling centers of the United States, and should the progress of the last few years be continued she may at no distant time win the title to the second place.

The report of the St. Louis Merchants' Exchange credits Buffalo with the manufacture of 1,500,000 barrels of flour in 1888. This is an extraordinary mistake, as the exact amount of flour manufactured at Buffalo, according to the report of the Board of Trade was 644,563 barrels. Including with Buffalo, Niagara Falls, Akron, Hamburg, Tonawanda, Williamsville and Lockport the total output was 1,458,508 barrels, but to credit this amount to Buffalo is about as near correct as it would be to credit Milwaukee with all the flour manufactured in Wisconsin.

The following statement shows the manufacture of flour at the principal milling points in each of the past three years:

	1888.	1887.	1886.
Minneapolis	7,056,680	6,379,264	6,168,000
St. Louis	2,016,619	1,985,717	1,807,956
Milwaukee	1,421,258	1,214,648	952,802
Buffalo	644,563	637,885	706,384
Baltimore	500,870	496,244	540,567
Niagara Falls	619,093	.....	.....
Chicago	435,100	514,870	494,789
St. Paul	250,000	316,000	194,500
Toledo	250,000	305,000	310,000
Detroit	235,000	253,000	296,500

The milling business of Milwaukee was fairly profitable, notwithstanding the adverse conditions that existed during a part of the year. The sharp advance in the price of wheat shortly after the unfavorable results of the harvest in the Northwest became apparent for a time stimulated the home demand for flour and prices rose $2.00@$3.00 per barrel within two months. The advance, however, being in a large degree the result of manipulation of the wheat markets throughout the Northwest, was not freely responded to by either Eastern or foreign markets and had a very unfavorable effect upon the milling business during the latter part of the year. The export trade fell off in proportion to the advance in prices, and the home markets having been largely stocked while the advance continued, the demand from this source also became very slack, and the milling interest found it necessary to largely restrict the manufacture of flour. Prices of wheat throughout the Northwest having declined so as to be more nearly on an equilibrium with the rest of the country, the milling business will soon recover from the partial paralysis from which it has lately suffered.

In the last ten years the milling business of Milwaukee has increased three-fold and in thirty years ten-fold.

Production of Flour by the Mills of Milwaukee During the year 1888, and Daily Capacity of Each Mill at the end of the year.

	Output 1888.	Daily Capacity.
Eagle Mills—J. B. A. Kern & Son	206,175	2,000
Phoenix Mill—E. Sanderson & Co.	350,000	1,750
Daisy Roller Mill	304,143	1,500
Duluth Roller Mill—Faist, Kraus & Co	271,500	1,500
Jupiter Mill—B. Stern	138,000	500
Reliance Mill—C. Manegold & Co.	72,400	600
Gem Milling Co	78,500	350
Other Mills not in operation	.....	900
Total	1,421,258	9,100

A VICTORY FOR THE KNICKERBOCKER COMPANY.

THE "CYCLONE" IS ALL RIGHT.

AFTER three years' litigation in the patent office the Knickerbocker Company, of Jackson, Mich., has finally secured the issue of its patents upon the broad features of the dust collector which is known to the trade as the "Cyclone." Mr. O. M. Morse, the mechanical expert of the Knickerbocker Company, in 1885–6 invented and completed this dust collector which operates upon a principle entirely unknown prior to that time.

As soon as this device was offered to the trade, which was done early in 1886, it proved to be a machine which the trade wanted, and a large demand for it sprang up. As the machine was put upon the market before the issue of their patents, the Knickerbocker Co. left itself open to the attack of imitators, who were not slow to take advantage of this weakness, and a number of rivals entered the field as competitors. Most of them, also, entered the patent office with claims for either real or fancied improvements, and under the patent laws of the United States a large number were placed in interferance with the claims of the Knickerbocker Company, and a very intricate and almost interminable series of litigations arose.

Time, however, which solves most things, has in this case brought to a conclusion these varied contests, and upon the 14th of May last, the full, broad claims were issued, Mr. Morse thereby being declared the inventor.

This form of dust collector is not only for flouring mills, which is the principal feature of the Knickerbocker Company's manufacture, but for a variety of other purposes, including the collection of shavings, etc., in wood-working establishments. The principal manufacturers of dust collectors for the last mentioned purpose are the Allington & Curtis Mfg. Co., of East Saginaw, Mich., and the Chicago Exhaust & Blow Pipe Co., of Chicago, Ills., both of whom have taken licenses under the Morse patents.

Until now the Knickerbocker Company has been powerless to protect itself, but the issue of these patents places it in a position to take the proper steps to enforce its rights and prevent further infringement.

ELEVATOR FOR PRIVATE DWELLING.

The ingenious plan proposed by a Berlin inventor, of a simple and inexpensive elevator for private dwellings in place of the ordinary staircase, has attracted some attention as a long-felt desideratum. It is on the principle of the inclined railway, and the motive power is furnished by the city water, which is applied in the cellar; each flight has its separate chair, so that, for example, one person can ascend from the first to the second story while another is on his way from the second to the third, or still another is descending from the fifth to the fourth. The chair, being only of the width of a human body, requires but little space, and still leaves a free passage for any one who may wish to walk up or down, instead of riding. It is set in motion by a simple pressure upon one of its arms, while after it has been used it slides back to the bottom step, its descent being regulated in such a manner that the carrying of a passenger is a matter of entire safety. The motive power is, of course, more or less expensive, according to the cost of water, this being, it is stated, in Berlin, at the rate of a little more than one-tenth of a cent only for each trip.

THE WORLD'S CASH AND RAILROADS.

It is remarked that all the money which the world possesses to-day would only purchase one-third of its railways, since the railroads in the world are worth nearly thirty billion dollars, about one-tenth of the total monetary wealth of the civilized nations, and over one-quarter of their invested capital. In comparison with this sum the amount of money invested in banking throughout the entire world is but a trifle. The railroad business is one which is increasing at an almost incredible rate of speed. In 1875 the world's railways aggregated 185,000 miles, while in 1885 there were over 300,000 miles of railroad, thus showing an increase of 115,000 in ten years, or, on an average, upwards of 11,000 miles a year. When it is considered that this would mean the laying each year of railway enough to reach nearly half aronnd the earth the magnitude of the increase can be in a measure appreciated.—*London Anglo-American Times.*

THE publisher of the UNITED STATES MILLER is desirous of having the names and addresses of Head Millers, Millwrights and Head Engineers in all mills having a capacity of 150 bbls. per day or more.

AN AUTHENTIC BUYERS' GUIDE.

MILL AND ELEVATOR BUILDERS, MILL FURNISHERS, MANUFACTURERS OF AND DEALERS IN MILL AND ELEVATOR MACHINERY AND SUPPLIES.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year, cash with order. Additional lines, $1.00 each, per year.

Edw. P. Allis & Co., Milwaukee, Wis., builders of complete Flour Mills, manufacturers of Flour Mill Machinery, and dealers in Supplies of every description. [Mr.89.]

John C. Higgins & Son, 165 West Kinzie Street, Chicago, Ills., mfrs. of and dressers of Mill Picks. [Mr.89.]

H. P. Yale & Co., Milwaukee, Wis., Manufacturers' Agents of Engines and Boilers, New York Leather Belting Co.'s Leather Belting, Dodge Wood Pulley.

Robert Poole & Son Co., Baltimor , Md., manufacturers of Steam Engines, Water Wheels, Flour, Corn, Paper, Saw and Cotton Mill Machinery.

W. J. Clark & Co., Salem, O., manufacturers of "SALEM" Elevator Buckets, etc.

R. C. McCulley, (P. O. Box 214) Lancaster, Pa., manufactures Cob Crushers, Cooper's Stoves, Castings, Patterns, etc. [Mr.89.]

S. H. & J. Sanford, Phoenix Iron Works. Sheboygan, Falls, Wis., manufacturers of the "IMPROVED WALSH DOUBLE TURBINE WATER WHEEL." [Mr.89.]

John C. Kilner, York Foundry and Engine Works, York, Neb. Mill and Elevator machinery of all kinds, Engines, Boilers, Pulleys, Shafting, etc. [Mr.89.]

The Gutta Percha and Rubber Mfg. Co., 159-161 Lake st., Chicago, Ill., Belting and Rubber Goods. [Mr 89.]

Richmond Mfg. Co., Lockport, N. Y., manufacturers of Grain Cleaning Machinery, Bran Dusters etc. [89.Mr.]

N. Y. Belting and Packing Co., N. Y. Leather Belting Co., W. D. Allen & Co., Agents, 151 Lake Street, Chicago. [Apr.89.]

W. G. Avery M'f'g Co., 10 Vincent st., Cleveland, O., Specialties: Avery Lever Belt Punches, Avery Seamless Elevator Buckets, Belting, Elevator Bolts, &c. [May'89.]

The H. J. Deal Specialty Co., Bucyrus, Ohio. Headquarters for Flour and Grain Testing Appliances, and Specialties for the Milling, Flour and Grain trades. [May 89]

A. B. Bowman, 823 Second St., St. Louis, Mo., manufacturers of Wheat Heaters.

Sprague Electric Railway & Motor Co., 16 and 18 Broad St., New York. Electric Motors. Electric Transmission of Power.

Stilwell & Bierce Mfg. Co., Dayton Ohio. Mill Builders Manufacturers of and dealers in Water Wheels, Feed Water Heaters and Flour Mill Machinery and Supplies.

Milwaukee Bag Co., No. 236 East Water St., Milwaukee, Wis., manufacturers of plain and printed Flour and Grain Sacks of all kinds.

B. F. Ryer, 66 S. Canal St., Chicago. Mill Furnisher. Bolting Cloths made to order.

Jas. Leffel & Co., Springfield, Ohio. Water Wheels.

Vacuum Oil Co., Rochester, N. Y. Oils.

FOR SALE AND TO RENT.

[*Short ads. inserted in this column for $1 per insertion.*]

FOR SALE. A good water-power roller mill of about 50 bbls. daily capacity. Address for full information,
UEHLING & BODDEN, Afton, Wis.

FOR SALE. The "Central Mills," of 300 barrel capacity, situated in the thriving city of Atchison, Kas., with a good wheat crop, and the business fully established to go right ahead. Satisfactory reasons for selling. For further information address
WM. BOWMAN, Atchison, Kas.

WANTED.

WANTED. A partner who will devote his time to the business, with some means, to rebuild a water power mill in Toledo, on the site of the Armada Mills (lately burned.) It is the best site in the city, and the best city in America for a flouring mill to grind either winter or hard spring wheat. Correspondence solicited.
F. N. QUALE, TOLEDO, OHIO.

SOUTH TIMBER LANDS.

An experienced land man, native of the South, active and intelligent, wants a position with some reliable Northern firm dealing in Southern timber lands, to locate and select cheap timber lands in the South. References. Address,
SOUTH TIMBER LANDS.
P. O. Box 1297, NEW ORLEANS, LA.

Machinery For Sale

ONE PAIR 4-FT. MILLSTONES; new.

SEVEN PAIR 4-FT. MILLSTONES; used about three months.

ONE PAIR 9 x 18 CHILLED ROLLS; smooth.

ONE No. 1 THROOP SMUTTER AND SCOURER.

ONE 24-INCH MIDDLINGS MILL.

ONE 1000-LB. PALMER POWER SPRING HAMMER.

ADDRESS

The Filer-Stowell Co.

CREAM CITY IRON WORKS,

Milwaukee, - Wisconsin.

GANZ & CO.

Budapest, Austria-Hungary.

We are the first introducers of the Chilled Iron Rollers for milling purposes, and hold Letters Patent for the United States of America. For full particulars address as above.

[Mention this paper when you write to us.]

Opposite the Plankinton House,

—MANUFACTURER OF—

FINE JEWELRY

A VERY LARGE STOCK OF

Diamonds, Fine Watches, Jewelry, Silverware,

Opera Glasses, Gold Spectacles, Canes, Umbrellas, etc.

Goods warranted as represented. Prices reasonable

HAMMOND

TYPE-WRITER AND DROP CABINET DESK.

The highest achievement and latest production in Writing Machines

As I am receiving requests for exchanges daily from parties who have the old style type-bar machines, and as I am thus securing hundreds of second-hand Remingtons and Caligraphs at *very low prices*, I am able to offer these latter machines in many cases *as good as new* at prices that defy competition. Write and see!

Yours respectfully,

P. H. Sercombe, Prop. MILWAUKEE TYPE-WRITER AGENCY.

FRATTINGER,

City Tailor

389 Broadway,

MILWAUKEE.

For All Kinds IRON & STEEL **ROOFING**

CEILING, SIDING, IRON DOORS, SHUTTERS.

ADDRESS SCOTT & CO. CINCINNATI, OHIO.

The INK used on this paper is from the factory of

CHAS. ENEU JOHNSON & CO.,

PHILADELPHIA, PA.

Western Branch House: 40 La Salle St., CHICAGO

How to Keep a Store.

By S. H. TERRY. 406 Pages, 5 x 7½ inches.

This book should be in the hands of every one interested in the selling of goods at retail. Among the subjects discussed are: The selection of a business; choice of a locality; buying a stock of goods; examining, marking and arranging goods; how to advertise; employment of clerks; selling for cash and credit; keeping accounts; expenses; copartnership; losses by fire, theft, etc.; influences of social life on business; buying at auction; investment of profits; insolvency; business qualifications. Every branch of the retail trade is treated upon in a direct, business-like manner. It is a thoroughly practical book for merchants and clerks.

PRICE, $1.50. Sent, prepaid, on receipt of price, by

E. HARRISON CAWKER. 124 Grand Ave., Milwaukee

SCIENTIFIC AMERICAN

ESTABLISHED 1845.

Is the oldest and most popular scientific and mechanical paper published and has the largest circulation of any paper of its class in the world. Fully illustrated. Best class of Wood Engravings. Published weekly. Send for specimen copy. Price $3 a year. Four months' trial, $1. MUNN & CO., PUBLISHERS, 361 Broadway, N.Y.

ARCHITECTS & BUILDERS Edition of Scientific American.

A great success. Each issue contains colored lithographic plates of country and city residences or public buildings. Numerous engravings and full plans and specifications for the use of such as contemplate building. Price $2.50 a year, 25 cts. a copy. MUNN & CO., PUBLISHERS.

PATENTS

may be secured by applying to MUNN & Co., who have had over 40 years' experience and have made over 100,000 applications for American and Foreign patents. Send for Handbook. Correspondence strictly confidential.

TRADE MARKS.

In case your mark is not registered in the Patent Office, apply to MUNN & Co., and procure immediate protection. Send for Handbook.

COPYRIGHTS for books, charts, maps, etc. quickly procured. Address

MUNN & CO., Patent Solicitors,
GENERAL OFFICE: 361 BROADWAY, N. Y.

READ THE NEW YORK Daily Commercial Bulletin

Its reputation as the most reliable commercial paper is conceded by all.

Sample Copies Free.

Its markets Reports are the most complete and trustworthy of any published and cover all trades.

Save Your Money

by subscribing to the "Daily Commercial Bulletin" and read its reports of the New York Markets.

PRICE:

	Per Year.	Six Mos.
Daily.	$12 00	$6 50
Tri-Weekly.	6 75	3 50
Semi-Weekly.	5 00	2 75

ADDRESS:

New York Daily Bulletin Association,

No. 32 Broadway, - NEW YORK CITY.

IF you are about to build write to the UNITED STATES MILLER for a copy of "Brean's House Plans," and enclose fifty cents in stamps. It will help you.

COMPOUND Condensing or Non-Condensing.
16 SIZES, 5 to 500 H. P.
Not yet equaled by any form of Engine for
HIGH FUEL DUTY AND SIMPLICITY.

STANDARD 13 Sizes in Stock. 5 to 250 H. P.
3000 in use in all parts of the Civilized World.

JUNIOR 6 Sizes in Stock, 5 to 50 H. P.
An Automatic Engine cheaper than a Slide Valve.
WELL BUILT. ECONOMICAL. RELIABLE.
Over 300 Sold the First Year.

All the above built strictly to Gauge with INTERCHANGEABLE PARTS.
REPAIRS CARRIED IN STOCK.
SEND FOR ILLUSTRATED CATALOGUES.

WESTINGHOUSE ENGINES
The Westinghouse Machine Co.
PITTSBURGH, PA. U.S.A.

SELLING DEPARTMENT IN THE UNITED STATES.

New York, Boston, Pittsburgh, Chicago,	17 Cortlandt St. Hathaway Building, Westinghouse Build'g, 156, 158 Lake St.	Westinghouse, Church, Kerr & Co.
Philadelphia,	608 Chestnut St.	M. R. Muckle, Jr. & Co.
St. Louis, Kansas City, Denver,	302, 304 Washington Av. 312 Union Avenue, 1330 Seventeenth St.	Fairbanks & Co.
Omaha,	1619 Capitol Avenue,	F. C. Ayer.
Pine Bluffs, Ark.		Geo. M. Dilley & Sons.
Salt Lake City, Butte, Mont.	259 S. Main St. 4 Granite St.	Utah & Montana Machinery Co.
San Francisco, Portland, Or.	21, 23 Fremont Street, 33, 35 N. Front St.	Parke & Lacy Co. Parke & Lacy Mch. Co.
Charlotte, N. C. Atlanta, Ga.	36 College St. 45 S. Prior St.	The D. A. Tompkins Co.
Dallas, Tex. Chattanooga, Tenn.,		Keating Imp. & Machine Co. C. E. James & Co.

SCALE IN BOILERS.

If there is one thing more than another that the average engineer is careful with, it is the use of boiler compounds. With an open exhaust heater and an overworked boiler, and using water from a drilled well sixty feet deep in limestone, I have had to be rather careful to avoid scale and foaming. I offer some notes from my experience under the above conditions.

In using compounds containing sal soda, I had to use 40 per cent more cylinder oil, and this invariably reacted, through the heater and feed water, on the boiler, and produced foaming. I have used six compounds, warranted to cure foaming with above results. The compounds were tannic acid and soda.

Changing to the use of crude oil, I found that the volatile parts went over to the engine, and I saved 10 per cent cylinder oil over when using nothing, and 50 per cent over the use of sal soda. There is a peculiarly easy manner of making steam that is very different from the same boiler using sal soda. The results on scale are as follows:

In changing to a different solvent the results for a few runs were very good, and then it seemed to lose its virtue while using double quantity; result, foaming. With crude oil used continually I have had scales from ⅛ inch thick, but never any thicker, as it came off clean and was very porous. I prefer oil to any acid or alkali solvent. For cleaning a scaled boiler I would recommend alternate use of oil and sal soda, but the remedy is heroic. If the boiler is not clean in two weeks I miss my guess. I have tried kerosene and found it too volatile to be of value in a limestone district. In summing up the results, I believe:

First. With an open exhaust heater use only the best cylinder oil, which should be at least 80 per cent petroleum.

Second. If the crude oil does not keep the scale all out, alternate one run with sal soda.

Now, I only offer this as my experience, knowing full well that the conditions are never absolutely the same.—*American Machinist.*

FLEXIBLE STONE.

What is described as a geological curiosity is in the office of the acting chief clerk of the United States War Department Washington. It is a piece of stone weighing about 1 lb., 13 in. in length, 2½ in. in width, and ⅛ in. thick. There is no doubt about its being a genuine stone, but it nevertheless possesses the flexibility of a piece of india rubber. When taken in the hand and shaken in the direction of its flat surfaces, it will bend backwards and forwards with a dull sound. The movement is more of a laxity in the adhesion, apparently, than an elasticity. When held horizontally by one end, the other will drop and remain in that position. With the two ends supported on rests, the free centre can be pressed ½ in. below the middle line. With one end held firmly on the desk, the other can be bent upwards over 1 in. The movement is not confined to the one direction—in the place of the flat surfaces—but the entire stone seems to be constructed on the principle of a universal joint, with a movement perceptible in all directions under pressure. This is what is known as itacolumite, or elastic sandstone. It is stated that a whole mountain of it exists in southern Nevada, a short distance east of Death Valley. It is found in California, Georgia, and other localities in the United States.

THE C., I., St. L. & C. Ry. (Kankakee Line) is the best line to Cincinnati, Richmond, Va., Newport News, Washington, Baltimore, Chattanooga, Atlanta, Savannah, Charleston, Jacksonville, St. Augustine, Thomasville, Pensacola, Mobile, New Orleans, and all points in the South and South-east.

FRENCH MILLING.

THE HIGNETTE SHORT SYSTEM.

PERSONS specially interested in the milling industry were enabled to view at the Paris Exhibition of 1878 the different systems which are to-day in use. Even at that period considerable progress had been effected in the cleaning and grinding process, and there was fair ground for the hope that the centrifugal force disintegrators (*moulins batteurs a force centrtfuge*) which were all more or less derived from the Carr system, might, when applied in a rational and intelligent manner to the grinding of cereals, and supplemented by other compressing machines, such as rollers and millstones, offer a great advantage, from an economical point of view, over roller mill installations, while they would be also calculated to make it more easy to utilize existing plants of stone-mills, and so place the new process of gradual reduction (*montre ronde*) within the reach of the greatest number. It was to the solution of this special problem that a French engineer, Mr. J. Hignette, who, after graduating in the well-known Technical Schools of the Arts et Métiers and Arts et Manufactures at Paris, had a brilliant career of twenty years as a deviser of improved wheat-cleaning machinery, and became a multifarious inventor. And this problem he claims to have solved by means of his disintegrator (*broyeur*), with which we shall be concerned further on. He maintains that by combining this apparatus with other milling machines, which have been improved by him, a new system of milling, superior in its results to these of any other process, will be obtained.

Mr. Hignette as far back as 1873 visited the Vienna Exhibition and carefully studied the Hungarian system in Budapest, introduced into France, but not without considerable opposition, break roller mills of chilled iron, as well as porcelain rollers, and since then he has made it his special care to reduce to a minimum number the machines entailed by the Hungarian or high grinding system, as well as to devise means for reducing the cost of their maintenance. He now claims that after long and laborious study he has solved the problem of attaining the advantages presented by gradual reduction and yet eliminating grooved rollers and their supplementary machinery, and has thus rendered the process more accessible to small mills with a very limited power at their command. Nowadays six breaks are regarded as an indispensible part of an effective system of reduction, that is, if any quantity of middlings is to be obtained and bran is to be properly cleaned.

Now Mr. Hignette claims for his disintegrator that it will in one operation clean the bran as efficiently and yield the same proportion of middlings as the six breaks in question; and, admitting so much, it would follow that instead of six bolting operations we should need only one. Moreover it is claimed that this shortened system of milling gives results even more important in respect of the yield of fine flour, inasmuch as the reduction of the breaks gives much larger bran; hence the middlings are much easier to dress, and a much whiter flour is yielded. This is said to be more especially noticeable with the fine flour. The inventor of this process urges that it is a well established principle that the less the number of machines which can be employed for effectively separating the husk and germ on the one hand, from the starch and gluten on the other, the better.

The disentegrator, which is illustrated by Figs. 1 and 2, consists of two vertical axes A, A¹, each carrying a disc B, B¹, of a form partly flat and partly in the form of a tremcated cone, such discs being of cast or wrought iron, steel or other suitable material. On each of these discs are cast or secured a series of round pins or studs, C, C¹, arranged in a circular manner. For grinding corn the pins are arranged in concentric rows on each disc, the spaces between same varying according to the kind of corn to be ground. As the shafts may be driven at great speed, the upper one is suspended on a conical part, D, entirely abolishing the pivot bearing at the lower end of such shaft. The lower shaft is supported by pivot E. The pivot consists of a conical piece of steel, E, which is placed by hand in a recess of corresponding form provided in the lower end of shaft. The conical pivot has a screw-threaded part, E¹, and it will be understood that to withdraw the pivot it suffices to screw a nut, F, thereon, which by binding against the shaft, will exert a pressure in the direction of the arrow and instantly force the pivot out. The toe step is composed of a piece of bronze. To renew the same, it is only necessary to drive it out by a rod introduced into the hole I, and lightly strike such rod.

In order to rectify the wear of the conical part of the upper bearing and so avoid the approach of the pins of the top and bottom discs, as well as to enable the two plates to be adjusted as desired, the toe step is mounted on an inclined plane, J, forming a wedge which can be moved by a screw, K, so as to permit the bearing and consequently the lower disc, B¹, to be raised or lowered with ease. The material to be ground or crushed is fed between the discs, B, B¹, through the central tube L, the top of which is funnel-shaped, as shown, and can be closed by a plate, L¹, to prevent the entrance of air when this is desired, and reduce the power required to drive the apparatus.

It is claimed that the Hignette disintegrator will separate the bran in large flakes, while it will yield up the germ thoroughly clean and entire—not flattened as is the case in the roller process—so that it is most easy to sift out with the bran. The proportion of triturated bran is said to be exceedingly small—hardly more than two per cent. Then again it is held that this shortened system of milling scores another point in requiring a lesser motive power than is required by any other process. Mr. Hignette claims that the miller who uses his system may if desired, entirely dispense with millstones; but on the other hand, these disintegrators may be readily used with stones, which latter may be well utilized in the reduction of middlings. In installing the Hignette system a great economy of floor space is claimed as compared with stones and rollers. It is likewise claimed that this disintegrator has no appreciable wear, so that the dressing of millstones or metal discs is done away with, as also the re-cutting of grooved rollers; any workman, it is held, is capable of keeping these machines in order and attending to their lubrication. Roughly speaking, the power required for cleaning and treating 100 kilos (220.466 lbs) of wheat is 6 horse-power, while the yield from 100 kilos of cleaned wheat is tabulated by M. Hignette as follows:—

	per cent.
Fine flour	68 to 70
Seconds and Thirds	8
Regrinding	8
Fine bran	2
Coarse bran	10
Waste	2
	100

It will be noted that this estimate of yield takes no account of the well-known black or dark flour.

With these machines it will be sufficient to have a mere smooth roller mill (*compremeur*), such as is found in most of the old-fashioned stone mills, the object of which is the mere splitting and flattening up to a certain point of the wheat berry without crushing it.

This same apparatus will be available for the treating of the middlings and this is an inestimable advantage to little mills in which the small amount of power and room is an effectual bar to any remodeling which calls for much machinery.

M. Hignette remarks that millstones, regarded as machines for treating middlings, are open to the great objection of cutting up the particles of bran which adhere to those products, while the grinding or conversion of middlings by rollers demands a considerable power, and entails a tedious process of bolting, as well as a series of operations which have the effect of pulling the gluten to bits and killing the flour, so that the bread will have less flavor and go dry in a few days. He observes that in many of the country districts of France, where the demand is for large loaves which take several days to eat, roller flour is refused, because of its incapacity for making loaves that will keep fresh.

THE "HIGNETTE" DISINTEGRATOR AS A MIDDLINGS REDUCER.

The "Hignette" centrifugal disintegrator is, it is claimed, available for reducing middlings, according to their nature, in one or two excessively rapid operations, and that without heating. The products of these operations are said to be very even, and, although very fine, to be granular; they are estimated to be obtained at the rate of 40 to 50 per cent. in each operation, nor is their observed much difference in the result between

CONTINUED ON PAGE 71.

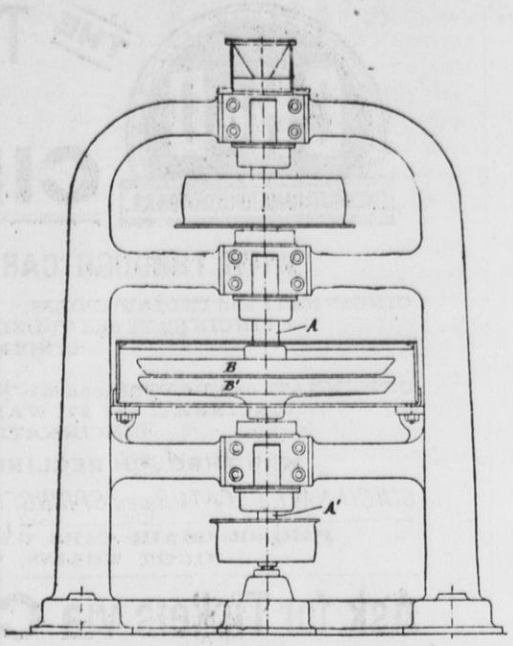


FIG. 1—HIGNETTE'S PATENT DISINTEGRATOR—Elevation

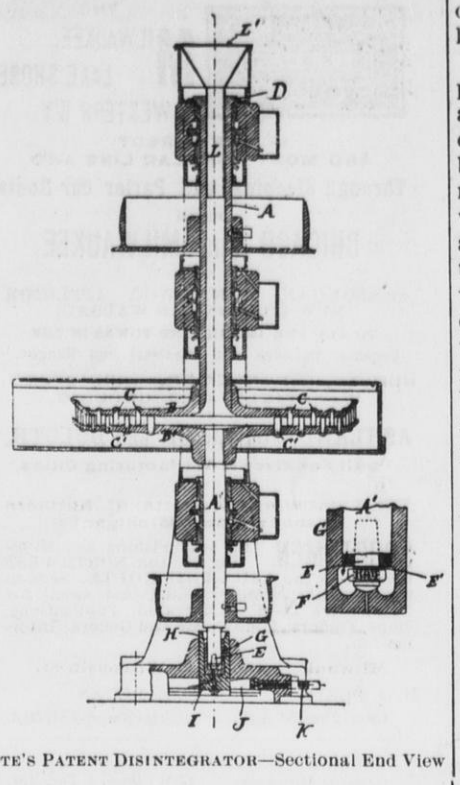


FIG. 2—HIGNETTE'S PATENT DISINTEGRATOR—Sectional End View

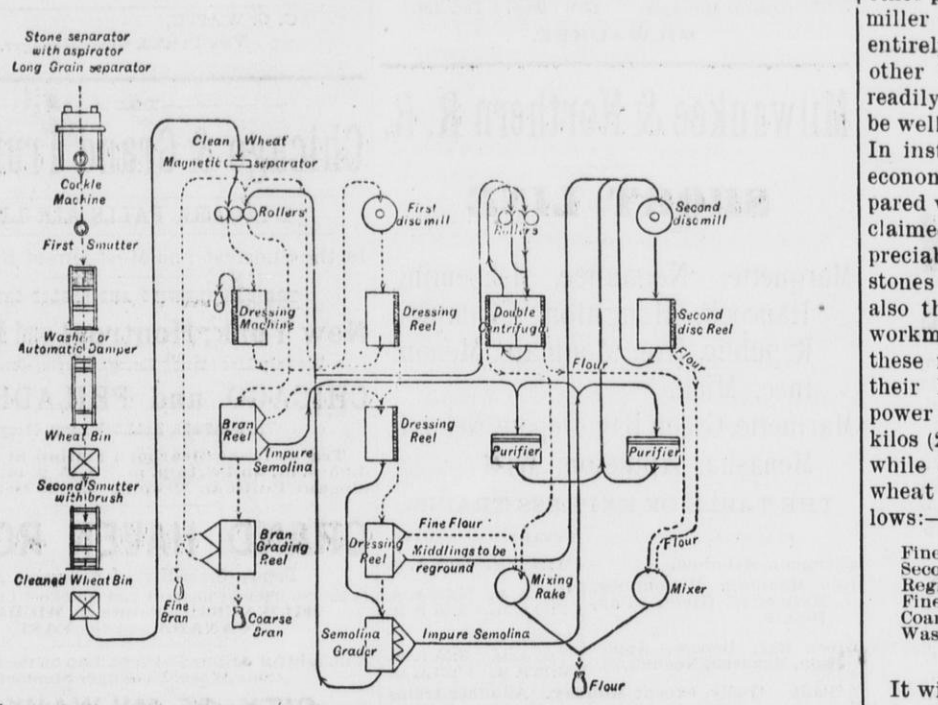


FIG. 3—DIAGRAM OF HIGNETTE'S SHORT SYSTEM OF FRENCH MILLING.

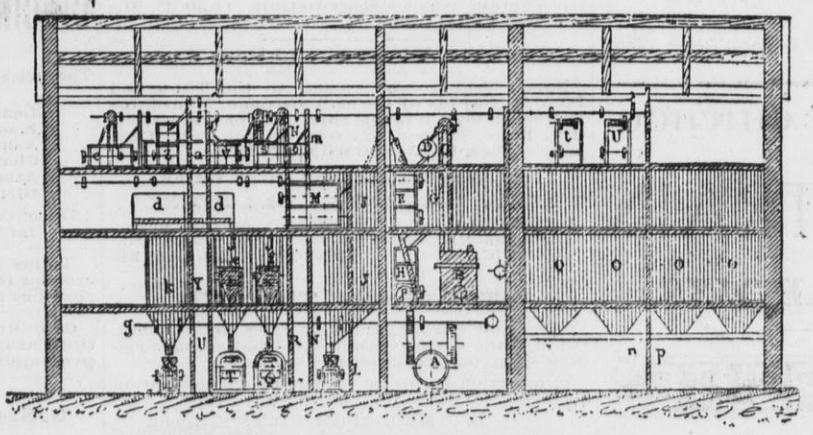


FIG. 4—LONGITUDINAL SECTION OF A HIGNETTE SHORT SYSTEM MILL.

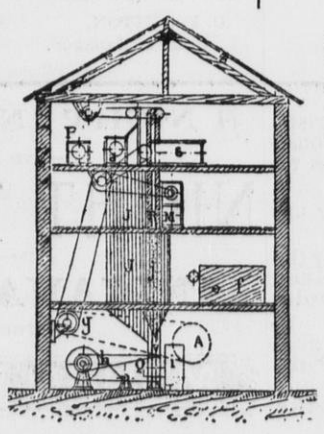


FIG. 5—CROSS SECTION.

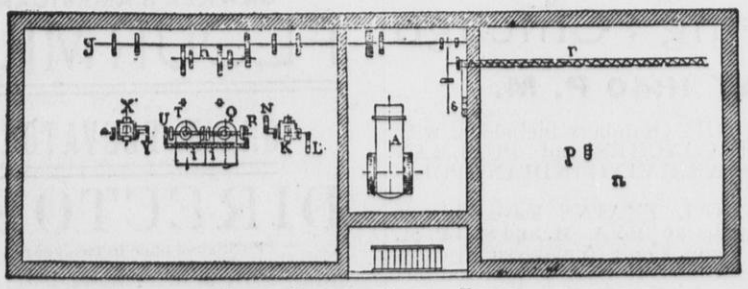


FIG. 6—PLAN OF GROUND FLOOR.

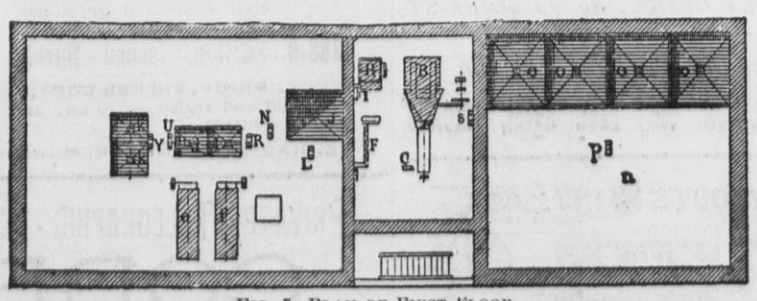


FIG. 7—PLAN OF FIRST FLOOR.

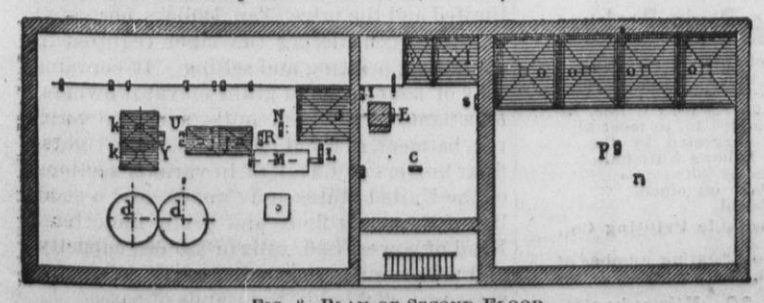


FIG. 8—PLAN OF SECOND FLOOR.

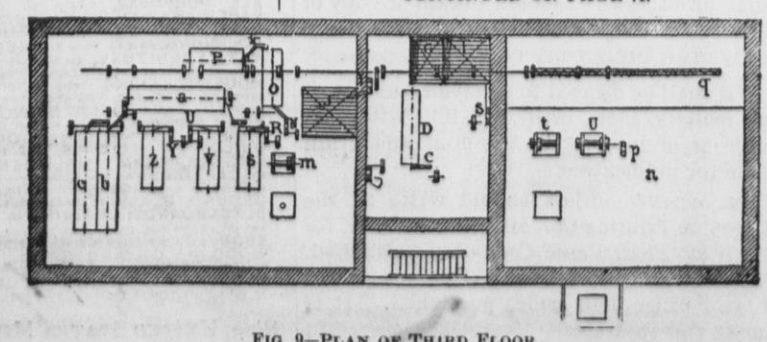


FIG. 9—PLAN OF THIRD FLOOR.

THE CHICAGO MILWAUKEE AND ST. PAUL RAILWAY CO.

Fast Mail Line with Vestibuled Trains between Chicago, Milwaukee, St. Paul and Minneapolis.

Trans-Continental Route between Chicago, Council Bluffs, Omaha and the Pacific Coast.

Great National Route between Chicago, Kansas City and St. Joseph, Mo.

5700 Miles of Road reaching all principal points in Illinois, Wisconsin, Minnesota, Iowa, Missouri and Dakota.

For maps, time tables, rates of passage and freight, etc., apply to the nearest station agent of the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY, or to any Railroad Agent anywhere in the World.

ROSWELL MILLER, General Manager. A. V. H. CARPENTER, Gen'l Pass. and Tkt. Agt.

☞ For information in reference to Lands and Towns owned by the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY COMPANY, write to H. G. HAUGEN, Land Commissioner, Milwaukee, Wisconsin.

THE CHICAGO AND NORTH-WESTERN RAILWAY.

OVER 7,000 MILES

Of steel track in Illinois, Iowa, Wisconsin, Michigan, Minnesota, Nebraska, Dakota and Wyoming, penetrates the Agricultural, Mining and Commercial Centres of the

WEST AND NORTHWEST.

The Unrivaled Equipment of the Line embraces Sumptuous Dining Cars, New Wagner and Pullman Sleepers, Superb day Coaches and

FAST VESTIBULED TRAINS

Running direct between Chicago, St. Paul and Minneapolis, Council Bluffs and Omaha, connecting for Portland, Denver, San Francisco and all Pacific Coast Points.

ONLY LINE TO THE BLACK HILLS

For Tickets, Rates, Maps, Time Tables and full information, apply to any Ticket Agent or address the Gen'l Passenger Agent, Chicago, Ill.

J. M. WHITMAN, General Manager. H. C. WICKER, Traffic Manager. E. P. WILSON, Gen'l Pass. Agt.

NOTES from the diary of tourists, commercial travelers, business men and others has revealed:

That the **Wisconsin Central** has the unqualified endorsement of all:

That the **Wisconsin Central** has to-day the most popular line between **Chicago** and **Milwaukee**, and **St. Paul, Minneapolis** and the **Northwest**;

That the **Wisconsin Central** is daily adding to its admirers as the recognized **Pullman** line between **Chicago** and **Milwaukee** and **Ashland, Duluth** and **Lake Superior**;

That the **Wisconsin Central** touches the most prominent points in Wisconsin, and that it has more important business centers on its through line than any other railway to and from the **Northwest**;

That the **Wisconsin Central** has made an enviable reputation with its peerless **Dining Car Service**;

That the **Wisconsin Central** runs fast trains on which all classes of passengers are carried with commodious and distinct accomodation for all:

That the **Wisconsin Central** has representatives distributed throughout the country, who will cheerfully give any information that may be desired and that its terminal Agents are specially instructed to look after the comfort of passengers who may be routed via its line.

For detailed information, apply to your nearest Ticket Agent; or to representatives of the Wisconsin Central Company.

WM. S. MELLEN, General Manager. JAMES BARKER, Genl. Passr. & Tkt. Agt.

LOUIS ECKSTEIN, Asst. Genl. Passr. & Tkt. Agt.

MILWAUKEE, WIS.

ALL persons desiring to reach the entire milling and grain trade of America, by circular or otherwise, should obtain a copy of CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888.

WE shall be pleased to receive from any of our readers, short, crisp, sensible letters on subjects of interest to the flour and grain trade for publication.

EXPORTING millers should write to the Riverside Printing Co., Milwaukee, Wis., for the best Flour Cable Code ever published. There are more copies of this Code in use than of ALL other flour codes published. It is simple and accurate.

ASHLAND ROUTE M.L.S.&W.RY.

THE MILWAUKEE, LAKE SHORE & WESTERN R'Y

IS THE DIRECT AND MOST POPULAR LINE AND Through Sleeping and Parlor Car Route FROM CHICAGO and MILWAUKEE TO SHEBOYGAN, MANITOWOC, APPLETON, NEW LONDON AND WAUSAU, TO ALL THE IMPORTANT TOWNS IN THE Gogebic, Penokee and Montreal Iron Ranges, HURLEY, BESSEMER, IRONWOOD, WAKEFIELD AND GOGEBIC, TO ASHLAND, SUPERIOR and DULUTH, To all Fox River Manufacturing Cities AND The Lumbering Districts of Northern Wisconsin and Michigan.

SPORTSMEN The best Fishing and Hunting in the NORTHWEST reached by the ASHLAND ROUTE. Send to the General Passenger and Ticket Agent for Descriptive and Illustrated Publications, Maps, Folders, Time Cards and General Information.

Milwaukee Office, 95 Wisconsin St.

H. G. FLEITH, Com. Freight Agt. F. P. REGAN, City Pass. & Tkt. Agt.

H. F. WHITCOMB, General Manager. ERNEST VLIET, Gen'l Pass. & Tkt. Agt.

MILWAUKEE.

Milwaukee & Northern R. R.

SHORT LINE

—TO—

Marquette, Negaunee, Ishpeming, Hancock, Houghton, Champion, Republic, Iron Mountain, Menominee, Mich.

Marinette, Green Bay, Depere, Neenah, Menasha, Appleton, Wis.

THE TABLE OF EXPRESS TRAINS.

STATIONS.	DEPART.	ARRIVE.
Champion, Republic,	*1:35 A. M.	*3:20 A. M.
Iron Mountain, Menominee, Marinette, Green Bay, Depere,	*1:35 A. M. 3:10 P. M.	*3:20 A. M. 3:55 P. M.
Green Bay, Depere, Appleton, Menasha, Neenah,	†7:35 A. M. 7:55 A. M. 3:10 P. M.	3:55 P. M. 10:20 A. M.

*Daily. †Daily, except Monday. All other trains daily except Sunday.

Pullman Sleeping Cars are run on all night trains, and are ready for occupancy at 9:00 P. M.

New Passenger Station, Fourth Ward Park.

C. F. DUTTON, General Manager. W. B. SHEARDOWN, General Ticket Agent.

A NIGHT IN CHICAGO —AND A— NIGHT TRAIN —TO— INDIANAPOLIS. —THE— MONON ROUTE

LOUISVILLE, NEW ALBANY & CHICAGO RY.

HAS A TRAIN

Leaving Chicago AT 11:40 P. M.

EVERY NIGHT (Sundays included), with THROUGH COACHES and PULLMAN SLEEPERS, ARRIVING INDIANAPOLIS at 7:30 A. M.

ADDITIONAL TRAINS leave Chicago for Indianapolis at 8:15 A. M. and 8:20 P. M.

Ask your home Agent to make your tickets read via the MONON ROUTE, so your comfort may be assured. For further information, Sleeping Car Berths, etc., call at

CITY TICKET OFFICE, No. 73 CLARK ST.

—OR AT THE—

DEARBORN STATION, CHICAGO.

E. O. McCORMICK, Gen'l Pass. Agent, CHICAGO.

EVERYBODY'S PAINT BOOK

A new work on INDOOR and OUTDOOR painting which is designed to teach people how to DO THEIR OWN PAINTING and save the expense of a professional painter. The most practical and valuable work of the kind ever issued. Full directions are given for mixing paints for ALL PURPOSES. Tells all about PAPER HANGING, KALSOMINING, STAINING, VARNISHING, POLISHING, as well as how to RENOVATE FURNITURE, so that it will look as good as new. Tells all about HOUSE-CLEANING with paint and kalsomine. Full directions are given for making the beautiful SPATTER-WORK pictures in which the ladies are so much interested. Tells how to paint OUTBUILDINGS, ROOFS, FARM WAGONS, FARM IMPLEMENTS and CARRIAGES as well as how to polish a PIANO or ORGAN; how to imitate GROUND GLASS or make paint for BLACKBOARDS; GRAINING in oak and black walnut, painting in imitation of EBONY, MAHOGANY and ROSEWOOD stain. GILDING, BRONZING and SILVERING. Elegantly printed, beautifully bound. Will SAVE ITS COST in a short time. Sent by mail on receipt of price, One Dollar.

Address, UNITED STATES MILLER, Milwaukee, Wis.

THE THROUGH CAR LINE —FROM AND TO— CINCINNATI

C H & D — CINCINNATI, HAMILTON & DAYTON R.R.

WITH THROUGH CAR SERVICE BETWEEN

CINCINNATI and INDIANAPOLIS,
CINCINNATI and TOLEDO and DETROIT,
CINCINNATI and CHICAGO,
CINCINNATI and ST. LOUIS,
CINCINNATI and DAYTON and RICHMOND,
CINCINNATI and FT. WAYNE and GRAND RAPIDS,
CINCINNATI and GREENVILLE and VAN WERT.

With THROUGH RECLINING CHAIR CAR between

CINCINNATI, DECATUR and SPRINGFIELD, ILLS. and KEOKUK, IOWA, (daily)

PARLOR CHAIR CARS ON DAY, and SLEEPERS ON NIGHT TRAINS, "YEAR 'ROUND."

Ask for Tickets via C. H. & D. R. R.

For full information, Tickets, Sleeping Car Space, &c., Inquire of or Address,

W. H Fisher, Gen'l Agt., Indianapolis, Ind. W. H. Whittlesey, Central Pass'r Agt., Dayton, O.
John Bastable, District Pass'r Agt, Toledo, O. D. B. Tracy, Northern Pass'r Agt., Detroit, Mich.
Wm. A. Wiggins, Southern Passenger Agent, Chattanooga, Tenn.
J. G. Mason, City Passenger Agent, Cincinnati, O.

Or General Passenger Agent's Office, - No. 200 W. Fourth St., Cincinnati, O.

C. C. WAITE, Vice-Pres't & Gen'l Manager. CHAS. H. ROCKWELL, Gen'l Pass'r & Ticket Agent.

THE Chicago & Grand Trunk R'y

NIAGARA FALLS AIR LINE

Is the Shortest and Most Direct Route East.

THROUGH SLEEPING AND PARLOR CARS TO

New York, Montreal and Boston.

The Only Line running Through Sleeping Cars between

CHICAGO and PHILADELPHIA

Via NIAGARA FALLS Without Change.

Trains leave Dearborn Station at 9.05 a. m., 3.25 p. m. and 8.15 p. m. 8.15 p. m. train has elegant Pullman Sleeping Car to Detroit daily.

GRAND HAVEN ROUTE.

Detroit, Grand Haven & Milwaukee, R'y,
Is the Shortest, Cheapest and Quickest Line between MILWAUKEE, Points in MICHIGAN, CANADA and the EAST.

A delightful 5 Hour Daylight Trip on the Palace, Iron Side Wheel Passenger Steamer,

CITY OF MILWAUKEE.

Steamer leaves Milwaukee daily at 11.30 A. M., connects at Grand Haven at 5.30 P. M. with Fast Limited Express, which reaches Detroit, 11.30 P. M.; Niagara Falls, 7.30 A. M.; New York, 10.00 P. M.

34 Hours Milwaukee to New York.

Round Trip Tourist Tickets to the Thousand Islands, Rapids of the St. Lawrence, Mountains and Sea Shore now on Sale. Pamphlets descriptive, Rates, Routes, etc., sent by mail from Company's Office, 99 WISCONSIN STREET.

2nd class tickets good on all trains.

W. E. DAVIS, Gen'l Pass's & Ticket Agent, CHICAGO. E. H. HUGHES, Gen'l Western Pass'r Agent, CHICAGO. B. C. MEDDAUGH, Nor. Pass'r Ag't, 99 Wisconsin St., MILWAUKEE.

STEAMSHIP TICKETS

To or from Europe at lowest rates, by all lines. Cabin plans can be consulted and best accommodations secured as far in advance as desired.

Information furnished by mail or on application at office, 99 Wisconsin St., southwest cor. Broadway.

B. C. MEDDAUGH, Gen'l S. S. Agent. MILWAUKEE, WIS.

CAWKER'S AMERICAN FLOUR MILL —AND— GRAIN ELEVATOR DIRECTORY

Published once in two years.

Gives nearly 23,000 Addresses, P. O., County and State, Capacity, Power, System, etc.; also lists of Millwrights, Miscellaneous Mills, Millbuilders and Furnishers, Flour and Grain Dealers, Foreign Flour and Grain Importers, etc., etc.

1888-9 Edition, Issued March, 1888.

PRICE, $10 PER COPY, post paid and registered to any part of the world. Address,

E. HARRISON CAWKER, Milwaukee, Wis.

PRIVATE · TELEGRAPHIC · CIPHER CODE

Compiled Expressly for the use of

Millers, Flour & Grain Brokers

For Private Telegraphic Correspondence, either for Land or Cable Lines.

1888 Edition, just out, March 1, 1888, revised, amended and added to, to meet all the requirements suggested by the members of the Miller's National Association, *who use more copies of the Code than all others combined.*

Published by the Riverside Printing Co., Milwaukee, Wis.

For terms, etc., address, stating number of Codes probably wanted,

RIVERSIDE PRINTING CO., Milwaukee, Wis.

Queen & Crescent ROUTE

94 MILES THE SHORTEST, 8 HOURS THE QUICKEST,

CINCINNATI TO NEW ORLEANS

Time, 27 Hours.

Entire Trains, Baggage Car, Day Coaches and Sleepers run through without change.

110 MILES THE SHORTEST, 7 HOURS THE QUICKEST,

CINCINNATI to JACKSONVILLE, Fla.

Time, 28 Hours.

Through Sleepers without change. The Short Line between Cincinnati and

Lexington,	Ky.,	Time,	2½ Hours.
Knoxville,	Tenn.,	"	12 "
Asheville,	N. C.,	"	17 "
Chattanooga,	Tenn.,	"	11 "
Atlanta,	Ga.,	"	15 "
Birmingham,	Ala.,	"	16 "

Direct Connections at New Orleans, and Shreveport, for Texas, Mexico and California.

Trains leave Central Union Depot, Cincinnati, crossing the Famous High Bridge of Kentucky, and rounding the base of Lookout Mountain.

Over One Million Acres of Land in Alabama, the Future Great State of the South, subject to pre-emption. Unsurpassed Climate.

For Rates, Maps, etc., address,

C. S. HENRY, Traveling Passenger Agent, 193 Clark St., Chicago, Ill.

J. C. GAULT, Gen'l Mgr. CINCINNATI, OHIO. D. G. EDWARDS, G. P. & T. A.

DO YOU INTEND TO BUILD? PRACTICAL LOW-COST HOUSES. HOW TO BUILD THEM.

A Large Atlas, containing drawings and floor plans of 40 Modern Houses with Correct Estimates of cost of building, of all kinds of buildings ranging from a $400 cottage to a $10,000 residence. The latest, most complete, and only practical book published. It is false economy to attempt to build without these plans. Price by mail, post-paid, 50 cts. Stamps taken.

Address, UNITED STATES MILLER, Milwaukee, Wis.

CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888-89, issued March 3, 1888, a work that should be in everyone's hand that desires to reach the entire flour and grain trade. While not claimed by the publisher to be perfect, it answers FULLY the requirements of the trade. It is the only list published. The demand is limited and the price (Ten Dollars per copy) is cheap, considering the labor required in compiling, printing and selling. It contains lists of flour mill and grain elevator owners, micellaneous kinds of mills such as corn, rye, oatmeal, rice and feed mills, millwrights, flour brokers and dealers in various sections of the United States and Canada, and a good list of European flour and grain importers. Kind of power used, rolls or stones, capacity and millers supposed to be worth $10,000 or *more* are indicated in thousands of cases.

dry and damp products. It is further contended that the bran and germ not being scarified by the smooth surface of the disintegrator, the work of the dressers and purifiers is much simplified, and M. Hignette claims that his system as compared with all other processes demands a considerably smaller amount of dressing surface to an equal capacity. The color of the flour is said to be much superior to that yielded by chilled iron or porcelain rollers. The advantages of this system are summed up as follows:

1. A lesser motive power than is required by any other system.

2. A larger yield and better quality of fine flour. Bakers are reported to be unanimous in praising the large yields in bread given by these flours.

3. The peculiar action of the machine, which is neither pulverizing nor cutting, but is simply percussive, and has, it is claimed, the effect of detaching the bran entire from the floury particles, and of giving a white flour free from specks.

4. The germ, not being scarified by the action of this centrifugal disintegrator, can also be eliminated with the bran.

It is further claimed that by this system the working staff is reduced to a minimum, and the wear of the machine is inappreciable, while the floor space is only half that required by other milling processes.

It has already been noted that M. Hignette claims for his system the great advantage of allowing millers to entirely dispense with stones, with their concomitant expenses of dressing. But should it be advisable to utilize an existing stone plant, the stones may, he adds, be easily applied either to the splitting of the berry or to the finishing of the middlings. A clearer idea of this system of milling will be afforded by the diagram, Fig. 3, and general plan of a mill with a capacity of 150 quintals of wheat (the quintal is 220.46 lbs.) in the 24 hours.

The mill consists of three distinct parts. The first serves for warehousing and storing the grain; the second contains the cleaning machinery; while in the third is installed the milling plant proper. The mill is supposed to work up to treat 600 kilos. of wheat in the hour. In the granary are four silos, O, O, O, O, which are fed either by the elevator or by the sack lifts, and these can be used inside as well as outside the building. In the second section, or screening-house, is to be found in addition to the semi-fixed steam engine located on the ground floor, a complete system of cleaning machinery, ranged in the following order. From the uncleaned wheat bin, fed by the elevator which receives the grain directly from the silos, the wheat descends to the first floor, and is there treated by sorters (*trieurs*) on Hignette's system, fitted with an aspirator, and intended to extract small pieces of earth and stones. On leaving this machine the berries are fed into a barley cylinder, and on being discharged are conveyed by an elevator to the third floor, where they are treated by a cockle cylinder, from which they pass down to the brush machine, fitted with a fan, on the second floor, and after leaving that machine are subjected to a damping, up to 2 per cent. of their weight, according to their degree of dryness. In the case of soft wheat, when necessary, an automatic damper is used, while hard wheat is treated by a washer. On the conclusion of the operations the grain is elevated and placed in sacks to dry as long as may be required before being shot into the bin which feeds the second brush machine, which is fitted with a double aspirator. From here the wheat is shot into the cleaned wheat bin.

The third section of the building is constructed for the reception of the of the various milling machines. It is in this part of mill that the "Hignette" disintegrator has the effect of simplyfying the plant as its use is said to be equivalent to the suppression of five roller mills, the inventor claiming that one of his disintegrators will do the work of five successive breaks. Fig. 7 is a plan of the mill:

1. A 4-roller mill, two rolls being left smooth to act as laminators (*comprimeurs*) and two rolls being grooved to detach the bran.

2. A "Hignette" centrifugal disintegrator for wheat.

3. A "Hignette" centrifugal disintegrator for middlings.

4. A mill with three or four smooth rolls for finishing the middlings.

The purification is effected by two "Hignette" purifiers, one being used for coarse and the other for fine middlings.

The separation of the bran and the dressing is carried out by eight ordinary bolters and is finished by a double centrifugal dresser. A couple of "pastrys" complete the plant, which it will be seen is not large.

The milling process consists in the cleaned wheat being received by a bin on the second floor, from which it is shot into a hopper placed at the head of the splitting cylinders. From these cylinders the berries are passed into a small bolter which eliminates a certain amount of waste products, which simply fall into sacks, while the split berries as they quit the bolter are taken to the centrifugal disintegrator, passing on the way over a magnetic incline, which arrests the iron particles that might get into the disintegrator.

The products of this machine are fed into a bolter which serves to separate the coarse bran, and this bran is taken to the bran detacher, which flattens it out and strips off any middlings that may still adhere; the product of this machine is taken to a bran dresser, which separates the middlings ready for the purifier, and if it be advisable to grade the bran, it is finally treated in a grading cylinder.

After its final separation from the coarse bran the meal is fed into a dressing machine, which takes out 15 per cent. of fine flour, while the tailings go to a dresser, which yields two per cent. of flour and fine middlings. This fine and second flour, which is remarkably white, will be about 17 per cent. of the weight of the wheat, but this will vary according to the kind of grain. The fine soft middlings from the purifiers are treated by the "Hignette" disintegrator, while the hard middlings are treated by the smooth roller mill, and the milling is finished by several operations in the two disintegrators. The products of the roller mill pass into the centrifugal, while those of the disintegrator are dressed in the ordinary bolters. The flour that results is taken to the "pastrys," whence it is drawn off in sacks to form the "farine flour," or mixture of all the qualities of flour.

It is hoped that this brief description will have afforded a key to the programme, which, it will be remarked, is of great simplicity. The system is susceptible of application to mills of all capacities, as the "Hignette" disintegrators are capable of treating, according to their size, from three hundred to several thousand kilos of wheat per hour.

Herewith we have given the longitudinal section and plans of floors in a "Hignette" short system mill. We are enabled here to give the names of the machines, etc., which are lettered in the drawings referred to as follows:—

KEY TO ILLUSTRATIONS.

A—Semi-fixed Steam Engine.
B—Combined Grain Cleaner and Trieur Cylinder.
C—Chain Bucket Elevator.
D—Trieur Cylinder for round seed.
E—Smutter.
F—Damping Worm.
G—Wheat Bin.
H—Brush Machine.
I—Elevator.
J—Cleaned Wheat Bin.
K—Roller Mill, with three rolls.
L—Elevator.
M—Double Bolting Reel.
N—Elevator.
O—Bran Reel.
P—Offal Divider.
Q—First Reduction Disintegrator.
R—Bran Elevator.
S—Reel Divider.
T—Second Reduction (Disintegrator).
U—Elevator.
V—Reel for the Second Reduction.
X—Roller Mill, with three rolls.
Y—Bran Elevator.
Z—Double Centrifugal.

a—Reel for Baker's Flour.
b—Middlings Conditioning Reel.
c—Middlings Grading Reel.
d d—Flour Mixers.
e—Purifier for Coarse Middlings.
f—Purifier for Fine Middlings
g—Main Shaft.
h—Shafting from which the Disintegrators are driven.
i i—Air Chamber for the Disintegrators.
j j-Disintegrator Feeding Bins
k k—Roller Mill Bins.
l—Dirty Wheat Bin.
m—Sack-lifting Tackle for Mill.
n—Warehouse.
o, o, o, o—Silo Bins.
p—Warehouse Elevator.
q—Worm for discharging Wheat into Silos.
r—Worm Conveyor feeding Elevator (s).
s—Short Elevator for conveying Wheat from Worm (r) to Dirty Wheat Bin.
t—Sack-lifting Tackle for inside of Warehouse.
u—Sack-lifting Tackle for unloading from yard.

[The illustrations in this article were made especially for the UNITED STATES MILLER AND MILLING ENGINEER.]

SPRAGUE ELECTRIC POWER SYSTEM.

A large New Hampshire cotton mill, within fifty miles of Boston, is going to adopt a novel system of electric power, which will be installed by the Sprague Electric Railway Motor Company. The corporation will use water power, which they control, which is about one mile from the mill and which they have been unable to use heretofore. The machinery is constructed and operated as follows: A bank of three water wheels geared to a jack-shaft. Next to a third wheel put on a large pulley to the jack-shaft, and between the pulley and second wheel is placed a coupling. From the pulley belt on to a short counter is carried a friction clutch pulley belted to a dynamo. When it is desired to operate a motor or to start lights in the mill anywhere, it is only necessary to throw the clutch into action. If lights and motor power are wanted when the mill is not in operation, the single wheel on the jack shaft is employed by starting the one wheel. This one wheel also drives fire pumps, runs elevators in a storage house several hundred feet from the main building, and operates a tramway. From the one dynamo these or any other motors located in the vicinity can be operated.

THE C., I., St. L. & C. Ry. (Kankakee line) is the best route to Florida. Close connections in Central Union Depot, Cincinnati with through express trains of C. N. O. & T. P. Ry. Queen & Crescent Route.

ACCIDENTS AND HOW TO DEAL WITH THEM.

SWALLOWING COINS.—If the coin is swallowed, there is seldom any danger. The best thing to do is to take a slight aperient, and in all probability it will pass away all right. If it enters the windpipe, medical aid should immediately be sought, and the only thing that could be done would be to seize the individual by the legs and hold him upside down, and strike him violently on the back, when it may be coughed up, (or rather down.)

CROCHET-NEEDLES, ETC., IN THE FLESH.—If possible, send the sufferer to a surgeon. With proper instruments he can take it out without much pain. If this is not possible, make certain on which side the hook is, then put an ivory bodkin, or any similar article, down the wound till it touches the hook, and draw both out together.

A BITE FROM A MAD DOG.—Rub the point of a stick of lunar caustic (nitrate of silver) into the wound for fully eight seconds, and do this as soon as possible, for no time is to be lost. Of course, it will be expected that the parts touched with caustic will turn black. If, unfortunately, it should chance that any one is bitten by a dog that is said to be mad, it is worth while to chain the animal up, instead of shooting it instantly; for if it should turn out that it was not mad—and a false alarm is frequently raised—the relief to the minds of all concerned is indescribable.

SCRATCH FROM A CAT.—A scratch from a cat is sometimes not only painful, but difficult to heal. When this is the case the limb should be bathed with a hot fomentation of camomile and poppy-heads, and a hot bread-and-water poultice applied, to be renewed with the bathing every four hours.

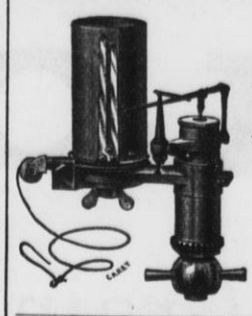
A BITE FROM A VENOMOUS SNAKE.—Suck the wound for several minutes. No danger need be apprehended from doing this, as venom of this sort does not harm when it passes into the stomach, but only when it gets into the blood. Of course the saliva need not be swallowed. Bathe the place copiously with hot water, to encourage bleeding, and tie a bandage tightly above the wound, between it and the heart. Procure medical aid as soon as possible.

A BLOW ON THE HEAD CAUSING UNCONSCIOUSNESS.—Lay the patient on his back and dash cold water on his face; loosen his dress, particularly about the throat; let him have plenty of fresh air blowing on him, and, in fact, treat him as if he had fainted. If, on regaining consciousness, he vomits, send for medical aid, as it is to be feared the brain is injured.

SPRAINS.—If a sprain is nothing more than a sprain—that is, if no bones are broken or put out—wrap the part in several folds of flannel which have been wrung out of hot water, and cover it with a dry bandage, and rest it for some days or even weeks. Entire rest at first, and moderate rest afterwards, are absolutely necessary after a sprain. If it is in the ankle, the foot should be raised as high as may be comfortable; if in the wrist, it should be carried in a sling.

HOW TO STOP THE FLOW OF BLOOD.—Housekeepers, mechanics, and others, in handling knives, tools, and other sharp instruments, very frequently receive severe cuts, from which blood flows profusely, and oftentimes endanger life itself. Blood may be made to cease to flow as follows: Take the fine dust of tea and bind it close to the wound; at all times accessible and easily obtained. After the blood has ceased to flow, laudanum may be advantageously applied to the wound. Due regard to these instructions would save agitation of mind and running for the surgeon.

American Steam Guage Co.,
——SOLE MANUFACTURERS——
Bourdon Steam Guages,
WITH LANE'S IMPROVEMENT.



THOMPSON'S
Improved Indicator
Over 2,500 in Use.

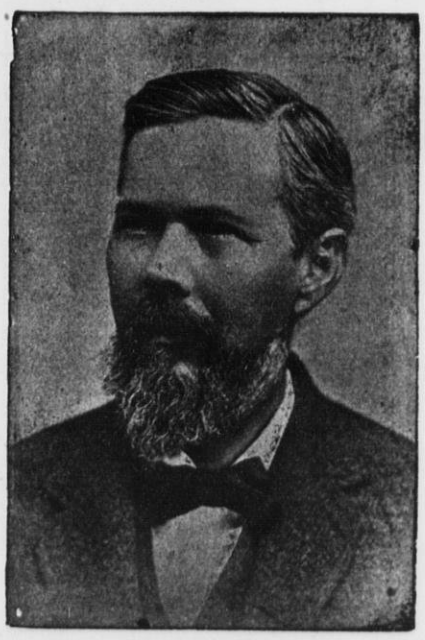
American Pop Safety Valves,
For Locomotive, Stationary and Portable Boilers, and Instruments Incidental to the use of Steam. Send for Price List I.
36 Chardon St., BOSTON, MASS.
Send for Catalogue K.

ITEMS FROM BEYOND SEAS.

THE "*Berliner Muellerzeitung*" Berlin, Germany, has changed owners and will hereafter be published weekly under the title of "*Deutsehe Mueller Industrie.*" Glück zu.

A PRIZE of $600 has been offered by the Minister of Agriculture, Victoria, Australia, for a threshing machine that will thresh 80 bushels of peas in twelve hours.

THE present import duty on wheat in Portugal is $4.44 per 480 pounds and on flour $3.84 per 280 pounds.



ALEXANDER H. SMITH, Esq., of St. Louis.

[The poem below was presented to Mr. Alex. H. Smith, the well-known St. Louis miller, on the occasion of his fifty-sixth birth-day, May 22, 1889, by his daughter Miss Mary B. Smith.]

FOR YOUR BIRTHDAY.

A long life, and a happy life,
And a life we all may share
Is what we hope will come to you,
With the silver in your hair.

It matters not about the years,
If the heart within be gay;
There's nothing underneath the sun
Can take your youth away.

We have no costly gifts to bring,
Our love for you to show;
But if we gauged them by our wish
What millions we'd bestow!

So take our wishes for our deeds,
And we'll ask you to begin
To cash our promissory notes,
When our good ship comes in.

Sawdust mixed with soft coal will result in a large saving of fuel. A large manufacturing concern at Bellow Falls, Vt., which formerly used 130 tons of coal a week now averages less than 25, because of the use of this mixture. So it is claimed.

OUR readers will confer a favor by writing to us giving us any item of news such as new mills, elevators, etc., or improvements in the same, or giving information of a practical nature of general interest to the trade.

G. M. MANN. F. P. MANN

MILWAUKEE BAG COMPANY,

MANUFACTURERS OF

COTTON, PAPER AND JUTE

FLOUR SACKS

DEALERS IN

Grain Bags, Twines, Centals, Etc.

TELEPHONE NO. 427.

No. 236 East Water Street, MILWAUKEE, WISCONSIN.

SCHIEREN'S

OAK-TANNED

LEATHER BELTING

Cotton Belting and Hose

GOODYEAR RUBBER CO.

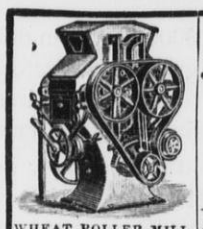
"Gold Seal" Rubber Belting.

PRICE LIST SENT ON APPLICATION.

372 & 374 EAST WATER STREET
MILWAUKEE.

131 EAST THIRD STREET
ST. PAUL.

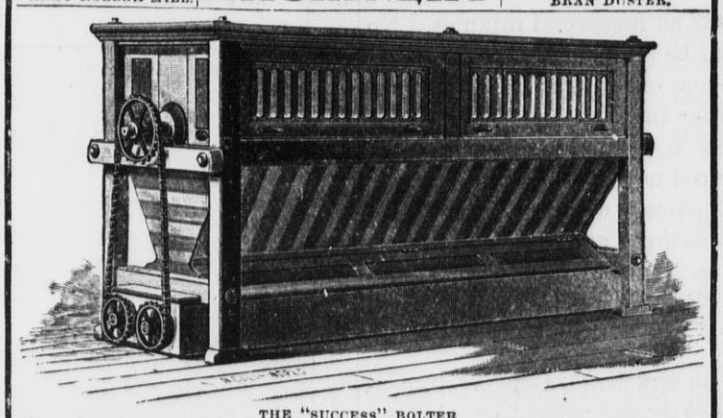
201 NICOLLET AVENUE
MINNEAPOLIS.



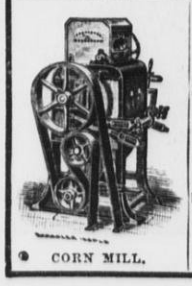
WHEAT ROLLER MILL.

THE
J. B. ALLFREE COMPANY,
Indianapolis, Indiana,
manufacture this superior line
—OF—
MACHINERY

BRAN DUSTER.



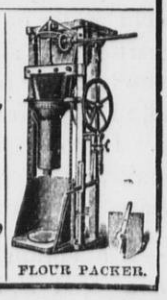
THE "SUCCESS" BOLTER.



CORN MILL.

Also
AUTOMATIC ENGINES,
Purifiers,
SIEVE SCALPERS,
Corn Pearlers and Corn Cleaners,
Centrifugal Reels.

Address for prices, etc.,
THE J. B. ALLFREE COMPANY,
Indianapolis, Indiana,
Mill Builders and Mill Furnishers,



FLOUR PACKER.

ROBERT POOLE & SON CO.,

Leffel Turbine Water Wheel

Made of best material and in best style of workmanship.

Machine Molded Mill Gearing

From 1 to 20 feet diameter, of any desired face or pitch, molded by our own SPECIAL MACHINERY. Shafting, Pulleys, and Hangers, of the latest and most improved designs.

Mixers and General Outfit for Fertilizer Works.

Shipping Facilities the Best in all Directions.

ROBERT POOLE & SON CO., BALTIMORE, Md.

N. B.—Special attention given to Heavy Gearing for Pulp and Paper Mills.

[Mention this paper when you write to us.]

WM. PLANKINTON, President.
FREDERICK D. DAY, Treasurer.

CAPITAL STOCK, $100,000.

GEO. N. SCEETS, V. Pres't & Mgr.
J. G. THOMPSON, Secretary.

Milwaukee Brass and Copper Works

MILWAUKEE, WIS.

BABBITT METALS,

(Standard and Special Mixtures).

Brass and Bronze Castings. Ingot Metals.

Our "Badger State Metal" is the best anti-friction Metal on the market. We make a specialty of furnishing special mixtures to large consumers, putting on buyer's brand when desired.

MILWAUKEE BRASS AND COPPER WORKS, MILWAUKEE, WIS.

Send for Circular and Price Lists. Mention this Paper.

STILWELL & BIERCE MFG. CO.

DAYTON, OHIO, U. S. A.

MILLING ENGINEERS

Manufacturers of the Celebrated ODELL ROLLER MILLS and a full line of

Flour and Corn Mill Machinery.

MILLS BUILT ON THE

ODELL SYSTEM.

Contracts taken for mills of any size, large or small, and results GUARANTEED.

1876. 1889.

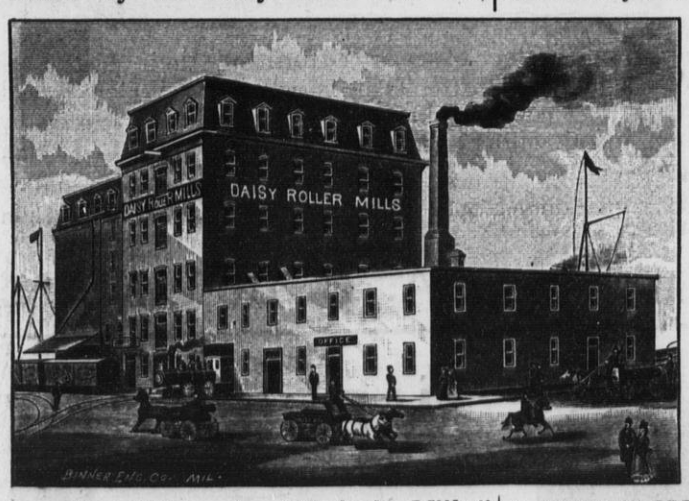
The United States MILLER AND THE MILLING ENGINEER.

Fourteenth Year.—No. 7. MILWAUKEE, JULY, 1889. Subscription Price, $1.00 Per Year.

MILWAUKEE MILLS.

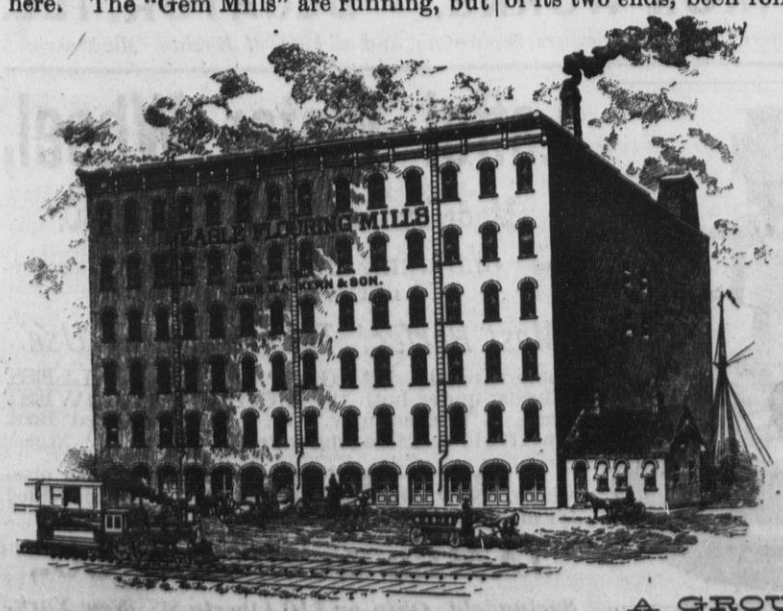
WE present on this page illustrations of six of the principal flouring mills in Milwaukee. The mills in this city have an aggregate daily capacity of 9,100 barrels per day, and produced during the year 1888, 1,421,258 barrels of flour. The mills here illustrated are the "Eagle Mills," owned by J. B. A. Kern & Son, daily capacity 2,000 bbls.; the "Phœnix Mills," owned by E. Sanderson & Co., daily capacity 2,000; the "Daisy," owned by the Daisy Roller Mill Co., capacity 1,500; the "Duluth Mills," owned by Faist, Kraus & Co., capacity 1,500; the "Jupiter Mills," owned by B. Stern, capacity 500 bbls. (increasing now); the "Reliance Mills," owned by C. Manegold & Co., capacity 600 bbls.

The "Gem Mills," "Cream City Mills" and "Centennial Mills" are not illustrated here. The "Gem Mills" are running, but the other two are not. All these mills are fitted up in the most approved modern style and manufacture extensively for the export trade. It is a well-known fact that Milwaukee flour has a first-class reputation in both domestic and foreign trade circles. From present appearances it seems quite probable that the output of Milwaukee Mills this year will exceed all former years.

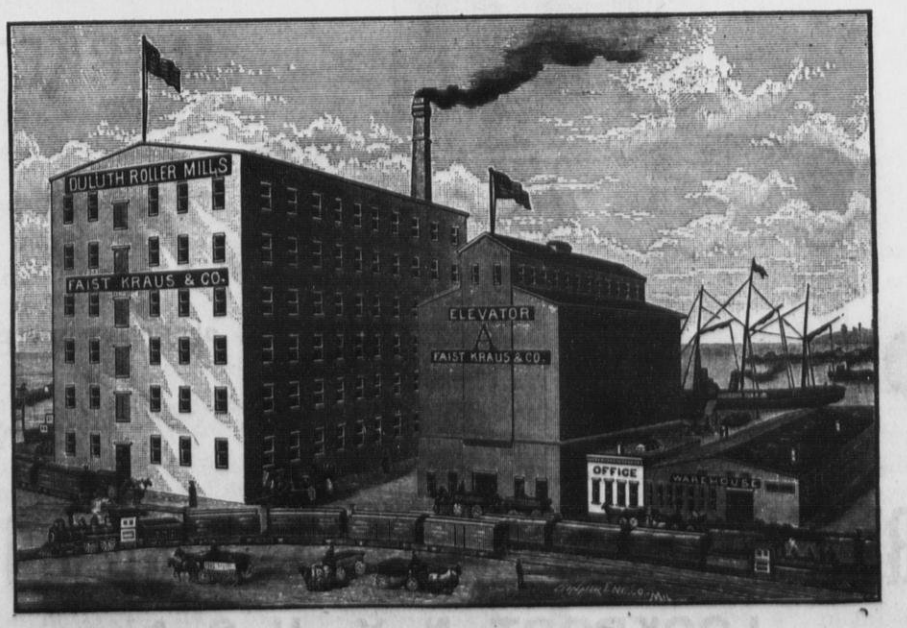


A CAPILLARY STEAM BOILER.

A French engineer has invented a new tubular boiler, for which he claims that it cannot possibly explode. The boiler consists simply of a solid drawn steel tube which has, with the exception of its two ends, been rolled out flat, so as to leave in it a channel only 0.1 to 0.3 millimetres wide. The tube is then coiled spirally, and its inner end is bent up vertically to receive the steam pipe, whilst the feed pipe is screwed into the outer end of the spiral. This spiral tube boiler is placed into a furnace which may be of the slow combustion type, and there is no need for either stop valve, blow-off cocks, gage glass or safety valve. The feed water, upon entering the capilliary channel within the tube, is instantly converted into steam, and issues perfectly dry. The inventor claims that owing to the great velocity with which water and steam must pass through the boiler, there is no possibility of scale accumulating. The tube of a one horse power boiler is 6 feet 6 inches long, and when flattened out 4 inches wide, its total heating surface is about 5 square feet, and it is said to evaporate 45 pounds of water per hour, with a consumption of 9 pounds of coal. The supply of steam to the engine is regulated by regulating the amount of feed water sent into the boiler, and for this purpose the inventor arranges the regulator of the engine either to act upon the waste cock of the feed pump, or upon a sliding block by which the stroke of the feed pump is altered. There being practically no water in the boiler, the regulation is said to be as precise and quick as with the usual type of engines. To stop the engine it is only necessary to close the cock on the suction pipe of the pump, or open the waste cock fully. The boiler has been applied to a steam driven tricycle in the streets of Paris. The boiler was carried behind the axle of the main driving wheels, and the engine was fixed under the rider's seat, which also contains a supply of water and fuel. A speed of 6¾ miles an hour was attained over roads having 15 per cent. grades. The weight of the tricycle in service, but without the rider, is 3¾ cwt.



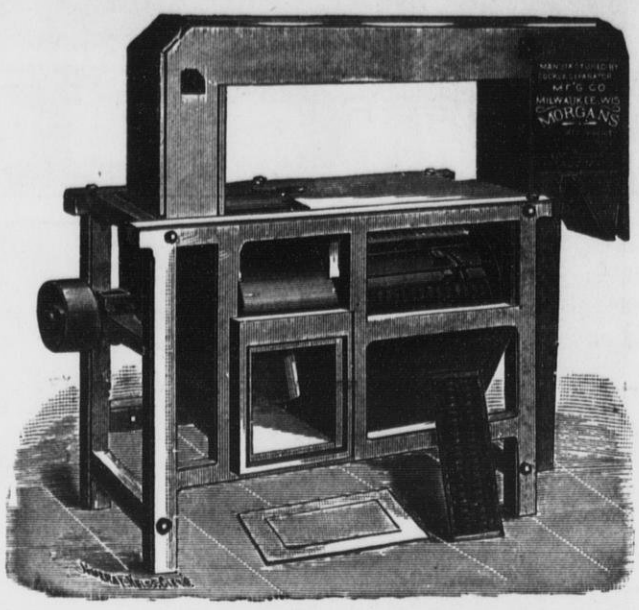
"THE distribution of bread, after it is baked," says Edward Atkinson, "now costs the average workman in a city as much as it does to grow the wheat, mill it, barrel it, move it 1,500 miles, and convert it into bread, all put together."



A GROUP OF MILWAUKEE MILLS.

RECOGNIZED AS THE BEST.

The Morgan Scourer



Built either Upright or Horizontal, with or without Shoe. Hundreds of these machines are in use in the best mills of the country. They are undoubtedly the most thorough and durable Scourer on the market.

PRICES LOW. RESULTS GUARANTEED.

For Prices, Terms, etc., address

COCKLE SEPARATOR MFG. CO.,

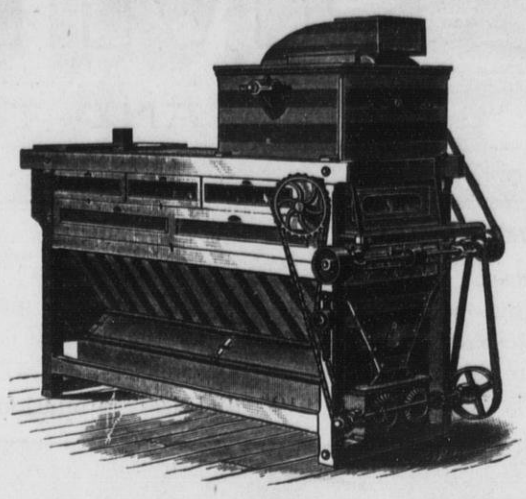
MILWAUKEE, WIS.

MANUFACTURERS OF

Kurth Cockle Separator. ⁘ Gilbert Reel. ⁘ Spiral Conveyor.

Superlative ⁘ Purifier

A First-Class Machine at Reasonable Prices.



The above has been on the market for years, and is in operation in hundreds of mills. The fact that we are selling large numbers to millers who have seen it in practical operation in mills, vouches for its worth.

Guaranteed to do as good work as any Purifier on the market and to be first-class in construction and material.

FOR PRICES, ETC., ADDRESS

SUPERLATIVE PURIFIER MFG. CO.

MILWAUKEE, WIS.

ALSO MANUFACTURERS OF

THE NEW ERA SCALPER.

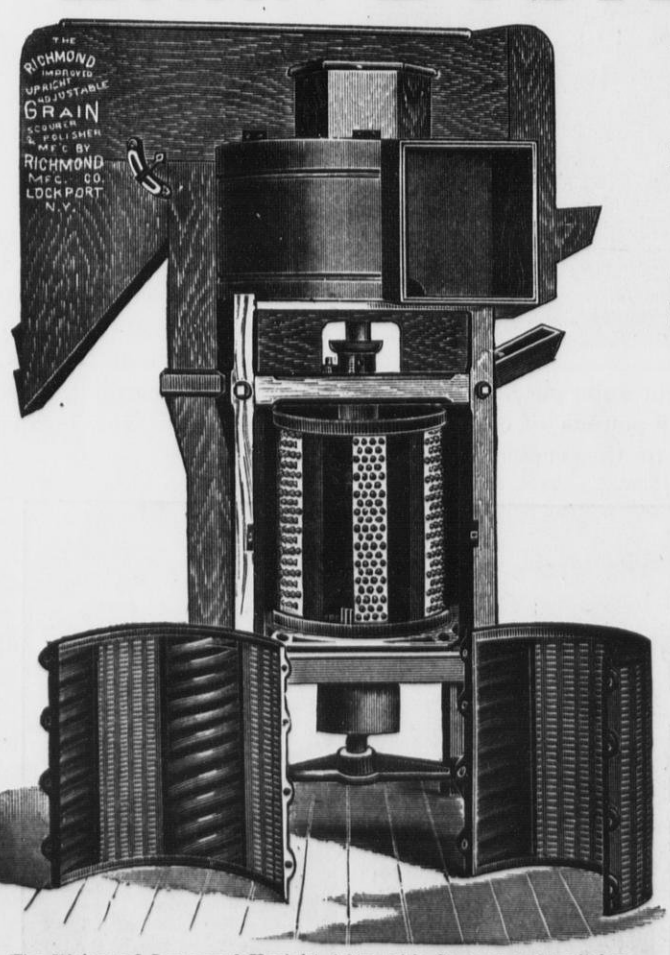
WE WANT YOU

To Derive the Benefits that can be Obtained by Using the

Richmond Grain Cleaning Machinery

AND

BRAN DUSTERS



The Richmond Improved Upright Adjustable Scourer and Polisher.

Which are without doubt the

BEST

and Most

EFFICIENT LINE

OF MACHINES

—ON THE—

MARKET.

—::—

We make this statement, with the knowledge that

PROMINENT MILLERS

ENDORSE IT.

RICHMOND MANUFACTURING CO.,

LOCKPORT. N. Y., U. S. A.

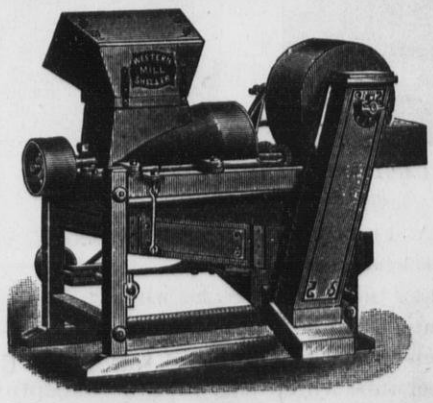
Condemnation · of · Competitors

IS THE MEASURE OF SUCCESS.

I CHALLENGE the wheat heater concern advertising their heater as "replacing the Welch" to publish the terms on which the Welch Wheat Heaters are replaced. I could replace any other make of heater by allowing a big price for it and selling mine low, which is equal to paying a bonus.

The "Welch" is fully guaranteed, sold on its merits and used more than any heater on the market.

823 SECOND ST.,
ST. LOUIS, MISSOURI. **A. B. BOWMAN.**



THE

"WESTERN"

MILL SHELLER.

The most Compact, Durable, Best Sheller and Best Cleaner.

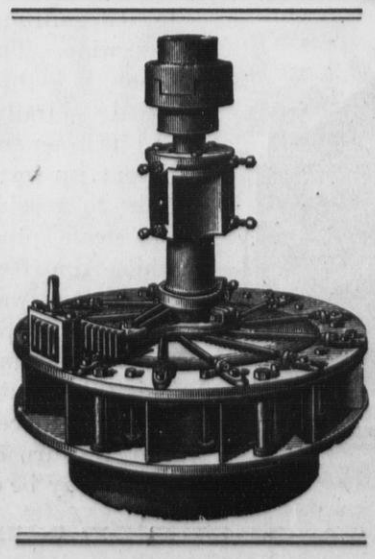
Takes up but little room, runs at low rate of speed, requires no attention. It is in every respect the

Best Sheller ever offered to the Public.

Please mention this paper. Write for full particulars to

UNION IRON WORKS, - DECATUR, ILL.

Mfrs. of "Western" Shellers, Cleaners, Separators, and all kinds of Elevator Machinery.



Leffel Water Wheel,

Made by JAMES LEFFEL & CO.

The "OLD RELIABLE" with Important Improvements, making it the

Most Perfect Turbine now in Use.

Comprising the **LARGEST** and the **SMALLEST** Wheels, under both the **HIGHEST** and **LOWEST** Head in this country. Our New Illustrated Book sent free to those owning water power.

Write us for **NEW PRICES** before buying elsewhere. New shops and New Machinery are provided for making this Wheel. Address,

JAMES LEFFEL & CO.,

Springfield, Ohio or 110 Liberty St., New York.

UNITED STATES MILLER
AND THE MILLING ENGINEER.

E. HARRISON CAWKER, EDITOR.

M. W. THORMAEHLEN, Associate Editor.

PUBLISHED MONTHLY.

OFFICE, No. 124 GRAND AVENUE, MILWAUKEE.

SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.

To American subscribers, postage prepaid..... $1.00
To Canadian subscribers. postage prepaid..... 1.00
Foreign subscriptions..... 5s.

All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.

Bills for advertising will be sent monthly, unless otherwise agreed upon.

For estimates for advertising, address the UNITED STATES MILLER AND THE MILLING ENGINEER.

[Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE, JULY, 1889.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER AND THE MILLING ENGINEER. *You will thereby oblige not only this paper, but the advertisers.*

WE send out a number of SAMPLE COPIES of this issue containing subscription blanks. We solicit a critical examination of our Journal and invite you to subscribe. The price is one dollar per year. No premiums—no discount. Our August number will contain matters of *special interest* to millers which you will not find elsewhere.

THE California wheat crop is estimated to be about 65,000,000 bushels.

CHICAGO can now boast of having a population of more than a million.

BAGGING, twine and paper combinations received imports of hemp and jute butts during the third week in June valued at $1,225,000.

THE Chicago bucket shop men have beaten the Chicago Board of Trade in the legal struggle over the matter of furnishing quotations.

THE Minneapolis Chamber of Commerce is said to be involved in litigation over the title to the ground on which its elegant building stands.

THE New Era Exposition, St. Joseph, Mo., opens Sept. 3, and closes Oct. 5. Great efforts are being made to ensure its success. St. Joseph is a live town, and has great advantages, that will bear close investigation.

COL. GEORGE BAIN of St. Louis failed to secure the U. S. Consulship at Glasgow, greatly to the regret of his many friends. It is said, however, that he is on the list for a good position abroad. We hope he will be successful.

THE most thorough description of the Paris Exposition, for the information of practical men, that we have yet seen, is in the edition of *Engineering*, London, (W. H. Wiley of 15 Astor Place New York is the American agent.) The article with numerous illustration fills nearly a hundred pages.

AND now comes the *American Analyst* asserting that bread made from modern-milled flour is detrimental to good teeth for the reason that it does not contain the constituents necessary to nourish them. It also sounds loudly the praises of oatmeal, a commodity which is responsible for more dyspepsia and kindred ills than any other article of food we know of. If man lived by bread alone, there might possibly be something in the arguments of the *Analyst*, but he don't—especially when "Bulls" have got the market, and meat and vegetables are cheap.

IT is scarcely necessary to call the attention of our readers to the OPEN LETTER in this number, of the CONSOLIDATED ROLLER MILL CO., to the millers of this country. It is at this time an announcement possessed of thrilling interest to a great many people, and will no doubt be read with careful attention from beginning to end. We are informed on the best of authority that some manufacturers of roller mills are negotiating with the CONSOLIDATED COMPANY for the privilege of manufacturing with license. What further steps in the line of defense will be taken, we do not know at this writing.

ELECTRICITY has come to stay and the public is not slow in recognizing the fact. The minds of thousands are to-day studying to what new uses to apply it, and to secure its use with the highest degree of economy. Its use thus far in flour mills has been almost entirely for light. In some mills a system of electric call bells are used and an electric flour tally arranged in connection with the flour packers has been invented. It indicates in the mill office every sack or barrel of flour packed and insures accurate weight. There is one flour mill in the West in which the power required to run it, is transmitted from the turbine wheel some half-mile distant. As improvements and new discoveries are made they will of course be adopted by millers as quickly as by any other class of manufacturers.

AT St. Louis the first new wheat-flour made from the crop of 1889, was exhibited on 'Change June 26 by the Geo. P. Plant Milling Co.—a sack each of "Sweet Home" patent and "Pilgrim" straight. It was examined by experts and pronounced fully up to an exceptionally high standard. The wheat was from the vicinity of Neodesha, Ks. On this subject the St. Louis *Post-Dispatch* says: The wheat, barring its toughness, which caused it to grade No. 3, was otherwise in fine condition and of excellent quality, speaking well for the Kansas crop. As usual with first arrivals, this car of new wheat was sold on call by auction, and the buyers were the Plant Milling Co., who paid $1.04 per bushel. This milling concern has been running in St. Louis for nearly fifty years, celebrating their fiftieth anniversary next year, and they have bought, with very few exceptions, the first arrivals of new wheat in that market during all that period.

THE representatives of the Civil, Mining and Mechanical Engineering Societies are having a grand time on their European trip. They were welcomed, feasted, entertained and showed the engineering wonders of the United Kingdom by their British brethren and are now being put through their paces in Paris by the French engineers. The party are not only having lots of fun but are working hard in taking observations and in all human probability they will learn much that will soon be put into practical use in our own beloved country. We think this excursion will be of great benefit to all. There are many things to be learned by our engineers from their European brethren some of which will be well learned on this trip and when the European engineers visit us perhaps we can have the satisfaction of paying them off by showing them, a new thing or two.

CONGRESS approved an act, May 24, 1888, entitled: "An act authorizing the President of the United States to arrange a conference between the United States of America and the Republics of Mexico, Central and South America, Hayti, San Domingo and the Empire of Brazil."

This International American Congress will meet at Washington, D. C., Oct. 2, 1889. The object of the meeting is simply the discussion of certain large and important commercial and industrial questions which are of direct interest to this country in its relations with the other powers of the North and South American Continents. Secretary of State Blaine has issued circulars enclosing a copy of the act, and has sent them to the important commercial organizations of this country, among them the Millers' National Association. Suggestions upon subjects referred to, are desired. The executive committee will consider the matter carefully at its next meeting.

THE announcement is made that Alex. H. Smith of St. Louis, has resigned his position as member of the Sub-Executive committee of the Miller's National Association which he has held uninterruptedly for a period of over ten years and also his office as secretary of the Central Millers' Association. Some remarks made by Mr. Smith while in Milwaukee last month no doubt indicated that he was considering some such step. He has expressed himself as feeling that he had done his share of the hard work during the many years past, and that there were other good men, who ought to go on with it. While many of the friends of the Association and of Mr. Smith must regret his relinquishment of active participation in the affairs of milling associations, they cannot deny that he has served long, vigorously and faithfully, and has now a warm place in the hearts of his fellow millers throughout the length and breadth of this broad land, and the knowledge that this is so, will we know, be all the reward he wishes for. May his days be long and his paths lead to pleasant places.

IT is said that once upon a time an old man lay dying and his parting advice to his son who stood beside him was in these words—"My son go forth into the world and seek your fortune. By all means, get money—honestly if you can—but—*get money*." Having given this counsel, he turned his face to the wall and was gathered to his fathers.

Verily the old man's advice has been taken by countless thousands of the sons of men, for the money-getting tendency of the times, the hot pursuit of the almighty dollar and the disposition to measure men and things by the money standard has become altogether too evident to men who think. But once in a while something happens that brings out the fact that the most eager men in the race for wealth are not so entirely bad as some would have us believe. Note the Johnstown disaster. It appealed directly to the finest instincts of human nature and money, food and clothing poured in, to relieve the distressed and bury the dead. For a time at least many men whose sole effort in this life seemed to be that of accumulating wealth have come promptly and liberally forward and played the part of the Good Samaritan.

We have always among us men and women who are liberal according to their means but the contributions from Boards of Trade, Stock Exchanges and similar organizations who too frequently are considered only as combinations of money-sharks have been so liberal that the most bitter cynic who bemoans the degeneracy of human nature, must pause, at least a moment and admit that there is some good left in it yet.

SPITE CRITICISMS OF MACHINES.

IT is doubtful if there ever was or ever will be a machine of any kind so obsolutely perfect that it cannot be improved in some detail or other by some one. Honest criticism is not only commendable but desirable for it tends to the perfection of a machine. On the other hand, when out of *pure spite* against the inventor, builder or seller of a certain machine, or line of machinery a person derides, ridicules, criticises and unqualifiedly condemns it as worse than useless, we can scarcely conceal our contempt for his weakness—for a most pitiable weakness it is.

Many also claim it is *business*, on no less an authority than old Blackstone himself for a competitor in trade to say all manner of fine things in favor of his own goods (he may even lie moderately in their interest) and to criticise his rivals product as long as he keeps within the range (often longe range) of truth. *Coveat emptor* (let the buyer beware) is the law of trade, and it is the buyer's business to be on his guard. There are of course many business houses who would scorn to do any commercial lying about their goods but there are few of them but have commercial travelers who will tell the truth, *decorated* in the highest style of the art, if they think they can thereby make a trade.

HOW OFTEN SHOULD ROLLS BE DRESSED?

IN those "good old days," that some millers refer to, when flour was made by millstones, it was necessary to dress the stones often and to adjust them with the greatest care. If you look over the files of milling journals published a dozen years since, you will find much of the space devoted to articles and illustrations concerning stone dressing. If a miller was admitted to be a first-class millstone dresser, that alone was sufficient to guarantee him a good situation.

Then rolls came into the market and have been almost universally adopted in all mills making a pretense of doing fine work. One of the arguments used by sellers of roller mills was that all trouble about dressing would be done away with; that the rolls would not need dressing or recorrugating more than once in from two to five years and then it would be done by the mill furnisher at a trifling expense.

Experience has shown that rolls do not require dressing, (recorrugating or grinding) by any means as often as millstones, but it has shown that it requires a fine sense of perception to know just when a roll is worn enough to warrant the expense of redressing. It has frequently happened that mill owners have been persuaded to put in some special corrugation. After it was done and the mill started up the results were so much better than before that the special corrugation accepted was given the credit of the improvement. If the rolls had been simply recut to the original corrugation perhaps the result would have been just as good. The writer is of the opinion that it requires a miller just as observing to keep rolls in proper condition as it used to in those "good old days" to keep the millstones in order. We would like to hear from millers on this subject. It is worth not only consideration but careful experiments.

SECRETARY FRANK BARRY.

IN accordance with the resolution adopted by the Millers' National Association at the June meeting, a Secretary has been appointed, whose duty it is to devote his whole time and energy for the best interests of the Association. Mr. Frank Barry, of this city, has been appointed. Mr. Barry has filled a responsible position with Messrs. Edw. P. Allis & Co., for several years, and is certainly well posted in the mechanical part of the milling business. One of his chief duties while with this firm was the placing of advertising and doubtless at times some of the milling papers felt that they did not get their share (we acknowledge that we felt that way) but taking all things into consideration we think there was little just cause for complaint. He has also had considerable experience in railway service. As the travelling correspondent and agent of the *Northwestern Miller* he made a host of friends among millers and manufacturers in all parts of the country. He stands well socially; is a Mason of high degree, Chancellor Commander in the Order of Knights of Pythias and also a member of that *summum bonum* of all secret and charitable organizations the Elks. He is also a member

CONTINUED ON PAGE 77.

An Open Letter to Millers

CONSOLIDATED ROLLER MILL CO.,
No. 53 Honore Block, 204 Dearborn Street.

CHICAGO, ILL., June 6, 1889.

To the Millers of the United States:

We are the owners of a very large number of patents for various improvements in Roller Mills, among which we mention more particularly the following:

W. D. Gray	No. 222,895		John Stevens	No. 230,834	
"	" 228,525		"	" 236,104	
"	" 235,761		"	" 236,643	
"	" 238,677		"	" 240,252	
"	" 251,217		"	" 252,705	
"	" 261,337		"	" 268,567	
"	" 264,454		"	" 304,468	
"	" 266,488		U. H. Odell,	Re-issue " 10,139	
"	" 271,331		"	" 260,225	
"	" 273,065		"	" 260,226	
"	" 283,339		"	" 260,705	
"	" 303,369		"	" 264,559	
"	" 311,829		"	" 306,945	
"	" 337,161		"	" 339,927	
"	" 339,162		D. W. Marmon	" 274,508	
"	" 339,163		"	" 277,307	
"	" 339,164		"	" 275,335	
F. Wegman,	Re-issue " 10,579		"	" 276,440	
"	" 294,418		"	" 281,707	
R. Birkholz	" 255,715		Marmon & Warrington,	Re-issue " 10,493	
"	" 257,647		Marmon & Warrington,	" 266,490	
H. Birkholz	" 269,623		"	" " 275,055	
S. R. Campbell	" 247,301		"	" " 277,525	
Wescott & Karns	" 258,832		"	" " 305,320	
John Stevens	" 221,371				
"	" 225,770				

Besides a large number of less important patents, which need not be named in this connection.

You will observe at a glance that the above list contains all the patents of Gray, Odell, Stevens, Marmon and others, who are universally recognized as the leading Milling Engineers of this country, and who were the pioneers in the improvement and construction of modern Roller Mills.

We believe these patents effectually cover every valuable feature of the modern Roller Mill; and we doubt the possibility of building a successful Roller Mill—such a machine as the requirements of the trade demand—without infringing some of them.

Four of the leading Mill Furnishers of the country, viz.: E. P. Allis & Co., of Milwaukee, Wis.; Stilwell & Bierce Mfg. Co., of Dayton, Ohio; The John T. Noye Mfg. Co., of Buffalo, N. Y., and Nordyke & Marmon Co., of Indianapolis, Ind., recognizing the scope and strength of our combination of patents, and desiring to afford their customers absolute security in the use of their Roller Mills, have taken out licenses from us, but there remain a large number of unlicensed Mill Furnishers, who with an utter disregard of our rights have appropriated our inventions, and are manufacturing and selling Roller Mills which grossly infringe our patents.

We propose to establish and maintain our vested rights under these patents, and to that end have brought a number of suits in various Districts of the U. S. Circuit Court, some of which have been carried to a successful conclusion; others are still pending, and none of which have been decided against us.

The first of these suits we will refer to was brought by U. H. Odell *et. al.*, against Stout, Mills & Temple in the U. S. Circuit Court for the Southern District of Ohio, before District Judge Sage, and Justice Matthews of the U. S. Supreme Court. The defendants manufactured the "Livingston Roller Mill," and the suit was for infringement of Odell's Re-issue Patent No. 10,139. The patent was sustained and the defendant's machine held to infringe it, and its manufacture discontinued.

The next case brought to a decision was that of The Consolidated Roller Mill Co. vs. The Miller Mfg. Co. *et. al.*, in the U. S. Circuit Court for the Northern District of Ohio. The patents sued upon were the Gray Patents Nos. 222,895 and 238,677. The defendants entered an appearance in the case, and at first seemed confident of being able to make a successful defense, but subsequent and more thorough investigation convinced them of the hopelessness of their case, whereupon they admitted the validity of our patents and their infringement of the same, and consented to a decree and perpetual injunction against them, and retired from the business of making Roller Mills.

The next case to which we will now refer (and the one which has attracted the most attention, because five prominent manufacturers of Roller Mills are understood to have joined in the defense, which was most stubbornly, thoroughly and ably conducted) was that of The Consolidated Roller Mill Co. vs. Wm. A. Coombs in the U. S. Circuit Court for the Eastern District of Michigan. Mr. Coombs owns a mill at Coldwater, Mich., in which he was using the "Mawhood Roller Mill," manufactured by The Richmond City Mill Works, of Richmond, Ind., and suit was brought against him for infringement of the Gray Patent, No. 222,895, and two other patents of minor importance. It was evident there could be no escape from the charge of infringement provided the Gray Patent was sustained, hence a most vigorous, thorough and determined effort was made to break down his patent and have it declared invalid for the various reasons set up in the defense. We need not go into details, which are accessible to all who care to investigate, but will simply state that the Gray Patent No. 222,895, which relates to the most necessary and valuable adjustment in Roller Mills, and which we think is more generally infringed than any other, was *broadly and unequivocally sustained in each of its claims*, and the Mawhood machine was held to infringe the same, and a decree for an injunction and reference to a Master in usual form was granted. In discussing this question of infringement, after having passed upon the validity of the patent, the Court used the following language: "In short, we regard the defendant's entire machine as simply a rearrangement of the Gray combination, for the obvious purpose of an attempt to avoid hisf patent."

We have several other suits pending, which we shall push to a hearing at the earliest possible day.

We have not been fighting our battles in the newspapers, but in courts of competent jurisdiction, whose decisions must be respected; neither have we annoyed the millers with threats or proclamations of any sort, but having established our rights in the courts, we shall now compel a full recognition of them, and we feel confident that your sense of justice and fair dealing will approve of our course.

Millers purchasing or using Roller Mills that have been or may be hereafter licensed by us have nothing to fear in this connection, but all who purchase or use unlicensed infringing Roller Mills do so at their own proper peril.

Very Respectfully Submitted,

Consolidated Roller Mill Company

of the Milwaukee Commercial Club, and has an extensive acquaintance with leading business men in this and many other cities. Mr. Barry is a bachelor on the sunny side of forty, of pleasing address and courteous manners. His business abilities we believe to be first-class.

We have not made the foregoing somewhat complimentary remarks to please Mr. Barry or his friends, but as a chronicler of the things that the millers of the country want to know, and it is right that they should know all about a man whose duty it is to devote his undivided attention to their service. He will find his position no sinecure. More will be expected of him than it is possible for one man to accomplish, and there are perhaps as many kickers as pushers among millers as in any other trade. That he will work early and late, there is no doubt and we look for satisfactory results. We trust that the millers and the milling press will give him that encouragement and assistance which he needs to accomplish desired results. Remember that although he will have the advice and aid of the officers and executive committee, that whenever any patentee or anybody else wants to "hit a lick" at the Association, the devoted head of Mr. Secretary will be the first to receive the blow.

THE best advertised mill in this country is that Sullivan-Kilrain mill in Mississippi. By the way there are more people that know where Mississippi is, anyhow just now, than ever before. Can it be possible that Gov. Lowry has been working a shrewd advertising dodge to call attention to his state?

THE present great loss by fire to Seattle, W. T., will in the long run probably be a gain. It proved so, notably in the case of the great Chicago fire. The final result will no doubt be a better built and handsomer city. Outside capital having its attention drawn to the advantages of its location will not hesitate to invest with prospects of a good return for the use of their money.

THE regular weekly contributor to *The Mark Lane Express* (London) in a recent issue says:

I have read in an American newspaper of undoubted respectability and veracity, a statement that a cow in the township of Tecumseh, in South Simcoe, had recently given birth to two lambs and a calf. The story is told in all seriousness, and the farmer who owns the wonderful animal has made an affidavit that he was present when the lambs were born. The appearance of the lambs was followed by that of a calf. Brother Jonathan is accustomed to do things on a big scale, and it would really seem as if the peculiarity even extended to the lower creation.

We must protest against having any United States cow accused of such outrageous conduct, and at the same time beg the *Mark Lane Express* to study up its Colonial geography. The place named is in Canada, and we will undertake to guarantee that if the annexation scheme comes to a successful termination no such thing will happen in Bro. Jonathan's well regulated territory.

DOMINION MILLERS.

At the Convention of the Dominion Association, July 9, at Toronto, Ontario, a motion was carried providing that the Government be memorialized to assimilate the duty on flour with the United States duty on Canadian flour. It is desired that all flour imported into Canada shall be inspected by duly authorized flour inspectors, the market value of the flour when inspected to be the basis of value on which duty shall be collected, and in the event of the United States being willing to wipe out the duty on Canadian wheat and manufactured products thereof, the duty on American wheat and products to be dealt with in a similar manner.

It was also decided to urge all board of trade and corn exchanges in Ontario and Manitoba to assist the Association in obtaining these just concessions from the Dominion Government.

THE BRITISH SYNDICATE MEAN BUSINESS

SOME time since our London correspondent informed us that a syndicate of British capatalists were about prepared to take action with a view of buying American flour milling properties. It now develops that agents and accountants of this syndicate have been here for some time and are now fairly in the field for purchasing A No. 1 flour mills having an established and profitable business. This is evidenced by the following memorandum of information wanted, which has been sent to a number of millers in various parts of the country:

1st. An engraving or photo of the building, etc.
2nd. Valuation of freehold land, etc.
3rd. Valuation of buildings, machinery, etc.
4th. Valuation of sundries, horses and vans, office furniture, etc.; and state how much working capital required to take over stocks of wheat or flour (as the case may be) that may be on hand.

Valuation should be made and certified to as follows: Freeholds by some real estate agent of good standing and certified to by your town or county valuer. Buildings, machinery and plant, by some good authority on the same, and properly certified.

Returns. Send returns for the last few years, that is, the quantity of barrels sold, giving gross profits, and deduct the working expenses and management only, in order to show the net profits as outlay on new buildings, machinery or plant, in order to extend the business, should not come out of the profits as that would be called "capital outlay," and such returns and profits should be properly certified.

Be very exact with your figures, as they are sure to send a London accountant to verify all particulars.

It is evident that business is meant. There is a vast amount of capital lying idle in Great Britian, and the owners are looking anxiously for places to invest it profitably. The scheme seems to be to organize companies, purchase property and issue stock, a considerable portion of which is to be held by present owners and to place the business management in this country, in the hands of American owners. The general management in Great Britain will see to the sale of all exports to Europe. By this arrangement, citizens of each country will work for the mutual benefit of each other. When in full operation the product of a portion of or all the mills owned by the syndicate can be regulated as circumstances require. The Millers' National Association has been given full information in regard to this matter by the representatives of those seeking to make an investment of this nature, and owners of the right kind of milling property can, no doubt, secure any particulars not given above by writing to S. H. Seamans, Esq., treasurer of the Millers' National Association, of this city.

MILLING AND MECHANICAL NOTES.

[Condensed and compiled for the UNITED STATES MILLER AND MILLING ENGINEER.]

DON'T be eternally tinkering about your engine, but *let well enough alone.* Don't forget that with a copper hammer you can drive a key just as well as with a steel one, and that *doesn't leave any marks.*

MILLERS will find it absolutely necessary to turn out good work, to pay close attention to the *quality* of their bolting cloths. Where a miller is not himself an expert his principal reliance must be on the honesty of the dealer supplying him.

BE careful when using a wrench on hexagonal nuts that it fits snugly, or the edges of the nut will soon become rounded. Be careful how you use a monkey wrench, for if it is not placed on the nut properly the strain will often bend or fracture the wrench.

THE hurried worker has often to do his work twice over, and even then it is seldom done in the best manner either for neatness or durability. It is the deliberate and measured expenditure of strength which invigorates the constitution and builds up the health.

MR. ENGINEER, the question why you are burning so much more coal this week than last, and why it takes so much more or less to run your plant than that of your neighbor, with about the same power, is one that you should lose no time in learning to answer correctly.

To calculate the number of shingles for a roof ascertain the number of square feet and multiply by 9, if 4 inches to weather, 8 for 4½ inches, and 7⅛ if 5 inches are exposed. The length of rafter of one-third pitch is equal to three-fifths of width of building adding projection.

THE benefits that have come to society and the world at large through the inventions and labors of the engineer are so numerous, and come so frequently and constantly, that they are received without one thought as to how they come, or the agency through which they are perfected and applied.

TREATMENT OF SMOKE-STACKS.—If before raising a new smoke-stack, each section as it comes from the shop, is coated with common coal tar, then filled up with light shavings, fired, and the chimney rolled slowly until the shavings are burned, it will resist rust for an indefinite period, rendering future painting unnecessary.

MANY a man has started to go around among shafting and belts in motion, to do oiling and necessary work, and has come back on a board, never able to tell how he lost his life—a bloody splash here, and a part of a limb there, reveals the place and cause of the accident. The poor fellow did not "watch out," hence the lifeless body that lies before us.

SCALE IN BOILERS.—One effect of faith in the various nostrums that are guaranteed to prevent scale in boilers is to beget carelessness, under the assumption that the use of the specific will make every thing safe. Some of these preparations may be excellent in their way, but none of them are universal in their application, any more than one drug is a cure for all diseases.

SECOND-HAND MACHINERY.—There are many lines or classes of goods in which second-hand articles may often be obtained, that are, to all intents and purposes, fully as good as new articles of the same kind; the simple fact of their having been used, largely depreciating their market value, though not injuring them in the least nor lessening their actual value for the purpose for which they were intended.

A GERMAN miller writes to *Mueller Zeitung* that he thinks that as the rising qualities of flour depend on its dextrin properties, flour which is deficient may be greatly improved by the mixture with it of 1 to 2 per cent. of powdered dextrin. He says that as dextrin in its development in the bread changes to a form of sugar, a mixture of powdered sugar will improve poor flour, though not to the same degree as will the dextrin.

PORCELAIN rolls will do work when used intelligently. The general tendency to overwork machinery has ruined more than one good machine. Porcelain rolls resent overwork more than iron rolls, and for this reason, when both were overworked, the porcelain roll was discarded and the iron retained. For fine dust middlings and other fine middlings porcelain rolls are particularly adapted, providing that that they have enough surface. There should be two or three times as much as is given to other smooth rolls.

MUCH thought has been given to the devising of methods by which the power of running streams can be utilized. The latest device is that of M. Tayn, a Russian engineer. His apparatus consists of an endless cable, carrying a series of canvas cones which open and shut like an umbrella. The cable passes over a double drum on board a pontoon, and at the other end over a pulley suspended from a buoy. On the lower part of the rope the cones are opened and forced forward by the current of water thus setting in motion a shaft or drum.

WIRE CLOTH.—The classification of wire cloth differs in different countries, but as a rule the small numbers denote the large, and the higher numbers the smaller sizes of the meshes. In Germany the number on the cloth gives the number of threads found to the space of one Prussian inch; in Austria to one Viennese inch; in France and Switzerland, in one Parisian inch; in England and the United States, in one English inch. Consequently the numbers of the wire cloth bear the same proportion to each other as that of the length of the various inches; and are best illustrated by their reduction to the metric system. One inch English measure equals 25.40 m. m.; Prussian 26.15; Viennese 26.34; Parisian 27.07. The difference between the Prussian and Viennese measure is so small, that they can be accepted as the same for all practical purposes, and this generally forms the type for the classification of most of the wire cloth in use. Whether round wire is used or square wire, the numbers are the same. The shape is only of importance in the final application; for assorting and sifting of the grain, the round wire is preferred, but for cleaning purposes where friction is required, square wires have been found to do better service; their time of service, however, is short, as the sides of the wire, subject to constant friction, soon lose their sharp edge and become round.—*Oesterr.-Ungar. Mueller.*

PARIS EXPOSITION.

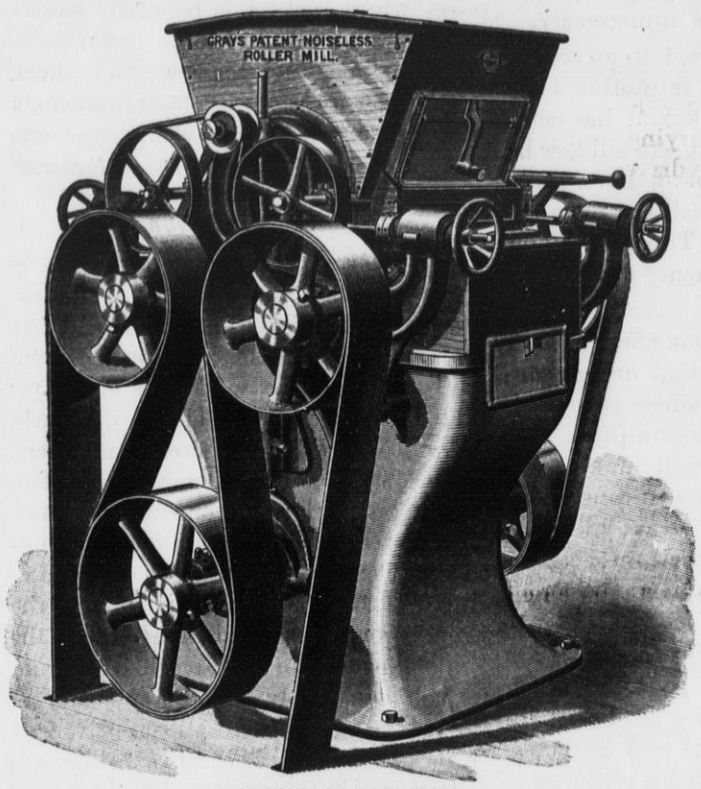
THE exposition as a whole, is without doubt the grandest thing of the kind the world has ever seen. It enables a person to virtually go around the world in a few days; that is, to see the inhabitants of nearly every country, their dress, manners, houses, style of living, wares, manufactures, productions, amusements, and nearly everything to be seen in an extended travel except the natural scenery and climate. But the manifest purpose of the French government has been to make the Exposition one for the French nation and its colonies. They absorb a majority of the space and enjoy exceptional privileges Other nations have had exhibits admitted merely in order to give the exposition the character of a world-wide affair. Most of the prizes and diplomas are being awarded to France and its colonies. The purpose evidently has been to create the impression that France is far and away ahead of all other nations. The United States exhibit is ridiculous for a country of its size, standing and resources. The fault lies with the government commissioners. Not one of them appeared at Paris two weeks before the Exposition opened. Before that they had only two or three clerks there, and they were hoodwinked and played right and left by the Frenchmen. The United States has no building there at all.

The Argentine Republic has a magnificent one and many nations having not one-tenth part of the importance of the United States have fine buildings and creditable exhibits. The United States exhibit is in the main building and occupies only about two-thirds of the space which Belgium has. Our government appropriated a quarter of a million dollars for the exhibit. I would not like to charge that any of the money had been dishonestly used, but I am free to say it has been most injudiciously expended. One of the first things the commissioners did was to rent a house for $60,000 and settle down in it with their families. A great deal of money has been eaten up in salaries. The commissioners say a great deal of money was spent in collecting the display of cereals. It would not do a country fair, great credit. A little glass case six feet long holds all our wine exhibit. California alone wanted to appropriate $50,000 for the exhibit of wine and fruit productions, but though I applied for space last January I was refused. The United States boasts of having more miles of railroad than all the rest of the world, yet the exhibit that line embraces here is one refrigerator car; the sawed off end of a freight car, and a little locomotive. France, England, Belgium, and even Switzerland make railway rolling stock exhibits which are incomparably better than ours, while Mexico and the South American countries throw the United States far in the shade with their exhibits.—*M. H. DeYoung.*

E. P. W. ALLIS & CO.

Milwaukee, Wis.

Mill Builders and Mill Furnishers



STANDARD MACHINE.

SPECIALTIES:

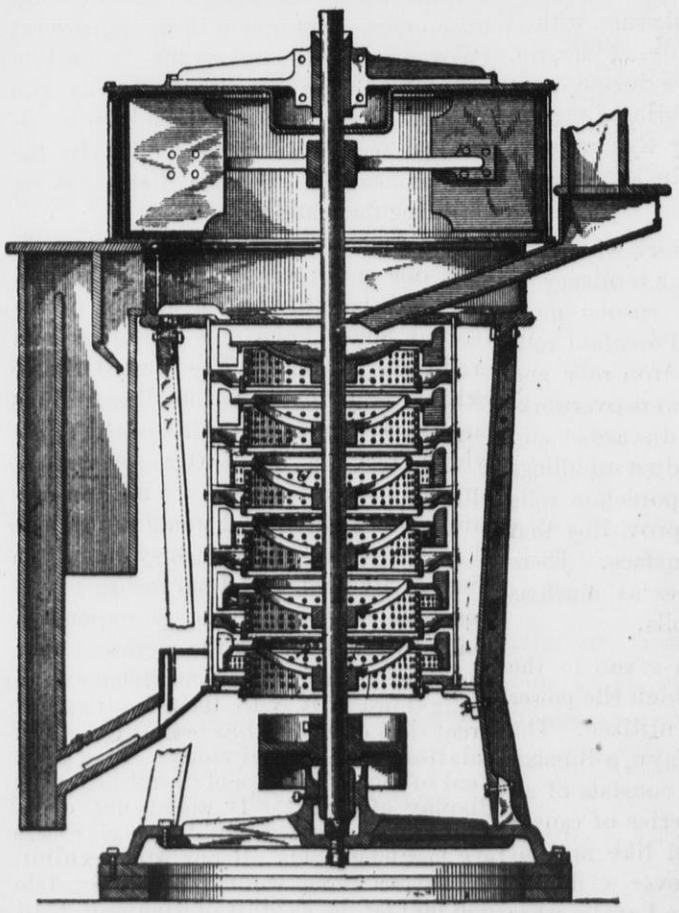
Gray's Noiseless Belt Roller Mill.
(Licensed by the Consolidated Roller Mill Co.)
Gray's Flour Dresser.
Gray's Centrifugal Reel.
Gray's Four-Roller Feed Mill.
The Reliance Purifier.
The Frank Beall Corrugation.
Complete Mills of any
Capacity on the Allis System.

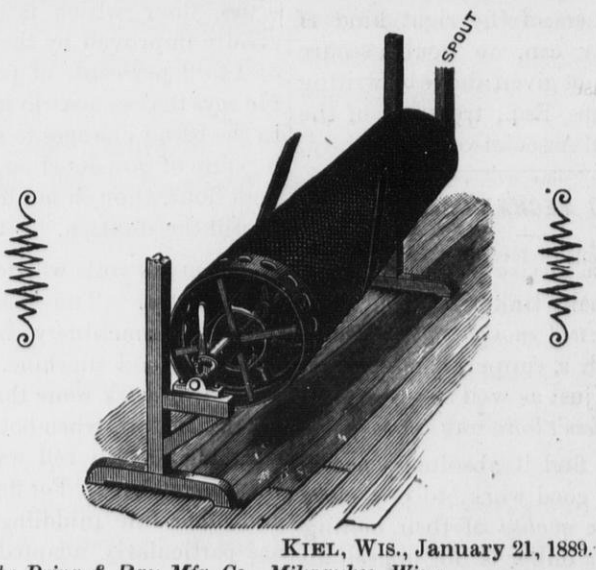
THE BEST OF THEIR KIND.

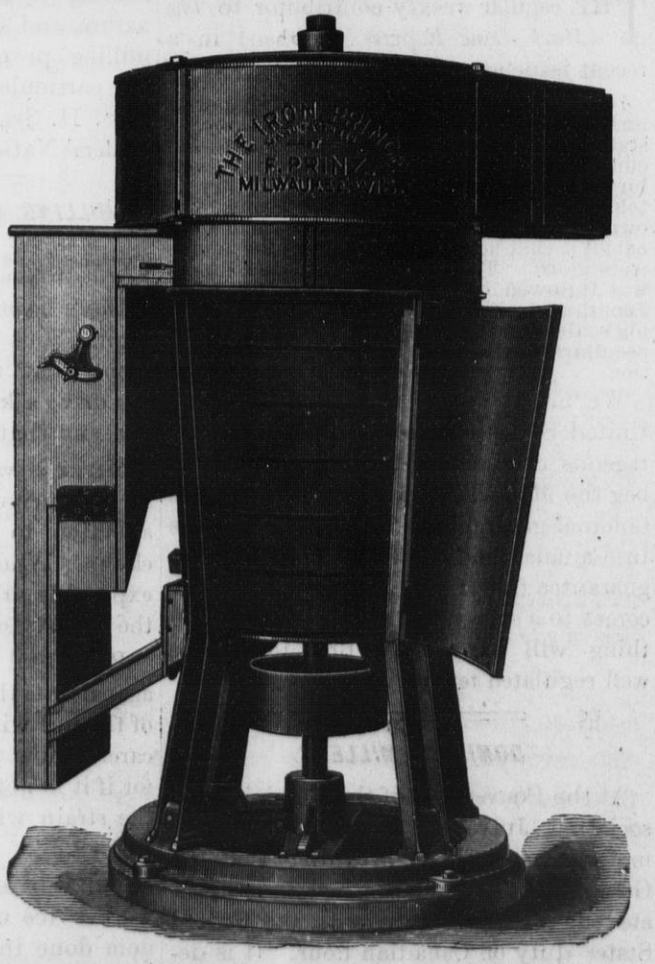
☞ Catalogue on application. If you want anything from a single machine to a complete mill, write us for prices and estimates. **IT WILL PAY YOU.**

THE GREATEST SUCCESS OF THE DAY!

THE PRINZ GRAIN CLEANING MACHINERY.







KIEL, WIS., January 21, 1889.

The Prinz & Rau Mfg. Co., Milwaukee, Wis.:

GENTLEMEN—The No. 2 Iron Prince Smutter which I bought of Mr. Prinz over two years ago has been very satisfactory to me, as it does the best work of any smutter that I ever saw work. It has caused me no trouble whatever, and if any person would like to see it run or know anything more about it, you may refer him to me.

Yours truly, HENRY STOLL.

NEW TROY MILLS,
NEW TROY, MICH., May 20, 1889.

The Prinz & Rau Mfg. Co., Milwaukee, Wis.:

GENTLEMEN—We have had your cockle machine running for some time, and it certainly is a grand success, and here is your money for same. I am perfectly satisfied with it, and can highly recommend it to any one.

Yours respectfully, F. H. MORLEY.

The Iron Prince and the Prinz Imp'd Cockle Machine

MANUFACTURED BY

THE PRINZ & RAU MFG. CO.,

Write for Catalogue and Discount.

MILWAUKEE, WIS.

COMPARATIVE COST OF STEAM AND WATER POWER.

By Charles H. Manning, Manchester, N. H.

THE circumstances under which steam and water come into competition as motive powers vary so widely with geographical situation, purpose to which the power is to be put, and other conditions too numerous to mention in a short paper, that I shall confine myself pretty closely to the condition of things in cotton and woolen manufacturing along the valley of the Merrimack River.

Along this stream are situated Lawrence, Lowell and Manchester, three of the largest textile manufacturing cities of New England, and cities, too, which were created by their water powers; so that, if we can show that steam can compete successfully with water here, it surely can elsewhere in the same lines of production.

The history of the development of the cotton and wool industries of this country includes with it the development of the great water powers; for when these industries commenced to assume large proportions, the stationary steam engine was in its infancy, so that there was at that time no question as to what motive power it was best to adopt.

To get a fair understanding of the cost of the water-power we must remember, first, that where a large power is improved and made available, the cost per unit of power is decreased proportionally, as well in maintenance as in first cost. Again, these large water powers, more especially those at Lawrence and Manchester, were developed by companies owning large extents of land made valuable by the sale of water powers at low figures, the companies making their profits by the sale of lands rather than by the water power.

The water-power at Lawrence is owned and controlled by the Essex Company, and has been sold in mill powers, together with mill sites, to the extent of about 130 mill powers. This unit of water power varies slightly in the different places, that in Lawrence being thirty (30) cubic feet of water per second on a fall of twenty-five (25) feet, whilst at Manchester it is thirty eight (38) cubic feet per second on a fall of twenty (20) feet, the first being equivalent to 85.23 H. P. gross, and the latter to 86.36 H. P. gross.

The original cost of a mill power at Lawrence was ten thousand dollars, subject to an annual rental of three hundred dollars more, bringing the real cost to fifteen thousand dollars.

These tenants have also the right under certain restrictions, to draw surplus water, paying for the first twenty per cent additional, four dollars per day per mill power; for the next thirty per cent, or from twenty per cent to fifty per cent, eight dollars per mill power per day; above fifty per cent it drops back to four dollars per day again. At the present time the Essex Company leases mill powers at twelve hundred dollars per annum, instead of the former method of cash payment and rent. To summarize the foregoing:

Cost, per gross H. P. per annum, of water at Lawrence: Under original leases, $10.55; surplus water up to 20 per cent, $14.51; surplus water from 20 per cent up to 50 per cent, $29.02; under recent leases, $14.08.

At Lowell, "The proprietors of the Locks and Canals" continue to charge themselves three hundred dollars per annum rent on all mill powers granted in the original leases, and charge five dollars per day per mill power for surplus water up to forty per cent; exceeding forty and up to fifty per cent, ten dollars per day; from fifty to sixty per cent, twenty dollars per day; and when any one exceeds sixty per cent, they must pay twenty dollars per day per mill power for the entire surplus.

On the original leases cash payments of ten thousand dollars per mill power were made, so that on original leases the cost per gross horse-power is the same at Lawrence, or, summarizing as before:

Cost, per gross horse-power per annum of water at Lowell:

Under original leases, $10.55; surplus water up to forty per cent, $18.14; surplus water from 40 to 50 per cent, $36.28; surplus water from 50 to 60 per cent, $72.56.

At this latter price water becomes an expensive luxury.

The original leases amount to about one hundred and forty mill powers, or nearly twelve thousand gross horse power, which at the present time is supplemented by about eighteen thousand horse power of steam.

At Manchester the water power is owned by the Amoskeag Manufacturing Company, who made original grants at about the same terms as Lowell and Lawrence, except that, as the mill power is a trifle greater, it makes the cost per gross horse power a few cents less. For some years tenants were allowed to use surplus water without charge, but when the capacity of the power at low stages of the river was reached, a charge of $5 per mill power for surplus water was made. This was the means of causing several of the mills to substitute auxiliary steam power for surplus water; but still later the Amoskeag Company having reduced the charge to $2 per day per mill power, tenants who are equipped to do so use surplus water whenever allowed.

We will summarize now for Manchester.

Cost per gross H. P. per annum at Manchester:

Under original leases	$10.42
Surplus water	7.15

It is usual in computing water powers to subtract one foot from the head as measured from still water, which is an allowance for loss of head in the water entering and leaving the wheel.

The efficiency of a first-class turbine should be about eighty-five per cent of the net fall, so that, if we consider that the average wheel that would be put in to-day will deliver to the shaft seventy-five per cent of the gross power paid for, we shall not be far wrong.

Under these circumstances the net H. P. would cost $\frac{10.50}{.75}$=14.00 for water under the original leases.

The cost of the plant will vary largely per H. P. inversely with the head under which it is used, as the greater the head the smaller the wheel for a given amount of power; but under a head of about thirty feet, the cost of a modern plant of about 1000 H. P. would be as follows:

Feeder head-gates, rack, etc.	$3.70 per net H. P.
Steel pen-stocks	14.60 per net H. P.
Wheel-pits, piers, etc	11.20 per net H. P.
Wheels, casings, draft tubes and shafting	22.00 per net H. P.
Total cost of plant	$51.50 per net H. P.

To be able to maintain speed during freshet times, an extra allowance of wheel power is made, except where the wheels are placed between two canals, and this varies from twenty-five to fifty per cent, so as an average we will allow thirty-three and a third per cent, bringing this cost to 51.50x1.33⅓=68.67. To this must be added for a sinking fund for renewals, four per cent; repairs, one and a half per cent; proportion of general expenses, such as insurance, taxes, interest, etc., six per cent.

Summing these up;

Sinking fund	$2.75
Repairs	1.03
General expenses	4.12
Total cost of plant	$7.90

Wages of a wheelman, at $2 per day for three hundred and nine days a year, would be $618, and supplies, such as packing, oil and waste, $100 per annum, or about .72 per H. P. per annum.

Total cost per N. H. P. per annum under original grants:

Cost of water	$14.00
Sinking fund, etc	7.90
Attendance and supplies	.72
Total	$22.62

If the water is supplied from surplus at four dollars per mill power per day, this must be increased by $\frac{4 \times 309}{65}$−14=5.01, making the cost $27.63; and by a similar computation, if the water is "surplus" at $2, the cost decreases to $16.20.

We now come to the consideration of the steam side of the question, which is a more complex matter. The cost of steam power varies greatly with the uses to which a portion or the whole of the exhaust steam may be applied.

In a cotton mill, where only white cloth is prodnced, there is very little use for exhaust or back pressure steam, except for slash the year around and heating for from five to seven months, and undoubtedly the compound engine, using steam of 150 pounds pressure or over and cylinders so proportioned as to allow a portion of the steam from the intermediate receiver to be used for heating, etc., is the best type.

In woolen mills, and cotton mills producing colored goods, there are large demands the year around for low-pressure steam for dyeing and drying purposes, and where such a mill is driven entirely by steam there will in winter time be use for at least three quarters of all the exhaust steam in the various processes.

If one-half of the mill is driven by water power, the engine to drive the remainder should be a simple engine, running always against a back pressure, in which case the power will be obtained at a very small cost.

We will consider only these two extreme cases, and in both we will consider 1,000 N. H. P.

A well-designed compound engine should, when using high steam, say of 150 pounds guage pressure, deliver to the shafting 93 per cent of the H. P.; therefore, to deliver 1.000 N. H. P. the engine should indicate $\frac{1000}{.93}$= 1075; but, to be liberal, we will make the calculation for 1100 H. P. The engine is to run ten hours a day on speed, and allowing for stopping and starting, this will amount to ten and one-quarter hours per day, for three hundred and nine days a year. An engine of this type should be run on one and three-quarter pounds of coal per H. P., including all coal used for starting and banking, and we will take the average cost of such coal at $4.50 per ton. This brings the cost per H. P. per annum for coal to $12.25, allowing no credit for exhaust steam used in heating, etc.

If the average use of steam from the receiver throughout the year is one fourth of the whole, the engine should be charged with abont one-tenth of the heat supplied by the fuel to this one fourth; in other words, we must credit the engine with nine tenths of one fourth of cost of coal, which reduces the cost of coal to $9.49.

Engineer, at $3; oiler, at $1.50. two firemen, at $1.50 each, and one coal passer, at $1.20, will make an annual pay-roll of $2,688,30, or $2.44 per H. P. per annum. Engine-room supplies, $250 per annum, or .23 per H. P. per annum.

Summing up we have:

	Per H. P.
Net coal chargeable to engine	$9.49
Attendance	2,44
Supplies	.23
Total running expenses	$12.16
COST OF PLANT.	
Engine, including piping and foundation	$27.00
Engine-house	5.00
Boilers ready for use	10.00
Feed-pumps, injectors, etc	1.50
Boiler-house, chimney and flues	6.00
Coal-shed, tracks, etc	3.00
Total	$52.50
AS IN THE WATER PLANT.	
Sinking fund at 5 per cent	$2.62
Repairs, 2½ per cent	1.31
General expenses, insurance, taxes, interest, etc., 6 per cent	3.15
Total	$7.08
COST PER H. P. PER ANNUM.	
Running expenses	$12.16
Charges on plant	7.08
Total	$19.24

The cost per net horse-power per annum will be eleven-tenths of this, or $21. 16, which may justly be reduced by the proportion of fire room expenses and boiler charges equivalent to the portion of the steam used for heating and slashing.

The other case which we will consider is where all the exhaust steam is used at a pressure of about 10 pounds above the atmosphere, for other than power purposes. Under these cirumstances the engine becomes the simple non-condensing engine corresponding to the high-pressure cylinder of the compound engine; or for very large powers the compound engine may be used, the low-pressure cylinder then being under much the same conditions as the intermediate of a triple-expansion.

In such an engine, single cylinder, the cost of coal per H. P. is three pounds per hour, charging all the coal to the engine; but this can be reduced to two and a half; but we will take the larger amount.

If the efficiency of the boiler plant is 80 per cent, and the engine works between the limits of 150 pounds per guage initial pressure, and 10 pounds per guage back pressure, it will convert about one-tenth of the total heat required from the fuel by the steam into useful work, or ·3 of a pound of coal per H. P., which may be increased to ·5 by the condensation in cylinder.

The boiler plant for such an engine will cost more than for the first engine considered, as there is a greater weight of water to be evaporated; but this is fully offset by the decreased cost of engine, especially if the single-cylinder type is chosen. The running expenses and charges on plant will be practically the same as in the former case, but a much larger deduction from fire-room expenses and boiler charges can justly be made from the cost of power.

Our cost of fuel chargeable to power is reduced in this case to $3.50 per H. P. per annum, and, other charges remaining the same, brings the total cost per H. P. per annum down to $13.25, and per net H. P. to $14.58.

At the Amoskeag Mills there is a pair of Corliss engines fitted to run this way, with an initial steam pressure of 100 pounds per guage running against 10 pounds back pressure, and these engines can be started at any time, and run at 1200 horse-power without its being felt in the boiler-house by merely turning the steam for the dye houses through the engine.

The cost in coal is so small that it falls within the daily variation from other causes, as frequently the consumption will decrease instead of increase when these engines are started.

To sum up, we have the cost per net horse-power per annum.

Water power under original leases	$22.62
Surplus water at $5 per M. P. per diem	27.63
" $2 " "	16.20
Compound engine, one-quarter exhaust, used for heater, etc.,	21.16
Single cylinder, all exhaust used	14.58

As the governing conditions varying in different localities, these computations must be changed accordingly; but when the increased facility of the steam engine for close regulation of speed is weighed on the one hand, and the liability of water powers to flood, drought and ice, I think most will decide in favor of the steam power.

"THE KANKAKEE LINE."

Rates being uniform by all routes, those wishing to travel naturally want to get the best accommodations for their money. To all such we can say, without fear of successful contradiction, that the C., I., St. L. & C. Railway, "Kankakee Line," is, beyond question, the best from Cincinnati and the Southeast to and from Indianapolis, Lafayette and Chicago, and the Northwest. Its track is laid with heavy steel rails, thoroughly ballasted with broken stone and gravel; its bridges are built of steel and iron, resting on solid masonry; its trains are composed of first-class Day Coaches, Elegant Parlor and Reclining Chair Cars and Pullman's Finest Sleepers; its terminal facilities are unsurpassed; its time unequaled. If you wish your money's worth, patronize the KANKAKEE LINE. For further information call on or address, J. C. TUCKER, Gen'l N.W. Pass'r Agent, 121 Randolph St., Chicago. Depots: Foot of Lake, 22d St. and 39th St., Chicago.

SPECIAL STAMPERS OF SHEET METALS.

We do Stamping and Pressing of Sheet Metals for All Classes of Work. Also Tinning, Galvanizing & Japanning.

—ALSO SOLE MANUFACTURERS OF—

SEAMLESS STEEL BUCKETS

INSIST on having this Bucket furnished when ordering.

Ask your dealer for the Avery Pat. Seamless Steel Elev. Bucket.

We do not advertise Seamless Elevator Buckets and fill orders with "Pieced Ones"

We will make Special Prices rather than move stock to our new factory. Send for discounts.

THE AVERY STAMPING CO.,

—SUCCESSORS TO—

AVERY ELEVATOR BUCKET CO., CLEVELAND, OHIO, U. S. A.

THE

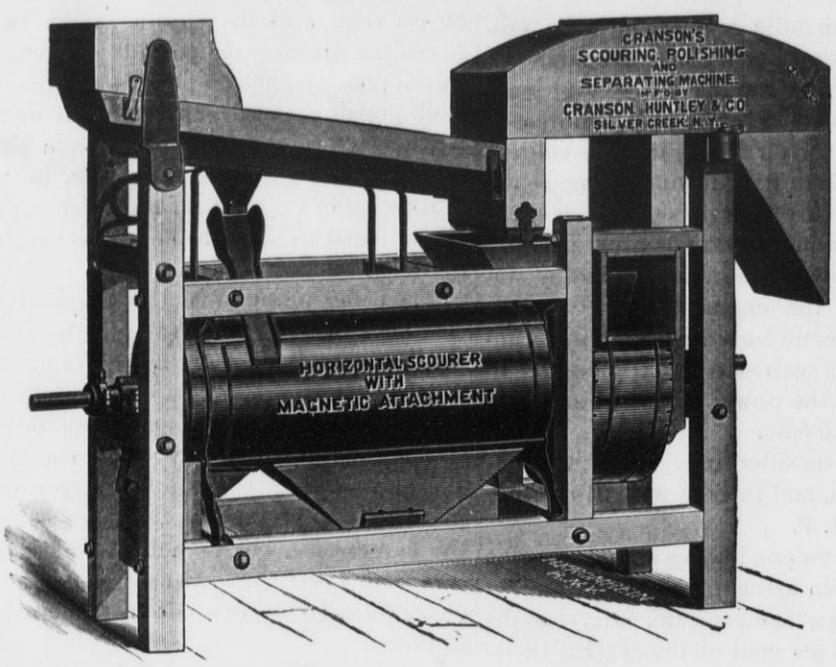
CRANSON SCOURER

—IS ACKOWLEDGED TO BE—

The Leading Scouring, Polishing and Separating Machine

ON THE MARKET TO-DAY.

Two of these Machines are being placed to one of any other make.



WE ALSO HAVE THE BEST

Dustless Receiving and Elevator Separator

Ever Placed in any Mill.

Write for Rock Bottom Prices and Full Information.

OUR HEADERS:

CRANSON'S WHEAT SCOURER AND POLISHER, With Magnetic Attachment.
CRANSON'S BUCKWHEAT SCOURER AND POLISHER, With Magnetic Attachment.
CRANSON'S ROLLER BUCKWHEAT SHUCKER.
MONITOR DUSTLESS RECEIVING AND ELEVATOR SEPARATOR.
DIAMOND DUSTLESS CORN SHELLER AND SEPARATOR.
DIAMOND CORN SHELLER.

Huntley, Cranson & Hammond,

Succesors to CRANSON, HUNTLEY & CO.,

SILVER CREEK, NEW YORK.

The Best is Always the Cheapest.

THE CELEBRATED

DUFOUR BOLTING CLOTH

Is admitted by all millers to be the VERY BEST BOLTING CLOTH in the market, and so far ahead of any other brand that, as a matter of economy, they cannot afford to use inferior brands.

$2,000 REWARD

Will be paid to any person who will furnish evidence to convict the unprincipled dealers who are selling poor and inferior cloths by representing them to be GENUINE DUFOUR.

R. P. CHARLES,

13 South William Street, - - - - - - - - NEW YORK CITY.

The Link-Belt Machinery Co.

SHAFTING · PULLEYS HANGERS GEARS ·

Are Prepared to Furnish Machinery and Appliances for

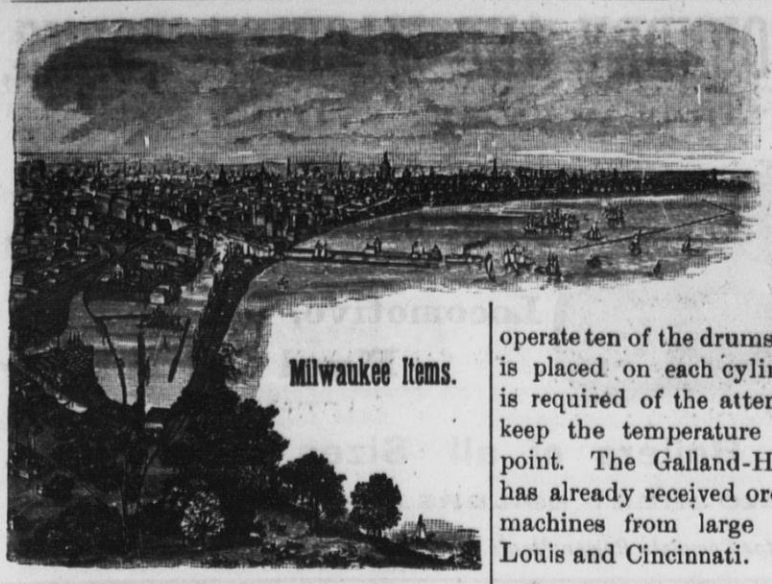
Transmission of Power

After the most approved Plans, by use of

MANILLA ROPE.

For Particulars and Estimates apply to them at

CHICAGO: 11 to 23 S. Jefferson St. **MINNEAPOLIS:** 200 to 202 Washington Ave. S.



MR. G. N. BIERCE, of Dayton O., favored us with a call, July 1. He was on his way to Minneapolis for a brief visit.

MR. KEFUSS, commercial traveller for Huntley, Cranson & Co., Silver Creek, called on us. He reports business unusually good.

THE Wisconsin State Fair will be held in this city Sept. 17-21. The management expect it to excel in display all previous fairs in the history of the State. The premium list is liberal.

THE headquarters of the Wisconsin Millers National Insurance Co., J. W. Arndt, Sec'y, are now located in the New Insurance Building. This company is a favorite with Wisconsin Millers.

THE Milwaukee, Lake Shore and Western Railway made a semi-annual dividend of 3½ per cent., July 9. The statement presented shows a suplus of $297,969 over all charges, from the last six months earnings.

MR. BEYNON, of Beynon & Murphy, Watertown, Wis., manufacturers of flour mill machinery, called on us recently. Mr. Beynon reports business at Watertown better this season than for a number of years.

THE first sale of new wheat was made in Milwaukee, July 9. It was sold by Mohr, Zinkeisen & Co., to the Daisy Roller Mills. It was Kansas wheat and was sold to arrive by sample. The price was 84 cents per bushel for ten car loads.

THE secretary of the Chamber of Commerce reports that the stock of flour in Milwaukee July, 1st at 53,000 bbls, of which 14,000 bbls were held by the mills and 39,000 bbls were in transit, a reduction of 8,000 bbls during June. A year ago the stock was 46,700 bbls.

THE traffic department of the Chicago, Milwaukee & St. Paul Railway is to be moved to Chicago, to be ready for business by September 1. The traffic includes both the freight and passenger departments, and it will take a share of officials and a large office force to Chicago.

GARDINER CAMPBELL & SONS are making an extensive addition to their foundry on Oregon street. When completed the building will have a frontage of 100 feet on Oregon street and will be three stories high. They have recently purchased the nickle plating business of Robert Whitehill.

ONE of the most important Mill building contracts of the season—the building of a 1500 barrel roller mill for William Listman, of La Crosse, Wis.—has been secured by Messrs. Edw. P. Allis & Co., of this city. The mill will be a model one in every respect. A Reynolds Corliss engine will drive the machinery. The contract will be executed as rapidly as possible.

THE Milwaukee Rotating Engine company is the name of a new corporation, incorporated June 13 by W. A. Myers, W. H. Upmeier, H. Tischafer, W. H. Campbell, H. C. Munson and Julius M. Farmer, with a capital of $750.000 and a large number of shares, each to cost $50. The company will manufacture boilers, machines, etc., after a pattern invented and patented by J. M. Farmer.

THE pneumatic drum process will prove a great labor-saving method, one man being able to operate ten of the drums. A thermometer is placed on each cylinder, and all that is required of the attendant is that he keep the temperature at the required point. The Galland-Henning company has already received orders for their new machines from large breweries in St. Louis and Cincinnati.

THE Fourth of July was an unlucky day for the Falk, Jung & Borchert Brewing Co. A fire originating in the malt-house destroyed the entire plant. The loss is estimated to be not far from a million dollars with an insurance covering about one-third of the loss. The Company will rebuild immediately. Arrangements have been made so that customers will be supplied with their usual quantity of beer until the new establishment is completed.

THE inside of B. Stern's "Jupiter Mills" looks as if an army of destroyers had marched through it—and so they have, but they were of a peaceful, skillful kind. In short—the inside of the mill has been completely "gutted" in order to make room for the new machinery now being put in, which it is intended will make the "Jupiter" the best 1000 barrel roller mill in the state. The work is being pushed with great rapidity, so as to enable the mill to start up again as soon as possible.

THERE is some talk of an electric light syndicate, which is composed of German and American capitalists, with a capital stock of $20,000,000, locating a plant in Milwaukee for the manufacture of machinery. It is said to be the purpose of the syndicate to supply electric light at all principal cities in the country and to establish two chief centers, one in the East and the other in the West, for manufacturing the necessary machinery. A representative of the syndicate has been in the city looking over the ground during the past few days.

THE Edison Electric Light Co. of New York have concluded to locate their Western plant in Milwaukee and will commence work very soon. It is the purpose of the company to furnish the Edison incandescent light in the city and also to manufacture dynamos and electric motors. They have a large plant in successful operation at New York City and they intend to invest not less than $500,000 in the Milwaukee establishment. The company has a capital of $20,000,000 and among the principal stockholders are Thomas Alva Edison. the inventor; Henry Villard, Drexel, Morgan & Co., the New York bankers, and Dr. Siemans, a German capitalist.

AN instructive experience with a rat recently fell to the lot of a manufacturing firm in Milwaukee. Noticing that the bills for water delivered through the meter were unusually large, the managers ordered an investigation, and at last discovered that the lead supply pipe in one place ran in contact with a waste pipe, also of lead. A rat, who frequented the waste pipe, happening to be thirsty, and divining by the curious instinct peculiar to such animals, the proximity of a supply of water, had gnawed a hole through the walls of both pipes in order to get a drink. He succeeded in getting his drink, but omitted to close the hole again, and the water continued to flow through the meter and out again through the waste pipe, until the investigation revealed what had been done. Commenting upon the incident, the *American Architect* remarks: "Possibly some architect, who has had experience with rats, may do the profession the service of of writing an essay on the subject of catching them as well as preventing them from doing mischief. We have heard it said recently that a rat will not gnaw a hemlock board, and that a grain bin in a stable, if made of hemlock, or lined with it, is as safe against rats as if it were lined with galvanized iron. Whether this is so we cannot say, but some one ought to know about the matter, and if that person will come forward with his information he will deserve the thanks of the building community."

THE Galland-Henning Pneumatic Drum Malting company has been organized with a capital stock of $250,000. The company will build a factory in Milwaukee and manufacture the machines to be used for the new method of malting. Kraus, Merkel & Co., a large local malting concern, will control a majority of the stock of the company, and ex-Congressman Henry Smith will be superintendent of the works. The new method of malting has been in successful operation in the malt houses of Kraus, Merkel & Co., on South Water street, for the past three months. The process was invented in Germany, and the malting drums used by the firm were purchased there for $38,000, upon which the revenue amounted to $19,000. Owing to the expense of importing the machines, a company was formed, which will have the sole privilege of manufacturing the machinery in this country. The most important feature of the new process is that by its use malt can be made during the entire year, which could not be done by the old method. The old process was to place the malt upon large floors and allow it to "grow," being turned at intervals to prevent it from becomig too warm, thus spoiling. By the pneumatic drum process, the malt is placed in large cylinders or drums, which revolve with a slow movement. It effects a saving of four-fifths of the room used for malting by the old method, and cheapens the cost of production considerably. By the old way it cost 10 cents per bushel to manufacture malt, while the new process reduces the cost to 5 cents and a fraction per bushel. After the new method will have been in operation for some time, it is believed that the expenses per bushel will be reduced to 4½ cents.

TRADE NOTES.

THE Western Agency of Huntley, Cranson & Hammond is well represented by B. F. Ryer, of 66 S. Canal St., Chicago, Ill. Mr. Ryer is also the general agent for Hueffners' Roll Corrugation which is meeting with considerable success and is making new friends daily.

CONSUMERS of lubricating oils desiring to secure positively reliable grades of oil, will do well to correspond with the VACUUM OIL Co., Rochester, N. Y. Ask them to send you a copy of their "Pamphlet on Lubrication." It is instructive and will be sent free to those writing for it.

IT is evident that "The One-horse Shay" manufactured by THE ONE-HORSE SHAY Co., of Sterling, Ill., is filling a long-felt want. We can personally testify that this shay is a good, well-built and easy-riding conveyance, and the price, ($15.00) is certainly within the reach of almost anybody. The seat is wide enough for two persons of ordinary size. See advertisement.

THE STILWELL & BIERCE Manufacturing Co., Dayton, O., have just made a shipment of 11 car loads of Victor turbines and other machinery to the Kimberly & Clarke Co., of Neenah, Wis., for their large new pulp and paper mill at the "Cedars," and five car loads are yet to follow. This is believed to be the largest shipment of water wheels ever made at one time to one concern.

THE C. C. Washburn Flouring Mill Co., Minneapolis Minn., have just ordered of Messrs. Edw. P. Allis & Co., of Milwaukee, 55 double 9x24 Gray roller machines, a number of Reliance purifiers, and other machinery. Several other heavy orders have also been booked during the past month. The engine department is driven to full capacity, and the works are run both day and night.

THE mammoth sugar refinery of Claus Speckels, of Philadelphia, is being equipped with its apparatus. The steam plant consists of thirty Babcock & Wilcox boilers, which are located on the first and second floors of the building. Each boiler is fired by a pair of Roney Mechanical Stokers, making sixty stokers in all. The Stoker plant, together with the complete coal conveying apparatus, is put in by Westinghouse, Church, Kerr & Co., of New York, and is so arranged that the coal is handled mechanically, and without manual labor of any kind from the time the car of coal is dumped until the ashes are shot into the ash vault. Mr. Speckels has thus far contracted for 31 Westinghouse Engines as a part of the power plant. Fifteen of these engines, each of sixty-horse power, are for driving the centrifugal dryers; each engine being coupled direct to its own dryer, dispensing altogether with line shafting. The investigations on the part of Mr. Speckels together with his architect and engineer, which led up to this arrangement, were unusually interesting and complete. An entire set of apparatus was shipped to the Westinghouse Machine Co., at Pittsburgh, together with a supply of the raw sugar, and the necessary workmen. The plant, including the engine, was duly erected, and the processes gone through with and sugar refined on the spot. The power required and cost of same, was thus carefully ascertained, and the order for engines placed accordingly.

NEW OAT RULES ADOPTED.

At a meeting of the New York Produce Exchange, June 26, action was taken relative to the establishment of grades for clipped oats. The grades submitted by the committee on grain, to take effect on and after July 15, 1889, were fully considered and a number of amendments were offered and adopted. The rules as they now stand are:

Extra white clipped oats shall be bright, sound, plump, well cleaned and reasonably free from all other grain, weighing not less than 38 lbs. to the measured bushel.

No. 1 white clipped oats shall be bright, sound, well cleaned and reasonably free from other grain, weighing not less than 36 lbs. to the measured bushel.

Oats that otherwise would grade extra white clipped and No. 1 white clipped, shall not be deprived of the grade if but slightly stained.

No. 2 white clipped oats shall be reasonably sound, well cleaned and reasonably free from other grain, but may be stained, weighing not less than 34 lbs. to the measured bushel.

No. 3 white clipped oats shall be mainly white, reasonably sound, reasonably clean and reasonably free from other grain, weighing not less than 30 lbs. to the measured bushel.

ROTARY BAG MACHINE.

The combination American clock-bottomed bag machine, will make 120 bags a minute. It works from thin or thick paper, and can be adjusted to make different sizes. The machine is simple in construction, and requires very little power to run it. The pasting and folding are completed automatically. There are but few working parts, all of which are of rotary motions. After the bags leave the machine they pass over a drying cylinder of six feet diameter, which can be heated either by steam or gas, and then the bags are picked up in the space between the machine and cylinder by girls. The bags are carried over the cylinder by means of a felt. The paper is obtained from the mill in rolls of the required width.

FOR RENT. A 2 run, water power, custom flour mill and dwelling house, containing 9 rooms, with 13 acres of land. Everything in good condition. Situated 8 miles north of Kilbourn City, Wis. Easy terms and a bargain. For full particulars address

M. T. WALTON,
142 5th Street, MILWAUKEE, WIS.

PERFORATED SHEET METALS

FOR ALL KINDS OF

GRAIN CLEANING MACHINERY

Used in Elevators, Warehouses, Flour and Rice Mills, Cotton and Linseed Oil Mills, Etc., Etc., Etc.

ROLLING SCREENS—ROUND AND HEXAGON.

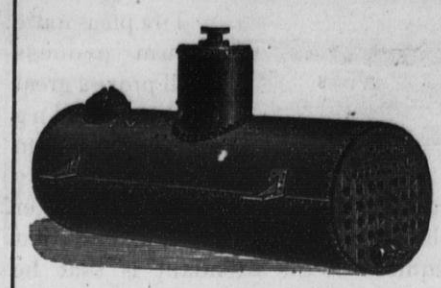
Iron and Zinc for Rolling Screens, Corn Screens, Grain Dryers, Perforated Floors for Kilns used in drying Oats, Corn, Fruit, etc. Smut Mill Jackets of all kinds and sizes made to order. We will RENEW YOUR SIEVES for Oat Separators, Receiving Riddles, Corn Screens, etc., at short notice.

THE HARRINGTON & KING PERFORATING CO.,

Nos. 224 & 226 North Union St., CHICAGO.

BASS FOUNDRY AND MACHINE WORKS,

FORT WAYNE, INDIANA.



MANUFACTURERS OF

First Class Steam Boilers,

INCLUDING

Locomotive, Upright, Flued and Tubular

AND

Portable Boilers of all Sizes and Styles.

TWO SHEET BOILERS A SPECIALTY.

Contracts taken for Complete Power Plants. *Prices furnished on Application.*

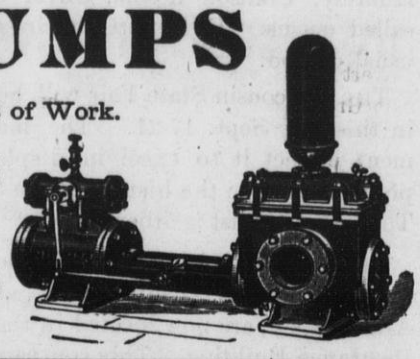
Hughes Bros. Steam Pump Co.,

CLEVELAND, OHIO.

Builders of Single and Duplex

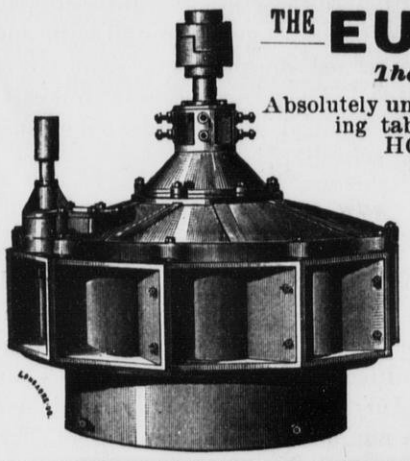
STEAM * PUMPS

Of Every Description for all kinds of Work.



Satisfaction Guaranteed.

Send for 1888 Catalogue.



THE EUREKA TURBINE.

The Best Part-Gate Wheel Ever Built.

Absolutely unequalled in efficiency, is shown by the accompanying table from the records of actual tests at the HOLYOKE, MASS., TESTING FLUME.

PERCENTAGE OF EFFICIENCY.

	Full Gate.	⅞ Water.	¾ Water.	½ Water.
24" Wheel	.8436	.8416	.8202	.8002
24" Wheel	.8206	.7910	.7700	.7003
24" Wheel	.8078	.7578	.7275	.6796
34" Wheel	.8000	.8011	.7814	.6850

No other turbine ever approached the above figures at part-gate.

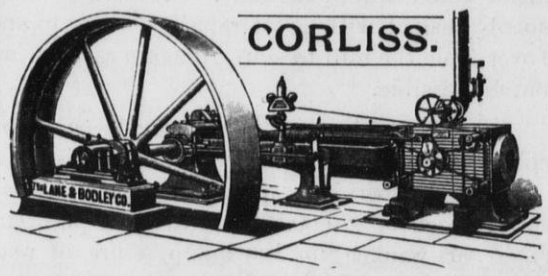
We publish our part-gate figures. Others significantly omit them.

For Catalogue and information, address

The Allentown Foundry & Machine Co.,

ALLENTOWN, PA., U. S. A.

THE LANE & BODLEY CO.,



MANUFACTURERS OF

AUTOMATIC CUT-OFF

ENGINES

From Heavy Patterns and of Unexcelled Workmanship.

Steel Boilers, Feed Water Heaters Shafting, Pulleys and Gearing.

THE LANE & BODLEY CO., Cor. John & Water Sts., CINCINNATI, O.

BRANCH HOUSE, 1425 EAST MAIN ST., RICHMOND, VA.

* EVERY * MILLER *

Whether using Water or Steam Power, who wants

To Save His Machinery

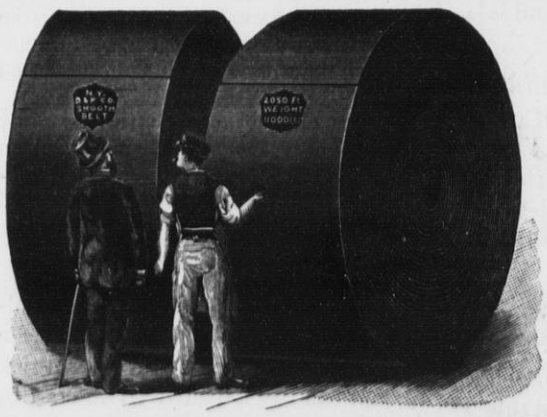
And reduce the cost of running expenses, should have a copy of a Pamphlet on Lubrication, which will be SENT FREE on application to

VACUUM OIL CO., ROCHESTER, N. Y.

MANUFACTURERS OF HIGH-GRADE OILS.

☞Branch Offices and Warehouses in all the Leading Cities.☜

NEW YORK BELTING & PACKING CO.



JOHN H. CHEEVER, Treasurer. 15 PARK ROW, NEW YORK.

Oldest and Largest Manufacturers in the U. S. A. of

Vulcanized Rubber Fabrics for Mechanical Purposes

MILLERS' HOSE A SPECIALTY.

Also a Good STEAM HOSE.

RUBBER MATS,
RUBBER MATTING,
and STAIR TREADS.

RUBBER BELTING, PACKING AND HOSE.

SALESROOMS: PHILADELPHIA, 308 Chestnut St.; BOSTON, 52 Summer St.; CHICAGO, 151 Lake St.; ST. LOUIS, 907-911 N. Main St.; DENVER, 1601-1611 17th St.; CHARLESTON, 160 Meeting St.; MINNEAPOLIS, 28 South 2d St.; CINCINNATI, 161-165 W. Pearl St.; ATLANTA, 16 Decatur St.; DETROIT, 16-24 Woodward Ave.; BALTIMORE, 12 N. Charles St.; BUFFALO, 124-128 Washington St.; NEW ORLEANS, 54 Canal St.; KANSAS CITY, 1311-1313 W. 12th St.; RICHMOND, 1206 East Main St.; European Branch, HAMBURG, GER., Pickhuben 5, (Freihafengebiet).

Improved Walsh Double Turbine

This wheel has a perfect fitting cylinder gate and draft tube combined, and allows no water to escape when closed.

POWER GUARANTEED

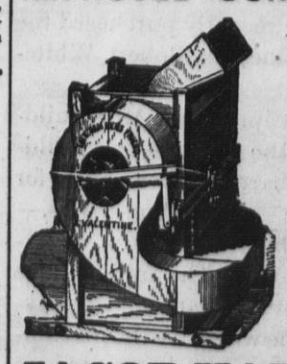
equal to any wheel on the market using equal amount of water. Address for particulars,

B. H. & J. SANFORD,

Phœnix Iron Works,

Sheboygan Falls, Wis.

IMPROVED CORN SHELLER,



IT IS THE

BEST CORN SHELLER

MADE FOR MILL USE.

IT IS

Simple in Construction Almost Noiseless,

AND

Requires Little Power

HUNDREDS ARE IN USE.

For descriptive circular, price list, etc., Address

JACOB VALENTINE,

Gorham, Ontario Co., N. Y.

"TRIUMPH" CORN SHELLER

CAPACITY

2000 BUSHELS PER DAY.

Shells wet or dry corn.

CHEAPEST AND BEST SHELLER.

PAIGE MFG. CO.,

No. 12 Fourth St., Painesville, O.

[Please mention this paper when you write to us.]

WESTINGHOUSE ENGINES

The Westinghouse Machine Co. PITTSBURGH, PA. U.S.A.

COMPOUND Condensing or Non-Condensing.

16 SIZES, 5 to 500 H. P.

Not yet equaled by any form of Engine for *HIGH FUEL DUTY AND SIMPLICITY.*

STANDARD 13 Sizes in Stock. 5 to 250 H. P.

3000 in use in all parts of the Civilized World.

JUNIOR 6 Sizes in Stock, 5 to 50 H. P.

An Automatic Engine cheaper than a Slide Valve.

WELL BUILT. ECONOMICAL. RELIABLE.

Over 300 Sold the First Year.

All the above built strictly to Gauge with INTERCHANGEABLE PARTS.

REPAIRS CARRIED IN STOCK.

SEND FOR ILLUSTRATED CATALOGUES.

SELLING DEPARTMENT IN THE UNITED STATES.

New York, Boston, Pittsburgh, Chicago,	17 Cortlandt St. Hathaway Building, Westinghouse Build'g, 156, 158 Lake St.	Westinghouse, Church, Kerr & Co.
Philadelphia,	608 Chestnut St.	M. R. Muckle, Jr. & Co.
St. Louis, Kansas City, Denver,	302, 304 Washington Av. 312 Union Avenue, 1330 Seventeenth St.	Fairbanks & Co.
Omaha,	1619 Capitol Avenue,	F. C. Ayer.
Pine Bluffs, Ark.		Geo. M. Dilley & Sons.
Salt Lake City, Butte, Mont.	259 S. Main St. 4 Granite St.	Utah & Montana Machinery Co.
San Francisco, Portland, Or.	21, 23 Fremont Street, 33, 35 N. Front St.	Parke & Lacy Co. Parke & Lacy Mch. Co.
Charlotte, N. C. Atlanta, Ga.	36 College St. 45 S. Prior St.	The D. A. Tompkins Co.
Dallas, Tex.		Keating Imp. & Machine Co.
Chattanooga, Tenn.,		C. L. James & Co.

NEWS.—A PULP and paper mill to be erected soon at Sault St. Marie, Michigan, and efforts are being made to secure a big flour mill.

ST. JAMES, Minn., offers a bonus of $2,000 for a flour mill.

THE Liberty Park Roller Mill Co., Salt Lake, Utah, has incorporated.

THE mills of Benshoff& Co. at Johnstown, Pa., were destroyed by the flood.

AT Papillion, Neb., June 22, Clark's grain elevator was burned. Loss, $20,000.

NELS ENGL is about ready to start up his new 75 barrel mill at Atwater, Minn.

THE Water Roller Mill Co., Liberty, Tenn., will build a $7,000 roller mill this year.

W. H. King of Bowman, Ga. will rebuild his flour mill, which was lately burned.

BURNED—An elevator at Boissevain, Man., owned by Ogilvie Mill Co. Loss $20,000.

THE Diamond Roller Mill at Lake Crystal, Minn., was entirely destroyed by fire July 11. Loss $18,000; no insurance.

O. T. BUGBEE of Canewanga Valley, N. Y., and W. H. King of Bowman, Ga., will .ebuild their mills this year.

J. M. CAIN has bought the old mill of Bowman & Kellogg at Atchison Kas., and will convert it into a corn meal mill.

AT Greentown, Ohio, June 22, John Baker's flouring mill was burned to the ground, causing a loss of $7,000; no insurance.

LEACH & BOWEN have leased the McLeran mill at Portland, Ore., and after giving it a thorough overhauling will start up.

TALMADGE BROS. are about to erect a corn-mill at Athens, Ga., with a capacity for grinding 1,500 bushels of corn per day.

THE rice mills at Goldsboro, N. C., have been sold to B. Jones, who is organizing a company with a capital of $250,000 to operate the same.

THE J. B. Alfree Co. have taken a contract for a 75 bbl. mill from The New Sharon Mill Co., New Sharon, Ia., including an Alfree Automatic engine, etc., etc.

AT Menasha, Wis., June 27, an incendiary fire destroyed the old unoccupied flour mill, near the Government locks, owned by Wm. Smith. Loss, $2,000; insured.

BURNED—June 29. S. Hommerburg's feed mill at La Crosse, Wis. Loss $2,500. Insurance $1,000. Spark from locomotive supposed to have caused the fire.

NEAR Brister, Ark., June 8, the saw mill, cotton gin and flouring mill, owned by W. S. Holland, were burned to the ground. Origin of the fire unknown. Loss, $5,500; no insurance.

AT Elmira, N. Y., June 15, the Centre Mills were struck by lightning and a grist and flour mill, a barn and a large quantity of lumber were burned. Loss estimated at about $15,000.

BURNED—June 28, H. B. Groff's mill at Lancaster, Pa. It was operated by his son, E. F. Groff. Loss on mill, $25,000. Insurance, $17,500. Loss on stock, $7,000; insurance, $5,000.

THE J. B. Alfree Co. has sold special corn meal milling machinery, including the Keystone 4 High Corn Mill to Noel Bros., Indianapolis, Louis Kamp, Monnt Carmel, Ill., and Sprague, Cratty & McKergan, Ostrander, Ohio.

THE J. B. Alfree Co., Indianapolis, Ind., have taken a contract for a 70 bbl. mill from Weaver, Miller & Co, North Grove, Ind., into which will be placed an Alfree Automatic engine, as well as an entire outfit of their machinery.

A WEBB CITY, ILL., miller has instituted proceedings against the Peoria, Evansville & Decatur Railroad company before the interstate committee, charging discrimination in rates in favor of E. P. Heilman, vice-president of the company.

A REPORT on the industrial development of the south the first six months of 1886, shows total number of new enterprises organized to be 2,615, representing $108,833,000 of capital, as against 2,023 new enterprises, investing $81,501,000 in the first six months of 1888.

MILTON B. ESHELMANN, flour mill at Newport, Pa., who recently made an assignment, continues the business for the assignee. His liabilities are about $12,000; preferred claims, $10,000; nominal assets, $12,000. His loss by the flood was reported to be about $1,000.

The grain elevator owned by Thomas Robb at Wadena, Minn., was entirely consumed by fire June 20th, with 3,500 bushels of wheat. The building was worth $5,000, insured as follows: Phœnix, $1,000; National, $1,000; St. Paul Fire and Marine, $1,000. The wheat was owned by F. W. Murray, and was insured for $2,500.

THE Reliance Gauge Company of Cleveland, O., recently received its fourth order from the Meriden Britannia Company of Meriden, Conn., for Reliance Safety Water Columns. The Meriden Co. first tried these Columns about two years ago. These repeated orders are unquestionable testimonials of the merit of the goods.

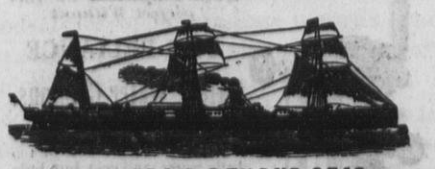
SEPTEMBER 1 the Wasburn-Martin company, the owners and operators of the big mills in Minneapolis, goes out of existence and will be succeeded by the Washburn-Crosby company, just organized. The principal change is the entire withdrawal from the business of Senator W. D. Washburn. The new company has a capital of $500,000. The members are John Washburn and John Crosby, now a student in Yale college.

A CURIOUS mixture of industries at one establishment is reported from Kansas. A $100,000 mill, for the manufacture of sugar, salt and paper, is now being built at Arkalon, in that State. For three months it will make sugar from sorghum, then work up the cane chips into paper, and the rest of the time turn out salt. To encourage sorghum sugar making the Kansas Legislature has exempted all sugar plants from taxation until 1895.

THE Reliance Gauge Co,, of Cleveland, O., is making quite a good many water columns of finished brass, for establishments which believe in equipping the boiler room, as well as the engine room, in first class shape. Among the recent orders for these, is one from the Overman Wheel Co., of Boston, whose plant at Chicopee Falls, Mass., will be an exceptionally fine one. The columns are 30 inches long and 6 inches in diameter at the bosses, and are of the combined high and low water alarm pattern, with the alarm lines 8 inches apart, They are duplicates of the largest finished brass column exhibited at the Chicago Electrical Exhibition, and will be put up in pairs between the boilers, giving an exceptionally fine appearance.

NEW MILLS.—C. J. Peffer of Lebanon, Ill., has completed his 200 barrel roller mill. W. J. Meyer & Bro. are building a 100 barrel mill at Troy, Tenn. and expect to have it ready for operation by August 1. J. C. Carroll & Co., Adairville, Ky., whose mill was recently burned are rebuilding. J. A. Knight & Son are building a saw and grist mill at Sylacauga, Ala. The Farmers' Mutual Benefit Association Milling Co. has been incorporated at Nashville, Ill., with a capital stock of $12,500. The Eureka Flouring Mill Co. has been organized at La Otto, Ind. with a capital stock of $8,000. The directors are W. L. Wood, Hiram Gowell and E. A. Ditman. A 50 barrel flour mill will be built at Sharon Springs, Kan. N. Engel is building a 75 barrel mill at Atwater, Minn. A stock company is being formed at Statesville, N. C. with a capital of $8,000 to build and operate a flour mill. Wm. Youngblood will build a new roller flour mill at Liberty, Tenn. O. T. Bugbee of Conewango Valley, N. Y. whose mill was recently burned will rebuild.

THE following dispatch from Belleville, Ill., under dated of June 12, refers to a quite well-known character in milling circles: "A queer romance developed here to-day upon the receipt of a telegram from New York charging that Anton Schwarzwælder, a well-known inventor of this city, had been made a defendant in New York in a criminal prosecution for bigamy. He left Belleville for Europe last December for the purpose of collecting $250,000, which he told his wife he had inherited in Bavaria. While abroad he met a Miss Stark, whom, it is alleged, he married. They returned here two weeks ago, and Schwarzwælder told his legal wife that he was compelled to marry the woman in order to get the money, which by the way he has not yet collected. He kept the two wives together for a week, and then left for New York with his new acquisition, leaving his legal wife and children here. The Belleville wife says that her husband, who, she asserts, is a German count, was compelled to commit bigamy to secure the fortune. His grandmother controlled the money and vowed to disinherit him unless he married according to her wishes. Schwarzwælder either proposes to have his first wife procure a divorce and pay her liberally from his fortune if he secures it, or he has deliberately used the second wife, who is said to be the daughter of a wealthy manufacturer of Munich, to further his scheme.



ITEMS FROM BEYOND SEAS.

THE flouring mills of Budapest, Austria-Hungary, produced 6,860,633 barrels of flour during the year 1888.

IT may not be generally known" says a writer in *Engineering*, (London), "but it is a fact that the U. S. Government has the finest torpedo service in the world, and any hostile fleet that may presume on the apparently unprotected condition of its harbors, will doubtless bear full testimony to the truth of the foregoing statement."

THE condensing effect of electricity upon steam has just been demonstrated by Prof. Sorket, the electrician, at Genoa. In a darkened room he heated some water in a platina basin which was connected with an electric machine. Just above the surface of the water was fixed the other pole of the electric stream which passed through the platina and the water. An arc lamp made steam visible as it rose from the heated water. As soon as the machine was set to work the steam was observed to fall down upon the edge of the platina basin and there condense itself, instead of rising as usual. When the point was brought quite close to the surface of the water the generation of steam was completely stopped, although the water continued to boil.

HUNGARIAN FOOD.—A recent British Consular report from Buda Pesth, refers to a publication by the Hungarian Statistical Bureau on the food of the Hungarian people. Green food, vegetables and millet seem to form about one-fourth of their food and potatoes one-fifth. The peasantry in some parts eat bread only on Sundays or festivals; otherwise they eat a kind of cake made of rye, barley or maize meal, mixed with milk, but the chief article of food is the potato. Thus it happens that Hungary exports a large proportion of her wheat produce; for instance, while last year's total wheat crop was 137,600,000 bushels, no less than 51,648,000 bushels in wheat and flour were exported to Austria and abroad, or nearly 40 per cent. of the total produce. Russia too is a small wheaten-bread eating country; her crop last year was 246,240,000 bushels and 106,000,000 bushels, or 43 per cent. were exported in the 12 months ended December 31, 1888.

THE PARIS EXHIBITION.—The only English exhibitors in the Milling Section are Messrs. T. Robinson & Son, Lim., Rochdale, with a complete model flour mill; Messrs. J. Sloan & Co., with a full line of Turner's machinery; and Mr. J.H.Carter. Germany is represented solely by Messrs. Seck Bros., Darmstadt; whilst the American milling engineers there are represented by the Geo. T. Smith Middlings Purifier Co.; Mr. S. Howes of Silver Creek, with a full line of his wheat cleaning machinery; and Mr. Aug. Heine, of Silver Creek. Amongst the Swiss milling engineers there are Mr. Daverio, Messrs. Escher, Wyss & Co., Mr. M. A. Millott, and Mr. F. Wegman, of Zurich; besides, of course, the numerous Swiss bolting silk manufacturers, who exhibit samples of their specialties. The French milling and baking engineers are to the fore with a great variety of appliances most of which are old to English millers.

THE *Electrical Review*, London, concludes a long technical article on "Electricity Produced by Wind Power," as follows: "There are three serious objections to the use of windmills for driving dynamos. In the first place, there are the periods of calm, during which no movement of wind appears to take place; in the second place, the irregular velocity of the wind; and, in the third place, the imperfect construction of the receivers or windmills. It is quite manifest that the first objection is insurmountable. The second has been partly overcome by the employment of an automatic apparatus, which opens or closes the sails according the velocity of the wind. But how far such an arrangement could be used on a large scale we will not venture to predict. The last objection is, doubtless, one which might be surmounted; but the impossibility of overcoming the first objection, and the indefiniteness of the second, are sufficient proofs to show that the wind will never be used on an extensive scale for motive-purposes, and especially as regards electric lighting.

ELECTRIC-POWER TRANSMISSION IN EUROPE.—The success attending the several electric power transmission systems put down by the Oerliken Works, Switzerland, has more recently had the effect of directing attention to means of utilizing the water-power of the river Rhine near Rheinfelden. Three prominent Swiss establishments, Zschokke & Co. of Aaron, Escher, Wyss & Co. of Zurich, and the already mentioned Oerliken Works, have taken up the matter, and have commenced the preliminary work in laying out plans for a plant. It is estimated that the Rhine can furnish about 15,000 horse-power, and this is to be distributed among the several industrial centers located within a radius of about 15 miles. To utilize the water-power 20 turbines, each rated at 750-horse power, are to be coupled directly to as many dynamos. Permission has already been sought for the erection of the primary station at Rheinfelden. The financial side of the undertaking having been disposed of satisfactorily, everything now depends upon the grant of this permission by the Government.

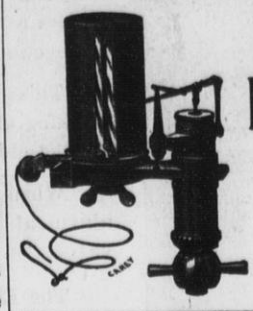
FLOUR MILL RATES IN AUSTRALIA.—Flour mill risks have assumed greater importance in the Colonies of late years, and an agreement respecting rates has recently been formed in Victoria, and has been signed by all the offices. It came into force on November 21 last. Its terms are extremely simple, the rates on mills within a radius of ten miles of the Melbourne General Post Office being fixed at not less than 30s. per cent. per annum for brick or stone, and at not less than 40s. per cent. per annum for iron or wood, the addition to these rates on mills outside the radius being 5s. and 10s. respectively. Grain stores, with certain exceptions, are charged the full mill rate. The tariff mill rates fixed by the British fire offices committee, are however, of an extremely elaborate character, and the proposals cover two closely printed large folio pages, the proponent being required to give the exact details regarding construction of mill, height, night work, motive power, kilns, stone rollers and discs, bridges trees, oat-grinders, smutters, stive rooms, disintegrators, purifiers, dressing machines, &c. There is a normal rate fixed on mills complying with fifteen conditions expressed, and there are additional rates to be charged for no less than twenty-two departures from those conditions. A feature is that the greater the number of stones or rollers or discs the higher the rate, stones paying more than rollers or discs. All the provisions referred to have been rendered necessary by the improvements in the mechanical processes of milling, and inasmuch as these improvements are speedily introduced into the colonies, it is possibly advisable to provide for the exercise of greater discrimination than is suggested by the Melbourne arrangement.—*Australian Insurance and Banking Record.*

American Steam Guage Co.,

—SOLE MANUFACTURERS—

Bourdon Steam Guages,

WITH LANE'S IMPROVEMENT.



THOMPSON'S

Improved Indicator

Over 2,500 in Use.

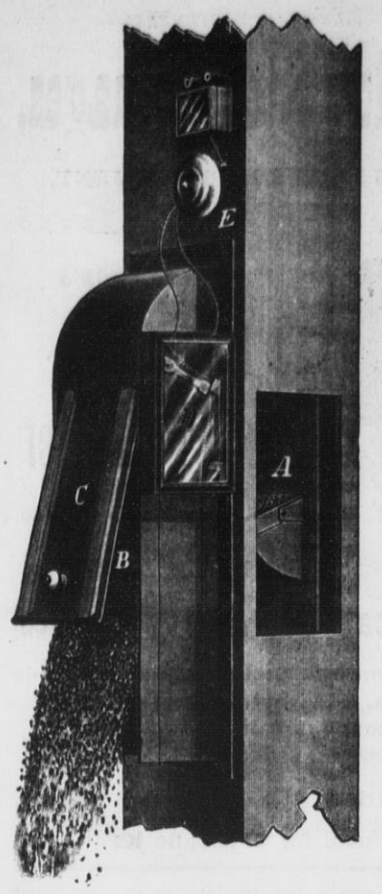
American Pop Safety Valves,

For Locomotive, Stationary and Portable Boilers, and Instruments Incidental to the use of Steam. Send for Price List I.

36 Chardon St., BOSTON, MASS.

Send for Catalogue K.

THE BEYNON ALARM.



A. Elevator.
B. Relief.
C. Valve.
D. Electric Connection of the Valve C with Bell E.
E. Electric Bell.

When the Elevator A becomes choked the surplus material discharges at the Relief Opening B. This causes a movement of Valve C and makes electric connection with Alarm Bell E.

This device is for indicating and relieving the choking of Elevators. Conveyors, Spouts, etc., and is employed in the handling of grain and mill material.

When a choke occurs, the Bell gives an instant alarm, at the same time the Relief relieves the Elevator, Conveyor or Spout of its material.

The Electric Bell may be attached to the Spout, together with the Relief, as shown in the cut; or it may be connected to an Indicator Board and put in any convenient place in the mill. The Relief on the Spout being connected with Board and Bell by electricity, causes the Bell to ring and the Indicator to show the Spout choked, while the Relief discharges the material from the Spout.

It may also be used in connection with a clock alarm or other means of indicating. Its use on elevators greatly reduces the liability of fire by burning of the belt, and is indispensable in flouring mills.

THE BEYNON ASPIRATOR ROLLER ADJUSTER.

ON NEW PRINCIPLES.

FOR ELEVATORS, CONVEYORS, ETC.

THE BEST MACHINES EVER PRODUCED

Give Capacity of Mill and ask for Illustrated Circular.

BEYNON & MURPHY

WATERTOWN, WIS.

ESTABLISHED 1846.

J. B. A. KERN & SON,

Merchant Millers,

Capacity 2,000 Barrels Per Day. MILWAUKEE, WIS.

Manufacturers of Choice Minnesota and Dakota Hard Wheat Flour.

RYE FLOUR

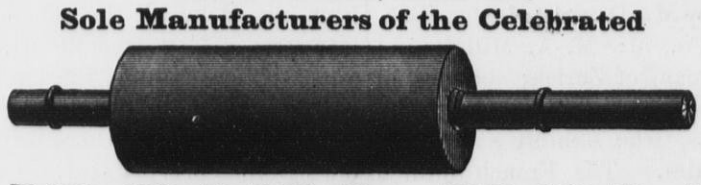
By most approved roller process, guaranteed the best and purest rye flour manufactured.

WE INVITE CORRESPONDENCE FROM CASH BUYERS.

Farrel Foundry & Machine Company,

ANSONIA, CONN.,

Sole Manufacturers of the Celebrated



ANSONIA ROLLS

FOR USE IN ROLLER MILLS.

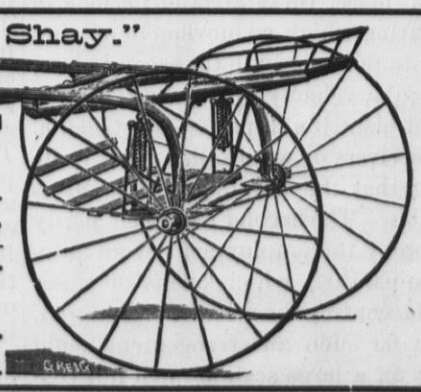
The general experience of American Millers unites in pronouncing these rolls the very best for Flouring Mill use.

These Rolls are now used in all Leading Flouring Mills

Chilled Rolls for Paper Mills a Specialty.

☞ Mention this paper when you write to us.

The "One Horse Shay."



Light, Durable, Well Made, Steel Axle and Steel Tires, Good Hickory Stock.

Sold Only to Users.

The best made ROAD CART for the money.

PRICE $15.00. Send Postal or Express Order, Bank Draft or Registered Letter. Shipped promptly on receipt of money.

Address, THE "ONE HORSE SHAY" CO., STERLING, ILL.

Refer to the editor of this paper. Mention this paper when ordering.

EDW. C. ORDWAY,

MILL CONTRACTOR AND FURNISHER

—OF—

ROLLER MILLS, GRAIN ELEVATORS,

New Process Corn Meal Mills, etc.

Plans and Specifications on Short Notice. HARTLAND, WIS.

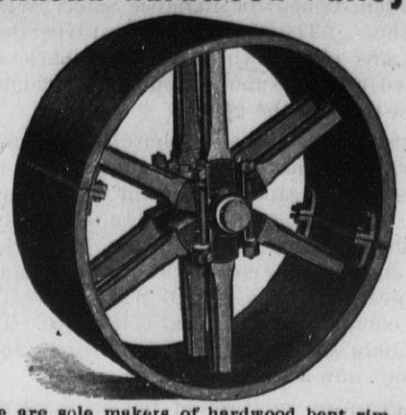
GANZ & CO.

Budapest, Austria-Hungary.

We are the first introducers of the Chilled Iron Rollers for milling purposes, and hold Letters Patent for the United States of America. For full particulars address as above.

[Mention this paper when you write to us.]

Menasha Hardwood Pulleys.



We are sole makers of hardwood bent rim, oak spoke arm, iron hub pulleys; gripped to shaft with bolts and using patent paper bushings. They can be put on shaft without taking it down or cutting key seats. No glue or nails used in their construction.

Also sole makers of only small split pulley 1 inch to 8 inches in diameter in the market. They are light, handsome and reliable. Best machine pulley made, and can be taken off or put on in five minutes. See above cut of them. No glue or nails in them. No key seats to cut Also makers of only split loose pulley in the market. Send for circulars and discounts of Menasha Pulleys.

MENASHA SPLIT PULLEY WORKS,
MENASHA, WIS.

JOHN C. HIGGINS & SON

Manufacturers and Dressers of

MILL PICKS

167 W. Kinzie St.,

CHICAGO, ILL.

Picks will be sent on 30 or 60 days' trial, to any responsible miller in the United States or Canadas, and if not superior in every respect to any other pick made in this or any other country there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is *manufactured expressly for me* at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct Importation References furnished from every State and Territory in the U. S. and Canadas. Send for Circular and Price List.

Stilwell's Pat.

Lime Extracting

HEATER —AND— FILTER

COMBINED.

Is the only Lime Extracting Heater that will

Prevent Scale in Steam Boilers

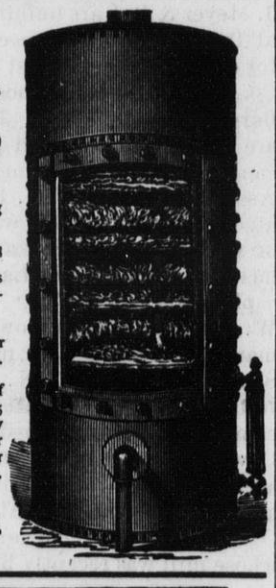
Removing all Impurities from the water before it enters the boiler.

Thoroughly tested. Over **3,000** of them in daily use.

This cut is a facsimile of the appearance of a No. 5 Heater at work on ordinary lime water when the door was removed after the Heater had been running two weeks.

Illustrated Catalogues.

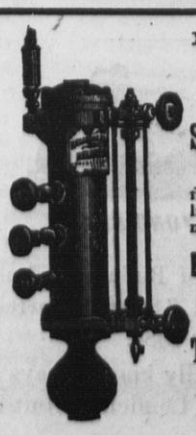
STILWELL & BIERCE MFG. CO.
DAYTON, OHIO.



For All Kinds IRON & STEEL **ROOFING**

CEILING, SIDING, IRON DOORS, SHUTTERS.

ADDRESS SCOTT & CO. CINCINNATI, OHIO.



Your Plant will be Imperfect Without

THE RELIANCE

Safety Water Columns.

They obviate all damage from either too much or too little water, and cost but little more than the common outfit.

Every Gauge Warranted.

Send for Illustrated Price List.

The Reliance Gauge Co.,

863 Sheriff St.,

CLEVELAND, OHIO.

Machinery For Sale

ONE PAIR 4-FT. MILLSTONES; new.

SEVEN PAIR 4-FT. MILLSTONES; used about three months.

ONE PAIR 9x18 CHILLED ROLLS; smooth.

ONE No. 1 THROOP SMUTTER AND SCOURER.

ONE 24-INCH MIDDLINGS MILL.

ONE 1000-LB. PALMER POWER SPRING HAMMER.

ADDRESS

The Filer-Stowell Co.

CREAM CITY IRON WORKS,

Milwaukee, - Wisconsin.

BURNHAM'S NEW IMPROVED STANDARD TURBINE WHEEL

PATENTED MAR. 27, 1883. and MAY 1, 1888.

ADDRESS YORK PENN. for PRICE.

SCIENTIFIC AMERICAN

ESTABLISHED 1845

Is the oldest and most popular scientific and mechanical paper published and has the largest circulation of any paper of its class in the world. Fully illustrated. Best class of Wood Engravings. Published weekly. Send for specimen copy. Price $3 a year. Four months' trial, $1. MUNN & CO., PUBLISHERS, 361 Broadway, N.Y.

ARCHITECTS & BUILDERS

Edition of Scientific American.

A great success. Each issue contains colored lithographic plates of country and city residences or public buildings. Numerous engravings and full plans and specifications for the use of such as contemplate building. Price $2.50 a year, 25 cts. a copy. MUNN & CO., PUBLISHERS.

PATENTS may be secured by applying to MUNN & Co., who have had over 40 years' experience and have made over 100,000 applications for American and Foreign patents. Send for Handbook. Correspondence strictly confidential.

TRADE MARKS.

In case your mark is not registered in the Patent Office, apply to MUNN & Co., and procure immediate protection. Send for Handbook.

COPYRIGHTS for books, charts, maps, etc. quickly procured. Address

MUNN & CO., Patent Solicitors,
GENERAL OFFICE: 361 BROADWAY, N. Y.

READ

—THE—

NEW YORK

Daily Commercial Bulletin

Its reputation as the most reliable commercial paper is conceded by all.

Sample Copies Free.

Its markets Reports are the most complete and trustworthy of any published and cover all trades.

Save Your Money

by subscribing to the "Daily Commercial Bulletin" and read its reports of the New York Markets.

PRICE:

	Per Year.	Six Mos.
Daily.	$12 00	$6 50
Tri-Weekly.	6 75	3 50
Semi-Weekly.	5 00	2 75

ADDRESS:

New York Daily Bulletin Association,

No. 32 Broadway, - NEW YORK CITY.

CAWKER'S AMERICAN

FLOUR MILL

—AND—

GRAIN ELEVATOR

DIRECTORY

Published once in two years.

Gives nearly 23,000 Addresses, P. O., County and State, Capacity, Power, System, etc.; also lists of Millwrights, Miscellaneous Mills, Millbuilders and Furnishers, Flour and Grain Dealers, Foreign Flour and Grain Importers, etc., etc.

1888-9 Edition, Issued March, 1888.

PRICE, $10 PER COPY,

post paid and registered to any part of the world. Address,

E. HARRISON CAWKER, Milwaukee, Wis.

THE MOTOR OF THE FUTURE.

OUR esteemed contemporary, *The American Journal of Railway Appliances*, has been studying the above subject. We take pleasure in making a brief extract from his essay which reads as follows:

"There was a time when wind and water acting directly upon wheels of more or less ingenious form and construction, supplied the power necessary for the rude machinery of the age. The world made a step in the direction of progress, and then steam achieved wonders.

There has now been discovered a greater, safer and cheaper power, and the steam engine is destined to occupy its place by the side of the water wheel, as one of so many old inventions which have fulfilled their mission and have been superseded.

To many of our readers this will seem like an extract from Jules Verne. To speak disrepectfully of steam will be, in their opinion, just like blasphemy against the multiplication table. Nevertheless it is already an accomplished fact that hundreds of boilers have been set aside by manufacturers and mechanics, simply because there has been discovered a better and cheaper kind of machinery by which the work of the whole world can be done. Their shops and factories are provided with the substitute, and the work is done more safely, more economically and more rapidly than before.

What is this substitute for steam? Why, electricity, to be sure.

Will electricity, then, do all that steam can do? Certainly it will, and it is destined in time to take the place of steam, just as steam has taken the place of the water wheel. No doubt, steam engines will always be used, just the same as water wheels are still used under circumstances which exclude the advantageous methods of science.

It is a revolution in science which is already under way and which is progressing with astonishing rapidity. It is true that the final results have not yet been arrived at on the score of cheapness and simplification of the methods by means of which this power is to be applied; yet it is nevertheless true that the power has been applied, and in many cases has been subjected to continuous working in factories and shops. In the supply of small power—that which machinists call 'cat-power,' in contra-distinction from 'horse-power' the electric motor has made great progress. The best illustration of its success in this respect is shown by its being applied to sewing machines, looms, cloth-cutters, and a hundred other machines, the mere enumeration of which would occupy too much space."

BELTING POINTS.

At the Erie meeting of the American Society of Mechanical Engineers, Mr. Scott A. Smith, presented a paper on "Tractive Force of Leather Belts on Pulley Faces." His conclusions were that the best belts are made from all oak tanned leather, curried with the use of cod oil and tallow. Leather so tanned, contained no free oil, which would, if of animal or vegetable origin, have a tendency to generate free acid injurious to the fiber, the pulley and belt.

"The most intimate contact of a belt with a pulley comes, First: In the smoothness of a pulley face, including freedom from ridges and hollows left by turning tools. Second: In the smoothness of the surface and evenness in the texture, or body, of a belt. Third: In having the crown of the driving and receiving pulleys exactly alike, as nearly so as is practicable, in a commercial sense. Fourth: In having the crown of pulleys not over ¼-inch for a 24-inch face; that is to say, that the pulley is not to be over ¼-inch larger in diameter in its center. Fifth: In having the crown other than two planes meeting at the center. Sixth: The use of any material on or in a belt, in addition to those necessarily used in the currying process, to keep them pliable or increase their tractive quality, should wholly depend upon the exigencies arising in the use of belts; and the use of such material may justly be governed by this idea, that it is safer to sin in non-use than in over-use. Seventh: With reference to the lacing of belts, it seems to be a good practice to cut the ends to a convex shape by using a former, so that there may be a nearly uniform stress on the lacing through the center, as compared with the edges. For a belt 10 inches wide, the center of each end should recede 1-10 inch."

"Rigid belts are sometimes made pliable by saturation with 'belt-oil,' but the inevitable result — in time — is a disorganized belt; slipping will come, and the addition of more oil only results in its acting as a lubricant, by piling up on the surface."

"There is some doubt in my mind as to the desirability of perforating belts, or the drilling of pulley faces, to overcome the difficulty mentioned, so far as it comes from the air, which is not so much a real difficulty when properly made belts are used as it is with rigid belts."

THE LEEDS CORN EXCHANGE, ENGLAND.

BEING in Leeds recently to start a mill, I took the opportunity of collecting a few details of the handsome Corn Exchange, thinking that such a subject might be of interest to the readers of the UNITED STATES MILLER. Leeds, which boasts of this fine structure, is the commercial capital of the County of

Yorkshire, and is the best laid-out town in the United Kingdom. It is situated on the banks of the river Aire. Although there are no less than 1,700 streets, all more or less wide and straight, those in the central part of the town being especially noteworthy for the absence of awkward turns and perverse crookedness; indeed the improvements in this respect are such, together with the public buildings, as to constitute Leeds one of the finest manufacturing towns in the kingdom. Some Englishmen say that there is a lack of the classic sculptures of the Greek, Roman and Italian schools; but I say that the 900 factories and workshops in Leeds, can be placed in the scale of utility as real monuments of wealth, industry and commercial prestige. In fact to an American on a visit to England, a journey and stay at Leeds is quite a relief, as American comforts of locomotion in the town have been taken to heart and their commercial enterprise somewhat followed. If a map of England on which the railways are marked be examined, it will be noticed that from Leeds lines of rail radiate towards every important place in England, and the water communication, an important factor in keeping freight low, is obtained by the river Aire which passes through the town, joining the Leeds and Liverpool canal, and thus affording a direct water carriage across the country from the eastern seaport of Hull to Liverpool. The facilities for transporting merchandise have, no doubt, had a very beneficial influence on the prosperity of the neighborhood, and the distance from London being only 186 miles, from Hull 55½ miles, and from Liverpool 74 miles.

The Corn Exchange, herewith illustrated, is situated in Duncan street, and was opened in 1863. It is built in the form of a Roman amphitheatre, and cost about £25,000. The building is of dressed stone externally and cased internally with colored bricks. It has two porticoed entrances, the principal facing Duncan st. and the other by way of Kirkgate. The ground plan is oval, and the total area of the building is 2,055 yards. The length 190 feet, width 136 feet and height 86 feet from the basement floor. The building is covered with an iron roof having an eliptical dome rising 75 feet from the market floor. A gallery runs around the market hall, which is lighted from the top, and on market days, every Tuesday and Saturday, presents a scene of considerable animation.

L. MAYGROVE.

THE GRAIN PLANT LOUSE.

GRAIN in portions of Ohio, Indiana, and Michigan have been more or less injured by an insect pest. In a recent bulletin issued by the Illinois State Entomologist we find the following:

"This insect, commonly known as the grain plant louse (*Siphonophora avenæ*) is an Old World species, known for over one hundred years to infest small grain, feeding indeed on a great variety of grasses and grass-like plants, including wheat, barley, oats, rye, blue grass, foxtail and the like, but not injuring any of the crop plants outside the family of grasses. In America it was first noticed in 1861, when it literally thronged the wheat fields of the northeastern States and Canada, from New York and Pennsylvania northward. Its injuries first attracted attention in Illinois in 1866, and again in 1876 and 1878, since which time it has not been here reported as specially injurious. Its amazing abundance this season seems due to the drouths of recent years and of the early spring, its enormous rate of multiplication enabling it to take rapid advantage of circumstances favorable to its increase. A single female may give origin in twenty days to more than 2,000,000 young, these, themselves, then multiplying at the of 1,00,000 a day. They rate are most conspicuous and injurious when the grains infested are filling the kernel, at which time they concentrate in the head. Besides their susceptibility to unfavorable weather they are subject to immense destruction by parasites, the most useful of which are minute 4-winged insects which lay their eggs in the bodies of the plant lice, thus giving origin to a minute grub which feeds upon the tissues of the living insect. The brown, inflated, empty crusts of plant lice which have been thus parasitized may be often seen among the living insects, each with a round hole in the back, from which the mature parasite has escaped. The attack in force of this plant louse is commonly so sudden and widespread, and its numbers are so overwhelming when it gets a fair start that there is probably nothing to be done with it that is of any practical value. So sensitive a creature can be best left to the weather bureau and its natural enemies."

A SAFETY-VALVE, in order to be, in reality, what its name implies, should be so proportioned, fitted up and piped, as to insure the boiler, to which it is attached against an overpressure of steam, when all other outlets are closed and a brisk fire in the furnace. How many engineers who read this have ever tested their safety-valves in this way?

THINGS WORTH KNOWING.

PAINT FOR SMOKE STACKS.—One of the best varnishes for steam pipes or smoke stacks is directed to be made with good asphaltum dissolved in oil or turpentine.

ONION juice is said to be an unfailing glue for making paper or paper board adhere to a metal surface. The metal should be cleaned with soda and rubbed dry with a clean rag. Cheap clock dials are prepared in this way, being printed on paper which is pasted on zinc.

THE following is a recipe for an elastic mucilage which will keep well, remain quite elastic after drying, and yet never crack or peel off: Prepare a mucilage with 93 parts of good gum arabic and 180 parts of hot water, and then strain it into a liquid mixture of 1 part salicylic acid dissolved in 20 parts of alcohol(overproof), 3 parts soft soap, and three parts glycerine, which have been thoroughly well shaken together.

TO MAKE HOLES IN STEEL.—"Sometimes I have had to make holes in steel that was too hard to cut or file easily. Then I make a mixture that will cut a hole. I mix one ounce of sulphate of copper, quarter of an ounce of alum, half a teaspoonful of powdered salt, a gill of vinegar, and twenty drops of nitric acid. This will make the hole, or if it is washed off quickly it will give a beautiful frosted appearance to the metal."

NEW COMPOSITION FOR SOFTENING LEATHER.—Dr. Alexander Zoroastroff of Belostok emphatically recommends to people working about water, a grease for boots which is said to completely prevent sore feet, and so protects pedestrians from the whole train of familiar affections caused by that minor accident. The ointment is made of four parts of lard, four parts of olive oil, and one part of caouthouc (raw rubber), melted together on a slow fire. Having moistened the sole of the boot with water, the inventor warms the boot in a stove or before a fire, and then smears it over with the compound. The boot is said to become soft, pliable, shining, waterproof, and even more durable.

A USEFUL CEMENT.—The following mixture has been used with the greatest possible success for the cementing of iron railing tops, iron gratings to stoves, etc.; in fact with such effect as to resist the blows of a sledge hammer. This mixture is composed of equal parts of sulphur and white lead, with about one-sixth proportion of borax, the three being thoroughly incorporated together, so as to form one homogeneous mass. When the application is to be made of this composition, it is wet with strong sulphuric acid, and a thin layer of it is placed between the two pieces of iron, these being at once pressed together. In five days it will be perfectly dry, all traces of the cement having vanished, and the work having every appearance of welding.

NEW CUSTOMS DUTIES ON RYE AND RYE FLOUR.—The *Journal Officiel* for the 17th April last publishes the text of a decree of the French President, establishing new Customs duties on rye and rye flour as follows:—

Rye in the grain, if of European origin, or imported directly from a non-European country, 3 frs. per 100 kilos; if of extra-European origin, imported from European *entrepôts*, 6 frs. 60 cts. per 100 kilos.

Rye flour, if of European origin, or imported directly from a non-Europeau country, 5 frs. per 100 kilos; if of extra-European origin, imported from European *entrepôts*, 8 frs. 60 cts. per 100 kilos.

To prevent the loss of power in belts cover the surface of the pulley with papier-mache. To be applied by chemically prepared cement. It will firmly adhere in a few hours and thus become a part of the pulley.

THE CHICAGO MILWAUKEE AND ST. PAUL RAILWAY CO.

Fast Mail Line with Vestibuled Trains between Chicago, Milwaukee, St. Paul and Minneapolis.

Trans-Continental Route between Chicago, Council Bluffs, Omaha and the Pacific Coast.

Great National Route between Chicago, Kansas City and St. Joseph, Mo.

5700 Miles of Road reaching all principal points in Illinois, Wisconsin, Minnesota, Iowa, Missouri and Dakota.

For maps, time tables, rates of passage and freight, etc., apply to the nearest station agent of the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY, or to any Railroad Agent anywhere in the World.

ROSWELL MILLER, General Manager. A. V. H. CARPENTER, Gen'l Pass. and Tkt. Agt.

☞For information in reference to Lands and Towns owned by the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY COMPANY, write to H. G. HAUGEN, Land Commissioner, Milwaukee, Wisconsin.

THE CHICAGO AND
NORTH-WESTERN RAILWAY.
OVER 7,000 MILES

Of steel track in Illinois, Iowa, Wisconsin, Michigan, Minnesota, Nebraska, Dakota and Wyoming, penetrates the Agricultural, Mining and Commercial Centres of the

WEST AND NORTHWEST.

The Unrivaled Equipment of the Line embraces Sumptuous Dining Cars, New Wagner and Pullman Sleepers, Superb day Coaches and

FAST VESTIBULED TRAINS

Running direct between Chicago, St. Paul and Minneapolis, Council Bluffs and Omaha, connecting for Portland, Denver, San Francisco and all Pacific Coast Points.

ONLY LINE TO THE BLACK HILLS

For Tickets, Rates, Maps, Time Tables and full information, apply to any Ticket Agent or address the Gen'l Passenger Agent, Chicago, Ill.

J. M. WHITMAN, General Manager. H. C. WICKER, Traffic Manager. E. P. WILSON, Gen'l Pass. Agt.

NOTES from the diary of tourists, commercial travelers, business men and others has revealed:

That the **Wisconsin Central** has the unqualified endorsement of all:

That the **Wisconsin Central** has to-day the most popular line between **Chicago** and **Milwaukee**, and **St. Paul, Minneapolis** and the **Northwest;**

That the **Wisconsin Central** is daily adding to its admirers as the recognized **Pullman** line between **Chicago** and **Milwaukee** and **Ashland, Duluth** and **Lake Superior;**

That the **Wisconsin Central** touches the most prominent points in Wisconsin, and that it has more important business centers on its through line than any other railway to and from the **Northwest;**

That the **Wisconsin Central** has made an enviable reputation with its peerless **Dining Car Service;**

That the **Wisconsin Central** runs fast trains on which all classes of passengers are carried with commodious and distinct accomodation for all:

That the **Wisconsin Central** has representatives distributed throughout the country, who will cheerfully give any information that may be desired and that its terminal Agents are specially instructed to look after the comfort of passengers who may be routed via its line.

For detailed information, apply to your nearest Ticket Agent; or to representatives of the Wisconsin Central Company.

S. R. AINSLIE, General Manager. H. C. BARLOW, Gen'l Traffic Manager.

LOUIS ECKSTEIN, Asst, Genl. Passr. & Tkt. Agt.

MILWAUKEE, WIS.

ALL persons desiring to reach the entire milling and grain trade of America, by circular or otherwise, should obtain a copy of CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888.

WE shall be pleased to receive from any of our readers, short, crisp, sensible letters on subjects of interest to the flour and grain trade for publication.

EXPORTING millers should write to the Riverside Printing Co., Milwaukee, Wis., for the best Flour Cable Code ever published. There are more copies of this Code in use than of ALL other flour codes published. It is simple and accurate.

ASHLAND ROUTE M.L.S.&W.RY.

THE MILWAUKEE, LAKE SHORE & WESTERN R'Y

IS THE DIRECT AND MOST POPULAR LINE AND

Through Sleeping and Parlor Car Route

FROM

CHICAGO and MILWAUKEE

TO

SHEBOYGAN, MANITOWOC, APPLETON, NEW LONDON AND WAUSAU,

TO ALL THE IMPORTANT TOWNS IN THE

Gogebic, Penokee and Montreal Iron Ranges,

HURLEY, BESSEMER, IRONWOOD, WAKEFIELD AND GOGEBIC,

TO

ASHLAND, SUPERIOR and DULUTH,

To all Fox River Manufacturing Cities AND The Lumbering Districts of Northern Wisconsin and Michigan.

SPORTSMEN The best Fishing and Hunting in the NORTHWEST reached by the **ASHLAND ROUTE.** Send to the General Passenger and Ticket Agent for Descriptive and Illustrated Publications, Maps, Folders, Time Cards and General Information.

Milwaukee Office, 95 Wisconsin St.

H. G. FLEITH, Com. Freight Agt. F. P. REGAN, City Pass. & Tkt. Agt.

H. F. WHITCOMB, General Manager. ERNEST VLIET, Gen'l Pass. & Tkt. Agt.

MILWAUKEE.

Milwaukee & Northern R. R.

SHORT LINE

—TO—

Marquette, Negaunee, Ishpeming, Hancock, Houghton, Champion, Republic. Iron Mountain, Menominee, Mich.

Marinette, Green Bay, Depere, Neenah, Menasha, Appleton, Wis.

THE TABLE OF EXPRESS TRAINS.

STATIONS.	DEPART.	ARRIVE.
Champion, Republic,	*1:35 A. M.	*3:20 A. M.
Iron Mountain, Menominee, Marinette, Green Bay, Depere,	*1:35 A. M. 3:10 P. M.	*3:20 A. M. 3:55 P. M.
Green Bay, Depere, Appleton, Menasha, Neenah,	†7:35 A. M. 7:55 A. M. 3:10 P. M.	3:55 P. M. 10:20 A. M.

*Daily. †Daily, except Monday. All other trains daily except Sunday.

Pullman Sleeping Cars are run on all night trains, and are ready for occupancy at 9:00 P. M.

New Passenger Station, Fourth Ward Park.

C. F. DUTTON, General Manager. W. B. SHEARDOWN, General Ticket Agent.

A NIGHT IN CHICAGO

—AND A—

NIGHT TRAIN

—TO—

INDIANAPOLIS.

——THE——

MONON ROUTE

LOUISVILLE, NEW ALBANY & CHICAGO RY.

HAS A TRAIN

Leaving Chicago

AT 11:40 P. M.

EVERY NIGHT (Sundays included), with THROUGH COACHES and PULLMAN SLEEPERS, ARRIVING INDIANAPOLIS at 7:30 A. M.

ADDITIONAL TRAINS leave Chicago for Indianapolis at 8:15 A. M. and 8:20 P. M.

Ask your home Agent to make your tickets read via the MONON ROUTE, so your comfort may be assured. For further information, Sleeping Car Berths, etc., call at

CITY TICKET OFFICE, No. 73 CLARK ST.

—OR AT THE—

DEARBORN STATION, CHICAGO.

JAMES BARKER, Gen'l Pass'r Agent, CHICAGO.

PRIVATE · TELEGRAPHIC · CIPHER

CODE

Compiled Expressly for the use of

Millers, Flour & Grain Brokers

For Private Telegraphic Correspondence, either for Land or Cable Lines.

☞1888 Edition, just out, March 1, 1888, revised, amended and added to, to meet all the requirements suggested by the members of the Miller's National Association, *who use more copies of the Code than all others combined.*

Published by the Riverside Printing Co., Milwaukee, Wis.

For terms, etc., address, stating number of Codes probably wanted,

RIVERSIDE PRINTING CO., Milwaukee, Wis.

CH&D CINCINNATI, HAMILTON & DAYTON R.R.

THE **THROUGH CAR LINE**

—FROM AND TO—

CINCINNATI

WITH THROUGH CAR SERVICE BETWEEN

CINCINNATI and INDIANAPOLIS,
CINCINNATI and TOLEDO and DETROIT,
CINCINNATI and CHICAGO,
CINCINNATI and ST. LOUIS,
CINCINNATI and DAYTON and RICHMOND,
CINCINNATI and FT. WAYNE and GRAND RAPIDS,
CINCINNATI and GREENVILLE and VAN WERT.

With THROUGH RECLINING CHAIR CAR between

CINCINNATI, DECATUR and SPRINGFIELD, ILLS. and KEOKUK, IOWA, (daily)

PARLOR CHAIR CARS ON DAY, and SLEEPERS ON NIGHT TRAINS, "YEAR 'ROUND."

Ask for Tickets via C. H. & D. R. R.

For full information, Tickets, Sleeping Car Space, &c., Inquire of or Address,

W. H Fisher, Gen'l Agt., Indianapolis, Ind. W. H. Whittlesey, Central Pass'r Agt., Dayton, O.
John Bastable, District Pass'r Agt, Toledo, O. D. B. Tracy, Northern Pass'r Agt., Detroit, Mich.
Wm. A. Wiggins, Southern Passenger Agent, Chattanooga, Tenn.
J. G. Mason, City Passenger Agent, Cincinnati, O.

Or General Passenger Agent's Office, - No. 200 W. Fourth St., Cincinnati, O.

C. C. WAITE, Vice-Pres't & Gen'l Manager. CHAS. H. ROCKWELL, Gen'l Pass'r & Ticket Agent.

——THE——

Chicago & Grand Trunk R'y

NIAGARA FALLS AIR LINE

Is the Shortest and Most Direct Route East.

THROUGH SLEEPING AND PARLOR CARS TO

New York, Montreal and Boston.

The Only Line running Through Sleeping Cars between

CHICAGO and PHILADELPHIA

Via NIAGARA FALLS Without Change.

Trains leave Dearborn Station at 9.05 a. m., 3.25 p. m. and 8.15 p. m. 8.15 p. m. train has elegant Pullman Sleeping Car to Detroit daily.

GRAND HAVEN ROUTE.

Detroit, Grand Haven & Milwaukee, R'y,

Is the Shortest, Cheapest and Quickest Line between MILWAUKEE, Points in MICHIGAN, CANADA and the EAST.

A delightful 5 Hour Daylight Trip on the Palace, Iron Side Wheel Passenger Steamer,

CITY OF MILWAUKEE.

Steamer leaves Milwaukee daily at 11.30 A. M., connects at Grand Haven at 5.30 P. M. with Fast Limited Express, which reaches Detroit, 11.30 P. M.; Niagara Falls, 7.30 A. M.; New York, 10.00 P. M.

34 Hours Milwaukee to New York.

Round Trip Tourist Tickets to the Thousand Islands, Rapids of the St. Lawrence, Mountains and Sea Shore now on Sale. Pamphlets descriptive, Rates, Routes, etc., sent by mail from Company's Office, 99 WISCONSIN STREET.

2nd class tickets good on all trains.

W. E. DAVIS, Gen'l Pass's & Ticket Agent, CHICAGO. E. H. HUGHES, Gen'l Western Pass'r Agent, CHICAGO. B. C. MEDDAUGH, Nor. Pass'r Ag't, 99 Wisconsin St., MILWAUKEE.

STEAMSHIP TICKETS

To or from Europe at lowest rates, by all lines. Cabin plans can be consulted and best accommodations secured as far in advance as desired.

Information furnished by mail or on application at office, 99 Wisconsin St., southwest cor. Broadway.

B. C. MEDDAUGH, Gen'l S. S. Agent. MILWAUKEE, WIS.

Goodrich Passenger Steamers

TWICE DAILY EACH WAY BETWEEN

MILWAUKEE and CHICAGO.

CHICAGO AND RACINE LINE.

Leave Milwaukee.	FOR	Arrive at Milwaukee
7.00 P. M.	Chicago	5.00 A. M.
*7.30 A. M.	Chicago	4.00 P. M.
7.00 P. M.	Racine	5.00 A. M.

FARE TO CHICAGO ONLY $2.00.

ROUND TRIPS, $3.50. Meals and berths included on first-class tickets. Sure connections at Chicago with all morning trains for all points east, south and southwest.

†*Sheboygan and Manitowoc Line.—
*Daily..... 7.00 A. M. Arrives..... 5.00 A. M.
Sundays..... 7.00 P. M.

Kewaunee and Ahnapee Line.—Tuesdays, Wednesdays, Thursdays, Saturdays and Sundays at 7.00 A. M.

Menominee and Sturgeon Bay Line.—Tuesdays, Wednesdays, Thursdays, Saturdays and Sundays at 7.00 A. M.

Green Bay and Depere Line.—Wednesdays and Sundays at 7.00 A. M.

Manistique, Thompson and Gladstone Line.—Wednesdays and Sundays at 7.00 A. M.

Fayette, Garden and Nahma Line.—Wednesdays, Saturdays and Sundays at 7.00 A. M.

Escanaba Line.—Tuesdays, Wednesdays, Thursdays, Saturdays and Sundays at 7.00 A. M.

Bailey's Harbor and Jacksonport Line.—Wednesdays at 7.00 A. M.

Fish Creek, Egg Harbor and Sister Bay Line.—Tuesdays, Thursdays and Saturdays at 7.00 A. M.

Close connections with railroad at Escanaba for Negaunee, Ishpeming, Quinnessec, Norway and all Lake Superior points.

The new steamer City of Racine will be the daily 7.00 P. M. boat out of Milwaukee for Chicago, except Sunday nights. The steamer Chicago will be the Sunday nights boat.

G. HURSON, Secretary and Agent.

THOS. FORBES, Passenger Agent.

* Except Sundays and Mondays. †* Except Mondays.

94 MILES THE SHORTEST, 8 HOURS THE QUICKEST,

CINCINNATI TO NEW ORLEANS

Time, 27 Hours.

Entire Trains, Baggage Car, Day Coaches and Sleepers run through without change.

110 MILES THE SHORTEST, 7 HOURS THE QUICKEST,

CINCINNATI to JACKSONVILLE, Fla.

Time, 28 Hours.

Through Sleepers without change. The Short Line between Cincinnati and

Lexington,	Ky.,	Time,	2½ Hours.
Knoxville,	Tenn.,	"	12 "
Asheville,	N. C.,	"	17 "
Chattanooga,	Tenn.,	"	11 "
Atlanta,	Ga.,	"	15 "
Birmingham,	Ala.,	"	16 "

Direct Connections at New Orleans, and Shreveport, for Texas, Mexico and California.

Trains leave Central Union Depot, Cincinnati, crossing the Famous High Bridge of Kentucky, and rounding the base of Lookout Mountain.

Over One Million Acres of Land in Alabama, the Future Great State of the South, subject to pre-emption. Unsurpassed Climate.

For Rates, Maps, etc., address,

C. S. HENRY, Traveling Passenger Agent, 193 Clark St., Chicago, Ill.

J. C. GAULT, Gen'l Mgr. CINCINNATI, OHIO. D. G. EDWARDS, G. P. & T. A.

DO YOU INTEND TO BUILD?
PRACTICAL LOW-COST HOUSES. HOW TO BUILD THEM.

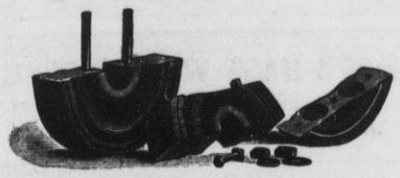
A Large Atlas, containing drawings and floor plans of 40 Modern Houses with Correct Estimates of cost of building, all kinds of buildings ranging from a $400 cottage to a $10,000 residence. The latest, most complete, and only practical book published. It is false economy to attempt to build without these plans. Price by mail, post-paid, 50 cts. Stamps taken.

Address, UNITED STATES MILLER, Milwaukee, Wis.

CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888-89, issued March 3, 1888, a work that should be in everyone's hand that desires to reach the entire flour and grain trade. While not claimed by the publisher to be perfect, it answers FULLY the requirements of the trade. It is the only list published. The demand is limited and the price (Ten Dollars per copy) is cheap, considering the labor required in compiling, printing and selling. It contains lists of flour mill and grain elevator owners, micellaneous kinds of mills such as corn, rye, oatmeal, rice and feed mills, millwrights, flour brokers and dealers in various sections of the United States and Canada, and a good list of European flour and grain importers. Kind of power used, rolls or stones, capacity and millers supposed to be worth $10,000 or *more* are indicated in thousands of cases.

MENASHA PULLEYS SHIPPED BY MAIL.

THE Menasha Wood Split Pulley Co. of Menasha, Wisconsin, having had such great success with their hard-wood, bent-rim pulley, which is now universally used in all first-class mills and factories in this country, have recently introduced to the trade a new departure in split pulleys. It is the smallest split pulley made. It is designed for use as a split pulley from 1 inch to 8 inches in diameter. There are no iron or wooden split pulleys made so small in diameter except this one. The smallest split pulley made by other manufacturers, of either iron or wood, is 9 inches in diameter. These Menasha split pullies were patented last April. There has been a long-felt want among all classes of manufacturers for a small split pulley, smaller than could be made with felloes or bent rim or by any of the known means of manufacturing split pulleys, and the Menasha people after considerable experimenting have finally succeeded in producing this small split pulley. It is made of the hardest Wisconsin hard woods as



[Above cut shows construction of small pulley. The bolts that clamp the shaft are entirely out of sight when on the shaft. The nuts and heads are covered by the caps as shown in cut. The grip on shaft is perfect. Nuts can be easily got at to grip it tightly. The cap is held on by stove bolts.]

[Above cut shows small split pulley set up, as it appears on shaft. They are made any face and from 1 inch diameter up to 8 or 10 inches.]

seen in the above cuts. It has a regular hub through which the bolts are placed in such a manner as to be readily accessible to the millwright for adjustment to the shaft. The heads and ends of the bolts are covered by the cap as seen in the cut, which cap is fastened to the hubs by a stove bolt. The pulley is gripped to the shaft and when necessary to change the size of the bore in the pulley, the patent paper bushing which this company uses on all of its split pulleys, is inserted in the hub to change the size of the bore. The pulley may be adjusted to the shaft; no key-seats are necessary to be cut, and no set screws are used. It is absolutely reliable in its grip on the shaft. The pulleys are very handsome. They are light, cheap and stronger than any iron pulley ever made. They are absolutely in perfect balance and are 70 to 90 per cent. lighter than iron pulleys. Any machinery concern or pulley dealer can with a small stock of them fill almost any order he will have. The smaller ones may be easily shipped by mail, and all of them may be easily shipped by express. These small split pulleys are specially designed to take the place of all iron counter-shaft, main-shaft and machine pulleys that have to be cast, around the country at the foundries. They can be had for one-half the expense of iron pulleys. By using them on machinery of all kinds it will very materially reduce the price of freight.

Menasha people are to be congratulated upon their success in producing such a fine article of machinery, and though they have been manufacturing them but about four months, they have now a trade in these small pulleys that reaches all over the United States, and a force of men are constantly pushing their manufacture.

The Company has recently issued a very handsome circular illustrating all of their wood split pulleys, which they are pleased to send to any one desiring it.

In a future article we shall describe their hard wood bent rim oak spoke arm and iron hub-pulleys, which are the only hard wood bent rim pulleys manufactured. By their system of bushing with pure friction board they have developed a grip on the shaft that is absolutely reliable and which enables them to make and hold to the shaft absolutely the largest wooden pulleys in the market. They can manufacture any size wooden pulley.

SONG OF THE BUGS.

The sluggish "chinch bug," he eats grain,
The lively grasshopper feeds on grass,
While the "tater bug" comes in after the rain
And chews up the farmer's garden sass.

The "Hessian fly," a bug without hair,
Who takes his meals from the granger's wheat,
He and the "bull bug," best friends of the bear,
'Till the "green bug" made his debut on the street.
—*Boston Beacon.*

And the Indiana "louse," he gets what is left;
Insecticide's unknown when the crop's in the cream;
Then the "weevil" comes after, much lacking in heft,
But enough to post hot-stuff and make the bulls scream.—*Baltimore Journal of Commerce.*

But the bug of all bugs that do the most harm
Whether the market be up or down,
Is the "city crop reporter" and the bloomin' granger "croaker"
With a 10-per cent. mortgage on the dear old farm.

[NOTE.—The U. S. Miller and Milling Engineer requests the judges in this "bug-gy race to allow all entries a fearful amount of poetical latitude and longitude—"unbridled license" as it were.]

GOVERNMENT CROP REPORT.

Official Estimate of the Condition of the Crops July First.

THE Government crop report for July is a lengthy document. It arrived here July 12.

The returns make an increase in the area planted in maize of 1,300,000 acres and the total over 77,000,000. This is only a preliminary estimate, subject to revision after more thorough census tests now in progress. The largest increase is west of the Mississippi. There is a small enlargement of breadth in some of the southern states, but in the eastern and middle states, taken together, there is no increase.

The condition of the crop is only medium, lower than usual at this period of its development. Excessive moisture has delayed planting, and lower temperature and saturated soil have retarded growth on the Atlantic coast north of South Carolina. In the cotton states May was cold and at most points dry, and in June wet to excess. On tne 1st of July it was in some danger of injury from excess of moisture, even in Texas, though the early planted was in the roasting-ear stage, and in some places harvested and a second crop planted.

In the Ohio valley condition is lower than elsewhere. The extreme cold weather of the latter part of May and the first part of June was very unfavorable to germination, and the frosts of that period injured or destroyed that which was above ground. The replanting was slow and the plants are therefore small, though thrifty and growing. In Michigan there has been some loss of area by plowing up and seeding to millet from failure to obtain a stand.

Cut worms have been very destructive in the west. More advanced fields in this region which should have been cultivated four times at this date have only been plowed twice. The crop is therefore late and dependent on July weather for improvement, while exposed more than usual to possible adverse conditions.

The maize of the northern border from Wisconsin to Dakota suffered from the abnormal cold of May and early June, but looks quite as well now as in the Ohio valley.

West of the Mississippi, in the subhumid belt and border of the arid region, the crop is generally in fine condition, though injured at points by overflows and excessive moisture. The Great American desert is green with the great American cereal in high development.

The general average of condition is about 90, and the averages of principal states are: New York 80, Pennsylvania 88, Virginia 90, Georgia 95, Texas 98, Tennessee 92, Kentucky 90, Ohio 81, Illinois 82, Wisconsin 83, Minnesota 87, Michigan 70, Indian 81, Iowa 95, Missouri 92, Kansas 97, Nebraska 98, Dakota 83.

The condition of winter wheat is well sustained, notwithstanding injury by storm and flood. The general condition standing at 92 The former complaints of "threatened by drought" are displaced by statements of some actual damage from abundant rains. Occasional reports of injury from the Hessian fly, the chinch-bug, the midge, and rust are received, but the local estimates of condition do not indicate much damage. Probably the resulting damage may be more fully disclosed by the books of the threshers.

In the heart of the west the harvest is generally finished by this date. It is completed in the south and threshing is in progress. The average of condition of principal states are as follows: New York 96, Pennsylvania 96, Virginia 90, Georgia 94, Texas 86, Tennessee 95, Kentucky 88, Ohio 88, Michigan 89, Indiana, 89, Illinois 94, Missouri 94, Kansas 98, California 97.

The straw is generally short and unusually well headed and plump in grain, though in some places it is somewhat shriveled. Fears were entertained of injury in the shock after harvest, which the change of weather may prevent.

The returns concerning spring wheat in Dakota are very unfavorable from results of long-continued drouth. Rains late in June had improved the situation, but the general average as consolidated is 62. Results are extremely variable, from a good yield down to a bushel per acre. In some sections, as reported, the grain is already heading out with straw six inches high. The averages of Wisconsin and Nebraska are each 95; Iowa, 97; Minnesota, 87; and the averages of Montana, Idaho and Washington are low. The general average is about 83, which is very low at this stage of growth.

Rye maintains its condition and barley declines to about 92.

AN ENGLISH SYNDICATE AND MINNEAPOLIS FLOUR MILLS.

THE *Northwestern Miller* of July 11 says editorially:

"We announced in our issue of May 24 that the rumor which was current to the effect that an English syndicate was figuring to purchase several of the larger mills in Minneapolis and combine them into one corporation was not entirely unfounded in fact. The original scheme was supposed to have been dropped, but either the same parties, or others connected with them, re-opened negotiations, which have been going on ever since and which may possibly culminate in the transfer of several mills from their present owners to outside purchasers. During the last thirty days rumors of these facts have been flying thick and fast and have been of the wildest and most improbable character. It has been stated that representatives of British capital were endeavoring to obtain control of the milling business in various cities, including Minneapolis, St. Louis, Buffalo and Rochester. Our correspondent at the last named place quotes the opinions of various prominent Rochester millers on the subject, some of them quite pertinent, but all showing that while the miller there might be willing to sell if they had a good chance, they are ignorant of any attempt in the direction of a purchase having been made.

"We do not think that even any preliminary figuring has been done in any of the cities named except Minneapolis. In the latter place there is ground for the supposition that a transfer may be made. An option on several valuable plants has been given to certain financiers representing outside capital. The properties included in the proposed syndicate are those of C. A. Pillsbury & Co., Washburn Mill Company, the Washburn Flouring Mills Company, the east and west side water powers and the Pillsbury system of elevators. This would give the purchasers a combined capacity of 22,000 barrels of flour per day, the control of the water power and a valuable elevator system. For some time past accountants sent to Minneapolis have been examining the books of various establishments included in the deal, and verifying the statements of the millers as to their profits. Should the deal be consummated, C. A. Pillsbury will manage the entire business, which will be capitalized at from $8,000,000 to $10,000,000. It is known that the sellers receive a good price for their interests, but not an exorbitant one. Even on the capital above given the stockholders will receive a very fair dividend on their investment, basing calculations on the results of the business for the past six years.

"The milling interests included in the proposed deal are the largest in Minneapolis, and several of the mills have been great money-makers in the past and will undoubtedly continue in the same course if properly managed. As far as the mills of the Washburn Flouring Mills Company, the Washburn A, B and C are concerned, they will be operated for at least a year from Sept. I by the Washburn-Crosby Company, successors to Washburn, Martin & Co., whether the proposed transfer in ownership is or is not made. It is probably a trifle premature to speculate on the effect of this proposed movement on the general milling business of the country and especially of the spring wheat section. It may not be carried out, although the probabilities are otherwise. A large number of millers think that it will be an unfortunate thing for the trade at large. and there is some talk of other combinations being made to compete with it."

FOR SALE AND TO RENT.

[*Short ads. inserted in this column for $1 per insertion.*]

FOR SALE. A full roller process flouring mill, 100 barrels' capacity. Equipped with most approved modern machinery. Built less than one year. Citizens gave a bonus of $2,500, which I will allow to purchaser of mill. Having an interest in a mill furnishing business, I desire to give it all my time. Full particulars on application.
H. C. DUTTON, Port Austin, Mich.

FOR SALE. A good water-power roller mill of about 50 bbls. daily capacity. Address for full information,
UEHLING & BODDEN, Afton, Wis.

FOR SALE. The "Central Mills," of 300 barrel capacity, situated in the thriving city of Atchison, Kas., with a good wheat crop, and the business fully established to go right ahead. Satisfactory reasons for selling. For further information address
WM. BOWMAN, Atchison, Kas.

WANTED.

WANTED. A partner who will devote his time to the business, with some means, to rebuild a water power mill in Toledo, on the site of the Armada Mills (lately burned.) It is the best site in the city, and the best city in America for a flouring mill to grind either winter or hard spring wheat. Correspondence solicited.
F. N. QUALE, TOLEDO, OHIO.

SOUTH TIMBER LANDS.

An experienced land man, native of the South, active and intelligent, wants a position with some reliable Northern firm dealing in Southern timber lands, to locate and select cheap timber lands in the South. References. Address,
SOUTH TIMBER LANDS.
P. O. Box 1297, NEW ORLEANS, LA.

The INK used on this paper is from the factory of

CHAS. ENEU JOHNSON & CO.,

PHILADELPHIA, PA.

Western Branch House: 40 La Salle St., CHICAGO

AN AUTHENTIC BUYERS' GUIDE.

MILL AND ELEVATOR BUILDERS, MILL FURNISHERS, MANUFACTURERS OF AND DEALERS IN MILL AND ELEVATOR MACHINERY AND SUPPLIES.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year, cash with order. Additional lines, $1.00 each, per year.

Edw. P. Allis & Co., Milwaukee, Wis., builders of complete Flour Mills, manufacturers of Flour Mill Machinery, and dealers in Supplies of every description. [Mr.89.]

John C. Higgins & Son, 165 West Kinzie Street, Chicago, Ills., mfrs. of and dressers of Mill Picks. [Mr.89.]

H. P. Yale & Co., Milwaukee, Wis., Manufacturers' Agents of Engines and Boilers, New York Leather Belting Co.'s Leather Belting, Dodge Wood Pulley.

Robert Poole & Son Co., Baltimore, Md., manufacturers of Steam Engines, Water Wheels, Flour, Corn, Paper, Saw and Cotton Mill Machinery.

W. J. Clark & Co., Salem, O., manufacturers of "SALEM" Elevator Buckets, etc.

R. C. McCulley, (P. O. Box 214) Lancaster, Pa., manufactures Cob Crushers, Cooper's Stoves, Castings, Patterns, etc. [Mr.89.]

B. H. & J. Sanford, Phoenix Iron Works. Sheboygan, Falls, Wis., manufacturers of the "IMPROVED WALSH DOUBLE TURBINE WATER WHEEL." [Mr.89.]

John C. Kilner, York Foundry and Engine Works, York, Neb. Mill and Elevator machinery of all kinds, Engines, Boilers, Pulleys, Shafting, etc. [Mr.89.]

The Gutta Percha and Rubber Mfg. Co., 159-161 Lake st., Chicago. Ill., Belting and Rubber Goods. [Mr.89.]

Richmond Mfg. Co., Lockport, N. Y., manufacturers of Grain Cleaning Machinery, Bran Dusters, etc. [89.Mr.]

N. Y. Belting and Packing Co., N. Y. Leather Belting Co., W. D. Allen & Co., Agents, 151 Lake Street, Chicago. [Apr.89.]

W. G. Avery M'f'g Co., 10 Vincent st., Cleveland, O., Specialties: Avery Lever Belt Punches, Avery Seamless Elevator Buckets, Belting, Elevator Bolts, &c. [May'89.]

The H. J. Deal Specialty Co., Bucyrus, Ohio. Headquarters for Flour and Grain Testing Appliances, and Specialties for the Milling, Flour and Grain trades. [May 89]

A. B. Bowman, 823 Second St., St. Louis, Mo., manufacturers of Wheat Heaters.

Sprague Electric Railway & Motor Co., 16 and 18 Broad St., New York. Electric Motors. Electric Transmission of Power.

Stilwell & Bierce Mfg. Co., Dayton Ohio. Mill Builders, Manufacturers of and dealers in Water Wheels, Feed Water Heaters and Flour Mill Machinery and Supplies.

Milwaukee Bag Co., No. 236 East Water St., Milwaukee, Wis., manufacturers of plain and printed Flour and Grain Sacks of all kinds.

B. F. Ryer, 66 S. Canal St., Chicago. Mill Furnisher. Bolting Cloths made to order.

Jas. Leffel & Co., Springfield, Ohio. Water Wheels.

Vacuum Oil Co., Rochester, N. Y. Oils.

G. M. MANN. F. P. MANN

MILWAUKEE BAG COMPANY,

MANUFACTURERS OF

COTTON, PAPER AND JUTE

FLOUR SACKS

DEALERS IN

Grain Bags, Twines, Centals, Etc.

TELEPHONE NO. 427.

No. 236 East Water Street, MILWAUKEE, WISCONSIN.

SCHIEREN'S

OAK-TANNED

LEATHER BELTING

Cotton Belting and Hose

GOODYEAR RUBBER CO.

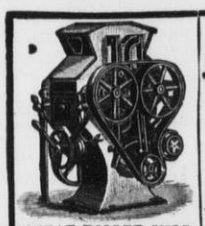
"Gold Seal" Rubber Belting.

PRICE LIST SENT ON APPLICATION.

372 & 374 EAST WATER STREET
MILWAUKEE.

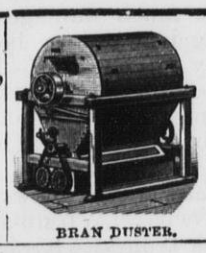
131 EAST THIRD STREET
ST. PAUL.

201 NICOLLET AVENUE
MINNEAPOLIS.

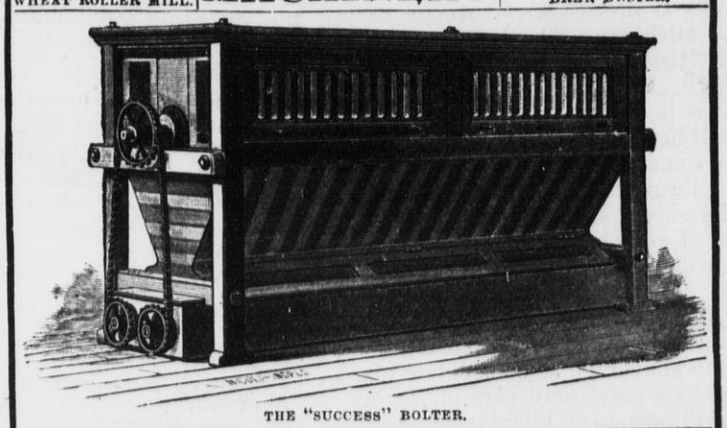


WHEAT ROLLER MILL.

THE
J. B. ALLFREE COMPANY,
Indianapolis, Indiana,
manufacture this superior line
—OF—
MACHINERY



BRAN DUSTER.

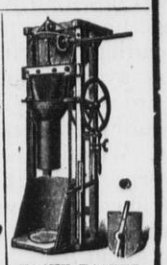


THE "SUCCESS" BOLTER.

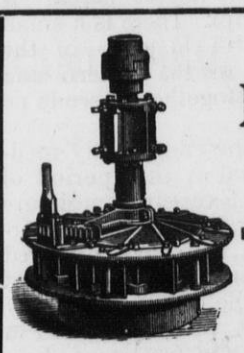
CORN MILL.

Also
AUTOMATIC ENGINES,
Purifiers,
SIEVE SCALPERS,
Corn Pearlers and Corn Cleaners,
Centrifugal Reels.

Address for prices, etc.,
THE J. B. ALLFREE COMPANY,
Indianapolis, Indiana,
Mill Builders and Mill Furnishers,



FLOUR PACKER.



ROBERT POOLE & SON CO.,

Leffel Turbine Water Wheel

Made of best material and in best style of workmanship.

Machine Molded Mill Gearing

From 1 to 20 feet diameter, of any desired face or pitch, molded by our own SPECIAL MACHINERY. Shafting, Pulleys, and Hangers, of the latest and most improved designs.

Mixers and General Outfit for Fertilizer Works.

☞ Shipping Facilities the Best in all Directions.

ROBERT POOLE & SON CO., BALTIMORE, Md.

N. B.—Special attention given to Heavy Gearing for Pulp and Paper Mills.

[Mention this paper when you write to us.]

WM. PLANKINTON, President.
FREDERICK D. DAY, Treasurer.

CAPITAL STOCK, $100,000.

GEO. N. SCEETS, V. Pres't & Mgr.
J. G. THOMPSON, Secretary.

Milwaukee Brass and Copper Works

MILWAUKEE, WIS.

BABBITT METALS,

(Standard and Special Mixtures).

Brass and Bronze Castings. Ingot Metals.

Our "Badger State Metal" is the best anti-friction Metal on the market.
We make a specialty of furnishing special mixtures to large consumers, putting on buyer's brand when desired.

MILWAUKEE BRASS AND COPPER WORKS, MILWAUKEE, WIS.

☞ Send for Circular and Price Lists. Mention this Paper.

STILWELL & BIERCE MFG. CO.

DAYTON, OHIO, U. S. A.

MILLING ENGINEERS

Manufacturers of the Celebrated ODELL ROLLER MILLS and a full line of

Flour and Corn Mill Machinery.

MILLS BUILT ON THE

ODELL SYSTEM.

☞ Contracts taken for mills of any size, large or small, and results GUARANTEED. ☜

1876. 1889.

The United States MILLER AND THE MILLING ENGINEER.

Fourteenth Year.—No. 8. MILWAUKEE, AUGUST, 1889. Subscription Price, $1.00 Per Year.

THE SMITH PNEUMATIC SYSTEM OF TRANSFERRING AND STORING GRAIN.

THE above named system is said to reduce the expense of handling and storing grain to a minimum. Mr. Lyman Smith is the inventor of the machinery required and the SMITH PNEUMATIC TRANSFER & STORAGE CO. of 113 Adams st., Chicago, Ill., has been formed for putting the system into use. In regard to it the company says: "All questions relating to the handling and preserving of grain having been solved, this system is offered to the people on its own merits.

The grain is raised by this pneumatic process through a tube or pipe to any required height, and discharged into a receiver from which the air is being continuously exhausted, under pressure of from one to two pounds. The receiver rests on scales, and when filled the grain is weighed, and may be discharged through pipe whenever desired by simply reversing the engines. The apparatus for handling can be modified as to capacity and form of construction. A 3,000-bushel receiver with 20-inch pipe, and a 20-bushel receiver with 3-inch pipe, the former with capacity of 1,000, the latter of 20 bushels per minute, would be the extremes. Less power is required to raise any form of matter by this than by any known process, simply because the friction which in other machines must be charged to account of power, is utilized as the direct and positive agent that lifts the grain, for the grain is loaded on the in-rushing current of air and propelled onward by the friction generated by contact of the grain with the particles of air. The contact of the grain with this cool current of air while being elevated and discharged will benefit it more than the whole cost of handling. While this apparatus is suited for the steel tank storage system, it is readily adapted for use in transferring grain from cars or vessels to warehouses or granaries of any discription. No doubt has ever existed as to the possibility of keeping grain and other products for an indefinite period in suitable air tight receptacles, and since the pneumatic system of transferring grain solves the problem of utilizing the air tight storage, all the grain in the country can be stored and kept in a perfect condition. If the grain is damp from any cause air can be drawn through and the entire moisture is removed and by substituting carbonic acid gas, it can be sweetened and restored."

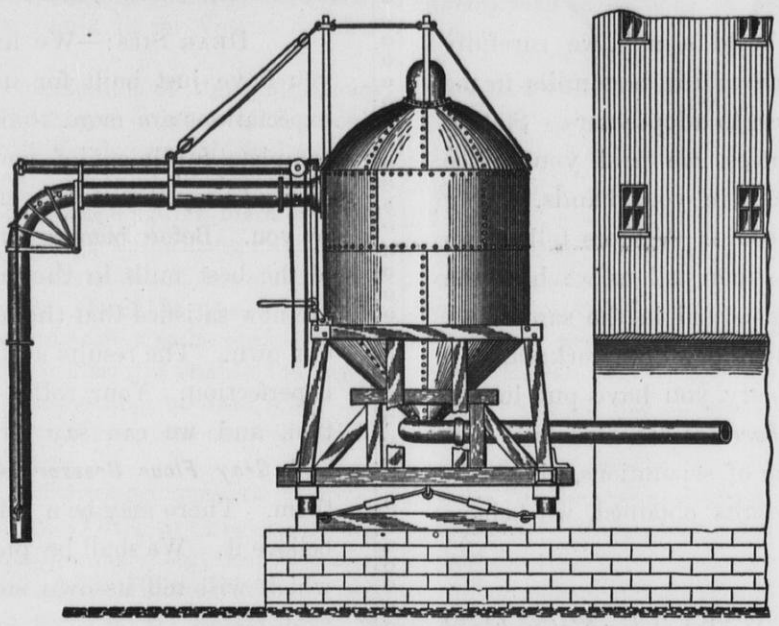


FIG. 1. RECEIVER ON SCALE WITH PIPE CONNECTIONS.

The operation of this system is described as follows:

When grain is to be removed from vessel, boat, car, tank, bin, wagon, or any form of receptacle containing it, the receiving pipe is swung in the required position and the mouth-piece placed on the mass of grain to be moved; the engine driving the blower is started in a direction that will exhaust the air from the receiver; as the energy of the exhaust increases; the air surrounding the mass of grain, and that contained in the intricacies between the grains is drawn to the mouth of the pipe in obedience to a natural law or tendency to restore equilibrium in the receiver, which has been disturbed by exhausting a portion of the air from it. When the minus pressure in the receiver indicates from one to two pounds per inch the energy with which the air rushes to and into the pipe is sufficient to carry with it the particles of grain in close proximity to it, and as these are taken up others more remote take their places, and thus a constant stream of grain is made to enter the pipe, the mouth-piece loading the current of air and maintaining a uniformity of supply. The ascending column on leaving the chamber of the mouth-piece assumes the rotating motion, and the grain is carried up in the direction of a winding incline plane, similar to that observed in a "whirlwind." When the grain enters the receiver the expended state of the air contained in it will no longer support the grain and it drops by its own gravity to the bottom of the receiver. When the receiver is filled and contents weighed, the valve in receiving pipe is closed, the blowers are reversed, and the air driven into the receiver, compressing it to a slight degree. A portion of the air passes through the auxiliary pipe direct to the outlet from receiver and enters the discharge pipe at that point, the motion of the air through this pipe and the force of the compressed air in and above the grain in the receiver drive the grain through the discharge pipe in any direction required.

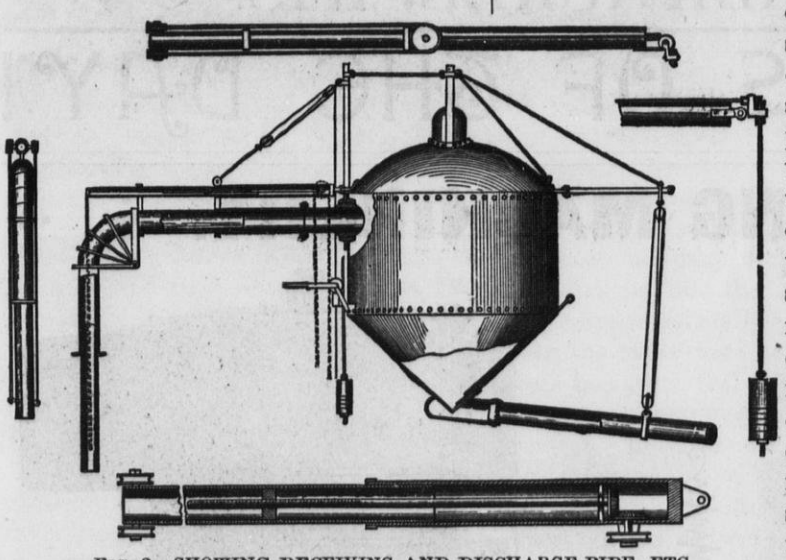


FIG. 2. SHOWING RECEIVING AND DISCHARGE PIPE, ETC.

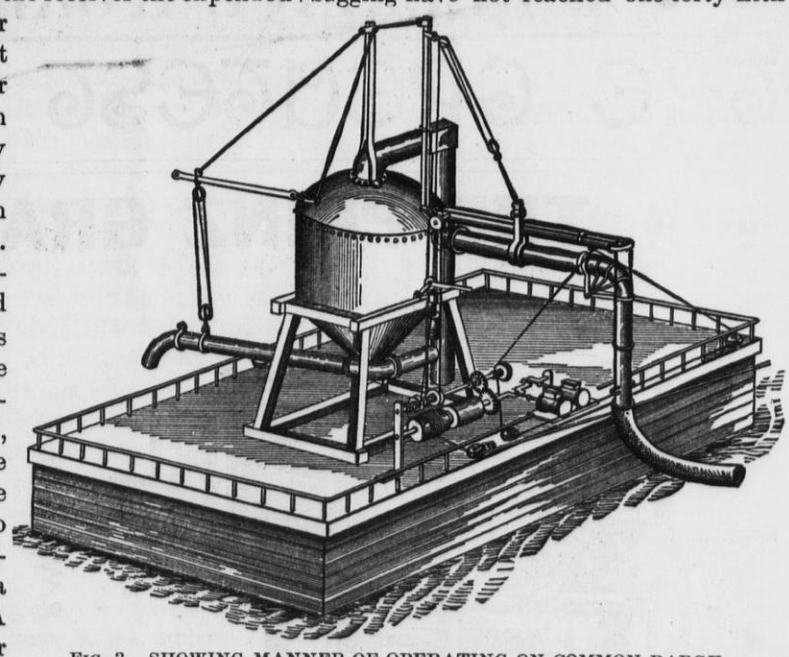


FIG. 3. SHOWING MANNER OF OPERATING ON COMMON BARGE.

BALTIMORE dealers are clamoring for some one build a big elevator for oats.

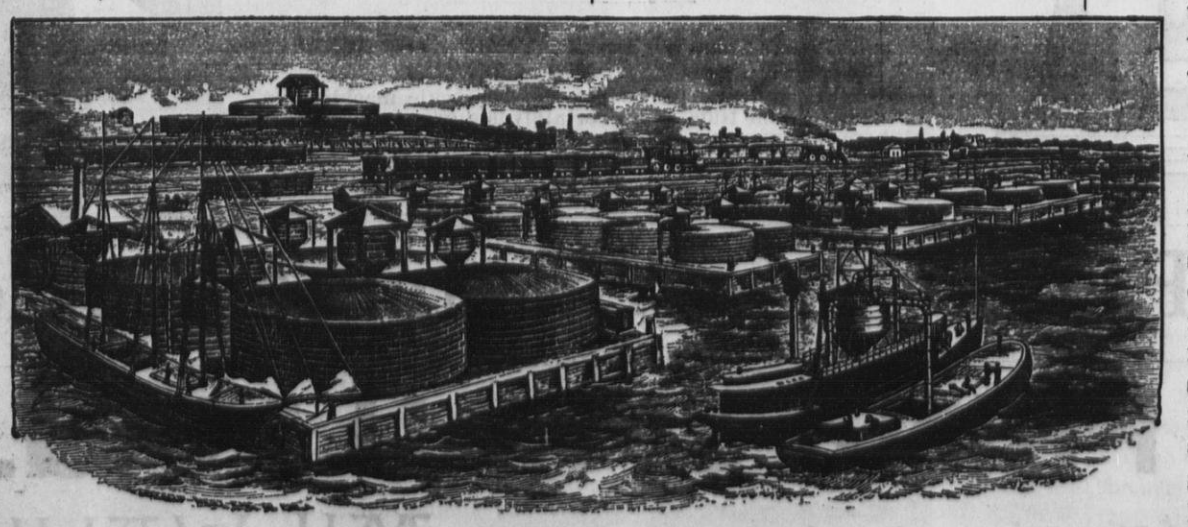


FIG. 4. PLAN FOR A STEEL STORAGE STATION.

FIGHTING THE BAGGING COMBINE.

The ridiculous attempt having failed by which the Southern planter sought to force Northern mills to pay him a bonus on cotton bagging, the Southern press is now full of suggestions for revenge. No adequate substitute has been found for jute bagging, that is, no substitute that the planters will use. As no allowance is made for tare, the farmer naturally uses the heaviest and cheapest covering he can get, that is jute bagging.

The great pine straw bagging interest which the Southern press and even one Boston journal pufied so industriously has died without a groan, not one solitary yard having been sold. The cotton bagging is also too expensive to allure the planters from jute bagging in spite of the numerous resolutions that have been passed, never, never to use a yard of the wicked fabric. The cotton bagging, a capital covering, but light in weight and high in price, is made chiefly at one mill in New Orleans. This mill a short time ago advertised that it would run on receipt of orders for 1,000,000 yards. Its new machinery has arrived from Lowell, but has not yet commenced running. In other words, the orders given for cotton bagging have not reached one-forty-fifth of the total amount of cloth required for the covering of the cotton crop, while the orders for jute bagging have been earlier and larger than in previous years.

The latest resolution of the Farmers' Alliance, accepted by farmers from thirteen Southern States, was to use the very heaviest jute bagging and ties obtainable in the market. This is exactly what has always been done, and the Northern cotton mills have paid and will pay the bills as usual.—*Boston Commercial Bulletin.*

AN English inventor, desiring better lubrication of indicator pistons has an internal reservoir formed in the body of the piston, so that the steam pressure acting on the surface of the lubricant forces it through small outlets into a groove cut on the outer surface of the piston. The piston is thus continuously lubricated and the oil under pressure in the grooves formes a packing. One piston full of oil will last while taking twenty-four diagrams.

LATEST NEWS FROM EAST AND WEST

— OFFICE OF —

STATEN ISLAND FLOURING MILLS.

(Capacity 1500 Bbls.)

MARINER'S HARBOR, N. Y., July 11th, 1889.

Messrs. EDW. P. ALLIS & CO., Milwaukee, Wis.

DEAR SIRS:—After we had decided to build a mill, we carefully studied the different systems as shown in some of the best mills in the country. As a result, we deemed it to our interest to adopt yours. Stating our requirements and receiving your guarantees, we paid your price without question, and placed ourselves absolutely in your hands, giving you *carte blanche* to build us the best mill you could. Visitors tell us we have the cleanest mill they ever saw. Insurance men tell us we have the cleanest mill and the best fire risk they ever inspected in the same line. This is the best possible testimony that the machinery and workmanship are up to the highest standard. All the machinery you have put in our mill is first-class. The ***Gray Rolls*** and ***Reliance Purifiers*** are models of perfection. These, in combination with your system of separations, give us a mill that. for simplicity of construction and results obtained, we believe ***stands second to no other.***

Yours Truly,

B. B. STEWART, } *For Staten Island*
W. A. AGARD, } *Flouring Mills.*

— OFFICE OF —

HUMPHREY & BIRD.

HASTINGS, NEB., July 23d, 1889.

Messrs. EDW. P. ALLIS & CO., Milwaukee, Wis.

DEAR SIRS:—We have now been running the new 150 barrel mill you have just built for us long enough to see what it can do, and our expectations are more than realized. We cheerfully accept the mill as a complete fulfilment of your contract in every way, and take this opportunity to say that if we were to build another mill we would want it built by you. Before placing our order, we had an opportunity to inspect some of the best mills in the country, representing all the leading systems, and are now satisfied that there is no finer 150 barrel mill in the country than our own. The results are up to the highest standard and the equipment is perfection. Your roller mills are too well known to need recommendation, and we can say for your ***Reliance Purifiers, Gray Centrifugal Reels*** and ***Gray Flour Dressers*** that we have never seen anything that excels them. There may be a better system of milling than yours, but we do not believe it. We shall be pleased to have your customers inspect our mill, which will tell its own story.

Yours Truly,

HUMPHREY & BIRD.

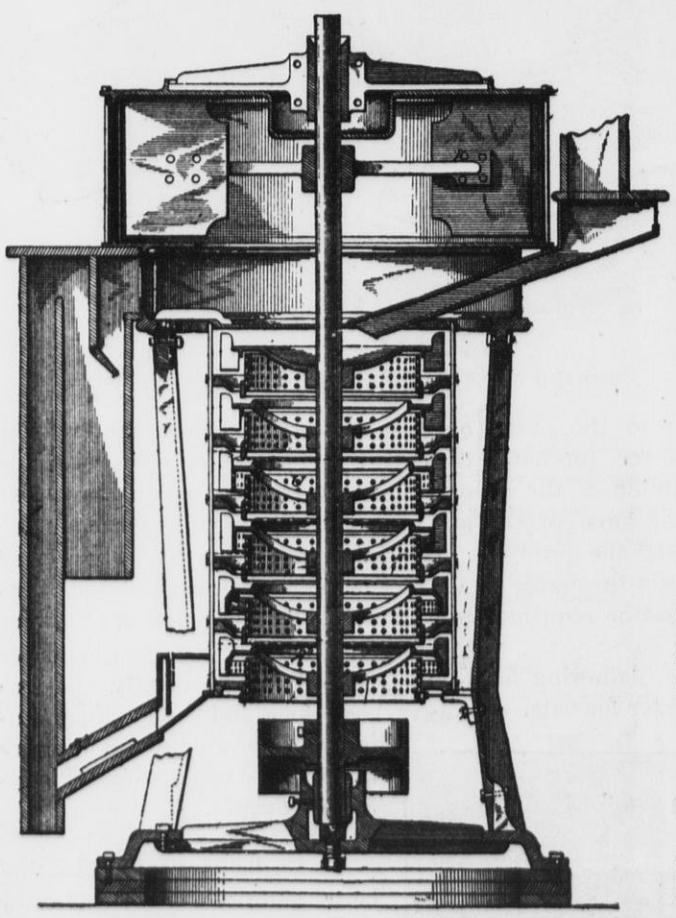
EDW. P. ALLIS & CO.

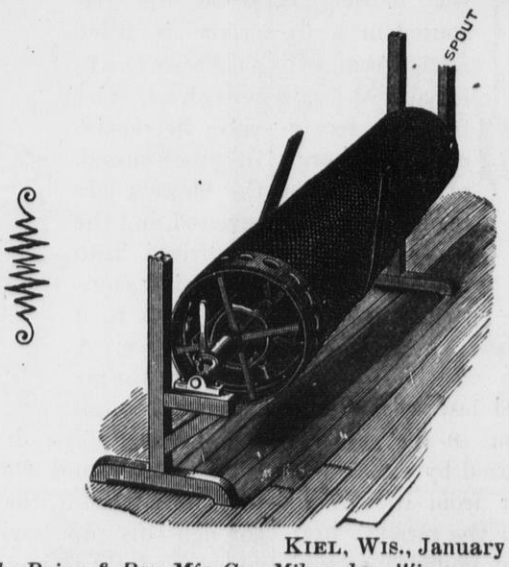
Mill Builders and Mill Furnishers,

RELIANCE WORKS, - - MILWAUKEE, WIS.

THE GREATEST SUCCESS OF THE DAY!

THE PRINZ GRAIN CLEANING MACHINERY.





KIEL, WIS., January 21, 1889.

The Prinz & Rau Mfg. Co., Milwaukee, Wis.:

GENTLEMEN—The No. 2 Iron Prince Smutter which I bought of Mr. Prinz over two years ago has been very satisfactory to me, as it does the best work of any smutter that I ever saw work. It has caused me no trouble whatever, and if any person would like to see it run or know anything more about it, you may refer him to me.

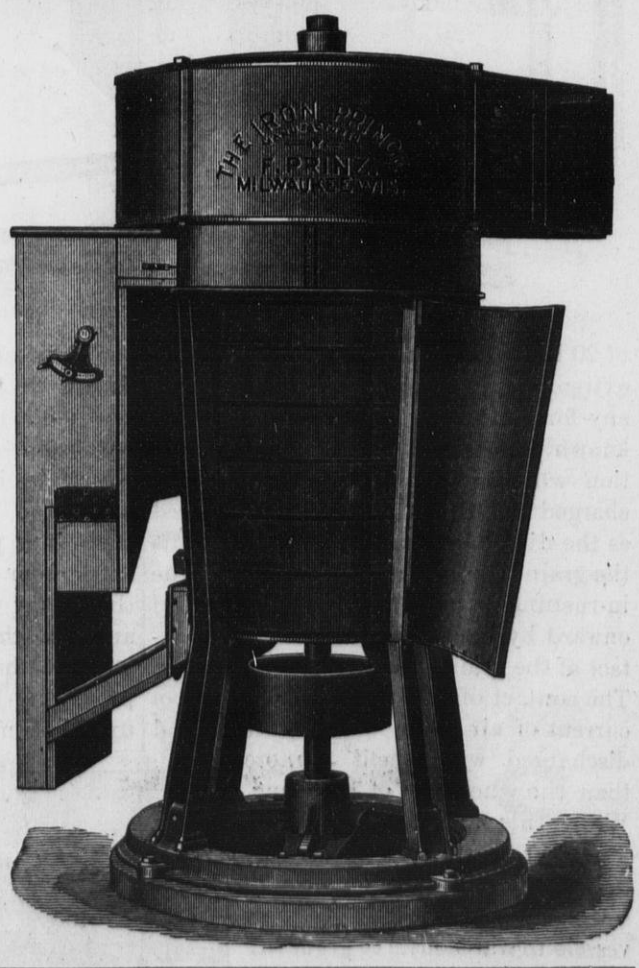
Yours truly, HENRY STOLL

NEW TROY MILLS,
NEW TROY, MICH., May 20, 1889.

The Prinz & Rau Mfg. Co., Milwaukee, Wis.:

GENTLEMEN—We have had your cockle machine running for some time, and it certainly is a grand success, and here is your money for same. I am perfectly satisfied with it, and can highly recommend it to any one.

Yours respectfully, F. H. MORLEY



The Iron Prince and the Prinz Imp'd Cockle Machine

MANUFACTURED BY

THE PRINZ & RAU MFG. CO.,

Write for Catalogue and Discount.

MILWAUKEE, WIS.

UNITED STATES MILLER
AND THE MILLING ENGINEER.

E. HARRISON CAWKER, EDITOR.

M. W. THORMAEHLEN, Associate Editor.

PUBLISHED MONTHLY.

OFFICE, No. 124 GRAND AVENUE, MILWAUKEE.

SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.

To American subscribers, postage prepaid..... $1.00
To Canadian subscribers, postage prepaid..... 1.00
Foreign subscriptions..... 5s.

All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.

Bills for advertising will be sent monthly, unless otherwise agreed upon.

For estimates for advertising, address the UNITED STATES MILLER AND THE MILLING ENGINEER.

[Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE, AUGUST, 1889.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER AND THE MILLING ENGINEER. *You will thereby oblige not only this paper, but the advertisers.*

WE send out a number of SAMPLE COPIES of this issue containing subscription blanks. We solicit a critical examination of our Journal and invite you to subscribe. The price is one dollar per year. No premiums—no discount. Our September number will contain matters of *special interest* to millers which you will not find elsewhere.

THE salt trust has postponed its organization—perhaps indefinitely.

THE Southeastern Indiana Millers' Association met August 12, at Cambridge City, Ind.

THE Pennsylvania Millers' Association will hold their annual meeting at Chambersburg, Sept. 17. A large attendance is expected.

THE Indiana millers are organizing a mutual fire insurance company. S. B. Boyer, of Logan, Ind., can give interested parties full particulars.

MR. J. W. Sykes, a Chicago seeds man, has been sentenced to the penitentiary for two years for issuing bogus warehouse receipts. Evidently Chicago has some sound juries and judges.

THE North Dakota Millers' Association will hold their next meeting at Fargo, August 24.

J. S. Hilger, of Bismarck, is president, and J. M. Turner, of Mandan, secretary.

WE call the attention of steam users to an article in another column, entitled "A Letter to Engineers." It is from a correspondent of *The Engineer* (London), and we take pleasure in publishing it in our columns.

THE American Newspaper Directory, just issued by Geo. P. Rowell & Co., of New York, shows that there are 17,107 regular publications in the United States and Canada. The combined circulation is 34,799,500 copies per year.

THE *Stationary Engineer*, of Chicago, Ill., has become a thoroughly first-class technical journal of steam engineering, and is deserving of the large patronage it now enjoys. The practical engineer can get lots of good "pointers" from any number he happens to read.

WE call the attention of interested parties to the advertisement in this issue of the H. C. McCool Mfg. Co., of Perrysville, O. Parties contemplating the purchase of a Corn and Cob Crusher will be benefitted by consulting this firm who will cheerfully give all desired information on the subject.

ESSAYS and treatises of great length have been written and printed on the subject of drinking water. There is only one way to secure harmless drinking water, and that is to take the best water convenient and boil it. It is then harmless. The tea-kettle is more valuable than the microscope in solving the question of safe drinking water.

THE files of milling journals published during several years past are supposed to contain a good many "meaty" items of business interest to the "Big 4." Heretofore many manufacturers of roller mills were fond of sending in their lists of roller mills sold to Smith, Brown or Jones, as the case might be, for publication. These items are good pointers now for the company seeking payments of royalties.

THE *Merchant, Miller and Manufacturer*, of St. Louis, in its August number says:

"The consolidation of the grain elevator and warehouse interests of St. Louis and East St. Louis have adopted reforms as well as reduction of storage rates. It is evident from the figures made that the vast interests of the milling industry of St. Louis and vicinity is recognized, and inducements offered in the long rates made, that instead of as heretofore antagonizing the miller, will enable the carrying of stocks that will obviate many difficulties heretofore encountered under the old system.

MR. C. B. COLE, of Chester, Ill., has been appointed member of Executive Committee of the Miller's National Association in place of H. L. Halliday, resigned. M. S. Blish, of Seymour, Ind., vice Nicholas Elles, deceased.

A. C. Loring, of Minneapolis, vice F. L. Greenleaf elected president of the Association. Geo. H. Plant, of St. Louis, vice. Alex. H. Smith resigned.

The former representatives who still continue in office are P. H. Macgill, of Baltimore; F. W. Stock, of Hillsdale, Mich.; A. R. James, of Buffalo, N. Y.; Homer Baldwin, Youngstown, O.; S. H. Seamans, of Milwaukee, Wis.

A Parisian lady whose furniture and effects, including jewelry, were insured against loss or damage by fire, accidentally knocked a $3,000 pearl necklace from the mantle into the fire below in the grate, of course destroying it. The insurance company declined to pay, as they claimed that the loss was not by such a fire as generally was contemplated when the risks were taken. The Court held, however, that "the word *fire* in matters of assurance applied to every accident, however unimportant such accident may be, so long as it is caused by the action of fire." The insurance company was ordered to pay the ascertained value of the necklace to the lady.

CAPT. MCDOUGALL'S PATENT STEEL BARGE.

IT is believed by many practical men that the steel, cigar shaped barge invented by Capt. McDougall and built by the American Steel Barge Co., of Duluth, will be the means of greatly reducing freight rates from the Northwest to the East. The second of these boats named the "102" was launched at Duluth, July 17, in the presence of a great concourse of enthusiastic spectators.

The capacity of the "102" is about 3,000 tons dead weight on a 15-foot draft, and she will take 100,000 bushels of grain at a load. The new vessel is 253 feet keel; length, 260 feet over all; 36.1 feet beam, and 18.66 feet molded depth. Her total depth is 22 feet, and her net registered tonnage rating is 1,138.56 tons.

The company will go right on and build a number of these barges.

THE SPY MILLER.

In case of war and police service it is contended that the service of the spy is not only an honorable, but a deserving calling. It may be so, but we have always had our doubts about it. We have known of some cases and heard of many more, where second and third millers of an envious, deceitful and avaricious character have made it a part of their business to watch their head miller closely, and to take particular pains to report on the sly to their employer any errors or shortcomings of the head miller. often presenting things harmless in themselves in such a light that unjust suspicions of his employee would be raised in the mind of his employer. Frequently this underhand espoignage is done for the purpose of getting the head miller "bounced," so that the spy informer can secure his position. Our invariable advice in such cases would be, if any bouncing was to be done, to bounce the spy first.

THE WORLD'S FAIR OF 1892.

IF we are to have a World's Fair in 1892, by all means let it be held in Chicago which is, all things considered, the most wonderful city in the world. The facilities for reaching Chicago by rail or water are unsurpassed. Given reasonable notice, and Chicago will be able to accomodate *comfortably*, luxuriously if they please, all who are likely to visit it. No city on earth has so many energetic business men,—men who are able to command any amount of capital necessary for the successful fruition of great enterprises. Chicago will be more convenient for citizens of this country than any other point, and a day's trip by rail will bring all European visitors to it from New York, Baltimore or Philadelphia, and citizens of Oriental countries can reach Chicago quicker than either London, Paris or New York. If the next World's Fair is held in Chicago, it will be the most gigantic, useful and successful exposition ever projected for the material benefit of mankind.

LATEST FROM "THE BIG FOUR."

JULY 22, 1889.—in the case of the Consolidated Roller Mill Co., *vs* William S. Coombs, in equity before the U. S. Circuit Court for the Eastern District of Michigan, at Detroit Mich., Judge Henry B. Brown presiding, the defendant moved to stay the issuing of the injunction against further infringement by him of the roller mill patent which it had been decreed that he was infringing, on the ground that the "plaintiff was not a manufacturer but derived its profits from selling or licensing its machine and that the damages to the defendant by stopping his mill would be out of all proportion to the amount of plaintiffs license or to any damages that would be occasioned to it by defendant's continued use of machines."

After reviewing the various authorities pertinent to the case, Judge Brown concluded his opinion as follows: "We are willing that he (defendant) should have twenty days to make the necessary changes. At the expiration of this time, the usual injunction will issue to stand until the final decree, after which, if an appeal be taken the propriety of continuing the injunction under the 93d rule, will be considered by the Court."

We are informed that the Consolidated Co., are arranging to push their claims in every quarter as rapidly as can be done.

MILLERS' NATIONAL ASSOCIATION MATTERS.

THE Executive Committee of the Millers' National Association met at the Grand Pacific Hotel, Chicago at 11 o'clock A. M. on the 12th inst., in response to the call of President Greenleaf. Mr. A. R. James of Buffalo, N. Y., was elected chairman of the executive committee, and C. B. Cole, Chester Ill., Geo. H. Plant, St. Louis Mo., and A. C. Loring, Minneapolis Minn., were elected members of the sub-executive committee.

A committee was appointed to revise the constitution of the National Association and present the same for action at the next annual convention. Attention was called to the several patent matters and threatened suits, and same were carefully discussed. Communications were read from A. A. Freeman, reporting progress of the Export Bill of Lading committee, appointed at the last annual convention, also circular letter from the Secretary of State relative to the International Congress, to be held at Washington D. C., October 2, 1889. It was decided to appoint a committee of three from each milling state, to call the attention of the governor of their respective states to the importance of sending delegates to this International Congress, and to urge the appointment of delegates to represent the milling industry of our country. The committee listened to the report of the new Secretary, Mr. Frank Barry, and gave such instructions for his guidance as they deemed necessary.

A POINTER FOR MILL OWNERS.

MR. Millowner, we want to say a word to you, and we want you to think about it.

You perhaps own a mill having a capacity of 100 barrels or much more per day. The work of your mill is sometimes pretty good—sometimes just fair—and sometimes it seems as if Old Nick was playing the mischief somewhere in the establishment. You don't know perhaps much of any thing about milling yourself, and cannot discover the cause of the serious trouble when it comes. You have a seance with your head miller, which ends in making some improvement needful, and things go on passably well for a while.

We will give you a pointer. Your head miller, no matter how well qualified he may be, by working right along in the same surroundings, day and night the year around, gets "rusty." He gets tired. He gets so used to seeing things, (that he really knows, if he thought about them, should be improved), that he don't see them, so to speak. He needs a mental and moral stimulant to tone his mechanical system up, and to get his mechanical eyes to the proper focus, so that he can see quickly everything requiring attention.

The simplest, pleasantest, cheapest and most effectual way to do this with a good head miller, is to give him time and money, and send him out on a tour of inspection among brother dusties in other good mills. Give him a month at least, even if you have to shut down for a month. *It will pay.*

There is another thing we would like to say here, and that is, every good mechanic has a strong love of approbation. Therefore—if he serves you well, give him now and then a word of modest praise, showing him that his efforts in your behalf are known and appreciated.

ENGLISH CAPITAL IN AMERICA.

THE press of this country has been saying a good deal on the above subject of late, some favoring it and others bitterly denouncing it, but it is quite evident that the American owner of property is generally quite willing to exchange it for good gold without stopping to question whether it comes from persons of a British, German, French, or other nationality, and we believe he is quite right in doing so. If foreign capitalists invest their money in our railroads and manufacturing enterprises, they will certainly take a deep interest in the welfare of the country. It will take countless millions to develop the great natural resources of the United States, and we see no reason why foreign capital should not be invited to help to do the work. We think we have as shrewd and capable business men as any other nation, and believe they are quite able to take care of themselves. We do not think it proper that aliens should be allowed to hold

CONTINUED ON PAGE 93.

Vortex Dust Collector Co.

MILWAUKEE, WIS., August 6th, 1889.

To Our Friends and Customers:

In response to several inquiries made by you, we have deemed it proper to address you upon the subject of certain intimations and advertisements, demands for royalties, damages, etc., sent out by the Knickerbocker Co. and others, who claim rights under the Morse patents upon Dust Collectors. That company are attempting to claim that all Dust Collectors which employ the principle of the application of centrifugal force to remove dust particles from air, infringe their patents, and have been indulging in pretentious claims of monopoly, based upon the ownership of those patents.

We have had the subject carefully investigated, and have embarked in the manufacture of the VORTEX DUST COLLECTOR after the most careful attention to the question of whether we are infringing the rights of others or not. We would not manufacture or offer it to you if we thought there was any danger of liability on our part as manufacturers, or on your part as users of that device. We are abundantly responsible for any damages that may be obtained by decree of court against us, and are both able and willing to protect you from all loss and damage on account of your use of the machine made by us. We have the results of the investigation of this field by three firms of patent lawyers, who have each investigated the question involved independently of the others, and we are advised that we are not in danger of being held accountable to the Knickerbocker Co.

To obtain a speedy legal decision upon the points involved, we have agreed with that company to an amicable contest, the result of which cannot but be in our favor. The Knickerbocker Company in its turn have agreed with us not to molest our customers. We covet no warfare with anyone, and propose, so far as we can control matters, that the rivalry between the Vortex and Knickerbocker Companies shall be amicable and honorable, and we propose to protect our customers absolutely from any and all molestation on the part of other patentees or manufacturers. So far as we can, without encroaching upon the lawful rights of others, we purpose to fill the world's demand for Dust Collectors, and we offer you in the Vortex the best practical Dust Collector for all work ever put together, and at reasonable prices. We will protect any and all who buy it and who use it, from damage or suit, and we therefore request you not to be annoyed or deterred by any threats or rumors which you may hear. If you will promptly advise us of any such, or apprise us of your special needs, we will take pleasure in satisfying you that we mean what we say and are able to perform what we promise.

Hoping for your further patronage, and with the best wishes for your prosperity, we are,

Very truly yours,

VORTEX DUST COLLECTOR CO.

large tracts of land, and that matter is regulated by law, but as to other matters let them invest with us, and we believe the result will be satisfactory on both sides of "the big herring pond." On this subject a late number of the *Financial Times*, London, says:

The prevailing outcry in America against the invasion of English capital reminds one of the fable about the wolf who picked a quarrel with the lamb for fouling the stream which was really running from the former to its intended victim. In the face of the enormous amount of money that has crossed the Atlantic from this country simply to enrich smart Yankee vendors of sterile tracts of land, vamped up for promotion purposes into ranch companies that have never paid a dividend, the proposal to tax non-resident holders is a little "too thin." The alarm has doubtless been caused by a few recent attempts on the part of English capitalists to secure sound industrial enterprises in America, but, notwithstanding some success in this direction, the balance is largely against the English investor generally, so that it is adding insult to injury to point to the large tracts of land owned in England as a cause of grievance. The acquisition of profitable industries by Englishmen should be regarded by honest Americans as a *quid pro quo* for much disappointment in land bargains, instead of making the latter a vent for jealousy, consequent on the former.

There has also been a feeling in all parts of Europe especially during the last year, that war was liable to break out at any time, and capitalists desire to put their money into a country which they believe safe. This feeling of foreigners that the United States is a safe country in any event, is gratifying to all our citizens.

CORRESPONDENCE.

Editor The United States Miller and Milling Engineer.

DEAR SIR:—In your issue of July 1, I find the following:

MR. ENGINEER:—The question why you are burning so much more coal this week than last, and why it takes so much more or less to run your plant than that of your neighbor, with about the same power, is one that you should lose no time in learning to answer correctly."

The fact is that few engineers have the appliances to determine the quantity of power consumed in the machinery and the running of the shafting. The quantity of power which a given amount of coal will produce has also been a mooted question. The following results have been determined by the use of the Emerson power scale (Boston, Mass.) In the using of bituminous coal which cost $4.29 per ton, it has been found that it cost 43c. per day more to produce the same amount of power than it did in using another kind of the same class of coal which cost $4.40 per ton, where less than two tons of coal were consumed per day.

Another important discovery was made that while the machinery appeared to be in good working order the gross power required to drive the machinery and shafting was excessive. It was found that by driving the shafting alone that a large part of the difficulty was in that department, and after making such changes as were appareot it appeared that a saving of 30 per cent. of the power consumed in driving the shafting had been saved. Morever, it is evident that the saving does not stop with the simple saving of coal, but it extends to the wear and tear of belts, shafting and lubrication.

Yours truly,

E. A. THISSELL.

Boston, August 9, 1889.

IT MUST HAVE BEEN CAMP MEETIN' TIME.

A lineal descendant of Ananias sends the following to the *U. S. Miller* from that farfamed city of Oshkosh, Wis.

"I don't remember of having experienced a particularly hot day, but I'll tell you what I have seen. One night, three years ago this fall, I was camping out in the big woods of Wisconsin. The day had been pleasant, but along about midnight I experienced a peculiar sensation. It was with great difficulty that I could breathe. My throat and nose felt as though they had been choked up with something strangely disagreeable. A hot wind blew through the pine trees over my head, and the balsam boughs upon which I was lying burned my flesh like red-hot gridirons. I tried to move, but without success. I had lost all control over my muscles, and there I lay a helpless prisoner, listening to the ground cracking for miles around. After an hour of most excrutiating agony I heard something patter upon the earth. It must be rain, I said to myself, closing my eyes. Then 1 fell asleep. When I awoke next morning it was freezing cold. I tried to get up, but I could move neither limb nor muscle. I was pinned to the ground. It had been so hot that it had started the gum out of the pines, and this beastly stuff had fallen upon me, drop by drop, until it covered all my clothes and run out upon the ground. Then the weather turned cold and froze the stuff, and there I was stuck fast to the the ground. I had to lay there until the sun got hot enough to release me. The next day I passed lots of farms where popcorn had been popped on the stalks, and a prettier looking sight I never saw. The stalks looked like huge sprays of white flowers."

TEACHING BOYS TRADES, ETC.

A LETTER FROM A MECHANIC.

Editor United States Miller and Milling Engineer.

My attention was attracted by your editorial on the advisability of teaching our boys trades, etc., recently. I have also seen something of a similar nature in a New York paper in which the writer works himself into a perfect fit of virtuous indignation on account of the demands of mechanics in New York to limit the numbers of apprentices to certain trades. If people would take a little time to consider this question, and be honest about it, I guess there would be less "gush."

In the first place, everyone cannot become a *good* mechanic for a variety of reasons. If instead of bemoaning the fact that the mechanics of our country do not stand by with open arms to welcome all the graduates of our public schools to their ranks and to impart all necessary information to all applicants, regardless of consequences, people would look around and then ask themselves if the various trades were not already overcrowded, and be governed in their opinions by what they saw and heard, I honestly believe that they would not rush so rashly into print with their criticisms.

In a general way I may say that the competition in all modes of making a living is about the same. If I should make a difference I would say, that the lower the rank of life, the more bitter is the competition. It is assumed by the writer on this question, that to be a mechanic, and a *good* one, is to be assured of a good living, and those same people will always explain the fact of there being so much trouble with money among this class by pointing to the "grog-shop."

Work for the very best of mechanics cannot be had at all times, simply because there is not enough to go around. I think, taking a period of twenty years, say from 20 years of age to 40 in the life of a mechanic, one-third of it is spent in waiting for a job, and this among the best. There are seasons when it is difficult to find men enough to supply the demand, but such times are not frequently of long duration. Employers, bothered at such times, fall into the error of assuming such a state of affairs to exist the year around, and if fond of writing for the press, indite an article on "The propriety of teaching our boys trades."

One of the most amusing things in connection therewith is that these same people, if they have boys, will make every sacrifice to keep them in some expensive college with the expectation that they will ultimately enter one of the "learned professions." It takes as long to become master of a trade as it does of a learned profession, notwithstanding the general opinion to the contrary, and as long as the public maintains its present views in regard to the remuneration attached to trades and professions—their social standing, etc., it is absurd to discuss the benefits of learning a trade. The reason—the only true reason why boys do not learn trades, is because they do not want a *trade*. A boy with a good school education, if observing, will conclude that a professional man can earn a living with less effort and have more leisure than the mechanic. The social scale of the two classes is wide apart, as every one knows, and I admit that the distinction is right under the present condition of affairs, for the average workman has neither taste, time or that peculiar ability necessary to become a success in the best of society. The workman has often little regard for his personal appearance, his language and his manners. A truly good workman is as a rule quiet, thoughtful and honest. The workman is perhaps quite as much to blame as society for the barrier apparent between them, as is evidenced by the fact that many workman have risen to the highest ranks both in society and official and engineering circles. The average American does not take kindly to the duties of the mechanic and would almost without exception quit the bench, if he could see his way clear to make a living otherwise. Men are creatures of circumstance, and in the struggle for existence it is and always will be the rule to look out for No. 1, and "the devil take the hindmost."

A. M. P.

INTERESTING TO SMALL MILLERS.

Editor United States Miller:

Among the good things brought forward recently that will enable the small miller to hold his own and compete with his more pretentious rival, is the one reduction system patented to O. C. Ritter, of Springfield, Mo.

It has been satisfactorily tried, and is already in use in quite a large number of mills, and has mostly been placed by the small mill owner himself.

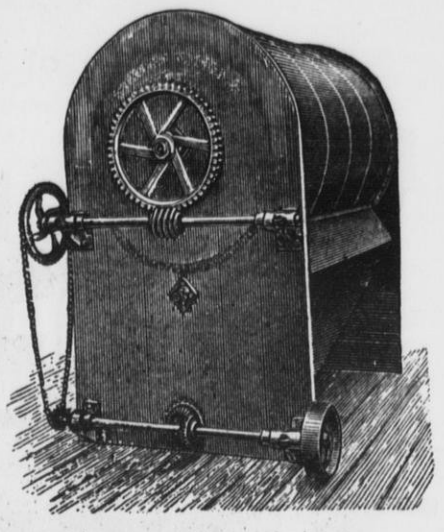
It has superceded the Burr method and given satisfaction in proportion to the care and attention in manipulating the flow of the mill. The principles embraced in this short milling process are higher differentials than formerly used, and finer cuts for slow roll, which is equivalent to shallow corragations acting as holder for the bran fiber, while the fast roll acts as a scraper, rubbing the flour particles from the same. A large per cent. of break flour being made at the grinding operation;the middlings are separated in two grades and reduced on separate smooth rolls. The entire reduction plant may consist of three sets of rolls, one corrugated and two smooth. The bolting is accomplished on three or more reels, as the extent of the plant or means of the operative will allow. The capacity in this instance will depend on the length of rolls employed. It is the least expensive of any other system for small mills, as usually they are already equipped with bolting appliances and the principal outlay is in reduction rolls. Again with small mills the owner is frequently the operative, and desires to do with as little extra help as possible. Therefore the less complicated the plant, the easier managed. With a longer system of several breaks and reductions a small change in the setting of one break or reduction may load up a subsequent machine and tail good stock to the feed bin, before the operator can realize the trouble. Every one knows that the miller who operates custom mills has little enough leisure at best. Between looking after customers and the general manipulation of the plant, he must hope to be visited with as few "choke ups" as the law will allow.

Respectfully,

ONE BREAK.

AN ENGLISH DUST COLLECTOR.

MR. W. INCE, of Hayle, England, has just placed on the market a dust collector which he calls the "Unique." We describe and illustrate it herewith.



The framework of the machine can be made of wood or iron (preferably of sheet iron), and the outer covering of wire gauze or perforated metal, inside which the filtering medium travels at a slow pace, while a suitable knocker is arranged underneath the filtering sections, so that as they pass in succession over the knocker all the dust from each section is shaken out into the hopper at the bottom of the machine, from which it is delivered by a worm conveyor.

The dust-laden air can be blown into the machine from the exhaust fan, which can be attached directly to the machine, or connected thereto from a distance; or the air can be caused to pass through the apparatus by suction created by an auxiliary exhaust fan. When suction is employed to cause the air to pass through the the collector, an additional air-tight covering is used over the perforated metal shell, and is provided with an air opening connected to the fan, from which source the purified air is blown into the atmosphere.

The machine can also be constructed exclusively of a metallic substance throughout, thus rendering it fire-proof.

A series of brushes, made of any flexible material, round the circumference of the perforated cover remove the dust as the cylinder slowly revolves, and these brushes are made to overlap each other, so as to prevent dust escaping with the outgoing air currents. The centre frame revolves only once in ten minutes.

STREET CLEANING IN NEW YORK.—A new street-sweeping machine is on trial at NewYork. The machine is a large water tank, running on three wheels, underneath which are placed large rollers on scrapers set diagonally with pieces of rubber instead of bristles hitherto used in street sweeping. Under the driver's feet is a water pipe, from which copious jets of water are thrown, washing away the sand, which is swept into the gutter and washed into the sewers. The machine thoroughly cleaned two blocks on Fifth Avenue in 12 minutes.

THE SUN AND WIND.

A Dispute once arose Betwixt the north Wind and The Sun, or at least Æsop says so, as to their Respective Superiority, and they agreed to See which could first induce a Traveler to part with His cloak. The North Wind began and blew through his Whiskers with a very Cold Blast, indeed, accompanied with a shower of wet, Wet Rain. That's where the Wind got Left. The Traveler Exclaimed: "Darn this Journeying on Foot, anyway. I shall save time, attain a Green old Age, and leave a respectable name to my children if I travel on that Famous Line, the Wisconsin Central." And he "came In out of the wet," and bought a ticket, and rode in the Luxurious Coaches, and slept at night in the Magnificent Sleepers furnished by that line.

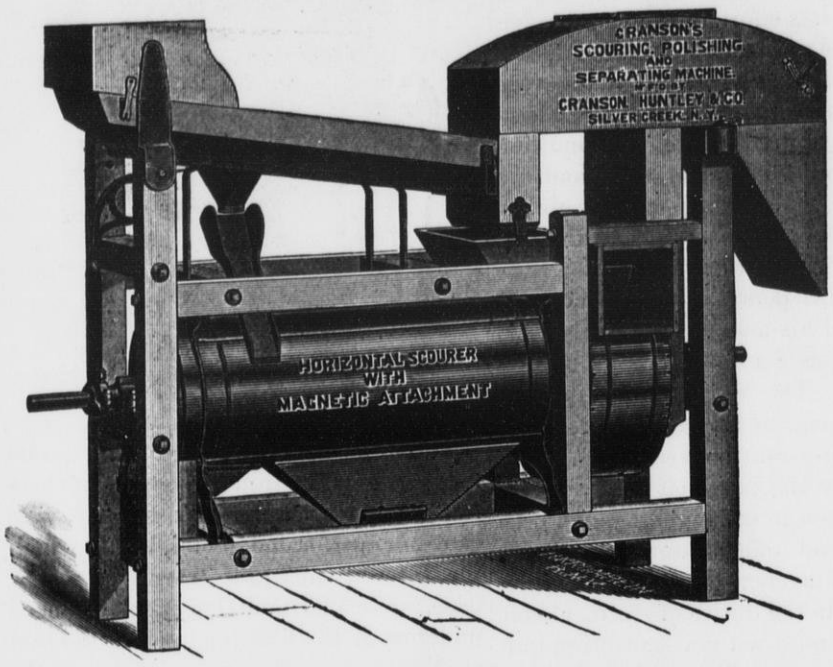
THE CRANSON SCOURER

IS ACKOWLEDGED TO BE

The Leading Scouring, Polishing and Separating Machine

ON THE MARKET TO-DAY.

Two of these Machines are being placed to one of any other make.



WE ALSO HAVE THE BEST

Dustless Receiving and Elevator Separator

Ever Placed in any Mill.

Write for Rock Bottom Prices and Full Information.

OUR HEADERS:

CRANSON'S WHEAT SCOURER AND POLISHER, With Magnetic Attachment.
CRANSON'S BUCKWHEAT SCOURER AND POLISHER, With Magnetic Attachment.
CRANSON'S ROLLER BUCKWHEAT SHUCKER.
MONITOR DUSTLESS RECEIVING AND ELEVATOR SEPARATOR.
DIAMOND DUSTLESS CORN SHELLER AND SEPARATOR.
DIAMOND CORN SHELLER.

Huntley, Cranson & Hammond,

Succesors to CRANSON, HUNTLEY & CO.,

SILVER CREEK, NEW YORK.

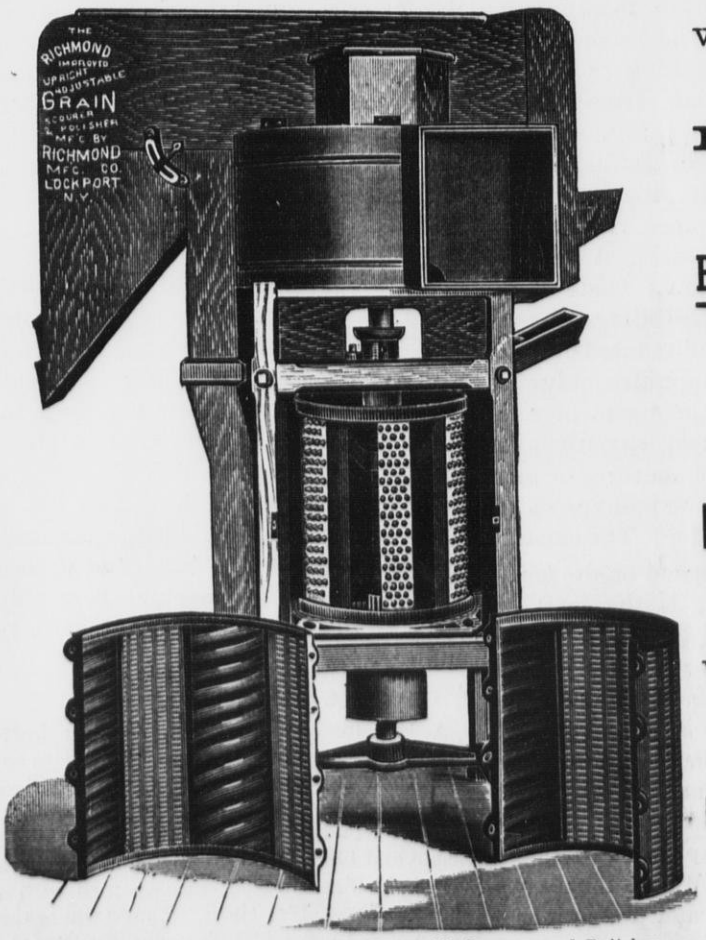
WE WANT YOU

To Derive the Benefits that can be Obtained by Using the

Richmond Grain Cleaning Machinery

AND

BRAN DUSTERS



The Richmond Improved Upright Adjustable Scourer and Polisher.

Which are without doubt the

BEST

and Most

EFFICIENT LINE

OF MACHINES

—ON THE—

MARKET.

—::—

We make this statement, with the knowledge that

PROMINENT MILLERS

ENDORSE IT.

RICHMOND MANUFACTURING CO.,

LOCKPORT. N. Y., U. S. A.

Condemnation · of · Competitors

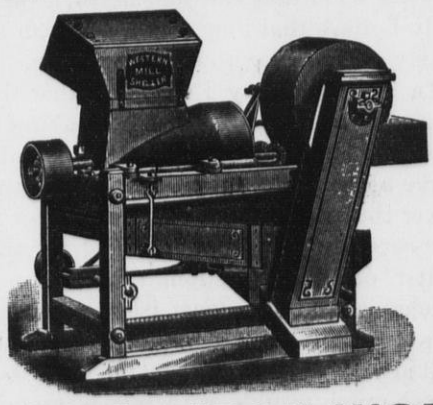
IS THE MEASURE OF SUCCESS.

I CHALLENGE the wheat heater concern advertising their heater as "replacing the Welch" to publish the terms on which the Welch Wheat Heaters are replaced. I could replace any other make of heater by allowing a big price for it and selling mine low, which is equal to paying a bonus.

The "Welch" is fully guaranteed, sold on its merits and used more than any heater on the market.

823 SECOND ST.,
ST. LOUIS, MISSOURI.

A. B. BOWMAN.



* THE *

"WESTERN"

MILL SHELLER.

The most Compact, Durable, Best Sheller and Best Cleaner.

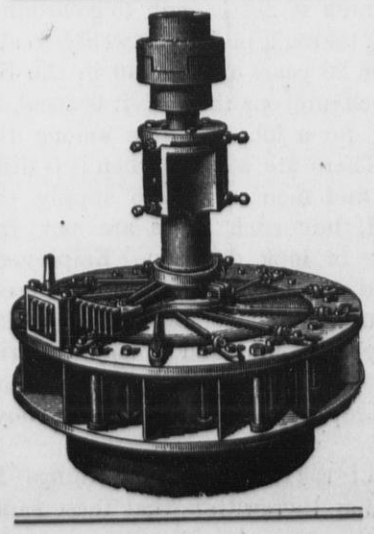
Takes up but little room, runs at low rate of speed, requires no attention. It is in every respect the

Best Sheller ever offered to the Public.

Please mention this paper. Write for full particulars to

UNION IRON WORKS, - DECATUR, ILL.

Mfrs. of "Western" Shellers, Cleaners, Separators, and all kinds of Elevator Machinery.



Leffel Water Wheel,

Made by JAMES LEFFEL & CO.

The "OLD RELIABLE" with Important Improvements, making it the

Most Perfect Turbine now in Use.

Comprising the LARGEST and the SMALLEST Wheels, under both the HIGHEST and LOWEST Head in this country. Our New Illustrated Book sent free to those owning water power.

Write us for NEW PRICES before buying elsewhere. New shops and New Machinery are provided for making this Wheel. Address,

JAMES LEFFEL & CO.,

Springfield, Ohio or 110 Liberty St., New York.

OUR ENGLISH LETTER.

(From our own Correspondent.)

LIVERPOOL, AUG. 3, 1889.

EXCEPTING for a day or two the weather during the month of July has been very unsettled and storms of rain and hail have laid at least 25 per cent. of the grain, before it was matured for its milky stage. Almost everything however depends on this; if the hot sunny weather we have been having during the past few days will continue during this month we shall be able to obtain a splendid wheat crop in perfect condition for milling. Wheat cutting will commence throughout the South of England this week and by the middle of the month it will become general throughout the greater part of the Kingdom. The reports from farmers which are now being freely published of almost every district, point to the conclusion that the yield of wheat will be an over-average one throughout the country, not so heavy in bulk of straw, as has sometimes been the case, but remarkably bountiful in the fillings up of the heads with plump perfect grains, the result of the admirable blooming and kerning season at the latter part of June. These conditions do not of course, apply to those cases where the crops are lodged by the storm, some of which it is to be feared will be very much damaged in consequence. The price of nearly everything in the country has been gradually rising during the past month and wheat and flour have not been far behind the general rule. In one district, Leeds, the millers have raised the price of flour three times during the month of July, amounting altogether to 3·6 per sack of 280 lbs. or a 12 per cent. rise on the average price of flour. The present trade is however hampered by the belief that the current stiffness of the cereal market will not outlast the present month, and it is only therefore for immediate delivery that such a rise has taken place. From the official returns, sent in this month from the principal organizations of skilled trades we gather, that the labor market is in a remarkably prosperous condition with but few exceptions there is an improvement in demand and increased remuneration. This advance is most clearly indicated in the ship building trade, in the allied engineering districts and in those branches of production and manufacture which supply them with material. In some cases the activity is almost unprecedented.

The milling engineers are now so very busy that much work is being done by contracts for them by outside firms, and the result of all this is that the English millers can hardly find time to look round. The French International Congress to which some 300 English millers were going to attend, will therefore be robbed of some of its number, and I now estimate about 160, although when the last moment comes it may be possible that barely 200 including ladies may visit Paris. Three very interesting papers will be read at this meeting by Mr. Francis Ashly, Mr. J. Murray Case (The Short System Advocate) and Mr. J. Macdonald.

Your readers will notice that this letter is dated from Liverpool instead of London and I am glad I took my business fly-around before making this communication, for at Durham I heard the following most extraordinary story which in certain cases I have no doubt is correct, judging by after results. Your readers will no doubt remember that I communicated to the UNITED STATES MILLER, published last February a few particulars of the North-eastern Flour Ring and it will be remembered by some, what a miserable failure it turned out on the whole to the "Press" exposing the rosy scheme. This scheme has now become past history and would no doubt have soon completly, faded from the minds of the British public, but for the subsequent wide-awake action of some wise gentlemen of the Inland Revenue who got possession of one of the plain printed prospectuses which was marked "private and confidential." Unfortunately for certain millers the story they made out was, that they all had extra flourishing business concerns, waiting to be turned over to the proposed Ring and that their mills were even as undeveloped gold mines. The figures set forward by the financial expert, were naturally supposed to be reliable and showed that they had been "doing" so much for the past few years. These transactions made out a clear profit of—well, ever so much on the tide of the satisfactory profits. Altogether a glowing tale was made out to the British Public; The Miller of Dee of Song fame ought to have been a discontented person by comparison with many of those millowners who sought to turn over their concerns to the suggested syndicate. The cruel point (?) does not come in however until on comparing the figures of the millers financial expert with their own report made in answer to those awkward enquiries that are annually addressed to those whose annual incomes (over £150) are liable to be taxed to the extent of sixpence per pound sterling, the Inland Revenue Officer *demanded* for her Majesty *the balance* between the figures set forward by the firms figures so far as taxable profits had been "returned" and those certified by the expert examiners employed in view of the syndicate. The millers, rather than render themselves liable to "subsequent proceedings" for attempt to fraud, quietly satisfied the Somerset House authorities by paying the difference and there are still heard in the northeast corner of England, observations bearing upon the Ring and the Inland Revenue officers that would not bear the telling.

Meeting one of the members of the council of the National Association of British and Irish millers who attended the Liverpool Corn Exchange, I was able to learn what was done at the Council-meeting which was held at the offices of the Association at 61 Mark Lane London E. C. on Wednesday last the 31. ult. It appears that the council had under consideration the desirability of reviving the "Millers Mutual Fire Insurance Association" so that they could get every allowance made for the safeguards they had adopted during the last year or so, namely automatic sprinklers, electric lighting in place of oil and gas and the millers trained fire brigades. After a good deal of time having been wasted over the initiating of this step, its consideration was adjourned to convention-meeting. The Indian wheat question was also considered at great length, and a small committee was appointed to take active steps after the Paris Congress, where a good discussion will take placeas this question will specially occupy two hours of both the French and English sections. When the council were considering their annual report, Mr. Wilson Marriage officially brought before the council the desirability of offering a silver medal to the grower of a certain quantity of British wheat of special milling value. This step it is thought will encourage the production of a better variety of wheat and will pay the winner of the medal by enabling him to obtain a splendid profit, by selling his wheat as seed wheat to the farmers in his neighborhood. This, in a year or so would raise the standard of native wheats now ground by the British millers. The programme of the Paris convention has been slightly altered but only as regards the place of meeting which will now take place in the Orangery, in the gardens of the Tuilleries, which has been lent for the occasion and specially decorated by the French government.

There has just been published the report by the British Vice-Council at Moscow, on the prospects of the harvest in Russia in 1889 in which it is stated that the governments of Tamara, Timbrisk, Tamboff, Voronesk, Riagan all represent the winter sowings to be completely ruined, owing to the small quantity of snow and the severe frosts followed by intense heat in the early spring. In many cases, farmers replowed the land which they had sown last autumn. In the government of Moscow last autumn's sowings have also been replowed, but from the Mojaisk districts reports are more favorable. The spring crops promised well but were at the time of writing suffering from drought.

From Budapest I hear that the unfavorable weather which prevailed during the last week of July caused considerable damage to the grain crops. The wheat harvest is expected to be poor to medium, both in quantity and quality. Rye and barley are also poor, and of inferior quality. Maize promises, for the most part, a good to middling harvest.

L. MAYGROVE.

NEWS.—JOHNSON, KIRKPATRICK & Co., of Lebanon, Tex., are about to move their flour mill to McGregor, Tex., and increase the capacity to 75 barrels per day.

BURNED, July 22, Ryerson & Son's mill at Iowa City, Ia.,

MEDICINE LODGE, Kan., will pay a good bonus for a flour mill.

WARRINGTON & Co., of Pender, Neb., have dissolved partnership.

PAYNESVILLE, Minn., offers a bonus and site for a 75-barrel flour mill.

STONE HUBER & Co., millers of Phalen, Ky., have sold out to Philip Huber.

G. W. WEBB has purchased the mill of D. Omen & Son of Francisco, Va.

B. F. WRIGHT & Co. are successors to Fred J. Schupp, miller at Marceline, Mo.

WILLIAMS & CRITCHETT, millers at Oxford, N. C., are succeeded by W. M. Herbert.

AT Dunkirk, Ind., July 24, the Slawson elevator was burned. Loss $3,000; insurance $1,200.

P. B. QUAINTANCE succeeds to the business of Jesse Quaintance & Son, millers of Golden, Col.

THE Otto grist mill just above Fredonia, Ks., was recently damaged by floods to the extent of $1,000.

J. S. BETTS & Co. have moved the flouring mill owned by Evans & Co. at Dempsey, Ga., to Ashburn, Ga.

AT Mattoon, Ill., July 29, William Kirkley's grain warehouse was burned. Loss $11,000; covered by insurance.

JOHN L. DENTON will hereafter conduct the milling business heretofore carried on by Denton & Hitch of Cuba, Mo.

B. R. MOFFETT, miller at Waxahachie, Tex., is building a 40,000 bushel elevator, and making improvements in his flour mill.

THE "Knob City Flour Mills," of Russellville, Ky., owned by Carroll & Barclay, are about to be enlarged and remodeled.

AT Mount Forest, Ont., Aug. 5, William Orr's grist mill and a bridge were burned. Loss, $10,000; insurance of mill, $3,500.

THE three mills in Davenport Ia., are now under one management. Consolidation of interests seems to be the order of the day.

MESSRS BROWN & EDWARDS have bought the Sylvester Bros. Mill at Boscobel, Wis., are refitting it and will soon start up for a long run.

AT Mattoon, Ill., July 27, the old Chapin Elevator, valued at 2,000, and belonging to E. & L. Jennings, burned at 11 p. m. It was dry as tinder and contained about 50 tons of broom corn belonging to several parties. Total loss $5,000; partially insured.

AT Camden, Me., July26, Johnson Knight's saw and grist mill, together with all the machinery, was burned. His loss is $6,000; partially covered by insurance. St. Clair, Dunbar & Trim, dealers in building supplies and lumber, lose $1,500; they had no insurance.

AT St. Cloud, Minn., July 24, the Richmond elevator, owned by Messrs. Auman, Ladner & Lommel, was totally destroyed by fire. About 6,000 bushels of wheat which were stored in the building are also a total loss. It is not known how the fire originated, but it is believed to be the work of tramps. Loss, $8,300; insurance, $1,500.

AT Ridgetown, Ont., July 11, the woollen and carding mills of John Moody & Sons were burned. The Diamond Roller Flour Mills, near by, were badly damaged. Moody & Sons' loss is $25,000; insured in the Waterloo, Mutual, Lancashire and Phœnix for $2,000 in each, and in the Mercantile for 2,500 and in the Royal for $5,500. The loss on the Diamond Mills is covered.

THE Reliance Gauge Co., of Cleveland, O., has recently received, beside numerous home orders, an order from the Porter Mfg. Co., of Syracuse, for six No. 2 Reliance Safety Water Columns for boilers which they are furnishing a Cuban customer, and an order from Robert Boker & Co., for a like number. The demand for these safe-guards is wide spread and rapidly increasing as their merits become recognized.

THE St. Louis United Grain Elevator company organized July 19th by the election of the following officers: President and general manager, Webb M. Samuels: vice-president, George W. Updike; secretary and treasurer, B. L. Slack. The company is capitalized at $2,465,000, with a bonded indebtedness of $1,200,000. The capacity of the consolidated elevators is 10,000,000 bushels.

CANADIAN FLOUR DUTIES it is now definitely understood that the Canadian government will not make any alteration in flour duties till the next session of the Dominion parliament, early next year. Canadian millers complain of discrimination in favor of the United States millers who import wheat from the United States. Sir John Macdonald has promised to place this part of the Canadian tariff on a prominent basis at the next session of parliament.

THE Reliance Gauge Co., of Cleveland, O., have received through the Variety Iron Works, an order for five of the Reliance Safety Water Columns, from the Brooklyn Street Railway Co., for the boilers which they are adding to their Electric motor plant. They have also recently received second and third orders irom Moerlein Brewing Co., and the Windish-Muhlhauser Brewing Co., of Cincinnati. Both of the latter orders came through the Laidlaw & Dunn Co.

THE J. B. Alfree Mill furnishing Co., of Indianapolis, Ind., will occupy their new quarters 76 to 86 Shelby St., in a few weeks. Their shops will be quite extensive, covering two acres of ground and will be equipped with all the latest improved machinery and tools. The large business they have been doing has obliged them to relinquish their present shops as the space was quite inadequate to their wants. The works are on Shelby, Sanders and Munson Streets.

NEW MILLS.—Articles of incorporation have been filed by the Puget Sound Milling Co., of Seattle, Wash. Terr.—Brents & Smith of Benton, Ark., are about to build a flour mill.—At Owensboro, Ky., J. W. Gilbert has completed a 50 barrel mill.—A 75 barrel flour mill is being built by E. R. Graves at Stillwater, Minn.—A $12,000 roller flour mill will be built at Aurora, Neb., by an incorporated company consisting of C. E. Nash and others.—A 75 barrel roller mill has lately been built by Jarboro & Campbell at Springfield, Ky.—The Farmers' Milling Co., will build a 50 barrel roller mill at Lebanon, Tenn.—The Cayuga Milling Co., of Cayuga, Ind., has been incorporated. Capital stock $20,000. Directors, Monroe G. Hofford, Eli H. McDaniel and Samuel K. Todd.—The Capital City Oatmeal Co., with a capital stock of $20,000 has been incorporated at Des Moines, Ia.—H. Linehard, whose mill at Handsboro, Miss., was recently burned, is rebuilding.—The Sweetwater Mill & Gin Co., are building a 50 barrel roller flour mill at Sweetwater, Tex.—A 40 barrel roller flour mill will be built at Manchester, Tenn., by the Coffee County Farmers' Alliance.—D, L. Cunningham of Williamston, Ky., has completed a 50 barrel roller mill.—The 50 barrel mill being built by G. B. McDonald at Jefferson, Tex., will be in readiness to operate Sept. 20th.—The Gray Milling Co., with a capital stock of $25,000 has been incorporated at Flint, Mich.—Weaver, Miller & Co,, will build a 70 barrel roller flour mill at North Grove, Ind.—The Pine Bluff Mill and Elevator Co., with a capital stock of $50,000 has been incorporated at Pine Bluff, Ark., for the purpose of building a flour mill and grain elevator at that place.—The Hall Milling Co., has been incorporated at Indianapolis, Ind. Capital stock $50,000. Directors Chas. E. Hall, William Scott and C. B. Hall.—The Nashville Milling Co., Nashville, Tenn., will build another mill.—J. H. Stout of Owenton, Ky., is building a mill of 100 barrel capacity.—Messrs. Watkin's Bros., Mt. Ida, Ark; The Williams Co., of Frances Ark; J. H Walker & Co. of Reidsville, N. C; Berents & Smith, of Benton Ark; Vaughn Bros., of Glasgow, Ky; W. R. Meyers, Greensburg, Ky; are all building or remodeling mills.

FOR a green transparent varnish for metals, grind a small quantity of Chinese blue with double the quantity of finely-powdered chromate of potash (it requires the most elaborate grinding); add a sufficient quantity of copal varnish thinned with turpentine. The tone may be altered by adding more or less of one or the other ingredients.

SPECIAL STAMPERS OF SHEET METALS.

We do Stamping and Pressing of Sheet Metals for All Classes of Work. Also Tinning, Galvanizing & Japanning.

——ALSO SOLE MANUFACTURERS OF——

SEAMLESS STEEL BUCKETS

INSIST on having this Bucket furnished when ordering.

Ask your dealer for the Avery Pat. Seamless Steel Elev. Bucket.

We do not advertise Seamless Elevator Buckets and fill orders with "Pieced Ones"

. . . . SEND FOR DISCOUNTS. . . . .

THE AVERY STAMPING CO.,

——SUCCESSORS TO——

AVERY ELEVATOR BUCKET CO., CLEVELAND, OHIO, U. S. A.

H. W. CALDWELL, General Agent, - 131 West Washington Street, CHICAGO, ILL.

The Link-Belt Machinery Co.

Are Prepared to Furnish Machinery and Appliances for

Transmission of Power

After the most approved Plans, by use of

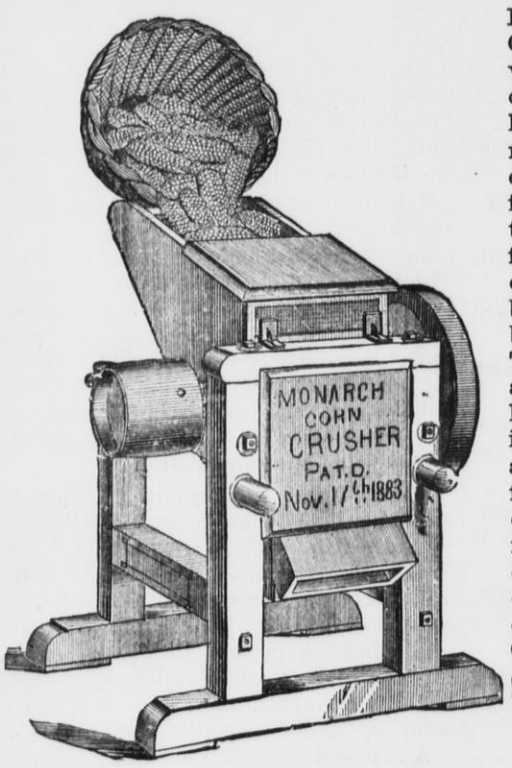
MANILLA ROPE.

SHAFTING · PULLEYS HANGERS GEARS ·

For Particulars and Estimates apply to them at

CHICAGO: 11 to 23 S. Jefferson St. **MINNEAPOLIS:** 200 to 202 Washington Ave. S.

The Monarch Corn and Cob Crusher

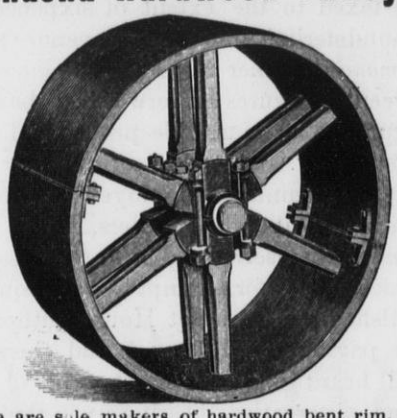


Is the latest and best Corn and Cob Crusher in the world. It does away with all the objections of grinding cob. It has a greater capacity with less power than any other Crusher made. It granulates the cob fine, enabling the Buhr or Rolls to grind from 25 to 50 per cent. more feed than can be ground in the same time from corn and cob crushed in any other Crusher. It does not jar the building like other Crushers. It can be fed any way most suitable to user. The machine is made strong and durable in all its parts. There is very little about it to wear. The cylinder is constructed of steel saws placed on a mandrel separated by iron discs and fastened by a strong nut. The saws can be taken off and sharpened, if necessary. The saws run in an iron concave with teeth which retain the cob until it is cut fine. Write for circular and price of the best Corn and Cob Crusher made. Address,

THE H. C. McCOOL MFG. CO.

PERRYSVILLE, OHIO.

Menasha Hardwood Pulleys.

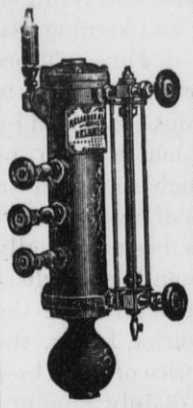


We are sole makers of hardwood bent rim, oak spoke arm, iron hub pulleys; gripped to shaft with bolts and using patent paper bushings. They can be put on shaft without taking it down or cutting key seats. No glue or nails used in their construction.

Also sole makers of only small split pulley 1 inch to 8 inches in diameter in the market. They are light, handsome and reliable. Best machine pulley made, and can be taken off or put on in five minutes. See above cut of them. No glue or nails in them. No key seats to cut. Also makers of only split loose pulley in the market. Send for circulars and discounts of Menasha Pulleys.

MENASHA SPLIT PULLEY WORKS,

MENASHA, WIS.



Before shutting down for repairs or putting in any boilers, investigate the merits of the

RELIANCE

Safety Water Columns

Many large corporations have found it profitable to discard the common appliances, and adopt these safeguards. Of course, you need not do so unless you wish to, but it is worth your time to investigate. There is always economy in safety, and any safety appliance is worth the time it takes to examine it.

Send for Illustrated Price List.

RELIANCE GAUGE CO.,

863 Sheriff St.,

CLEVELAND, OHIO.

Stilwell's Pat.

Lime Extracting

HEATER —AND— *FILTER*

COMBINED.

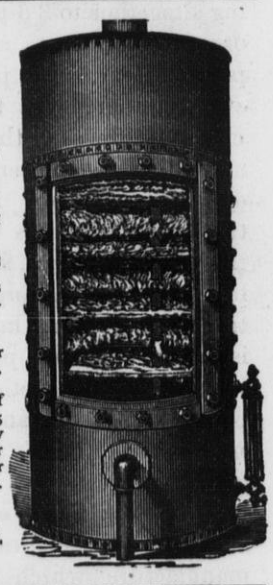
Is the only Lime Extracting Heater that will

Prevent Scale in Steam Boilers

Removing all Impurities from the water before it enters the boiler.

Thoroughly tested. Over **3,000** of them in daily use.

This cut is a facsimile of the appearance of a No. 5 Heater at work on ordinary lime water when the door was removed after the Heater had been running two weeks.



Illustrated Catalogues.

STILWELL & BIERCE MFG. CO.

DAYTON, OHIO.

ESTABLISHED 1846.

J. B. A. KERN & SON,

Merchant Millers,

Capacity 2,000 Barrels Per Day. MILWAUKEE, WIS.

Manufacturers of Choice Minnesota and Dakota Hard Wheat Flour.

RYE FLOUR

By most approved roller process, guaranteed the best and purest rye flour manufactured.

WE INVITE CORRESPONDENCE FROM CASH BUYERS.

JOHN C. HIGGINS & SON

Manufacturers and Dressers of

MILL PICKS

167 W. Kinzie St.,

CHICAGO, ILL.

Picks will be sent on 30 or 60 days' trial, to any responsible miller in the United States or Canadas, and if not superior in every respect to any other pick made in this or any other country there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is *manufactured expressly for me* at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct Importation. References furnished from every State and Territory in the U. S. and Canadas. Send for Circular and Price List.

For All Kinds IRON & STEEL **ROOFING**

CEILING, SIDING, IRON DOORS, SHUTTERS.

ADDRESS SCOTT & CO. CINCINNATI, OHIO.

Farrel Foundry & Machine Company,

ANSONIA, CONN.,

Sole Manufacturers of the Celebrated

ANSONIA ROLLS

FOR USE IN ROLLER MILLS.

The general experience of American Millers unites in pronouncing these rolls the very best for Flouring Mill use.

These Rolls are now used in all Leading Flouring Mills

Chilled Rolls for Paper Mills a Specialty.

☞ Mention this paper when you write to us.

READ

—THE—

NEW YORK

Daily Commercial Bulletin

Its reputation as the most reliable commercial paper is conceded by all.

Sample Copies Free.

Its markets Reports are the most complete and trustworthy of any published and cover all trades.

Save Your Money

by subscribing to the "Daily Commercial Bulletin," and read its reports of the New York Markets.

PRICE:

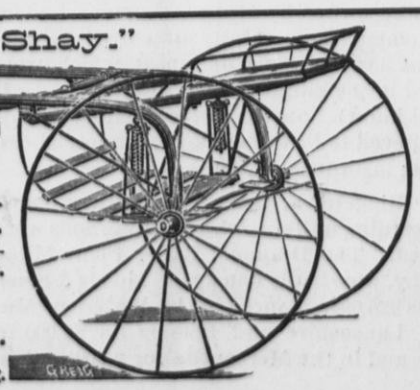
	Per Year.	Six Mos.
Daily	$12 00	$6 50
Tri-Weekly	6 75	3 50
Semi-Weekly	5 00	2 75

ADDRESS:

New York Daily Bulletin Association,

No. 32 Broadway, - NEW YORK CITY.

The "One Horse Shay."



Light, Durable, Well Made, Steel Axle and Steel Tires, Good Hickory Stock.

Sold Only to Users.

The best made **ROAD CART** for the money.

PRICE $15.00. Send Postal or Express Order, Bank Draft or Registered Letter. Shipped promptly on receipt of money.

Address, THE "ONE HORSE SHAY" CO., STERLING, ILL.

Refer to the editor of this paper. Mention this paper when ordering.

EDW. C. ORDWAY,

MILL CONTRACTOR AND FURNISHER

—OF—

ROLLER MILLS, GRAIN ELEVATORS,

New Process Corn Meal Mills, etc.

Plans and Specifications on Short Notice. HARTLAND, WIS.

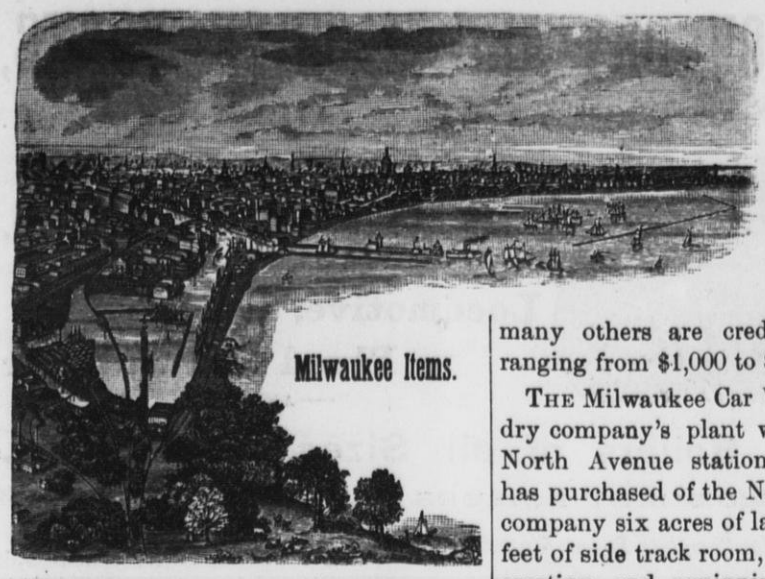
CHAS. A. PRAHL

MANUFACTURER OF

Artificial Limbs and Apparatus

Elevated Feet for Shortened Limbs, Braces for Weak Ankles and Spinal Curvatures, Elastic Stockings & Trusses.

300 GRAND AVENUE, MILWAUKEE, WIS



Milwaukee Items.

JOHN W. HATCHER Esq., of Cawker City, Kansas, called on us Aug. 3rd. He reports Kansas prospects first-class.

H. N. POMEROY agent for The Geo. T. Smith Middlings Purifier Co., Jackson, Mich., called at this office recently. He is looking after the interests of the company in Wisconsin.

IT is expected that during Encampment week (last week in August) Milwaukee will have more visitors than at any previous time in its history. We hope every state and territory will be well represented.

THE Prinz & Rau Mnfg. Co., are driven with work to their full capacity. The demand from brewers in barley cleaning and grading machinery and from millers for cockle and grain cleaning machinery is highly gratifying,

BUSINESS among Milwaukee mills has been fair during the past month. More or less improvements have been made in nearly all the mills. The Jupiter Mill which is being entirely refitted will be ready for business by the middle of September.

AN immense wagon company is to be organized and established in Milwaukee, Wis., with Titus G. Fish at the head. The firm will be known as the Fish Milwaukee Wagon Company. Wealthy capitalists are back of the enterprise, and plans and specifications are already out for the new building.

THE Milwaukee & Northern road contemplates a new line from Iron Mountain to Escanaba, Mich. The distance is between fifty and sixty miles. Ground for the depot and docks has been secured. When the new line is completed the company will enter the iron-ore field as a prominent factor. At present its ore is sent via the "Soo" line to Gladstone.

WILLIAM BAYLEY, one of the pioneer iron manufacturers of Milwaukee, died at his home, 340 Second avenue, at August 13th, from the effect of a stroke of paralysis which he sustained recently. Mr. Bailey was born at Lancashire, Cornwall, England, November 17, 1842. He came to Milwaukee in 1856, and spent half of his years here in the manufacturing business. He was associated with William Greenslade until the latter's death, in 1874, after which he took his sons into partnership in the business, which they will continue. Mr. Bayley was first stricken with paralysis twenty-two years ago, since which time he had sustained three other strokes prior to the one which terminated fatally.

THE Milwaukee attempted corner on oats has completely collapsed and as will be seen from the following statement in the *Milwaukee Sentinel* resulted very disastrously to a number of Milwaukeans. The *Sentinel* says: "The history of the Milwaukee oat corner whose final collapse took place August 6th would be highly interesting, if it could be written in all its details. The parties concerned are very reticent, and they include some of the leading people in Milwaukee. This collapse has cost Milwaukee from $350,000 to $400,000. Mr. Bigelow, it is said, has lost all the money he made last year in wheat deals and a good deal more, and John Black, Charles Bradley, F. G. Bigelow, H. H. Camp, E. H. Brodhead, Hamilton Townsend, Angus Smith and many others are credited with losses ranging from $1,000 to $50,000.

THE Milwaukee Car Wheel and Foundry company's plant will be located at North Avenue station. The company has purchased of the North Avenue Park company six acres of land that give it 600 feet of side track room, and the work of erecting and equipping the buildings will be pushed as rapidly as possible. The plans for them are in the hands of the draughtmen. The location of the works is on high ground and close to the homes of the class of labor that will find employment there. It is expected to have the plant in operation by Nov. 1.

The officers of the company are: President, David C. Green; vice-president, Samuel M. Green; secretary and treasurer, Gustave Schalle. The company has a paid-up capital of $90,000. It will manufacture car wheels and do all branches of the foundry business. The wheels will be made under the Barr patents. Some 300 men will find employment at the works.

As stated above Mr. Bigelow was manipulating the corner. While he was buying oats whenever and at whatever price he could, the Chicago grain merchants were fully aware of his transactions. They began clipping oats at their elevators early last spring, transforming No. 2 oats into No. 1, so as to be prepared for any emergency, and when the Milwaukee people complained to the Board of Trade directors of Chicago and the clipping of oats was stopped, the Chicagoans had enough of the product to protect themselves against any corner. But this was not what downed Mr. Bigelow. The firm that represented him at Chicago was Worthington, Smith & Co. One day Mr. Bigelow ordered them to buy a million bushels of oats at 29 cents. They bought two million instead, and when the price of oats went up to 31 cents, they forced the Milwaukeeans to accept the second million from them at the increase price. This caused the first break in the Milwaukee corner. The receipts of oats were so large that the market began to decline. The entire amount of oats cornered by the Milwaukeeans was about 10,000,000 bushels.

TRADE NOTES.

THE H. J. Deal Specialty Co. Bucyrus, O. report business lively for the special lines of goods they carry.

THE firm of Hodge, Howell & Co. of Buffalo, N. Y. has disolved partnership. The notice sent us does not state whether the business will be continued or not.

THE J. B. Alfree Co. of Indianapolis, Ind. have recently issued a new catalogue of milling machinery and supplies. It is a valuable book of reference for millers to keep handy. The general arrangement of contents and the printing of the book are first-class in every respect. Send for a copy.

THE Vortex Dust Collector Co., of Milwaukee, make a very important announcement to the trade in this number, occupying a full page. It cuts the Gordian Knot supposed to have been tied around the dust collector business in a reasonable, sensible manner, which will be heartily appreciated by millers everywhere. Read it carefully.

THE Westinghouse Machine Co., of Pittsburgh, Pa., report that their business is unusually active for this season of the year. Their sales during the months of May and June were simply phenomenal, and the outlook for a continuance of such sales is good. The orders received by them for the first twenty days of July, amount to 48 engines, footing up to over 3,000 H. P.

MR. H. W. CALDWELL, 131 and 135 West Washington st., Chicago, Ill., has taken the general agency in the West for the Avery patent Seamless Steel Elevator Buckets, and will carry a full line of sizes in large quantities of the different styles of buckets including the Avery-Caldwell patent Corrugated Bucket, which is pronounced by all users of buckets the finest bucket ever brought out. Western customer should write to Mr. H. W. Caldwell for prices etc.

HOLYOKE, Mass., boasts the largest water power of any of the great manufacturing centers of Massachusetts. Here the whole of the Connecticut river, with its 8,144 square miles of water-shed, is captured and turned into mill powers. The capital used is about $15,000,000 and 12,000 hands are required to run various mills. The water power developed during the day is about 15,000 H. P. and in the night about 8,000. The visitor cannot but be impressed with the excellent design of the works, built in 1849.

SUPERIOR, WIS.

POINTS IN ITS FAVOR.

SUPERIOR has thirty-eight square miles within her corporate limits, and not a foot of it unavailable for business, dock, or residence property. Superior has eight and a half million bushels elevator capacity, including the plant of the Duluth elevator company, with a capacity of five millions, and the Eastern Minnesota Railways two elevators, the Great Northern and its annex with a capacity of three and a half millions. All of these elevators are of the latest plans, containing every device known to the business to facilitate the handling of grain, and to insure its safety against fire. A little comparison will convey some idea of the capacity of the Great Northern Elevator:

Its working capacity is one million seven hundred and fifty thousand bushels, or one hundred fifteen million five hundred thousand pounds or fifty-seven seven hundred and fifty tons which equal two thousand eight hundred and eighty-seven cars of six hundred bushels each, which would make one hundred and fourty-four trains of twenty cars each, which with their locomotives, would make a train over twenty miles in length. It will hold the product of seventy-seven thousand five hundred acres or one hundred and eighteen square miles at an average yield of twenty bushels to the acre.

Superior has the largest coal capacity of any lake port upon the chain of lakes. No single dock anywhere approaches that of the Lehigh Coal and Iron company. It is three hundred feet wide by two thousand two hundred feet in length and is fitted with machinery for handling coal which has given it a reputation among vessel men for promptness, that is enviable.

The Northwestern Fuel Company has also an extensive dock leased from the C. St. P. M. &. O. railroad capable of handling half a million tons of coal per annum.

The Pioneer Fuel Company has a large dock upon the property of the Eastern Minnesota Railroad Company, capable of handling a quarter of a milllion tons a year. This, with the St. Paul & Pacific dock at Connors Point gives a coal handling capacity of at least one and a half million tons.

The saw mills on Connor's Point have a capacity of 60,000,000 feet of lumber per year. Then on the dock on Tower Bay slip is the First Forwarding & Warehouse Company's building which is the forerunner of an immense business of a purely commercial character. Near by are the Iron works of the Strotham Brothers, and adjoining them the Adamantine Plaster works. The immense flour sheds of the Eastern Minnesota railroad are of interest, occupying nearly 2000 feet in length by one hundred in width. The Standard Oil company is putting in all the facilities for handling their immense business for the whole Northwest.

The West Superior Iron and Steel company is preparing to enter the field in conpetition with the great Iron works of the east, and when their plant is completed, it will represent an outlay of one and one half million of dollars. This work is being built in the most substantial manner. The West Superior brick works are kept running steadily no matter how the weather is, turning out about 40,000 brick per day. The coke ovens of the Lehigh Coal & Iron Company mark a new era in the fuel question of the Northwest. These are run to their full capacity, and are making a reputation and creating a market for their product which will lead to the erection of a large number of ovens in the near future.

While not yet finished, mention must be made of the mammoth dock of the Eastern Minnesota, which will cover an area of eight hundred feet by two thousand four hundred, with a slip three hundred feet wide through the center. It is in all probability the largest dock in the world, certainly the largest in America, and will, when conplete, furnish dock facilities for enough commerce to warrant a city of fifty thousand yeople alone.

Superior has a union depot used conjointly by the Northern Pacific and the C. St. P. M. & O., the Duluth, South Shore & Atlantic, the St. Paul & Duluth, and the Eastern Minnesota roads.

Three first-class hotels take care of the traveling public, the three representing a value of three hundred thousand dollars, and a fourth which will add fifty thousand more to the capital, is now being built. Of the character of these houses we need only say that the reputation of the Superior hotels is becoming an enviable one.

Superior has four banks representing a capital of over a quarter of a million dollars.

She has a city hall which costs thirty thousand dollars, two school houses costing thirty thousand dollars each: thirteen church edifices mark the moral tone of the community.

A public library of a thousand volumes of carefully selected literature is one of the helps of the young. Superior has a water works plant involving an outlay of a quarter of a million dollars. Two electric light companies—one operating the incandescent system, the other the combined arc and incandescent. The gas company has one mile of mains in, and and are putting in seven miles additional as fast as men can do the work. Seven miles of street railroad will be completed before snow flies. One mile of cedar block pavement and fifteen miles of graded, sidewalked and graveled streets will mark this year's street improvements.

A complete system of sewerage planned by one of the first sanitary engineers in the country will be put in as rapidly as it is possible to do the work. Ninty-four passenger trains arrive at and go out from the Union depot every week day. Three years ago there were four. Space forbids the mention of private business and residence buildings of which much might be said, but suffice it here to say that over nine million of dollars are required to cover the cost of improvements in Superior of the past three years. And a careful survey taken to-day shows over a million three hundred thousand dollars of substantial improvements now under way in the city of Superior. These are things we have. What we are to have in the future no man dare predict.—*Evening Journal July 25. Superior, Wis.*

PERFORATED · SHEET · METALS

FOR ALL KINDS OF

GRAIN CLEANING MACHINERY

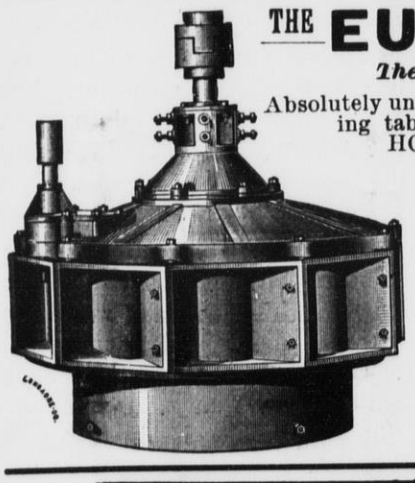
Used in Elevators, Warehouses, Flour and Rice Mills, Cotton and Linseed Oil Mills, Etc., Etc., Etc.

ROLLING SCREENS—ROUND AND HEXAGON.

Iron and Zinc for Rolling Screens, Corn Screens, Grain Dryers, Perforated Floors for Kilns used in drying Oats, Corn, Fruit, etc. Smut Mill Jackets of all kinds and sizes made to order. We will RENEW YOUR SIEVES for Oat Separators, Receiving Riddles, Corn Screens, etc., at short notice.

THE HARRINGTON & KING PERFORATING CO.,

Nos. 224 & 226 North Union St., CHICAGO.



THE EUREKA TURBINE.

The Best Part-Gate Wheel Ever Built.

Absolutely unequalled in efficiency, is shown by the accompanying table from the records of actual tests at the HOLYOKE, MASS., TESTING FLUME.

PERCENTAGE OF EFFICIENCY.

	Full Gate.	⅞ Water.	¾ Water.	½ Water.
24" Wheel	.8436	.8416	.8202	.8002
24" Wheel	.8206	.7910	.7700	.7003
24" Wheel	.8078	.7578	.7275	.6796
34" Wheel	.8000	.8011	.7814	.6850

No other turbine ever approached the above figures at part-gate.

We publish our part-gate figures. Others significantly omit them.

For Catalogue and information, address

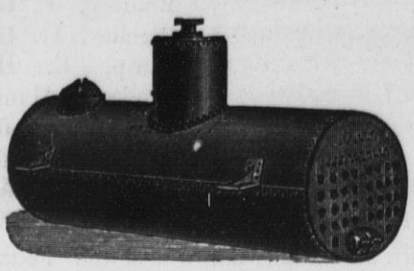
The Allentown Foundry & Machine Co.,

ALLENTOWN, PA., U. S. A.

BRANCH HOUSE, 1425 EAST MAIN ST., RICHMOND, VA.

BASS FOUNDRY AND MACHINE WORKS,

FORT WAYNE, INDIANA.



—MANUFACTURERS OF—

First Class Steam Boilers,

INCLUDING

Locomotive, Upright, Flued and Tubular

—AND—

Portable Boilers of all Sizes and Styles.

TWO SHEET BOILERS A SPECIALTY.

Contracts taken for Complete Power Plants. *Prices furnished on Application.*

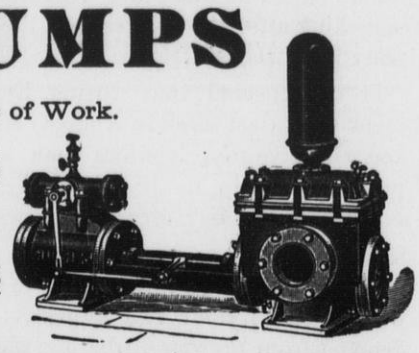
Hughes Bros. Steam Pump Co.,

CLEVELAND, OHIO.

Builders of Single and Duplex

STEAM * PUMPS

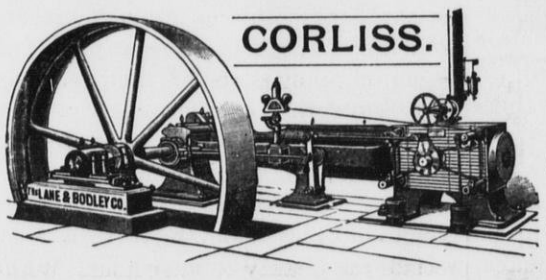
Of Every Description for all kinds of Work.



Satisfaction Guaranteed.

Send for 1888 Catalogue.

THE LANE & BODLEY CO.,



MANUFACTURERS OF

AUTOMATIC CUT-OFF

ENGINES

From Heavy Patterns and of Unexcelled Workmanship.

Steel Boilers, Feed Water Heaters Shafting, Pulleys and Gearing.

THE LANE & BODLEY CO., Cor. John & Water Sts., CINCINNATI, O.

---

* EVERY * MILLER *

Whether using Water or Steam Power, who wants

To Save His Machinery

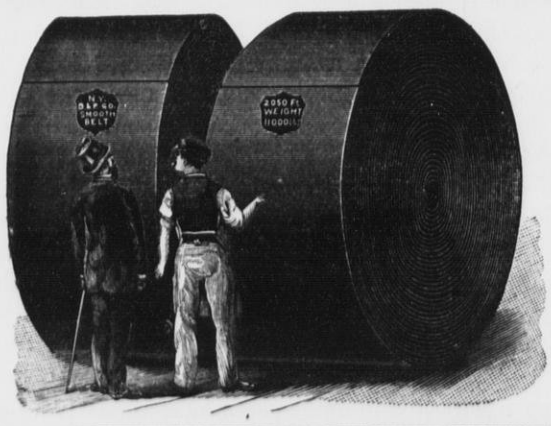
And reduce the cost of running expenses, should have a copy of a Pamphlet on Lubrication, which will be SENT FREE on application to

VACUUM OIL CO., ROCHESTER, N. Y.

MANUFACTURERS OF HIGH-GRADE OILS.

☞Branch Offices and Warehouses in all the Leading Cities.☜

NEW YORK BELTING & PACKING CO.



JOHN H. CHEEVER, Treasurer. 15 PARK ROW, NEW YORK.

Oldest and Largest Manufacturers in the U. S. A. of

Vulcanized Rubber Fabrics for Mechanical Purposes

MILLERS' HOSE A SPECIALTY.

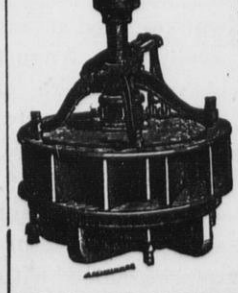
Also a Good STEAM HOSE.

RUBBER MATS,
RUBBER MATTING,
and STAIR TREADS.

RUBBER BELTING, PACKING AND HOSE.

SALESROOMS: PHILADELPHIA, 308 Chestnut St.; BOSTON, 52 Summer St.; CHICAGO, 151 Lake St.; ST. LOUIS, 907-911 N. Main St.; DENVER, 1601-1611 17th St.; CHARLESTON, 160 Meeting St.; MINNEAPOLIS, 28 South 2d St.; CINCINNATI, 161-165 W. Pearl St.; ATLANTA, 76 Decatur St.; DETROIT, 16-24 Woodward Ave.; BALTIMORE, 12 N. Charles St.; BUFFALO, 124-128 Washington St.; NEW ORLEANS, 48 Canal St.; KANSAS CITY, 1311-1313 W. 12th St.; RICHMOND, 1206 East Main St.; European Branch, HAMBURG, GER., Pickhuben 5, (Freihafengebiet).

Improved ‡ Walsh ‡ Double ‡ Turbine



This wheel has a perfect fitting cylinder gate and draft tube combined, and allows no water to escape when closed.

POWER GUARANTEED

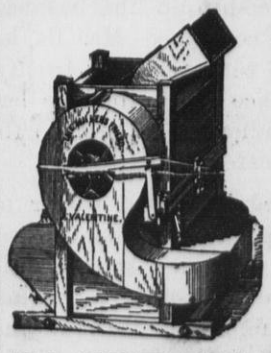
equal to any wheel on the market using equal amount of water. Address for particulars,

B. H. & J. SANFORD,

Phœnix Iron Works,

Sheboygan Falls, Wis.

IMPROVED CORN SHELLER,



IT IS THE

BEST CORN SHELLER

MADE FOR MILL USE.

IT IS

Simple in Construction Almost Noiseless,

—AND—

Requires Little Power

HUNDREDS ARE IN USE.

For descriptive circular, price list, etc., Address

JACOB VALENTINE,

Gorham, Ontario Co., N. Y.

"TRIUMPH" CORN SHELLER

CAPACITY

2000 BUSHELS PER DAY.

Shells wet or dry corn.

CHEAPEST AND BEST SHELLER.

PAIGE MFG. CO.,

No. 12 Fourth St., Painesville, O.

[Please mention this paper when you write to us.]

COMPOUND Condensing or Non-Condensing.

16 SIZES, 5 to 500 H. P.

Not yet equaled by any form of Engine for *HIGH FUEL DUTY AND SIMPLICITY.*

STANDARD 13 Sizes in Stock. 5 to 250 H. P.

3000 in use in all parts of the Civilized World.

JUNIOR 6 Sizes in Stock, 5 to 50 H. P.

An Automatic Engine cheaper than a Slide Valve.

WELL BUILT. ECONOMICAL. RELIABLE.

Over 300 Sold the First Year.

All the above built strictly to Gauge with INTERCHANGEABLE PARTS.

REPAIRS CARRIED IN STOCK.

SEND FOR ILLUSTRATED CATALOGUES.

WESTINGHOUSE ENGINES

the Westinghouse Machine Co. PITTSBURGH, PA. U.S.A.

SELLING DEPARTMENT IN THE UNITED STATES.

New York, Boston, Pittsburgh, Chicago,	17 Cortlandt St. Hathaway Building, Westinghouse Build'g, 156, 158 Lake St.	Westinghouse, Church, Kerr & Co.
Philadelphia,	608 Chestnut St.	M. R. Muckle, Jr. & Co.
St. Louis, Kansas City, Denver,	302, 304 Washington Av. 312 Union Avenue, 1330 Seventeenth St.	Fairbanks & Co.
Omaha,	1619 Capitol Avenue,	F. C. Ayer.
Pine Bluffs, Ark.		Geo. M. Dilley & Sons.
Salt Lake City, Butte, Mont.	259 S. Main St. 4 Granite St.	Utah & Montana Machinery Co.
San Francisco, Portland, Or.	21, 23 Fremont Street, 33, 35 N. Front St.	Parke & Lacy Co. Parke & Lacy Mch. Co.
Charlotte, N. C. Atlanta, Ga.	36 College St. 45 S. Prior St.	The D. A. Tompkins Co.
Dallas, Tex.		Keating Imp. & Machine Co.
Chattanooga, Tenn.,		C. E. James & Co.

OUR BALTIMORE LETTER.

[From our own correspondent.]

FOR the benefit of those in the west and northwest who cannot comprehend, it seems, why the Baltimore flour market from time to time does not respond more quickly to the other markets of the country, I will endeavor herewith to explain.

Great competition exists here between the C. A. Gambrill Mfg. Co. and our leading local jobbers for the trade of the city, and whatever either faction does regarding prices, the other is bound to follow suit, irrespective of outside influences.

Heretofore, however, the corporation referred to has generally taken the lead in shaping values, but as it will have to go west for supplies on the new crop, we are in hopes that the reverse will now be in order.

The world at large, we know, cannot understand such a state of affairs existing in this enlightened age, simply because no other city has such a monopoly to contend with, as we Baltimoreans have in this gigantic Octopos. When it is remembered though, that this concern has been in existence for more than a hundred years; that its plant is of the latest and most improved pattern: that its prestige in this community is unparalleled; that its capital is practically unlimited; that its capacity is 2200 barrels daily; that its product is unsurpassed; and that its management is faultless: it can readily be seen how great the odds are against the average dealer.

When a merchant here contemplates buying flour therefore, he must needs consider first of all those offerings only which will enable him to sell at figures a little below those of his great competitor. In a word, he is compelled to look, not so much to the profits, as to his ability to undersell his rival. While spring wheat patents are held at more money here than Gambrill's, they sell only in a limited way at the premium, for consumers invariably return to "Patapsco Superlative," when the prices of the former are excessive. One would suppose, too, that with such a trade and prestige the Gambrill's would exact fancy prices for their product, but, on the contrary, it is their policy to hold them at a point, where it requires constant hustling on the part of dealers to compete with them.

So you see, the trade here, through the whims and caprice of a single firm, is kept in hot water all the time. No matter how violent the fluctuations elsewhere, if the Gambrills change not, neither can the Baltimore market. I hope that I have made myself perfectly clear.

The situation here at this writing is dull and unsettled.

Notwithstanding the decline of 25 cents per barrel recently established, dealers who formerly bought liberally on all such breaks, positively refuse to do so now, for the reason that they yet believe in much lower values.

A perpendicular drop therefore is necessary to bring about much activity. Agents of late, however, have sold moderately of new winter straights to arrive, at prices ranging from $4.20 to $4.35, but patents at $4.70 to $5.00, and clears at $4.00 to $4.25 command no attention whatever.

St. Louis stencils, while very fine in quality this year, are practically out of our market at $5.00 and $4.50 respectively for patents and straights.

Some new flour is arriving, but it looks yellow and works soft. Jobbers therefore will be afraid to use it exclusively until it has finally passed through the sweat and become more fully seasoned.

City mills are doing considerable for export both in low grades and Rio brands of extra.

Spring wheat patents are neglected at quotations ranging from $5.50 to $5.75, and while these figures already show a decline of 25 to 40 cents per barrel within the month, dealers still look for a quarter break in them before long.

Spring bakers are also in poor request, but stocks being light, business in them is likely to revive at any moment.

The estimated stock of flour iu Baltimore to-day, exclusive of that held by city mills is 43,000 barrels. We quote the range of the market as follows:

Western Winter Wheat Super	$2.60@3.15
" " " Extra	3.25@3.75
" " " Family	4.0(@4.50
Winter Wheat Patent	4.70@5.00
Spring " "	5.50@5.75
" " Straight	4.50@5.25
" " Bakers	3.50@3.90
Baltimore Best Patent	5.75@—
" Choice	5.60@—
" High Grade Family	5.50@—
" Choice Grade Extra	5.25@—
Maryland, Virginia and Penn'a Super	2.60@3.15
" " " Extra	3.25@3.75
" " " Family	4.00@4.50
City Mills Super	2.50@2.70
" Rio Brands Extra	4.90@5.00
Rye Flour	2.75@3.10
Hominy	2.60@2.75
" Grits	2.75@—
Corn Meal per 100 lbs	1.10@1.25

The wheat market here has been a great disappointment to most of our merchants, for the reason that the cereal from Maryland, Virginia and Pennsylvania has turned out very badly both in yield and quality.

The apparently worm-eaten clouds which have overhung this territory like a pall for months have done the damage, for hardly a single day has passed without rains, and the consequence is that every thing around here is literally deluged. The condition of southern wheat therefore is unfit for either milling or exporting purposes.

Receipts too have been only half what they were for the same period a year ago.

They are utilized principally by mixers. New western, however, is arriving quite freely, and its condition, while not of the best, is a big improvement over that of the near by.

Local mills will have to seek supplies elsewhere, unless they are satisfied to depreciate the quality of their flour. While shippers report a good demand for abroad, business is restricted by light offerings and a scarcity of available tonnage.

Speculation here favors the bear side, but no matter how low you get the stuff, there are always those in our midst who see no good in it. Prices are about six cents per bushel below those of the same day last year.

CLOSING AND COMPARATIVE PRICES.

Wheat	Closing	Same time
No. 2 Red	To-day.	last year.
Spot	83¾@84	90⅛@90⅝
August	83⅛@83¼	90⅛@90¼
Sept	82⅝@82⅝	90 @90⅛
Oct	— @83¾	90⅝@90⅞
Dec	84⅝@84⅞	—@93¼
Steamer 2	80¼@80½	—@—
Fultz	80 @87	88 @93
Longberry	82 @87	90 @94

CLOSING AND COMPARATIVE PRICES.

Corn	Closing	Same time
Mixed.	To-day.	last year
Spot	43 @—	52¼@52½
August	—@43	52¼@52½
Sept	42¾@43	—@53
Oct	—@43½	—@—
Steamer	—@—	—@—
White	44 @48	60 @61
Yellow	44 @45	56 @57

STOCK OF GRAIN IN ELEVATORS THIS DAY.

CORN.		WHEAT.	
1 White	372	2 Red winter	111,276
2 "	14,892	3 " "	497
Yellow	4,173	Steamer 2 red winter	58,849
Mixed	45,878	Special Bin	298,816
Steamer White	3,248	Total	469,338
" Mixed	568	" 1888	1,133,308
Special Bin	13,862	OATS,	
Total	82,993	2 Mixed	782
" 1888	100,604	Special Bin	29,690
RYE	8,285	Total	30,472

ITEMS OF INTEREST TO THE TRADE.

W. J. Smith, secretary and treasurer of the Geo. P. Plant Milling Co. of St. Louis, sails from New York on the 17th for Europe, where he will remain two months forming new connections for his firm.

The September celebration in Baltimore promises to be the grandest thing of the kind ever witnessed in the South. Robt. S. Fowler late vice-president of the Baltimore Corn and Flour Exchange has removed to New York.

The Baltimore Journal of Commerce will appear in handsome illuminated colors next month in honor of the celebration.

Geo. H. Plant, vice-president of the Geo. P. Plant Milling Co. of St. Louis, and 3d vice-president of the Millers National Association, was in Baltimore last week calling upon the trade, with whom he made a favorable impression.

Many of our enterprising flour dealers will have elaborately decorated floats in the forthcoming celebration.

F. W. Lahnsen of the flour firm of Tate, Hinrichs & Co. has just returned from a three months visit to Germany. He looks well and hearty.

The Wm. Lea & Sons Co., proprietors of the Brandywine Mills of Wilmington, Del., are doing a heavy jobbing business here through their Baltimore manager, Charles H. Gibbs.

Louis Sinsheimer one of our largest flour jobbers is expected home from Europe on the 15th.

Conrad Ruhl one of our most successful flour dealers contemplates an early visit to Atlantic City. His son Henry will likely go West for supplies of new flour when he returns.

Many of our leading commission firms have representatives on the road soliciting consignments of wheat and flour.

Henry F. New, of Peter New & Co., wholesale flour dealers, is spending his vacation in travel through New York State.

The patent flour made by the Galaxy Mill Co. of Minneapolis stand very high in this market.

The Mt. Vernon and Monitor Mills of Baltimore are experiencing great difficulty in obtaining wheat of suitable quality for their famous brands of flour.

Andrew J Palmer of Wilson, Palmer & Co. wholesale grocers and flour dealers of this city is spending the summer at the White Sulphur Springs.

Dealers here who are compelled to pack flour largely in ½ sacks have on hand a big accumulation of empty barrels. The fall of the year they say is the best time to dispose of them.

The famous "big four" of Baltimore is composed of E. N. Gardner & Co., Rinehart, Childs & Co., Louis Sinsheimer, and Tate, Hinrichs & Co.

There is a movement on foot to bring the flour inspection of Baltimore under the supervision of the Corn and Flour Exchange. It is meeting with great opposition however.

BALTIMORE, AUG. 13th 1889. ORIOLE.

THE "INVICTA," A NEW GERMAN MIDDLINGS PURIFIER.

AMONG the recent important flour-mill machines placed on the European market we note the "Invicta" purifier for middlings and semolina, manufactured by Messrs. Seck Bros., of Darmstadt, Germany.

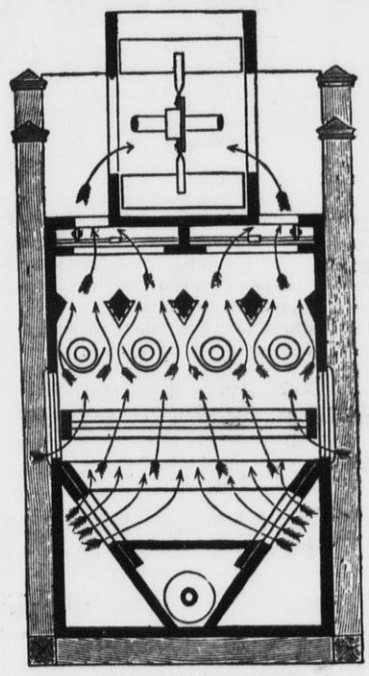
As may be seen by the sketch, the machine consists in its principal part of a case containing a horizontal silk covered sieve, which is set in motion by a crank shaft, similar to the well-known American system. Through this sieve swinging to and fro, the pile of middlings which it carries travels along the sieve, and on the way the lighter parts (tailings) gain the surface of the pile, while the heavier semolina and middlings drop through the meshes, and are divided according to their size by the different numbers of silk. A powerful ventilator on the top of the machine draws continually a current of air through the machine. The air enters sideways underneath the sieve by a sort of shifting blinds, passes through the meshes of the sieve and then through the pile of middlings, carrying away the light parts on the top of the same.

The space above the sieve is divided into four or more chambers, according to the different sizes of the middlings which are to be purified; and as these different sizes are also different in weight, the draught can be easily regulated in each of these chambers separately, so that the heavier middlings are exposed to a stronger ventilation than the lighter ones. The partitions of these chambers go almost right on to the sieve, so that each chamber is entirely shut up.

Until now very few purifiers produced any intermediate product between the good purified middlings and the stuff in the dust chamber. Others catch up the so-called exhaust tailings by little troughs above the sieve which are fixed to the same.

In order to obtain thoroughly clean middlings or semolina, and at the same time not to lose any valuable stuff, it is absolutely necessary to produce an intermediate product between the good purified semolina and the product which is blown into the dust-room,—the so-called exhaust tailings, which always contain some good material, and which, when reground, furnish still some good middlings.

On the other hand, Messrs. Seck Bros. claim that when exhaust tailings were produced, they were caught in little troughs, which were firmly connected with the sieve, and placed at a certain distance from the same. It is evident that tailings of coarse semolina and fine middlings are of quite a different specific weight. Therefore if the collecting troughs are fixed stationary at a certain distance from the sieve, the result is that when purifying coarse semolina the heavier tailings are not lifted up high



THE "INVICTA" PURIFIER.

enough so as to reach the troughs and fall back on the sieve, while when working on fine middlings a quantity of light good material is drawn into the troughs, which are too near in this case.

This is claimed to be entirely avoided by the "Invicta" purifier, as the machine is fitted with a series of small adjustable wire worms in troughs above the sieve, which constitutes the important improvement. Between these worms the air impregnated with impurities passes into the open space above the same, where it expands so as to let drop the impurities into the troughs, from whence they are delivered by the wire worms to the tail end of the machine.

The great advantage of these troughs is that they are entirely independent from the sieve, and can be regulated at any distance within 10 inches from the sieve. By this arrangement the machine can be used with equal success for purifying the finest middlings as well as the coarsest semolina.

INDIANA-RUBBER pavements have been introduced in Hamburg and Berlin, Germany, and are pronounced a success. The india-rubber pavement is said to combine great elasticity with the hardness of stone, to be completely noiseless, and to suffer neither from cold nor hot weather. Moreover, it is not slippery, like asphalt, and is more durable.

HALF RATE HARVEST EXCURSIONS.

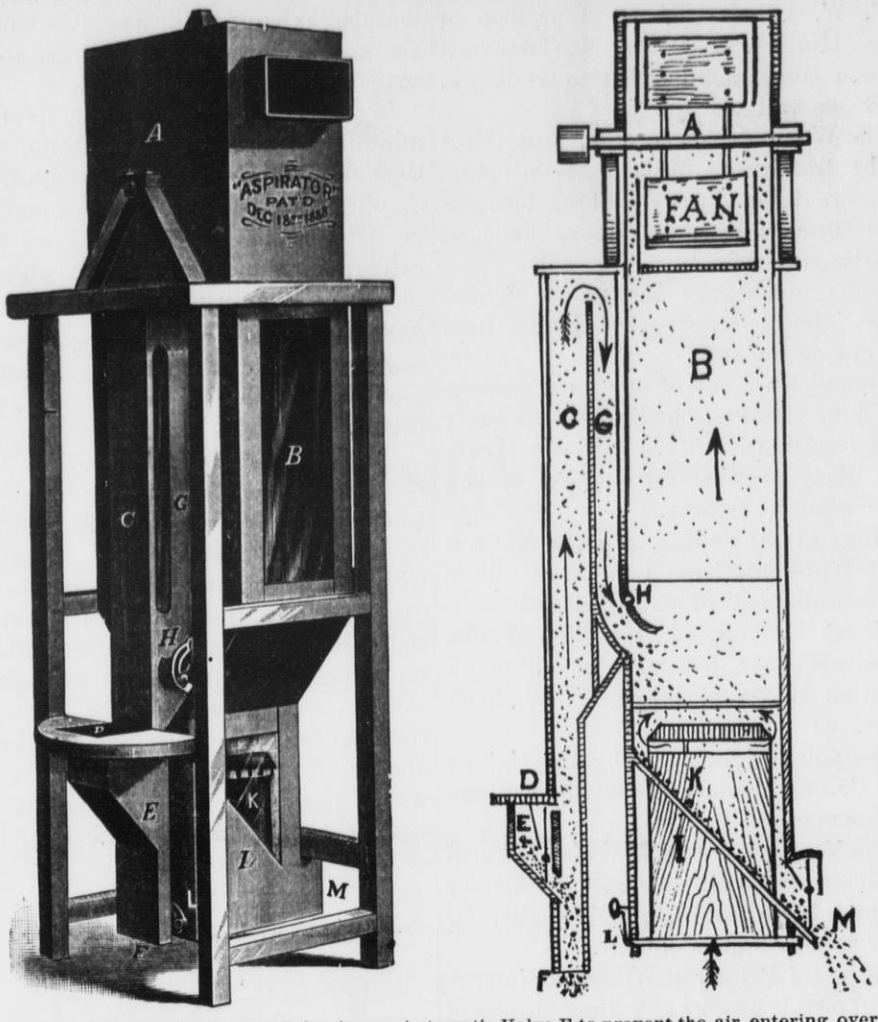
Will leave Chicago and Milwaukee, via the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY for points in Northern Iowa, Minnesota, South and North Dakota, Montana, Colorado, Kansas and Nebraska, on August 6 and 20, September 10 and 24, and October 8, 1829. Tickets good for return passage within 30 days from date of sale.

For further information, circulars showing rates of fare, maps, etc., address A. V. H. CARPENTER, General Passenger Agent, Milwaukee, Wis.

THE BEYNON ASPIRATOR.

This Aspirator makes three separations of the material. It removes all Branny and Fluffy material. It removes the Crease Dirt from the material of the first-break Roll better than any Double Scalper or other machine ever produced. For dusting the break-material as it leaves each Scalper it has no equal, and works to perfection on the different reductions of Germ Stock.

Being upright, it requires very little space, and is the lightest running machine in the market.



The material enters at Hopper D, having an Automatic Valve E to prevent the air entering over the material into Flue C, the clean material discharges at F and the air current carries the lighter material over the Return Flue G and entering the Chamber B, which is provided with a Hopper Bottom, and passes into the Supplementary Flue I, while a draft of air from Flue K carries the lighter material up through the Fan A, while the heavier material discharges through the Automatic Valve M, thus making three separations of the material: one at F, one at M, and one through the Fan A.

The Automatic Valve E distributes the feed evenly its entire width, excluding the air from going over the material into the Flue C, consequently securing a fine draft of air its entire length. Valve H is to regulate the draft in Flue C and G. The bottom of Flue K is provided with a Valve L to regulate draft in Flue I.

The Automatic Valve M excludes air from entering the Supplementary Flue I, and is so sensitive as to discharge the smallest quantity of material.

Give capacity of your Mill, and enquire for prices and particulars.

BEYNON & MURPHY, Watertown, Wis.

— ALSO MANUFACTURERS OF THE —

BEYNON ROLLER MILL ADJUSTER

A most perfect device that may be applied to any of the Rollers now in use.

THE BEYNON ELECTRIC RELIEF AND ALARM

An effective preventive for choking Elevators, Conveyors, Spouts, etc.

Machinery For Sale

ONE PAIR 4-FT. MILLSTONES; new.

SEVEN PAIR 4-FT. MILLSTONES; used about three months.

ONE PAIR 9x18 CHILLED ROLLS; smooth.

ONE No. 1 THROOP SMUTTER AND SCOURER.

ONE 24-INCH MIDDLINGS MILL.

ONE 1000-LB. PALMER POWER SPRING HAMMER.

ADDRESS

The Filer-Stowell Co.

CREAM CITY IRON WORKS,

Milwaukee, - Wisconsin.

GANZ & CO.

Budapest, Austria-Hungary.

We are the first introducers of the Chilled Iron Rollers for milling purposes, and hold Letters Patent for the United States of America. For full particulars address as above.

[Mention this paper when you write to us.]

SOUTH TIMBER LANDS.

An experienced land man, native of the South, active and intelligent, wants a position with some reliable Northern firm dealing in Southern timber lands, to locate and select cheap timber lands in the South. References. Address,

SOUTH TIMBER LANDS,
P. O. Box 1297, NEW ORLEANS, LA.

SCIENTIFIC AMERICAN
ESTABLISHED 1845.

Is the oldest and most popular scientific and mechanical paper published and has the largest circulation of any paper of its class in the world. Fully illustrated. Best class of Wood Engravings. Published weekly. Send for specimen copy. Price $3 a year. Four months' trial, $1. MUNN & CO., PUBLISHERS, 361 Broadway, N.Y.

ARCHITECTS & BUILDERS
Edition of Scientific American.

A great success. Each issue contains colored lithographic plates of country and city residences or public buildings. Numerous engravings and full plans and specifications for the use of such as contemplate building. Price $2.50 a year, 25 cts. a copy. MUNN & CO., PUBLISHERS.

PATENTS

may be secured by applying to MUNN & Co., who have had over 40 years' experience and have made over 100,000 applications for American and Foreign patents. Send for Handbook. Correspondence strictly confidential.

TRADE MARKS.

In case your mark is not registered in the Patent Office, apply to MUNN & Co., and procure immediate protection. Send for Handbook.

COPYRIGHTS for books, charts, maps, etc. quickly procured. Address

MUNN & CO., Patent Solicitors,
GENERAL OFFICE: 361 BROADWAY, N. Y.

The INK used on this paper is from the factory of

CHAS. ENEU JOHNSON & CO.,

PHILADELPHIA, PA.

Western Branch House: 40 La Salle St., CHICAGO

If you are about to build write to the UNITED STATES MILLER for a copy of "Brean's House Plans," and enclose fifty cents in stamps. It will help you.

THE publisher of the UNITED STATES MILLER is desirous of having the names and addresses of Head Millers, Millwrights and Head Engineers in all mills having a capacity of 150 bbls. per day or more.

FOR SALE AND TO RENT.

[Short ads. inserted in this column for $1 per insertion.]

FOR SALE. A full roller process flouring mill, 100 barrels' capacity. Equipped with most approved modern machinery. Built less than one year. Citizens gave a bonus of $2,500, which I will allow to purchaser of mill. Having an interest in a mill furnishing business, I desire to give it all my time. Full particulars on application. H. C. DUTTON, Port Austin, Mich.

FOR SALE. A good custom grist mill, with 10 acres of land, located within four miles of the city of Milwaukee. For full particulars write to HOLTZ BROS. & HELD, 317 Virginia St., Milwaukee, Wis.

FOR RENT. A 2 run, water power, custom flour mill and dwelling house, containing 9 rooms, with 13 acres of land. Everything in good condition. Situated 8 miles north of Kilbourn City, Wis. Easy terms and a bargain. For full particulars address M. T. WALTON, 142 5th Street, Milwaukee, Wis.

WANTED.

PARTNER WANTED. A sober, industrious man, who understands the flour milling bnsiness, and has a capital of three thousand dollars. For particulars apply to W. J. MILLER & Co., Ballinger, Texas.

WANTED. A position as head miller in a mill from 150 bbls. upwards, by a miller of over 20 years' experience in first-class mills; have been in charge in mills from 200 to 800 bbls. capacity for 12 years; have first-class references; 10 years in one mill. Address MILLER, care of U. S. Miller, Milwaukee, Wis.

CAWKER'S AMERICAN

FLOUR MILL

—AND—

GRAIN ELEVATOR

DIRECTORY

Published once in two years.

Gives nearly 23,000 Addresses, P. O., County and State, Capacity, Power, System, etc.; also lists of Millwrights, Miscellaneous Mills, Millbuilders and Furnishers, Flour and Grain Dealers, Foreign Flour and Grain Importers, etc., etc.

1888-9 Edition, Issued March, 1888.

PRICE, $10 PER COPY,
post paid and registered to any part of the world. Address,

E. HARRISON CAWKER, Milwaukee, Wis.

AN AUTHENTIC BUYERS' GUIDE.

MILL AND ELEVATOR BUILDERS, MILL FURNISHERS, MANUFACTURERS OF AND DEALERS IN MILL AND ELEVATOR MACHINERY AND SUPPLIES.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year, cash with order. Additional lines, $1.00 each, per year.

Edw. P. Allis & Co., Milwaukee, Wis., builders of complete Flour Mills, manufacturers of Flour Mill Machinery, and dealers in Supplies of every description. [Mr.89.]

O. C. Ritter, Sta. A., Springfield. Mo., Patentee and Designer, Ritter's One Reduction Milling System Full Roller Plants for small mills. [Aug. 10]

John C. Higgins & Son, 165 West Kinzie Street, Chicago, Ills., mfrs. of and dressers of Mill Picks. [Mr.89.]

H. P. Yale & Co., Milwaukee, Wis., Manufacturers' Agents of Engines and Boilers, New York Leather Belting Co.'s Leather Belting, Dodge Wood Pulley.

Robert Poole & Son Co., Baltimore, Md., manufacturers of Steam Engines, Water Wheels, Flour, Corn, Paper, Saw and Cotton Mill Machinery.

W. J. Clark & Co., Salem, O., manufacturers of "SALEM" Elevator Buckets, etc.

R. C. McCulley, (P. O. Box 214) Lancaster, Pa., manufactures Cob Crushers, Cooper's Stoves, Castings, Patterns, etc. [Mr.89.]

B. H. & J. Sanford, Phoenix Iron Works, Sheboygan, Falls, Wis., manufacturers of the "IMPROVED WALSH DOUBLE TURBINE WATER WHEEL." [Mr.89.]

John C. Kilner, York Foundry and Engine Works, York, Neb. Mill and Elevator machinery of all kinds, Engines, Boilers, Pulleys, Shafting, etc. [Mr.89.]

The Gutta Percha and Rubber Mfg. Co., 159-161 Lake st., Chicago. Ill., Belting and Rubber Goods. [Mr.89.]

Richmond Mfg. Co., Lockport, N. Y., manufacturers of Grain Cleaning Machinery, Bran Dusters etc. [89.Mr.]

N. Y. Belting and Packing Co., N. Y. Leather Belting Co., W. D. Allen & Co., Agents, 151 Lake Street, Chicago. [Apr.89.]

W. G. Avery M'f'g Co., 10 Vincent st., Cleveland, O., Specialties: Avery Lever Belt Punches, Avery Seamless Elevator Buckets, Belting, Elevator Bolts, &c. [May'89.]

The H. J. Deal Specialty Co., Bucyrus, Ohio. Headquarters for Flour and Grain Testing Appliances, and Specialties for the Milling, Flour and Grain trades. [May 89]

A. B. Bowman, 823 Second St., St. Louis, Mo., manufacturers of Wheat Heaters.

Sprague Electric Railway & Motor Co., 16 and 18 Broad St., New York. Electric Motors. Electric Transmission of Power.

Stilwell & Bierce Mfg. Co., Dayton Ohio. Mill Builders, Manufacturers of and dealers in Water Wheels, Feed Water Heaters and Flour Mill Machinery and Supplies.

Milwaukee Bag Co., No. 236 East Water St., Milwaukee, Wis., manufacturers of plain and printed Flour and Grain Sacks of all kinds.

B. F. Ryer, 66 S. Canal St., Chicago. Mill Furnisher. Bolting Cloths made to order.

Jas. Leffel & Co., Springfield, Ohio. Water Wheels.

Vacuum Oil Co., Rochester, N. Y. Oils.

ABOUT ROPES.

With hemp ropes the character and probable strength may be judged in some degree from the appearance. A good hemp rope is hard, but pliant, yellowish or greenish-gray in color, with a certain silvery or pearly luster. A dark or blackish color indicates that the hemp has suffered from fermentation in the process of curing, and brown spots show that the rope was spun while the fibers were damp, and is consequently weak and soft in those places. Sometimes a rope is made with inferior hemp on the inside, covered with yarns of good material, but this fraud can be detected by dissecting a portion of the rope, or, in practiced hands, by its behavior in use- Other inferior ropes are made with short fibers, or with strands of unequal strength or unevenly spun. In the first case the rope appears woolly, from the number of ends of fibers projecting. and in the latter the irregularity of manufacture can be seen by inspection. Occasionally a hemp rope is spun with a core or central strand, such as is used in the interior of many wire ropes. This somewhat increases the strength, but the core, shut in by the outside strands, is liable to rot and infect the rest, and any rope with a musty, mouldy smell should be rejected.

The best hemp comes from Russia, Switzerland, Alsace and Northern Italy, and it is said that the strongest fibers are obtained from plants grown at the foot of high mountains. Ropes to be used on board ships, or where they are liable to be often wet, are usually soaked in tar to preserve them, but the tarring diminishes the strength by about one-third and increases the friction of the rope. The injurious action of tar upon the hemp-fibers seem not to be clearly explained, but it is said to be lessened by subjecting the tar, before applying it to the rope, to repeat melting and washing with water. The effect on a rope of soaking with water is, however, worse than that of saturating with tar. According to accurate experiments, the tensile strength of a wet rope is only about one-third that of the same rope in a dry condition, and a rope treated with grease or soap is weaker still, apparently through the influence of the lubricant in facilitating the slipping of the fibers. It should never be forgotten that hemp cords contract strongly on being wet, a dry rope 25 feet long shortening to 24 feet or less when dipped in water or exposed to heavy rain.—*Bautechnische Zeitung.*

HOSTILITY TO NEW THINGS.

A universal law of social progress, with which we are all familiar, is that established systems in thought, morals, manners, government or any department of human activity, struggle to perpetuate themselves by a fight against all innovations. Whatever is new and progressive, or represents the requirements of an enlarging field of life, has got to gain its foothold in the face of the powerful opposition of the old and pre-established. Those more perfect and exact conceptions of nature, which we call scientific ideas, have prevailed only after centuries of moral strife with the inherited superstitions and imperfect generalizations of our semi-civilized forefathers. The progressive and liberal governments of our most advanced nations to-day have been established in spite of the bitter opposition of their predecessors, and are themselves fighting tooth and nail the higher forms that will succeed them. In literature and art old schools strive to deny existence in the new, and even in the little affairs of our daily lives, we are all permitting the things that are, and "have sufficed to our fathers before us," to keep out the better things that might be.—*H. G. S. Noble.*

A LETTER TO ENGINEERS.

(From Mr. Much Abused Steam.)

WHEN will engineers learn to treat me scientifically? Considering the millions of tons of coal, and tens of thousands of boilers used to generate me all over the world, they ought surely by this time to realize that I am a hot body; that if they wish me to remain a gas and be useful, they should always give me a warm berth. How often are my boiler plates kept uncovered, put into all sorts of damp and cold places, rained and snowed upon. All this only means great and useless waste of fuel and money, for it costs so little to protect my hot walls from the cold.

I do not seem to be much better treated in this century than I was formerly. My great importance became evident in the middle and end of lest century, but at that time I was not nearly so well understood, and the ingenious mechanics, who began to call themselves engineers, did not appreciate all my advantages. In fact, they were afraid of me. I was then generated in cast iron boilers, and although compressed to only a few pounds, I often burst out, because they did not know how to keep me well in bounds. Bad and dirty water was used to generate me, and of course I left all the dirt and lime in the boilers, just over their fires.

Matters are nearly as bad now. Some clever folks put all kinds of mixtures into the boilers, all the dirt goes to the bottom, and a lot of heat is wasted blowing off the hot water with the dirt. Why cannot they get rid of all this dirt and lime before they send the water into the boilers? Then, of course, as my very nature is to damp, to wet, and to rust, I am well known to eat iron. But engineers seem to think I can go on for years in a boiler, in a damp place, without doing what I cannot help. namely, to eat away steadily at iron or steel whenever I get a chance. When my old, bad walls get as thin as paper, and there is no shell left, I am grumbled at because I burst out all at once, causing great explosions. Why am I and my boiler plates not looked after better, so as to prevent me from killing people through their carelessness and neglect?

After I leave the boiler, sometimes at low, sometimes at high pressures, I am made to pass through long and narrow pipes, often not covered and very cold, provision being seldom made to let out the water, which I condense against my walls against my will. How can I retain my force as a steam or gas, if I am so badly treated? I shake the pipes to warn them how uncomfortable I am, but with little effect. Some people put nice warm hair felt round my passages, some all sorts of patent coverings, but more often nothing at all. Some give me copper walls, some iron, but mostly rough and uncomfortable.

But this is not all. After being badly and carelessly treated in my infancy in the boiler, and then obliged to force my way through cold, zig-zag passages, with more or less water in them, I am still expected to do useful work in the cylinders, and very hard I try to perform my task. In the old days I was sent into very cold Newcomen cylinders, which were cooled by a jet of cold water to condense me. In such cold cylinders it cost me much of my bulk to heat them up again; but it took the engineers a long time to find this out. Good old Watt understood me better than many others. He carefully thought me over, and gave me a comfortable, warm jacketted cylinder, generally as warm as myself, so that I could maintain my gaseous state fairly well. He also provided me with a separate cold chamber to condense myself in, and resume my watery condition. From this time engineers began to reflect a little about me, and to know me better. In France they made a great fuss over me, and carefully found out how much heat I possessed at different pressures. In England they ascertained my weight, but it was long before they learnt all my curious properties, and that I can be a solid, a liquid, or a gas, according to my temperature.

About fifty years ago I began to be much used on railways; but here also the engineers gave me very cold cylinders to work in, and little clothing to them and to my boilers, although I had much good and useful work to do. Woolf was very kind; he and others gave me two nice warm cylinders. Now I am promoted to work in three or four cylinders; but even when these are warmed, there are a lot of cold pipes and passages between them. I am compressed more and more, sometimes nearly reaching 200 lb. pressure; and to prevent me from getting out, the iron and steel walls have to be much stronger. The pistons are also made to go much faster now-a-days, because engineers have begun to find out from actual experiments that the quicker they let me through the cylinders and passages the less I turn into water.

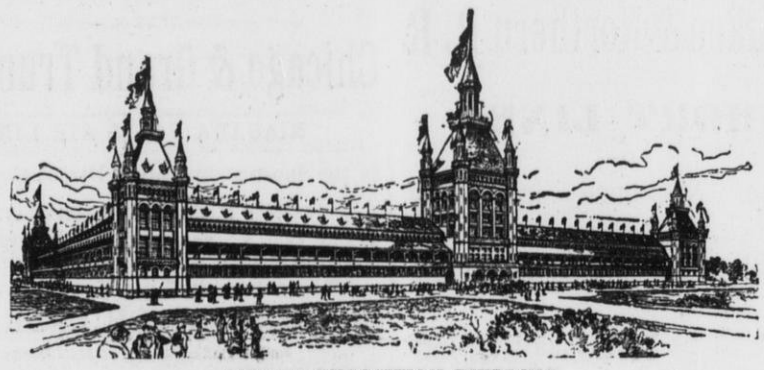
Some professors, and fellows of all sorts of societies, make a great fuss over me, taking case to measure or weigh me and take my temperature after I come out of the engine. They think they know how much water I leave on the cylinder walls, how much heat I give to the walls, and how much I take from them to send on to the condenser. Why, of course, if they could only see me, they would know that if the walls are colder than I am, I show it by wetting them, and if I am driven quickly through long passages and cylinders, I have less time to wet them. But in spite of all their theories and talk of Carnot, Marriotte, Joule, Hirn, &c., they have yet much to learn about me.

Another curious thing is, that when I force the pistons up and down, I seem to lose heat, so that there is some connection between the power I give out and the heat I lose, and this is still a puzzle to many people. Some put me on both side of the piston, some only on one, and some engineers think they measure my pressure and power by a little indicator. Of course I push up the piston after going through cold, zig-zag, small pipes; but I condense a lot of water, and give them trouble. This they do not seem to mind, and still go on making me draw curious diagrams on paper, which are often wrong and too small. Sometimes I get past all their patent pistons and valves, as they do not keep them nearly tight enough.

With their surface condensers I live over and over again, and work hard; I like this constant motion. I am made into steam in the boiler, sent through pipes into two, three, or four cylinders, then into the surface condenser to be again returned into the boilers as hot and clean water to begin life again. The longer I live the more I am appreciated, though I have many opponents—gas, oil, spirit, &c. I do much work on railways all over the world; much on oceans, rivers, and on land, propelling all kinds of machines; and now I am much used to generate electricity. Some make gas of me. If I could only speak, how much I could say of my bad treatment in boilers, pipes, passages, cylinders, &c., by these careless engineers. But I ask them to treat me better in future, to keep my surroundings warmer, and to take particular care where I give them so much power, viz., in the cylinder, that the walls and passages are a little warmer than myself. Let me hear less of their opinions and more of accurate experiments with me and my condensation in cylinders, &c. This will make me happier, more comfortable, prolong my existence, and save their money.

DETROIT'S GREAT FAIR AND EXPOSITION.

ON September 17, a World's Fair and Exposition will open at Detroit, Mich. It is to be a combination of agricultural and industrial fair and exposition, and cash prizes of $100,000 are to be given. The main building, of which we give an illustration, has a frontage of 500 feet, and the exhibit area is 200,000 square feet. It will be the largest fair building in the world. The great central tower over the main entrance rises to the elevation of 200 ft. The aggregate exhibit surface contained in all the buildings is over fourteen acres. The art building has a frontage of 150 ft., and the four stock buildings are each of them over 300 ft. square.



DETROIT EXPOSITION BUILDING.

The grounds, 70 acres in extent, are beautifully located on the Detroit River, overlooking the Canadian shore, and are only a short distance beyond the city's western line. The grounds are reached by horse, electric and steam cars, while the river also offers a delightful water trip. All exhibits can be unloaded from the cars or steamers directly into the building.

SOME LARGE NEW ENGLAND DAMS.

IN Massachusetts there is a reservoir dam of earth at Arlington, which holds 77,000,000 gallons, and another at Brocton with a capacity of 30,000,000 gallons, the dam being of earth and rubble 1,500 feet long. A dam of earth and masonry 1,100 feet long and 85 feet high has been thrown across Stony creek, near Cambridge and holds in check 6,000,000 gallons. Chicopee has a 150-foot dam resting on a bed of quicksand. Sixty-eight feet above the village of Cochituate thera are 16,000,000 gallons suspended behind an earth dam with rubble heart wall. The town of Fitchburg has an earth and rubble dam nearly 75 feet high impounding no less than 200,000,000 gallons, and 200 feet above the village level. Another earth and stone dam stretches across Haynes creek, near Leominster, being 698 feet long and imprisoning 150,000,000 gallons, while another on Morse brook restains 10,000,000 more. Lynn is supplied by dams across streams to hold back 540,000,000 gallons. A dam 600 feet long was built at New Bedford in a swamp, the puddle centre being carried to hardpan, thus forming a storage of 400,000,000 gallons. In 1867 the gatehouse and 100 feet of the dam were carried away by the slipping of quicksand.

The city of Springfield has an impounding reservoir with an area of 445 acres, 350 feet above the level of the streets, and formed by two dams on Broad brook and in a ravine. The Westfield dam stands 771 feet above the town, and forms a reservoir having a capacity of 184,000,000 gallons, the body of water being thirty feet deep and covering thirty acres. An earthern dam with stone heart wall at Winchester is 600 feet long. It stands 121 feet above the town, and impounds 260,000,000 gallons. The city of Worcester knows what dangerous structures storage dams are, for in 1876 the Lynde brook dam gave away and caused a damage of $750,000, though; owing to a warning of twenty-four hours, no lives were lost. Since then a new dam has been built and strengthened with three lines of cast iron pipe laid in the rubble. Its impounding capacity is estimated at 900,000,000 gallons.

At Greenfield there is a stone dam 60 feet long, 35 feet high, 16 feet thick at the bottom and 10 at the top. It is built in a mountainous gorge and stands 5 miles from and 290 feet above the village, and its destruction would release 12,000,000 gallons of imprisoned water, which comes from a mountainous drainage of eight square miles. This dam, bears the same relation to Greenfield that the Canemaugh dam did to the destroyed town of Johnstown, Pa.

Portland, Maine, obtains its water supply from Lake Sebago, and a dam at the source of the Presumpscot river holds the natural overflow in check. Lake Sebago is fourteen miles long and six wide, and has a drainage basin of 500 square miles. At high water the surface of the lake is 267 feet above the city, and, though it fills two reservoirs of 30,000,000 gallons capacity, it is constantly overflowing. To show the danger of this dam at the lake, it should be stated that on June 9. 1882 one of the receiving reservoirs burst, which in thirty minutes discharged 6,000,000 gallons into the streets of the city, causing great damage to property, though there were no lives lost.

MILLING AND MECHANICAL NOTES.

[Condensed and compiled for the UNITED STATES MILLER AND MILLING ENGINEER.]

PULLEYS covered with papermachie are meeting with favor in England.

A LOCOMOTIVE running at a high rate of speed, was struck by lightning recently, while passing through Stamford, Ct. The stroke stunned the engineer and fireman and disabled the engine so that it stopped. This is said to be the first instance of the kind on record.

AN ingenious way of cooling a journal that cannot be stopped is to hang a short endless belt on the shaft next to the box, and let the lower part of it run in cold water. The turning of the shaft carries the belt slowly round, bringing fresh cold water continually in contact with the heated shaft, without spilling or spattering a drop of the water.

IT will be found a good plan to set each set of rolls a few feet apart, so as to give a better opportunity to distribute the product among the machines on the upper floors of the building. When the rolls are set too close together, it obliges the machinery above to be huddled together in the same way, which makes it both awkward and inconvenient. For all mills up to 100 barrels capacity three double sets of rolls are all that will be used and there will be plenty of room to spread them apart. *Abernathy.*

AN experience machinist says: "a shaft of half the weight, running at twice the speed, will transmit just as much power as one of full weight and slow speed. There is an actual economy of many items resulting from the use of shafting of small diameter running at high speed. There is economy in the purchase of the shafting; second, saving in couplings and hangers which will be lighter; third, pulleys transmitting a higher speed will be smaller, hence lighter; fourth, the belts traveling at high speed will be smaller and lighter; and fifth, the building supporting such light transmission can be lighter and cheaper, and there are many more advantages."

OUR readers will confer a favor by writing to us giving us any item of news such as new mills, elevators, etc., or improvements in the same, or giving information of a practical nature of general interest to the trade.

THE CHICAGO MILWAUKEE AND ST. PAUL RAILWAY CO.

Fast Mail Line with Vestibuled Trains between Chicago, Milwaukee, St. Paul and Minneapolis.

Trans-Continental Route between Chicago, Council Bluffs, Omaha and the Pacific Coast.

Great National Route between Chicago, Kansas City and St. Joseph, Mo.

5700 Miles of Road reaching all principal points in Illinois, Wisconsin, Minnesota, Iowa, Missouri and Dakota.

For maps, time tables, rates of passage and freight, etc., apply to the nearest station agent of the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY, or to any Railroad Agent anywhere in the World.

ROSWELL MILLER, General Manager. A. V. H. CARPENTER, Gen'l Pass. and Tkt. Agt.

☞ For information in reference to Lands and Towns owned by the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY COMPANY, write to H. G. HAUGEN, Land Commissioner, Milwaukee, Wisconsin.

ASHLAND ROUTE M.L.S. & W.R'Y.

THE MILWAUKEE, LAKE SHORE & WESTERN R'Y

IS THE DIRECT AND MOST POPULAR LINE AND Through Sleeping and Parlor Car Route FROM

CHICAGO and MILWAUKEE

TO

SHEBOYGAN, MANITOWOC, APPLETON, NEW LONDON AND WAUSAU,

TO ALL THE IMPORTANT TOWNS IN THE Gogebic, Penokee and Montreal Iron Ranges,

HURLEY, BESSEMER, IRONWOOD, WAKEFIELD AND GOGEBIC,

TO

ASHLAND, SUPERIOR and DULUTH,

To all Fox River Manufacturing Cities AND The Lumbering Districts of Northern Wisconsin and Michigan.

SPORTSMEN The best Fishing and Hunting in the NORTHWEST reached by the ASHLAND ROUTE. Send to the General Passenger and Ticket Agent for Descriptive and Illustrated Publications, Maps, Folders, Time Cards and General Information.

Milwaukee Office, 95 Wisconsin St.

H. G. FLEITH, Com. Freight Agt. F. P. REGAN, City Pass. & Tkt. Agt.

H. F. WHITCOMB, General Manager. ERNEST VLIET, Gen'l Pass. & Tkt. Agt.

MILWAUKEE.

C H & D CINCINNATI, HAMILTON & DAYTON R.R.

THE THROUGH CAR LINE —FROM AND TO— CINCINNATI

WITH THROUGH CAR SERVICE BETWEEN

CINCINNATI and INDIANAPOLIS,
CINCINNATI and TOLEDO and DETROIT,
CINCINNATI and CHICAGO,
CINCINNATI and ST. LOUIS,
CINCINNATI and DAYTON and RICHMOND,
CINCINNATI and FT. WAYNE and GRAND RAPIDS,
CINCINNATI and GREENVILLE and VAN WERT.

With THROUGH RECLINING CHAIR CAR between

CINCINNATI, DECATUR and SPRINGFIELD, ILLS. and KEOKUK, IOWA, (daily)

PARLOR CHAIR CARS ON DAY, and SLEEPERS ON NIGHT TRAINS, "YEAR 'ROUND."

Ask for Tickets via C. H. & D. R. R.

For full information, Tickets, Sleeping Car Space, &c., Inquire of or Address,

W. H Fisher, Gen'l Agt., Indianapolis, Ind. W. H. Whittlesey, Central Pass'r Agt., Dayton, O.
John Bastable, District Pass'r Agt, Toledo, O. D. B. Tracy, Northern Pass'r Agt., Detroit, Mich.
Wm. A. Wiggins, Southern Passenger Agent, Chattanooga, Tenn.
J. G. Mason, City Passenger Agent, Cincinnati, O.

Or General Passenger Agent's Office, - No. 200 W. Fourth St., Cincinnati, O.

C. C. WAITE, Vice-Pres't & Gen'l Manager. CHAS. H. ROCKWELL, Gen'l Pass'r & Ticket Agent.

THE CHICAGO AND NORTH-WESTERN RAILWAY.

OVER 7,000 MILES

Of steel track in Illinois, Iowa, Wisconsin, Michigan, Minnesota, Nebraska, Dakota and Wyoming, penetrates the Agricultural, Mining and Commercial Centres of the

WEST AND NORTHWEST.

The Unrivaled Equipment of the Line embraces Sumptuous Dining Cars, New Wagner and Pullman Sleepers, Superb day Coaches and

FAST VESTIBULED TRAINS

Running direct between Chicago, St. Paul and Minneapolis, Council Bluffs and Omaha, connecting for Portland, Denver, San Francisco and all Pacific Coast Points.

ONLY LINE TO THE BLACK HILLS

For Tickets, Rates, Maps, Time Tables and full information, apply to any Ticket Agent or address the Gen'l Passenger Agent, Chicago, Ill.

J. M. WHITMAN, General Manager. H. C. WICKER, Traffic Manager. E. P. WILSON, Gen'l Pass. Agt.

Milwaukee & Northern R. R.

SHORT LINE

—TO—

Marquette, Negaunee, Ishpeming, Hancock, Houghton, Champion, Republic, Iron Mountain, Menominee, Mich.

Marinette, Green Bay, Depere, Neenah, Menasha, Appleton, Wis.

THE TABLE OF EXPRESS TRAINS.

STATIONS.	DEPART.	ARRIVE.
Champion, Republic,	*2:00 A. M.	*3:25 A. M.
Iron Mountain, Menominee, Marinette, Green Bay, Depere,	*2:00 A. M. 3:10 P. M.	*3:25 A. M. 3:55 P. M.
Green Bay, Depere, Appleton, Menasha, Neenah,	2:00 A. M. 7:55 A. M. 3:10 P. M.	3:55 P. M. 10:10 A. M.

*Daily. All other trains daily except Sunday.

Pullman Sleeping Cars are run on all night trains, and are ready for occupancy at 9:00 P. M.

New Passenger Station, Fourth Ward Park.

C. F. DUTTON, General Manager. W. B. SHEARDOWN, General Ticket Agent.

THE Chicago & Grand Trunk R'y

NIAGARA FALLS AIR LINE

Is the Shortest and Most Direct Route East.

THROUGH SLEEPING AND PARLOR CARS TO

New York, Montreal and Boston.

The Only Line running Through Sleeping Cars between

CHICAGO and PHILADELPHIA

Via NIAGARA FALLS Without Change.

Trains leave Dearborn Station at 9.05 a. m., 3.25 p. m. and 8.15 p. m. 8.15 p. m. train has elegant Pullman Sleeping Car to Detroit daily.

GRAND HAVEN ROUTE.

Detroit, Grand Haven & Milwaukee, R'y,

Is the Shortest, Cheapest and Quickest Line between MILWAUKEE, Points in MICHIGAN, CANADA and the EAST.

A delightful 5 Hour Daylight Trip on the Palace, Iron Side Wheel Passenger Steamer,

CITY OF MILWAUKEE.

Steamer leaves Milwaukee daily at 11.30 A. M., connects at Grand Haven at 5.30 P. M. with Fast Limited Express, which reaches Detroit, 11.30 P. M.; Niagara Falls, 7.30 A. M.; New York, 10.00 P. M.

34 Hours Milwaukee to New York.

Round Trip Tourist Tickets to the Thousand Islands, Rapids of the St. Lawrence, Mountains and Sea Shore now on Sale. Pamphlets descriptive, Rates, Routes, etc., sent by mail from Company's Office, 99 WISCONSIN STREET.

2nd class tickets good on all trains.

W. E. DAVIS, Gen'l Pass's & Ticket Agent, CHICAGO. E. H. HUGHES, Gen'l Western Pass'r Agent, CHICAGO. B. C. MEDDAUGH, Nor. Pass'r Ag't, 99 Wisconsin St., MILWAUKEE.

STEAMSHIP TICKETS

To or from Europe at lowest rates, by all lines. Cabin plans can be consulted and best accommodations secured as far in advance as desired.

Information furnished by mail or on application at office, 99 Wisconsin St., Southwest cor. Broadway.

B. C. MEDDAUGH, Gen'l S. S. Agent. MILWAUKEE, WIS.

Queen & Crescent ROUTE

94 MILES THE SHORTEST, 8 HOURS THE QUICKEST,

CINCINNATI TO NEW ORLEANS

Time, 27 Hours.

Entire Trains, Baggage Car, Day Coaches and Sleepers run through without change.

110 MILES THE SHORTEST, 7 HOURS THE QUICKEST,

CINCINNATI to JACKSONVILLE, Fla.

Time, 28 Hours.

Through Sleepers without change. The Short Line between Cincinnati and

Lexington,	Ky.,	Time,	2½ Hours.
Knoxville,	Tenn.,	"	12 "
Asheville,	N. C.,	"	17 "
Chattanooga,	Tenn.,	"	11 "
Atlanta,	Ga.,	"	15 "
Birmingham,	Ala.,	"	16 "

Direct Connections at New Orleans, and Shreveport, for Texas, Mexico and California.

Trains leave Central Union Depot, Cincinnati, crossing the Famous High Bridge of Kentucky, and rounding the base of Lookout Mountain.

Over One Million Acres of Land in Alabama, the Future Great State of the South, subject to pre-emption. Unsurpassed Climate.

For Rates, Maps, etc., address,

C. S. HENRY, Traveling Passenger Agent, 193 Clark St., Chicago, Ill.

J. C. GAULT, Gen'l Mgr. CINCINNATI, OHIO. D. G. EDWARDS, G. P. & T. A.

NOTES from the diary of tourists, commercial travelers, business men and others has revealed:

That the **Wisconsin Central** has the unqualified endorsement of all:

That the **Wisconsin Central** has to-day the most popular line between **Chicago** and **Milwaukee**, and **St. Paul, Minneapolis** and the **Northwest**;

That the **Wisconsin Central** is daily adding to its admirers as the recognized **Pullman** line between **Chicago** and **Milwaukee** and **Ashland, Duluth** and **Lake Superior**;

That the **Wisconsin Central** touches the most prominent points in Wisconsin, and that it has more important business centers on its through line than any other railway to and from the **Northwest**;

That the **Wisconsin Central** has made an enviable reputation with its peerless **Dining Car Service**;

That the **Wisconsin Central** runs fast trains on which all classes of passengers are carried with commodious and distinct accomodation for all:

That the **Wisconsin Central** has representatives distributed throughout the country, who will cheerfully give any information that may be desired and that its terminal Agents are specially instructed to look after the comfort of passengers who may be routed via its line.

For detailed information, apply to your nearest Ticket Agent; or to representatives of the Wisconsin Central Company.

S. R. AINSLIE, General Manager. H. C. BARLOW, Gen'l Traffic Manager.

LOUIS ECKSTEIN, Asst. Genl. Passr. & Tkt. Agt.

MILWAUKEE, WIS.

CHOICE OF 3 TRAINS

—VIA—

MONON ROUTE

—BETWEEN—

CHICAGO and INDIANAPOLIS, CINCINNATI, LOUISVILLE, LEXINGTON.

Unsurpassed Pullman Car Service.

Fast Trains. Sure Connections.

Short Route to Florida.

☞ Be sure your tickets read via Monon Route (L. N. A. & C. R'y), and your comfort is guaranteed.

For Maps, Guides, etc., address

JAMES BARKER, Gen'l Pass'r Agent, CHICAGO.

Adams Express Building.

Goodrich Passenger Steamers

TWICE DAILY EACH WAY BETWEEN

MILWAUKEE and CHICAGO.

CHICAGO AND RACINE LINE.

Leave Milwaukee.	FOR	Arrive at Milwaukee
7.00 P. M.	Chicago	5.00 A. M.
*7.30 A. M.	Chicago	4.00 P. M.
7.00 P. M.	Racine	5.00 A. M.

FARE TO CHICAGO ONLY $2.00.

ROUND TRIPS, $3.50. Meals and berths included on first-class tickets. Sure connections at Chicago with all morning trains for all points east, south and southwest.

†*Sheboygan and Manitowoc Line.—
*Daily 7.00 A. M. Arrives 5.00 A. M.
Sundays 7.00 P. M.

Kewaunee and Ahnapee Line. — Tuesdays, Wednesdays, Thursdays, Saturdays and Sundays at 7.00 A. M.

Menominee and Sturgeon Bay Line.—Tuesdays, Wednesdays, Thursdays, Saturdays and Sundays at 7.00 A. M.

Green Bay and Depere Line.—Wednesdays and Sundays at 7.00 A. M.

Manistique, Thompson and Gladstone Line.—Wednesdays and Sundays at 7.00 A. M.

Fayette, Garden and Nahma Line.—Wednesdays, Saturdays and Sundays at 7.00 A. M.

Escanaba Line.—Tuesdays, Wednesdays, Thursdays, Saturdays and Sundays at 7.00 A. M.

Bailey's Harbor and Jacksonport Line.—Wednesdays at 7.00 A. M.

Fish Creek, Egg Harbor and Sister Bay Line.—Tuesdays, Thursdays and Saturdays at 7.00 A. M.

Close connections with railroad at Escanaba for Negaunee, Ishpeming, Quinnessec, Norway and all Lake Superior points.

The new steamer City of Racine will be the daily 7.00 P. M. boat out of Milwaukee for Chicago, except Sunday nights. The steamer Chicago will be the Sunday nights boat.

C. HURSON, Secretary and Agent.

THOS. FORBES, Passenger Agent.

* Except Sundays and Mondays. †* Except Mondays.

DO YOU INTEND TO BUILD? PRACTICAL LOW-COST HOUSES. HOW TO BUILD THEM.

A Large Atlas, containing drawings and floor plans of 40 Modern Houses with Correct Estimates of cost of building, all kinds of buildings ranging from a $400 cottage to a $10,000 residence. The latest, most complete, and only practical book published. It is false economy to attempt to build without these plans. Price by mail, post-paid, 50 cts. Stamps taken.

Address, UNITED STATES MILLER, Milwaukee, Wis.

PRIVATE · TELEGRAPHIC · CIPHER

CODE

Compiled Expressly for the use of

Millers, Flour & Grain Brokers

For Private Telegraphic Correspondence, either for Land or Cable Lines.

☞ 1888 Edition, just out, March 1, 1888, revised, amended and added to, to meet all the requirements suggested by the members of the Miller's National Association, *who use more copies of the Code than all others combined.*

Published by the Riverside Printing Co., Milwaukee, Wis.
For terms, etc., address, stating number of Codes probably wanted,

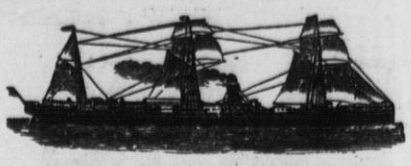
RIVERSIDE PRINTING CO., Milwaukee, Wis.

ALL persons desiring to reach the entire milling and grain trade of America, by circular or otherwise, should obtain a copy of CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888.

WE shall be pleased to receive from any of our readers, short, crisp, sensible letters on subjects of interest to the flour and grain trade for publication.

EXPORTING millers should write to the Riverside Printing Co., Milwaukee, Wis., for the best Flour Cable Code ever published. There are more copies of this Code in use than of ALL other flour codes published. It is simple and accurate.

CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888-89, issued March 3, 1888, a work that should be in everyone's hand that desires to reach the entire flour and grain trade. While not claimed by the publisher to be perfect, it answers FULLY the requirements of the trade. It is the only list published. The demand is limited and the price (Ten Dollars per copy) is cheap, considering the labor required in compiling, printing and selling. It contains lists of flour mill and grain elevator owners, micellaneous kinds of mills such as corn, rye, oatmeal, rice and feed mills, millwrights, flour brokers and dealers in various sections of the United States and Canada, and a good list of European flour and grain importers. Kind of power used, rolls or stones, capacity and millers supposed to be worth $10,000 or *more* are indicated in thousands of cases.



ITEMS FROM BEYOND SEAS.

It is now definitely understood that the Canadian government will not make any alteration in flour duties till the next session of the Dominion Parliament early next year. Canadian millers complain of discrimination in favor of the United States millers who export flour to Canada and against Canadian millers who import wheat from the United States. Sir John MacDonald has promised to place this part of the Canadian tariff on a permanent basis at the next session of parliament.

In concluding a report on the Indian wheat trade, Donald Smeaton, Director of Agriculture and Commerce of the Northwestern provinces, says: "I would only repeat, in conclusion, that in my opinion endeavor in India to develop the wheat trade will be comparatively infructuous, unless backed up by influence in England. It is the London merchants who must give the initial impetus. That impetus once given will be communicated rapidly from the ports to the large country marts, from the marts to the villages, and from the villages to the millions of cultivators who raise the wheat, which, if it only can get a fair chance, will ere long, outstrip its American and Russian rivals, and firmly establish itself in the principal markets of Europe."

A Strike among the English Millers—The strike of the milling operators at Middlesbrough and Stockton was induced by a refusal of the masters to fix 54 hours as the weekly limit of work, over which, any work was to be optional and charged as overtime. The demand for a working week of 48 hours only is a growing one, and we must confess to a regret that the mill-owners in the north did not see their way to agreeing to a 54 hours' limit. Work in a mill with modern machinery, requires skilled hands, clear heads, and considerable technical skill. Unremitting attention is also essential, and these qualities, to be found in their perfection, do not admit of more than nine hours strain each day. It is more a mathematical question than a sentimental one; labour, over-strained, will always deteriorate in quality, and will do so in proportion to the overstrain. The masters have their own view of the matter, of course. They recently raised wages 10 per cent., and they think any demand from the operatives ungenerous. More hands for shorter hours, at a slightly reduced payment to each man, would appear to be the wisest solution of the matter.—*Mark Lane Express* (*London.*)

Insurance in Germany.—On this subject *Kuhlow's German Trade Review* says: It may well be doubted whether any previous age has been characterized by such a friendly spirit toward the working classes as distinguishes our own day. The Accidents Preventatives Exhibition, which is now open in Berlin, is one of the many proofs of the interest taken by the other classes of the community in our laboring population. That the Berlin Exhibition is in close relation with our social legislation is shown by the Committee of the Exhibition, which in the explanation of the aim of the Exhibition observes. "While the insurance law is intended to protect the workmen against want during temporary illness, the accidents laws have placed upon the employer the obligation to secure his workmen against the lasting consequences of accidents, which they may meet in their several pursuits, industrial and agricultural." The principal is there laid down, and it has come to be generally recognized, that the employer is responsible for the danger of accidents which is connected with his business. Naturally certain rights were granted to him in regard to the prevention of accidents, which might contribute to the diminution of this danger. The compulsory national insurance does not preclude the masters from helping themselves, as it leaves to the proper judgment of the masters, combined in societies, the extent to which they may avail themselves of the powers entrusted to them. To these powers belong, in the first place, the establishment of regulations for the existing arrangements with that object. To offer such, as well as to give an impulse to the completion, or improvement, of existing arrangements, is tho object of the German Accidents Preventatives Exhibition.

Austrian Milling Interests.—A writer in the *Mueller Zeitung* of Vienna, says: The depression from which Austrian milling has suffered for some time past is mainly attributable to the persistent decline in the value of wheat, which has been so prominent a feature in modern market history, and also to the gradual growth of protection among many European nations—the effect of which has been to take away from Austrian millers some of their best foreign customers. A third cause is found in the spread of scientific milling throughout the world, a growth which has had the necessary effect of raising in every civilized country serious competitors for the merchant mills of Austria. Turning to the present condition of the art of milling in Austria, the writer of the article observes that whereas formerly it was the aim of the miller to get as much white flour as possible, it is now his endeavor to finish his work as quickly as possible while producing an equal product throughout. It was to attain this end, it is observed, that Mr. Haggenmacher invented his well-known rotary sieve, and perhaps no better proof of the success of his machine in Austria-Hungary could be given than the list (already a long one) of the many copies of the "Plansichter" which have been launched from one quarter or another. Considerable attention is also being devoted to the question of hulling, and although a perfect decorticator has not yet been found, such progress has been made in this direction as to encourage the hope that in the not distant future a machine will be constructed that will at any rate strip off the outer husks of the wheat, without consuming too much power and without over-severe wear of its working parts.

PERSONAL.

Mr. Geo. T. Smith of the Geo. T. Smith Middlings Purifier Co., Jackson, Mich., called on us recently. He was visiting Milwaukee to inspect the work being done by his company in reconstructing the Jupiter Mills.

Mr. Harrington of the Harrington & King Perforating Co., Chicago Ill., spent a day in the city recently and made us a call. The company has a large amount of business here.

We are gratified to note that our former contributor Mr. Robert Grimshaw, Consulting Engineer, New York, has been appointed by the French Ministry of Commerce and Industry, a member of the Committee on Patronage of the International Congress of Applied Mechanics to be held in Paris in September. He expects to present before that Assembly a paper on Improvements in Steam Engines since 1878, and will be pleased to receive from engine builders novelties or improvements that have been brought out during the past ten years.

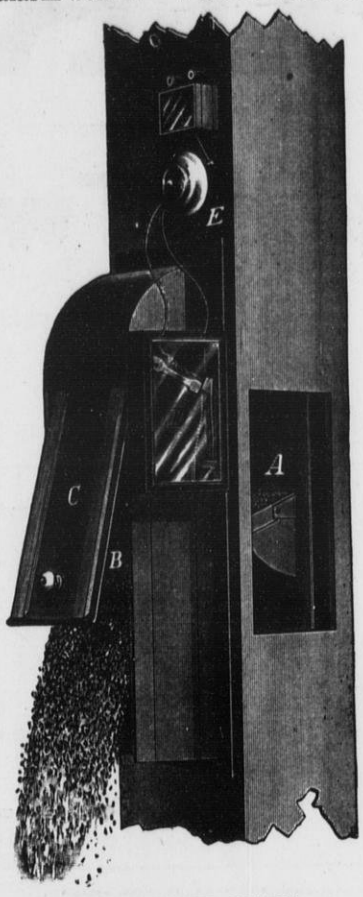
Mr. Beynon of Beynon & Murphy, Watertown, Wis., called on us lately. He reports that the demand for their machines just placed on the market is very gratifying.

Messrs. Hodge, Howell & Co., of Buffalo, N. Y., recently notified us of the dissolution of the partnership heretofore existing.

THE BEYNON ALARM.

This device is for indicating and releiving the choking of elevators, conveyors, spouts, etc., and may be used in handling either grain or mill material. Referring to the cut, *A* indicate an elevator, *B* relief, *C* valve, *D* electric connection with the valve *C* with bell E, *E* electric bell.

When the elevator *A* becomes choked the surplus material discharges at the relief opening *B*. This causes a movement of valve *C*, and makes electric connection with alarm bell *E*. When a choke occurs,



THE BEYNON ALARM.

the bell gives an instant alarm, at the same time the relief relieves the elevator, conveyor or spout of its material.

The electric bell may be attached to the spout, together with the relief, as shown in the cut; or it may be connected to an indicator board and put in any convenient place in the mill. The relief on the spout being connected with board and bell by electricity, causes the bell to ring and the indicator to show the spout choked, while the relief discharges the material from the spout. It may also be used in connection with a clock alarm or other means of indicating. Its use on elevatars reduces the liability of fire by burning of the belt, aside from saving annoyance and loss in chokes.

This device is the invention of Mr. John R. Beynon, a practical miller of forty years' experience. It is made by Beynon & Murphy, Watertown, Wis., who will give readers any information desired respecting this appliance.

MEETING OF THE ARMY OF THE CUMBERLAND AT CHATTANOOGA.

For meeting of the Army of the Cumberland at Chattanooga, September 18th and 19th rate of one fare for round trip $9.75, will be made from Cincinnati, tickets sold Sept. 12th to 16th, good for return to Oct. 10th, via the Queen and Crescent Route. This is one of the grandest scenic lines on the continent, passing as it does through the beautiful blue grass region of Kentucky, crossing the famous High Bridge, which spans the Kentucky river at an elevation of 285 feet above the channel, passing through the pretty towns of Lexington, Danville, Nicholasville and the fruit counties of Lincoln and Pulaski. In the mountains at Point Burnside where the line crosses the Cumberland River, the scene is one of picturesque grandeur beyond description. This is the only direct line running entire trains through without change. Three Express Trains daily leave Central Union Depot, Cincinnati.

MEETING OF IOWA MILLERS.

The meeting of the state association of Iowa millers held in Des Moines, July 18, was the largest had for several years, and they started a two-fold movement which will undoubtedly work untold benefits to the milling and farming interests of Iowa. They appointed a committee to cooperate with the manufacturers, jobbers, grain shippers, farmers and other elements, in regard to joint rates, etc. They also decided to inaugurate a movement looking to the encouragement of wheat raising for home consumption in Iowa. Messrs. Taggart, St. John and Smith were appointed to draft a resolution stating the opinion of the meeting. They submitted the following, which was unanimously adopted:

Resolved, that the millers' association hereby desires to bring the farmers' attention to the necessity of raising a good quality of winter wheat, also some good quality of hard spring wheat; and to get the matter properly before the farmers we recommend that our president, Mr. Consigny, be requested to write an article for publication throughout the state showing the advantages of raising wheat in Iowa, its success in different localities already being assured.

The general sentiment appeared to be that milling in transit rates were indispensable, and that the revival of wheat raising was very important to both large and small mills.

A DECIDED DISTINCTION.

It is not necessary to recount here the many points of difference between the Stock Exchange and the bucket-shop. We have gone over them many times. The main point, however, is that the bucket-shop keeper stands to gain all that his customer loses. The Exchange broker has no pecuniary interest in the transactions of his customer other than his commission, which in no way is contingent. In the former case, therefore, the operator in stocks is dealing with a man who is bound to take advantage of him if he can, while in the latter case the operator has an agent who is bound as a matter of business policy to protect his interest to the best of his ability. We need go no further in the explanation of the difference between the Stock Exchange and the bucket-shop. The latter performs no useful purpose: the former may not be free from the charge of sometimes working deleterous results, but in the main its operations are both useful and necessary. —*New York Daily Indicator.*

"THE KANKAKEE LINE."

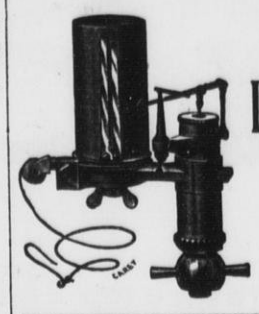
Rates being uniform by all routes, those wishing to travel naturally want to get the best accommodations for their money. To all such we can say, without fear of successful contradiction, that the C., I., St. L. & C. Railway, "Kankakee Line," is, beyond question, the best from Cincinnati and the Southeast to and from Indianapolis, Lafayette and Chicago, and the Northwest. Its track is laid with heavy steel rails, thoroughly ballasted with broken stone and gravel; its bridges are built of steel and iron, resting on solid masonry; its trains are composed of first-class Day Coaches, Elegant Parlor and Reclining Chair Cars and Pullman's Finest Sleepers; its terminal facilities are unsurpassed; its time unequaled. If you wish your money's worth, patronize the Kankakee Line. For further information call on or address, J. C. Tucker, Gen'l N.W. Pass'r Agent, 121 Randolph St., Chicago. Depots: Foot of Lake, 22d St. and 39th St., Chicago.

American Steam Guage Co.,

—SOLE MANUFACTURERS—

Bourdon Steam Guages,

WITH LANE'S IMPROVEMENT.



THOMPSON'S

Improved Indicator

Over 2,500 in Use.

American Pop Safety Valves,

For Locomotive, Stationary and Portable Boilers, and Instruments Incidental to the use of Steam. Send for Price List I.

36 Chardon St., BOSTON, MASS.

Send for Catalogue K.

G. M. MANN. F. P. MANN

MILWAUKEE BAG COMPANY,

MANUFACTURERS OF

COTTON, PAPER AND JUTE

FLOUR SACKS

DEALERS IN

Grain Bags, Twines, Centals, Etc.

TELEPHONE NO. 427.

No. 236 East Water Street, MILWAUKEE, WISCONSIN.

SCHIEREN'S

OAK-TANNED

LEATHER BELTING

Cotton Belting and Hose

GOODYEAR RUBBER CO.

"Gold Seal" Rubber Belting.

PRICE LIST SENT ON APPLICATION.

372 & 374 EAST WATER STREET
MILWAUKEE.

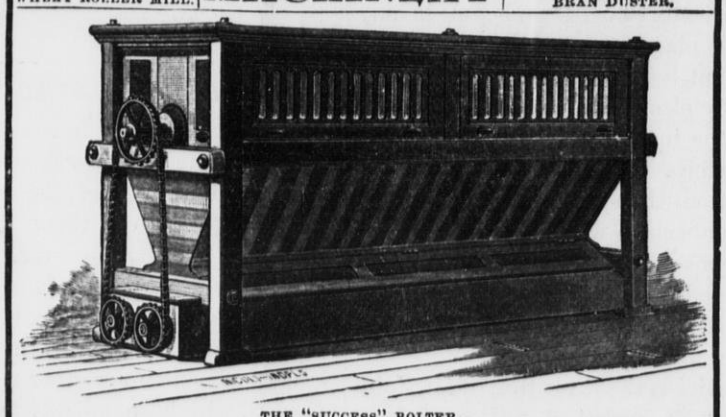
131 EAST THIRD STREET
ST. PAUL.

201 NICOLLET AVENUE
MINNEAPOLIS.

WHEAT ROLLER MILL.

THE
J. B. ALLFREE COMPANY,
Indianapolis, Indiana,
manufacture this superior line
—OF—
MACHINERY

BRAN DUSTER.

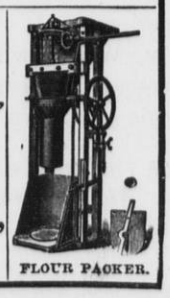


THE "SUCCESS" BOLTER.

CORN MILL.

Also
AUTOMATIC ENGINES,
Purifiers,
SIEVE SCALPERS,
Corn Pearlers and Corn Cleaners,
Centrifugal Reels.

Address for prices, etc.,
THE J. B. ALLFREE COMPANY,
Indianapolis, Indiana,
Mill Builders and Mill Furnishers,



FLOUR PACKER.

ROBERT POOLE & SON CO.,
Leffel Turbine Water Wheel

Made of best material and in best style of workmanship.

Machine Molded Mill Gearing

From 1 to 20 feet diameter, of any desired face or pitch, molded by our own SPECIAL MACHINERY. **Shafting, Pulleys, and Hangers,** of the latest and most improved designs.

Mixers and General Outfit for Fertilizer Works.

☞ **Shipping Facilities the Best in all Directions.**

ROBERT POOLE & SON CO., BALTIMORE, Md.

N. B.—Special attention given to Heavy Gearing for Pulp and Paper Mills.

[Mention this paper when you write to us.]

WM. PLANKINTON, President.
FREDERICK D. DAY, Treasurer.

CAPITAL STOCK, $100,000.

GEO. N. SCEETS, V. Pres't & Mgr.
J. G. THOMPSON, Secretary.

Milwaukee Brass and Copper Works

MILWAUKEE, WIS.

BABBITT METALS,
(Standard and Special Mixtures),

Brass and Bronze Castings. Ingot Metals.

Our "Badger State Metal" is the best anti-friction Metal on the market. We make a specialty of furnishing special mixtures to large consumers, putting on buyer's brand when desired.

MILWAUKEE BRASS AND COPPER WORKS, MILWAUKEE, WIS.

☞ Send for Circular and Price Lists. Mention this Paper.

STILWELL & BIERCE MFG. CO.

DAYTON, OHIO, U. S. A.

MILLING ENGINEERS

Manufacturers of the Celebrated ODELL ROLLER MILLS and a full line of

Flour and Corn Mill Machinery.

MILLS BUILT ON THE

ODELL SYSTEM.

☞ Contracts taken for mills of any size, large or small, and results GUARANTEED. ☜

1876. 1889.

The United States MILLER

AND THE MILLING ENGINEER.

Fourteenth Year.—No. 9. MILWAUKEE, SEPTEMBER, 1889. Subscription Price, $1.00 Per Year.

STILWELL & BIERCE MFG. CO.

DAYTON, OHIO, U. S. A.

MILLING·ENGINEERS

Manufacturers of the Celebrated ODELL ROLLER MILLS and a full line of

Flour and Corn Mill Machinery.

MILLS BUILT ON THE

ODELL SYSTEM.

Contracts taken for mills of any size, large or small, and results GUARANTEED.

CAWKER'S AMERICAN FLOUR MILL AND GRAIN ELEVATOR DIRECTORY

FOR 1890-'91

Will be issued about March 1, 1890. Price Ten Dollars. It will be the most complete of any we have yet published, and will possess many new and valuable features. Send in your orders now to be placed on file. No payment required until delivery of the work.

Superior Quality!

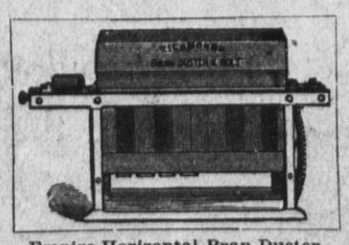
THE WORK DONE BY THE

RICHMOND

Grain·Cleaning·Machinery

AND

BRAN DUSTERS



Empire Horizontal Bran Duster.

CAIN, HANTHORN & CO.,

Model Roller Flour Mills,

CAPACITY 400 BARRELS.

ATCHISON, KANSAS, June 24th, 1889.

RICHMOND MANUFACTURING CO., LOCKPORT, N. Y.:

Gentlemen—In regard to the machines we use, will say that we have:

1 No. 0 Grain Separator;
2 No. 3 Adjustable Scourer and Polishers;
3 Empire Horizontal Bran Dusters;

All of your manufacture, and consider the work being done of superior quality. In fact, better than could be produced on any other line of machines using the same number of machines.

Yours truly,

W. C. WINCHESEER, Head Miller.

RICHMOND MANUFACTURING CO.

LOCKPORT, N. Y., U. S. A.

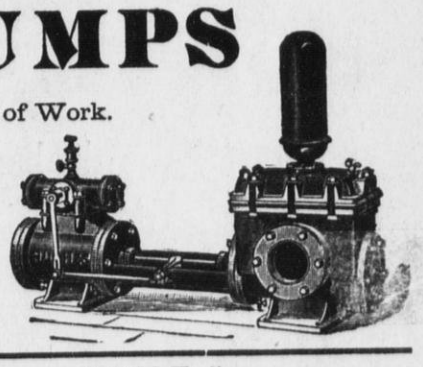
Hughes Bros. Steam Pump Co.,

CLEVELAND, OHIO.

Builders of Single and Duplex

STEAM * PUMPS

Of Every Description for all kinds of Work.



Satisfaction Guaranteed.

Send for 1888 Catalogue.

THE

"WESTERN"

MILL SHELLER.

The most Compact, Durable, Best Sheller and Best Cleaner.

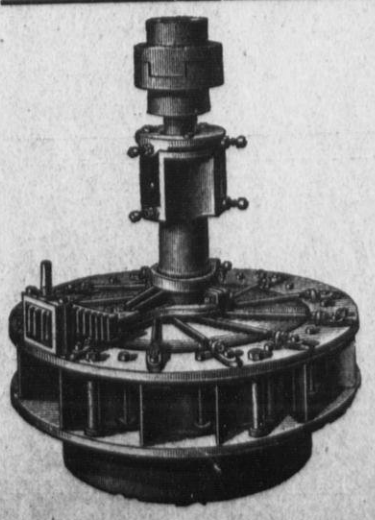
Takes up but little room, runs at low rate of speed, requires no attention. It is in every respect the

Best Sheller ever offered to the Public.

Please mention this paper. Write for full particulars to

UNION IRON WORKS, - DECATUR, ILL.

Mfrs. of "Western" Shellers, Cleaners, Separators, and all kinds of Elevator Machinery.



Leffel Water Wheel,

Made by JAMES LEFFEL & CO.

The "OLD RELIABLE" with Important Improvements, making it the

Most Perfect Turbine now in Use.

Comprising the LARGEST and the SMALLEST Wheels, under both the HIGHEST and LOWEST Head in this country. Our New Illustrated Book sent free to those owning water power.

Write us for NEW PRICES before buying elsewhere. New shops and New Machinery are provided for making this Wheel. Address,

JAMES LEFFEL & CO.,

Springfield, Ohio or 110 Liberty St., New York.

EDW. P. ALLIS & CO.

Mill Builders and Mill Furnishers,

RELIANCE WORKS, - - MILWAUKEE, WIS.

SPECIALTIES:

Gray's Noiseless Belt Roller Mill.

Gray's Improved Centrifugal Reel.

Gray's Improved Flour Dresser.

The Reliance Purifier.

PLEASE REMEMBER THAT

NOT ONE of the above-named machines was **ever** taken out of any mill in America, large or small, because of failure to do its work properly. All statements to the contrary are made either from misinformation or from a deliberate intention to mislead.

EVERY MILL built by us during the last two or three years, including the largest and best built in America in that period, uses this line of machines and gives them an emphatic endorsement.

THIS LINE OF MACHINES was selected by the Duluth Imperial Mill Co, for its splendid 2,000 bbl. mill, after a most thorough and exhaustive investigation in **Minneapolis** and elsewhere, as being unquestionably the best the market affords. This was in the face of every form of misrepresentation that could be used against our machines.

LARGE ORDERS for our **Rolls, Reels** and **Purifiers** are coming in daily from the leading mills in Minneapolis during their annual shut-down for repairs. That shows what is thought of our work in the greatest milling center in America.

THE VALUE of any machine or system can be gauged to a nicety by the bitterness and unscrupulousness of the warfare against it by would-be rivals. Judged by this standard (and there is no safer one) our line of machines **stands without an equal.**

IT IS TO YOUR INTEREST to know the truth and to get the best. Let us know your wants and we can give you favorable figures, and tell you where you can see our machines in operation.

EDW. P. ALLIS & CO.

Mill Builders and Mill Furnishers,

RELIANCE WORKS, - - MILWAUKEE, WIS.

The United States MILLER AND THE MILLING ENGINEER.

Fourteenth Year.—No. 9. MILWAUKEE, SEPTEMBER, 1889. Subscription Price, $1.00 Per Year.

THE USES OF MILLERS' ASSOCIATIONS.*

WE are here for the purpose of doing what we can in behalf of ourselves and our business, and indirectly in behalf of the civilized world, for the civilized world depends largely upon millers for bread, the great staff of life. In our discussions we should consider milling, and the details appertaining to it, from beginning to end.

First would come, probably, wheat, the kind and variety best adapted to the needs of the progressive and scientific winter-wheat miller. I can only touch lightly upon this point, but I cannot forbear saying that there must be something wrong in our method of farming compared with that in Europe, for our average yield per acre is said to be only twelve bushels, against double that amount abroad. I am glad to say, however, that the winter-wheat yield in this section probably averages much more than twelve bushels to the acre—say eighteen. This could be largely increased by skillful and careful farming, and no one is more interested in such farming than ourselves. A farmer should feed the land while the land feeds him. He sows generally eight acres per day, and about one and a half bushels of wheat are used to the acre for seed. Now, Prof. Blount, of the Colorado Agricultural College, from seven and a half pounds of hand-picked seed raised from one acre sixty-seven bushels of most excellent wheat. This shows that it pays to take pains. I think it would be an excellent plan to distribute among our farmers pamphlets embodying the latest and most advanced ideas regarding the best varieties of wheat, and the best way and time of sowing. Besides the quantity of the yield, the quality is of great importance, and the condition in which it is brought to market. We should see that exact justice is done to each and every farmer. If one should bring to the mill a load of nice, clean, long-berry wheat, he should get an extra price for it, and it should be clearly understood that the wheat, and not the man selling it, was the cause of the extra amount paid.

Spring-wheat mills have been greatly aided in introducing and selling their flour by its strength, but we can by the use of the longberry and other wheats very nearly equal their flour in strength, while in color and in sweetness of the bread made from the flour we are far ahead. When the wheat comes to mill, we should be ready for it. The best wheat-cleaning machinery in the market affords us a theme of fruitful discussion, as well as the rest of the machinery in our mills.

I have no doubt but that among my hearers are some strong advocates of the two great systems of the day, the long and the short. Now is the time for both to proclaim their strong points. After our wheat has been milled in the best way possible with the mills at our disposal, comes the placing of the finished product. Of course, we never do get enough for what we have to sell. The flour market seems always glutted, while mill feed has never been lower in my recollection. I do not see much hope of our being able to fix upon uniform prices in this time of rapid fluctuations in the wheat market.

Millers should be educated against the silly cutting of prices. It is for the advantage of the consumer and middle man, as well as the miller, that frequent and wide fluctuations in the price of flour should be avoided. Our associations, however, can do little to prevent this until it is larger and more powerful, embracing, as it should, all the millers in Northern Indiana.

But there is plenty for us to do. Let us get acquainted. Nothing will do us more good than to get away from home and the care, worry, and anxiety of business, at least as often as once in three months, and have a good sociable time with our fraternity in a reasonable way. As far as practicable, I think it would be a good idea to have our mill men attend these meetings—our head millers at least. The rest and recreation, to say nothing of the milling points they may pick up, will well repay them for the time taken.

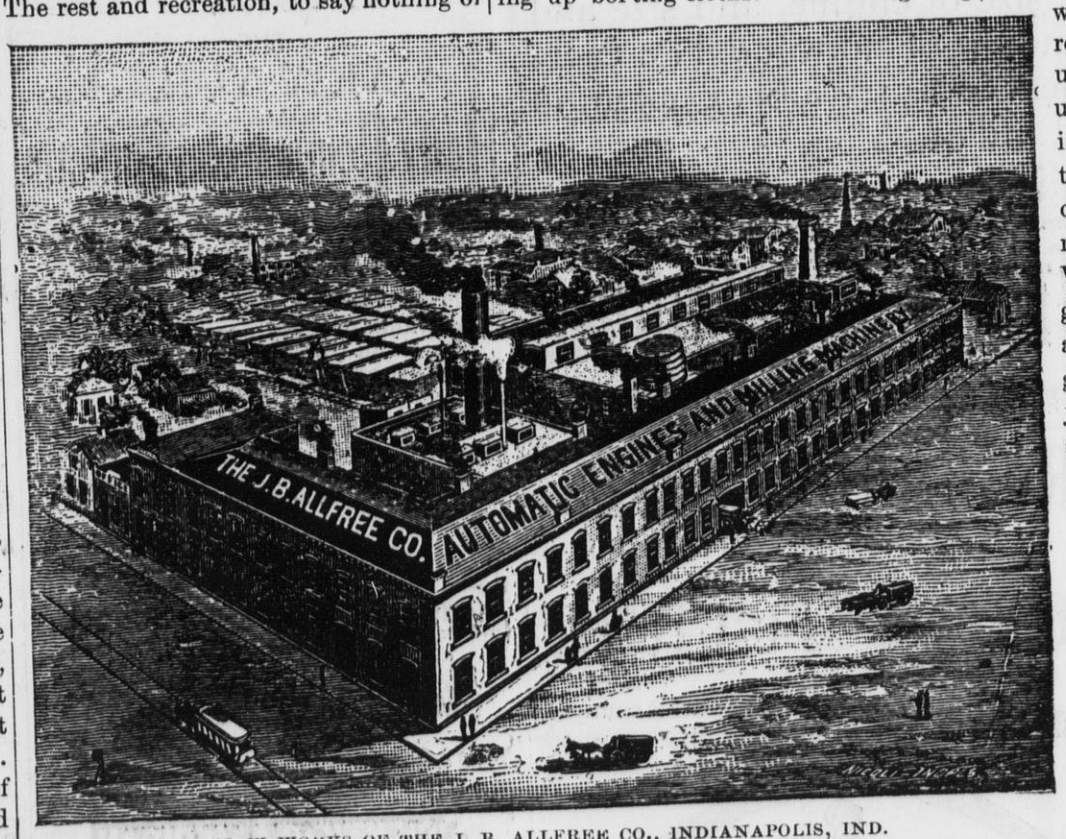
The matter of mill insurance should receive our careful consideration. I, myself, am decidedly in favor of mutual companies. Such insurance costs, as far as my experience extends, but little over half the rate that ordinary board companies charge.

The important question of getting our product to market by the cheapest routes should not be forgotten. The great trunk lines have virtually a pool, and they meet at Chicago and fix the price to suit themselves. When lake navigation is closed, we are on even terms with the territory west of Chicago, but in the summer time the difference between lake-and-rail and all-rail rates is far too wide, thus giving the Western mills a great advantage over those east of Chicago. All the latter mills, therefore, are interested in this matter, whether they dispose of their product east or not, for the large mills will sell wherever they can get the most money. If not east, then the battle is all the hotter here at home.

*From an address by President F. E. E. Hawks, before the Northern Indiana Millers' Association.

NEW WORKS OF THE J. B. ALLFREE CO.

THE J. B. ALLFREE CO., Indianapolis, Ind., whose immense and rapidly increasing business made it necessary that they have more space than their old site would permit of, are now occupying their new quarters, of which we herewith give an illustration.—The new works are located at numbers 76 to 86 Shelby street and cover an area of fully two acres of ground; they are equipped with the very latest improved machiney in all the departments. The whole works are piped for natural gas which is used for fuel and lighting purposes. In the wood-working department there are the usual cutting out and erecting shops, and in the iron-working department a general shop for gearing, pulleys, shafting, and other general work, and also a shop for the corrugation of rolls, etc. In addition to these there is a sheet-iron and tinners' department, and a special department for making up bol ting cloths. The draughting



NEW WORKS OF THE J. B. ALLFREE CO., INDIANAPOLIS, IND.

rooms and general offices are on the south side of the works. We congratulate the J. B. Allfree Co. upon their having one of the most complete and convenient plants of its kind in this country, and on the fact that the merit of their productions necessitated its erection.

CHANGES IN CORN FOODS.

For many purposes of the culinary art, the process of reducing corn meal is not carried far enough. The meal is left too coarse, and it must either be placed on the table half-cooked, or cooked so long that many of its properties are changed. It is rare that corn meal is passed through a number 60 wire cloth, and yet such bolting will leave the product in grains, each containing many hundred starch cells. Several years ago it was considered the thing to have wheat flour "sharp," and the "fad" was carried to an extent that patent flour was often only very fine middlings. Its bread product was harsh and dry—tasteless and without tenacity after it had been baked a few hours. The cause for this was that the particles were too large to be readily acted upon by the ferment, and instead of a partial change of the starch into sugar, the most of it was in the bread in the form of starch—lacking sweetness, and altogether unsatisfactory except to the baker—for it would absorb water like "all smoke," and still be dry as a bone, because the starch cells (which may number two or three hundred) in the center of a single grain of "sharp" flour would not receive the action from the water or ferment. The central cells would absorb the surplus water from the outside cells, leaving the loaf dry and harsh, and would not receive any action from the ferment that changed the starch into sugar, and hence the bread lacked sweetness.

It does not destroy the force of the above to assert that corn flour would lack the property of raising because of a nearly entire absence of glutinous properties. For culinary purposes corn would never usurp wheat, but many new and popular uses would be developed. Glutinous properties could be given by mixing with wheaten flour. The drift of these remarks is to the effect that the uses of corn foods are but little understood either in the kitchen or in the mill. Viewed as foods the two must be taken together. A change in milling would involve more or less change in cooking. We hazard little in saying that great changes are liable in both, and with the attention now being given to both branches of the subject the changes are likely to come soon.—*Corn Miller.*

GLUCOSE MANUFACTURE.

The following is the process for making glucose: The shelled corn is first soaked or several days in water, to soften the hull and prepare it for the cracking process. The softened corn is conveyed by elevators to one of the highest stories of the facory, and shoveled into large hoppers, from whence it passes into mills that merely crack the grains without reducing them at once to a fine meal. The cracked grain i s then conducted to a large tank filled with rinsing water. The hulls of the corn float at the top of the water, the germs sink to the bottom, and the portions of the grain containing the starch, becoming gradually reduced to flour by friction, are held in solution in the water. By an ingenious process both the hulls and the germs are removed, and the flour part now held in solution contains nothing but starch and gluten. This liquid is made to flow over a series of tables, representing several acres in area, and the difference in the specific gravity of the two substances causes the gluten and the starch to separate without the use of chemicals. The gluten is of a golden yellow color, and the starch snow white. By the time the gluten is completely eliminated the starch assumes a plastic form, and is collected from the separating tables by wheelbarrowfuls and taken to a drying-room, where it is prepared as the starch of commerce, or is placed in a chemical apparatus to be converted into glucose.

SPECIAL STAMPERS OF SHEET METALS.

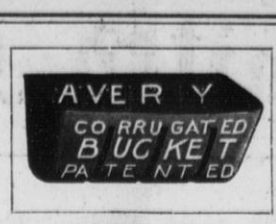
We do Stamping and Pressing of Sheet Metals for All Classes of Work. Also Tinning, Galvanizing & Japanning.

——ALSO SOLE MANUFACTURERS OF——

SEAMLESS STEEL BUCKETS

INSIST on having this Bucket furnished when ordering.

Ask your dealer for the Avery Pat. Seamless Steel Elev. Bucket.



CALDWELL PATENT.

We do not advertise Seamless Elevator Buckets and fill orders with "Pieced Ones"

. . . . SEND FOR DISCOUNTS. . . . .

THE AVERY STAMPING CO.,

——SUCCESSORS TO——

AVERY ELEVATOR BUCKET CO., CLEVELAND, OHIO, U. S. A.

H. W. CALDWELL, General Agent, - 131 West Washington Street, CHICAGO, ILL.

The Link-Belt Machinery Co.

Are Prepared to Furnish Machinery and Appliances for

Transmission of Power

After the most approved Plans, by use of

MANILLA ROPE.

SHAFTING · PULLEYS HANGERS GEARS ·

For Particulars and Estimates apply to them at

CHICAGO: 11 to 23 S. Jefferson St. **MINNEAPOLIS:** 200 to 202 Washington Ave. S.

MILL WANTED.

The city of Garden City, Kansas, has voted aid to erect a flouring mill at that place, and will receive bids at the City Clerk office up to September 25, 1889, for a 75 barrel, a 100, or a 140 barrel grist mill, with a 25 ton feed mill attached. All proposition must be accompanied with a full statement of all machinery, size of engine, and size and kind of building and amount of aid wanted for each.

This is a good wheat country and a splendid opportunity for a good miller.

DESSIE MOTHERSHEAD, City Clerk.

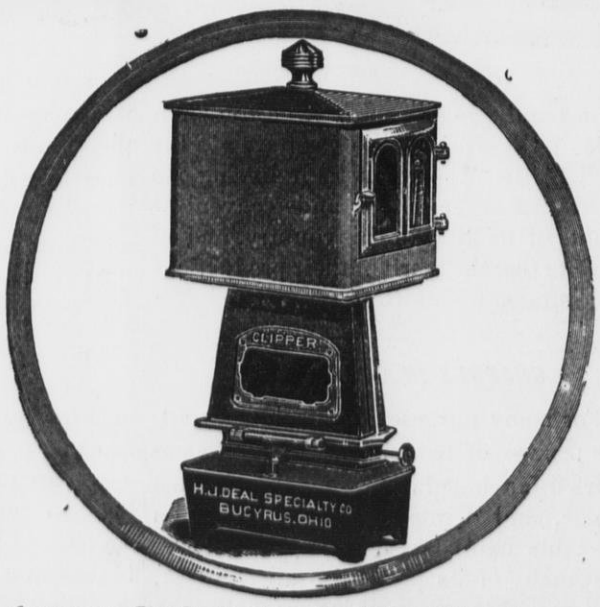
Flour and Grain Testing Appliances

AND SPECIALTIES FOR THE

MILLING, FLOUR AND GRAIN TRADES.

Deal's Improved Grain Tester

Cannot be Surpassed for Accuracy and Durability.



Thousands of them in successful use in all parts of the United States and Canada. We make three sizes. Special prices on application.

Now is the Time to Order your Grain Tester for New Wheat.

The Clipper Baking Test for Flour is the Greatest "Eye-Opener."

Invented in this line. Hundreds of them in successful operation among the largest and best mills in the United States and foreign countries.

This has been illustrated and advertised in the leading papers throughout the country. Prices and full particulars mailed on application. New Illustrated Folder now in Press. Should be pleased to hear from all parties interested.

H. J. DEAL'S SPECIALTY CO.,

BUCYRUS, OHIO.

ESTABLISHED 1846.

J. B. A. KERN & SON,

Merchant Millers,

Capacity 2,000 Barrels Per Day. MILWAUKEE, WIS.

Manufacturers of Choice Minnesota and Dakota Hard Wheat Flour.

RYE FLOUR

By most approved roller process, guaranteed the best and purest rye flour manufactured

WE INVITE CORRESPONDENCE FROM CASH BUYERS.

READ

——THE——

NEW YORK

Daily Commercial Bulletin

Its reputation as the most reliable commercial paper is conceded by all.

Sample Copies Free.

Its markets Reports are the most complete and trustworthy of any published and cover all trades.

Save Your Money

by subscribing to the "Daily Commercial Bulletin" and read its reports of the New York Markets.

PRICE:

	Per Year.	Six Mos.
Daily.	$12 00	$6 50
Tri-Weekly.	6 75	3 50
Semi-Weekly.	5 00	2 75

ADDRESS:

New York Daily Bulletin Association,

No. 32 Broadway, - NEW YORK CITY.

SCIENTIFIC AMERICAN

ESTABLISHED 1845.

Is the oldest and most popular scientific and mechanical paper published and has the largest circulation of any paper of its class in the world. Fully illustrated. Best class of Wood Engravings. Published weekly. Send for specimen copy. Price $3 a year. Four months' trial, $1. MUNN & CO., PUBLISHERS, 361 Broadway, N.Y.

ARCHITECTS & BUILDERS

Edition of Scientific American.

A great success. Each issue contains colored lithographic plates of country and city residences or public buildings. Numerous engravings and full plans and specifications for the use of such as contemplate building. Price $2.50 a year, 25 cts. a copy. MUNN & CO., PUBLISHERS.

PATENTS may be secured by applying to MUNN & Co., who have had over 40 years' experience and have made over 100,000 applications for American and Foreign patents. Send for Handbook. Correspondence strictly confidential.

TRADE MARKS.

In case your mark is not registered in the Patent Office, apply to MUNN & Co., and procure immediate protection. Send for Handbook.

COPYRIGHTS for books, charts, maps, etc. quickly procured. Address

MUNN & CO., Patent Solicitors,

GENERAL OFFICE: 361 BROADWAY, N. Y.

IF you are about to build write to the UNITED STATES MILLER for a copy of "Brean's House Plans," and enclose fifty cents in stamps. It will help you.

THE publisher of the UNITED STATES MILLER is desirous of having the names and addresses of Head Millers, Millwrights and Head Engineers in all mills having a capacity of 150 bbls. per day or more.

FOR SALE AND TO RENT.

[Short ads. inserted in this column for $1 per insertion.]

FOR SALE OR LEASE. Mill site and improved water power for sale or lease on good terms, or will turn the property in and take partnership in flour milling business with a practical man who can furnish additional capital required. Address,
F. P. BLAKE, Canon City, Colo.

FOR SALE OR LEASE. Fine elevator and milling property. A 150-barrel roller mill, located in central South Dakota; also two elevators, capacity 25,000 and 35,000 bushels; easy terms; small amount cash down, balance long time, low rate interest. Good crop of finest quality of wheat secured in this section. Investigation invited. Full particulars by addressing, X. X. UNITED STATES MILLER,
Sep3t Milwaukee, Wis.

FOR SALE. A full roller process flouring mill, 100 barrels' capacity. Equipped with most approved modern machinery. Built less than one year. Citizens gave a bonus of $2,500, which I will allow to purchaser of mill. Having an interest in a mill furnishing business, I desire to give it all my time. Full particulars on application.
H. C. DUTTON, Port Austin, Mich.

WANTED.

PARTNER WANTED. A practical miller, owns a first-class water-power in Dunn County, Wis. It has rock bottom and rock banks. It is worthy of careful inspection. No mill within 20 miles. Would be plenty of custom trade. The owner has not sufficient means to build a mill and wants a partner with from $4,000 to $6,000 to take an interest with him. If you mean straight business, write or come and see A. BELLACH,
Red Cedar Falls, Dunn Co., Wis.

PARTNER WANTED. A sober, industrious man, who understands the flour milling bnsiness, and has a capital of three thousand dollars. For particulars apply to W. J. MILLER & Co., Ballinger, Texas.

WANTED. A position as head miller in a mill from 150 bbls. upwards, by a miller of over 20 years' experience in first-class mills; have been in charge in mills from 200 to 800 bbls. capacity for 12 years; have first-class references; 10 years in one mill.
Address MILLER, care of U. S. Miller,
Milwaukee, Wis.

THE ASPIRATOR ON NEW PRINCIPLES
BEYNON ROLLER ADJUSTER
RELIEF & ALARM
FOR ELEVATORS, CONVEYORS &c.
THE BEST MACHINES EVER PRODUCED.
GIVE CAPACITY OF MILL &
ASK FOR ILLUSTRATED CIRCULAR.
BEYNON & MURPHY,
WATERTOWN, WIS.

UNITED STATES MILLER
AND THE MILLING ENGINEER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.
OFFICE, No. 124 GRAND AVENUE, MILWAUKEE.

SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.
To American subscribers, postage prepaid..... $1.00
To Canadian subscribers, postage prepaid..... 1.00
Foreign subscriptions..... 5s.
All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.
Bills for advertising will be sent monthly, unless otherwise agreed upon.
For estimates for advertising, address the UNITED STATES MILLER AND THE MILLING ENGINEER.

[Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE, SEPTEMBER, 1889.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER AND THE MILLING ENGINEER. *You will thereby oblige not only this paper, but the advertisers.*

WE send out a number of SAMPLE COPIES of this issue. We solicit a critical examination of our Journal and invite you to subscribe. The price is one dollar per year. No premiums—no discount. Our October number will contain matters of *special interest* to millers which you will not find elsewhere.

IT has been decided that a patent granted on a foreign invention expires at the same time that the foreign patent does.

THE total value of the exports of breadstuffs from the United States for the month of August were valued at $1,299,050.

IT is to be hoped that the October Congress of the Three Americas will prove of great benefit to our foreign relations on this continent.

THE *Northwestern Miller*, Minneapolis will shortly issue a neat little book for millers entitled "Hints on exporting" at the nominal price of 25 cents.

NEW YORK and Chicago are each straining every nerve to secure the World's Fair for 1892. We hope Chicago will get it, and it certainly stands a good chance in the contest.

THERE is a good demand for wheat heaters, especially in the winter wheat states, as the grain is reported not to be in a first-class condition for milling yet without using them.

IT is quite probable that an extra session of Congress will be called to meet about the middle of October, to revise the tariff and internal revenue laws with a view of reducing the revenue.

THE *Duluth News* of August 25 contains a two page illustrated description of ancient and modern milling, the latter being illustrated in the case of the Duluth Imperial Roller Mill of that city, which is just being completed.

A considerable quantity of flour shipped from the Williamette Valley to China became mill-dewed soon after arriving in the warehouse. A change in the method of milling and packing would doubtless end the trouble.

OUR own Yankee Tom. Edison went to Europe and through the especial favor of King Humbert of Italy will come back as Count Thomas of Menlo Park. The best report of all, however, is, to use an Americanism, "His head ain't swelled a bit."

THE August number of the *Electrical Mechanical and Milling News*, of Toronto, Canada, is a most excellent one. It shows enterprise and thrift and deserves the esteem and patronage of every Dominion miller. The Dominion Millers' Association will find it a valuable ally in carrying out important work which they have taken up for the benefit of Canadian milling interests.

IT is estimated that the receipts of corn at Duluth for 1889 will reach 2,500,000 bushels against 259,000 bushels in 1888. The corn comes principally from Nebraska and Iowa. The immense growth of this trade in corn via Duluth is surprising.

SUCH complications of elevator grain certificates as Buffalo millers and dealers have had to contend with recently are decidedly disagreeable, to say the least, and to an outside observer appear to be strongly tinged with dishonesty somewhere.

THE National Association of British and Irish Millers held a very successful annual convention in Paris during August. R. W. Appleton, of Stockton-on-Tees, was elected president. We would suggest the feasibility of the Association holding its 1892 meeting at the World's Exposition in Chicago.

THE Consolidated Roller Mill Co. have applied for injunctions to restrain The Wilford & Northway Mfg. Co. of Minneapolis and The Phœnix Iron Works Co. of North St. Paul, Minn., from infringement of their roller-mill patents. All parties express themselves as highly gratified and the prospects are that "the war will go bravely on" for some time to come. May Justice prevail.

IT is gratifying to learn that the trade between the United States and the West Indies has so increased during the past year that a number of British vessels have found it profitable to cross the ocean and go into the trade. It would be still more pleasing, however, to note that we had enough American vessels to do our carrying trade. That time, we believe, to be not far in the future.

A call for a general meeting of Indiana millers is announced to take place in Indianapolis on the second Tuesday in May, 1890. We trust that great interest will be taken in this matter, and that the largest gathering of Indiana millers ever held will take place at that time. The milling interests of Indiana are very great, and anything tending to develop them should be encouraged.

THE Waterway Convention held a very enthusiastic meeting at West Superior in August. Over 100 delegates were present. Resolutions were adopted to ask Congress to make appropriations for a ship channel 20 feet deep through the shallows and rivers connecting the great lakes; deepening the harbors in the lakes to accomodate vessels drawing 20 feet of water and surveying, lighting and improving the lake waterways to prepare them for the continually growing commerce.

WE take pleasure in calling the attention of millers to the handsome page announcement of Messrs. Edw. P. Allis & Co. elsewhere in this number. It is truthful, pointed and specific and will prove interesting reading to such millers as have been favored with a peculiar circular which has recently been mailed to a considerable portion of the milling public, in which very misleading statements are made relating to changes made several years ago in one of our large mills.

THE PILLSBURY MILLS SOLD.

ON what is considered as good authority the announcement is made that the great Pillsbury Mills at Minneapolis, Minn., have been sold. If this is true, as we have reason to believe, it seems quite probable that the buyer is an English syndicate. It is an open secret that negotiations are being made with a number of milling firms in different parts of the country by parties representing English capital, and by another month we may be able to make some important announcements in relation thereto.

DAKOTA citizens show the right spirit all around. The North Dakota Millers' Association, one of the liveliest millers' associations in this country, at a meeting held in Fargo, Aug. 24, unanimously voted to ally their state organization to the Millers' National Association and elected their secretary Mr. John M. Turner, manager of the Mandan Roller Mill, representative in the executive committee. It is hoped that the South Dakota Association will soon follow the worthy example of their northern brethren.

THE WHEAT SUPPLY.

THE current issue of *Bradstreet's* estimate a shortage of about 12,000,000 bushels in the wheat crop of the world as compared with the crop of last year. The following countries are credited with increases as follows: United States, 82,000,000; Canada, 8,000,000; England and France, 32,000,000; other countries, 32,000,000, in all 154,000,000 bushels. The decreases are: Russia, 72,000,000; Hungary, 36,000,000; Roumania, 8,000,000; Germany, 8,000,000; India, 18,000,000; other countries, 24,000,000, in all 166,000,000 bushels, or a net decrease of 12,000,000 bushels.

WE desire to call the special attention of millers to the announcement elsewhere of the Vortex Dust Collector Co. They do not propose to have the millers feel compelled to purchase any special dust collector to avoid infringement of patents. The Vortex machine is unquestionably a good one, performing its work as well and some say better than any other dust collector in the market, and the manufacturers say: "*We will protect all who buy it and use it from damage or suit.*" Any of our readers can readily satisfy themselves of the entire responsibility of this company by applying for information throngh the usual channels of commercial inquiry.

DURING the month of July the fire losses in the United States and Canada, as compiled by *The Commercial Bulletin* aggregated $11,020,500, exceeding the figures of the corresponding month last year by over $500,000; on the other hand, however, the fire waste for the elapsed seven months of this year was $75,306,500, against for the same period in 1888, $77,789,320, and in 1887, $76,928,100. This decrease, it is true, does not seem much when the totals are considered, but it must not be forgotten that year by year property values are mounting up at a rapid rate, and if by increased precautions the loss by fire can be kept even down to the limits of past years, it is a matter for some measure of gratification.

ALTHOUGH we do not consider the unprovoked attack made by the *American Miller* upon the present Secretary of the Millers' National Association worthy of rejoinder, any more than we did, to say the least, the ungenerous editorial comments made by that publication relative to THE UNITED STATES MILLER at the time that it effected the purchase of *The Milling Engineer* and consolidated the two papers — still we desire to express our opinion with other fair-minded contemporaries, that *The American Miller* is taking a puerile and unbusiness-like course simply for the sake of revenge for fancied slights, personal dislike, or perhaps disappointment in not being able to "manipulate" Mr. Barry heretofore as desired. Such a course cannot be creditable to any paper claiming respectability. The *A. M.* is perhaps constructing a bed which may prove very uneasy to lie upon. The question as to the writer of the article headed "Remarks on Milling Journalism by The Arizona Kicker, Jr.," published in this journal, which anyone of ordinary intelligence would recognize from the title, if in no other way, as a burlesque on the foolish habit of personal attacks indulged in by some milling journals, has, we believe, nothing to do with the cause of the attack of the *A. M.* upon Mr. Barry. However, the idea which we hoped to convey, after the unkind comments showered upon us when *The Milling Engineer* was consolidated with THE UNITED STATES MILLER has become prominent at least, and the point has probably been grasped by some of the more capable intellects.

JOSEPH G. LEMON.

IT becomes our painful duty to announce the death of Joseph G. Lemon, President of the Richmond City Mill Works, of Richmond, Ind.

Joseph G. Lemon was born at Leesburg, Kosciusko county, Ind., on July 28, 1843. The son of an itinerant Methodist preacher, his home in early life changed with the appointments of his father from place to place. His education was obtained mainly during four years (1852 to 1856) at Fort Wayne College, and afterward at Whitewater College, at Centreville, in Wayne county, Ind. He was an earnest student, and, though he retired from school at the early age of seventeen years, he had laid the foundation of a sound and practical education upon which he substantially built in after life. At seventeen he entered the business house of Israel Abrahams, at Centreville as a clerk. One year later, at the breaking out of the war of the rebellion, though still a mere youth, he patriotically volunteered in the defense of the Union, joining the 36th regiment of Indiana Volunteers as a private soldier. Promotion soon followed—first corporal, then lieutenant, at length for his soldierly qualities and fine business capacity, he was made adjutant of the regiment, a position rarely given to one so young, and therefore high evidence of good conduct and worth. He was with his regiment for nearly three years, participating in all the hard fought battles in which it was engaged. He was a prominent Mason, an Odd Fellow and a member of the post of G. A. R. of this city.

Mr. Lemon was a man of high character, strict integrity, honest and honorable in small as well as in great things. Of large business capacity, a useful and honored citizen, endeared to all who knew him as a Christian gentleman.

A family, consisting of his widow and two daughters, survive him.

"HONOR TO WHOM HONOR IS DUE."

THE Millers' National Association has unquestionably a good record in the matter of protecting its members from all unjust or exhorbitant demands of inventors of flour-milling machinery and processes of milling. The latest move of great importance in that direction is the protection of its membors from demands for payment of royalties not only from what has come to be known as "THE BIG FOUR," composed of four very prominent manufacturers of roller-mills, but also from a half dozen other well-known manufacturers who have given bonds indemnifying users of rollers of their construction, from all judgments for damages or payment of royalties that might be obtained against said users by the corporation facetiously known as the "THE BIG FOUR."

Mr. S. H. Seamans, the late Secretary of the Millers' National Association long since saw how things were drifting and after innumerable conferences and much correspondence, secured absolute immunity from all prosecution by the BIG FOUR for infringement of roller mill patents by bond duly executed March 9, 1887, and filed in the Secretary's office. Six other manufacterers then deemed it wise to file similar bonds. Mr. Seamans is justified in feeling proud of his record in this matter for he first conceived the idea and rested not until the conception became reality.

Even if some miller or combination of millers should fight the Consolidated

CONTINUED ON NEXT PAGE.

Roller Mill Co. clear through the Supreme Court of the United States and defeat them in the end, the cost, worry and uncertainty would outbalance by a thousand fold the few dollars that it would have cost March 8, 1887, to have been members in good standing of the association. Of course, joining the association now would not protect new members from claims above referred to, but there are claims for other patents that will no doubt soon be brought to the notice of the milling public.

NEWS.—The Consolidated Roller Milling Company of Chicago began an action Sept. 10, in the United States Circuit Court at Topeka, Kas., against the Great Western Manufacturing Company of Leavenworth for infringements of patents.

BURNED—David Oliver's oat-meal mill at oliet, Ill.

SCHNEIDER & BENOTSCH have purchased Dick's mill at Harrison, O.

THE Farmers Mill Co., are building a 50-bbl. roller mill at Lebanon, Tenn.

The Baltimore Corn and Flour Exchange will herafter grade clover seed.

THE Todd Milling Co., Dallas, Tex., own the Empire mills and Todd mills.

B.P. SHRIVER & Co., Union Mills, Md., having remodelled to roller system, have just started up.

ST. PAUL, Minn., has contracted for a Dean pump for its water-works, of ten millions gallons daily capacity.

THE three flour mills in Davenport, Ia., have "pooled their issues," and will hereafter run under one management.

THE Eureka Flour Mill Co., La Otto, Ind., have built a 50-bbl. stone mill. Rollers will be added later, making it a short-system mill.

SCRUGGS & WHALEY'S mill at Dallas, Tex., was badly wrecked by a terrific boiler explosion, Aug. 22. Fortunately no one was severely injured.

THE Central Illinois corn mill, the property of C.O. Matheny & Co., Springfield, Ill., burned at an early hour Sept. 1, entailing a loss of $17,000; insurance $3,000.

THE citizens of Bogard, Mo., are willing to offer good inducements to a good party to build a mill at that place. Write to T. J. Jones, Bogard, Mo., for particulars.

BURNED, Davis Bros.' mill and warehouse at Antigo, Wis.; also Eichstadt & Freemans' mill at Waterloo, Wis. Loss on the latter about $12,000, with $6,000 insurance.

A NUMBER of warehouses and barges filled with grain at Porta Costa, Straits of Carquinas, Cal., were destroyed by fire Aug. 26. Loss not less than $600,000. G. W. McNear & Co. are the losers.

AT Harrisonville, Mo., Sept. 10, fire destroyed the flour mill of W. H. Barrett and two warehouses belonging to the Missouri Pacific Railroad Company. The loss on the mill is $35,000; insurance $11,000. Loss to the warehouse, $15,000; no insurance. The fire was of incendiary origin.

FIRES.—Sandy and Hawkins mill at Alliance, O., badly damaged.—Sears & Co.'s mill at Fowler, O., burned August 3.—Thos. R. Wagner's mill at Siluria, Ala., destroyed.—Henry Braman's mill at Killaway, N. Y.—Aug. 28, Robert Mariner's flour mill at Cadott, Wis.; loss $10,000, insurance $5,000.

MILLS REMODELED.—The Three Rivers Mill Co., Paducah, Ky., have remodeled their mill.—The following mills are all being remodeled now: S. H. Merton, St. Charles, Mo.; R. T. Davis Mill Co., Carroll, Mo., J. C. Working & Co., Augusta, Ill.; Kauffman Milling Co., St. Louis Mo.; The last firm is building a 1,000,000-bush. elevator.

CHARLES E. MANOR, a Pennsylvania millwright of long experience, in a recent letter says: "Most all the Pennsylvania large mills have adopted the roller system, the Allis rolls and system prevailing largely, and now the smaller mills, of which there are a great number, are rapidly falling into line. This class of mills average from 15 to 25 bbls. capacity per day." The short system is universal in this class of mills.

THE fifth wheat elevator for Fort Worth, Tex., is now being constructed, the third built this year. This city being the entrepot to the vast wheat fields of the pan-handle, which have only been opened two years, finds large grain-storage a necessity. This Texas wheat is exported to tropical countries without damage and the flour made from Texas wheat does not mold in hot climates. Fort Worth is now making 15,000 barrels of flour daily.

THE J. B. Allfree Co., Indianapolis, Ind., have recently booked the following contracts: Rice Bros., Ladoga, Ind., 25-bbl. mill; Hartig Bros., Washington, Ind., 30-bbl. mill, which includes a full line of "Success Bolters, Keystone Roller Mills," etc., etc. They also report sales of special corn meal milling machinery to Parrish & Moor, Dresden, Tenn.; John Hanning Distillery Co., Owensboro', Ky.; Petersburg Milling Co., Petersburg, Ky.; Glenmore Distillery Co., Owensboro, Ky. They also report sales of numbers of special machines of their own manufacture, including Bran Dusters, Sieve Scalpers, Bolters, &c.

MILLS BEING REMODELED OR IMPROVED.—J. T. Crum & Son, Sandy, W. Va., changed to roller mill, 35-bbl. capacity; A. R. & W. J. McQuiston, Jamestown, Pa., are remodeling to a 50-bbl. roller mill; Crawn Bros., Mt. Crawford, Va., have changed to a 40-bbl. roller mill; Grimes Bros., of Lexington, N. C., have given their mill a general overhauling. A.M. Newill, Champion, Pa., has contracted for a 35-bbl. short system roller mill; Davenport & Morris, Waskey's Mills, Va., have contracted to remodel to roller system. W. H. Sanders, Wellsburg, W. Va., rebuilding on roller system; J. Knight's mill at Camden, Me., was totally destroyed by fire; John C. Saylor has remodeled to a 30-bbl. roller mill; B. S. Woodman, Langhorne, Pa., have remodeled to roller system; E. W. Pear at Unionville, Md., is remodeling his mill; a number of mill-owners in Pennsylvania, Maryland and West Virginia, who had their mills destroyed by floods this year, have determined to rebuild.

NEW MILLS.—Michael Hamer, Tyrone, Pa., has started up his mill on the Reitz short system.—Kirby Bros. new mill at Medford, N. J. has started up in good shape.—The Orange Mfg. Co., Orange C. H., Va., have contracted for an 800 bushel corn-meal mill.—B. G. Manor New Market, Va., will remodel to roller system.—J. M. Tapper, New Baltimore, Pa., has contracted for remodeling his mill.—D. S. Boyer, Hagarstown, Md., has contracted for a 50-bbl. roller mill.—Grant Barnitz, Carlisle, Pa., has remodeled and started up a neat roller mill.—Efforts are being made to organize a stock company to build a 50-bbl. roller mill at Manchester, Tenn.—Parsons, Clark & Clouser have contracted for a complete 35-bbl. roller mill.—G. M. Horter's new roll er mill at Center Hill, Pa., is running well andturning out 50 bbls. of good flour daily.—Burlington, N. C., will probably soon have a flour mill.—The Empire Milling Company (corn mill) have incorporated with $80,000 capital at Marietta, Ga.—The Luray (Va.) Mill Co. have recently sold out to a newly organized company which will improve the plant and increase the capacity.—W. S. Varner, Thomastown, Pa., have remodeled to a 40-bbl. roller mill.—D. Higley, Fayetteville, N. Y., will build a barley mill.—A. V. Morris & Son have purchased the Fort Johnson mill property at Akin, N. Y., and will improve it soon.—D. M. Klepser & Co., Martinsburg, Pa., are building a 75-bbl. roller mill.—The Hawkinsville Mill Co., Hawkinsville, Ga., has been organized and will build a mill. Steam power will be added to the water power to secure more power, in Jordan, Crampton & Co's mill, at Berlin, Pa. John Locke, has concluded to rebuild his mill destroyed by the flood at Port Republic, Md.—It is reported that a mill will be built at Shadwell, Va.—The Columbia Milling Co. have contracted for a 200-bbl. roller mill.—The Farmers Alliance are contemplating the erection of a mill at Mangum, Tex.—Cunningham & Williams may build a mill at Scottsburg, Ky.—The Elk River Merchants Mill Co., will build at Prospect, Tenn.—The Hodges Mill Co., Watkins, Ga., have built a mill.—The Edgerton Mill Co., Edgerton, Mo., are building a 100-bbl. roller mill.—The Farmers Mill Co., Edwardsville, Ill., are building a 100-bbl. mill.—J.M. Bolling, Sedgwick, Mo., is building a 75-bbl. roller mill. Berrien Bros., Camp Point, Ill., are building a 100-bbl. roller mill.—W. B. Garrett & Co., Rosedale, Mo., are building a 75 bbl. roller mill.—J. D. Hopkins, San Saba, Texas, are building a 100-bbl. mill.—Boles & Boles of Blackwater, Mo., are building a 150-bbl. mill,—The Todds & Stanley Mill Furnishing Co., of St. Louis, Mo., have contracted to build a 3-run mill for R. M. De Arozarena, City of Mexico, and a 2-run mill for Terrozas & Brittingham, Chihuahua, Mexico.—A new mill and elevator has been contracted for at Staunton, Ill.—Carroll & Barclay have contracted for a 150 bbl. mill at Russellville, Ky. Sallee & Condon, Pleasant Hope, Mo., burnt out a short time since, will rebuild.—Pritchard&Duke are building a 40-bbl. mill at Tompkinsville, Ky.—C. A. Wade of Parkersburg, W. Va., have contracted for a roller mill.—Todd & Justus, of Richmond, Va., have contracted for a 600-bushel corn-meal mill.

A GOOD and cheap edition of Charles Dickens' complete works, and also of Walter Scott's novels, has just been issued. We can supply our readers with sets of either, delivered by mail, post free, for $1.50. The volumes are of a handy size.

BRISTOL'S STEEL FASTENING.

The accompanying engravings illustrate a new type of belt fastening, manufactured by the Bristol Mfg. Co., of Waterbury, Conn., which on account of its resemblance in appearance and elasticity to the ordinary leather lacing, is called by them the "Steel Belt Lacing." It may be quickly and easily applied.

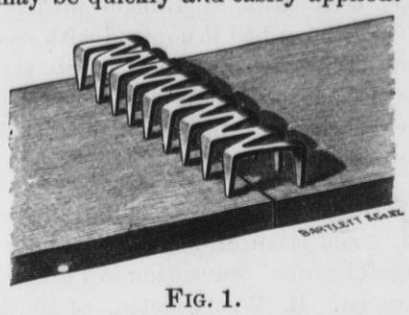


FIG. 1.

The Bristol fastening consists of a continuous zigzag strip of steel, having spurs alternating on opposite sides of a longitudinal center line, and bent at right angels as shown by Fig. 1, in which the fastening is represented as placed on the ends of a belt about to be joined. The spurs having been driven through the belt and clinched on the inside, the finished joint will appear as represented in Fig. 2.

The spurs should be driven through upon a piece of soft wood; then by laying the smooth side of the joint upon the

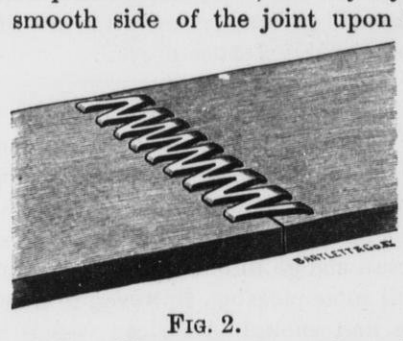


FIG. 2.

face of the pulley or any convenient piece of iron, the points may be clinched.

Fig. 1 represents the lacing placed in position, upon a belt to be joined.

Fig. 2 represents the finished joint after the spurs have been driven through and clinched. The fastening makes a smooth and elastic joint. No special tools are required.

SOMETHING FOR PATTERN-MAKERS.

BY P. S. DINGEY.

FROM the facts that there are so many different ways in pattern-making and moulding of doing the same kind of a job, arises a great deal of discussion at times in the pattern shop and foundry, and whenever it is carried on intelligently by men who understand their business, good is sure to result, and the chances are that the best way will be arrived at. On the other hand, there are those who are so eager to advance their own ideas, and have them carried out, that they are unwilling to consider those of others—such an individual is not likely to be very profitable to any concern, for he thinks more of airing his own ideas than of arriving at any results that might be of practical value.

Sometimes, after consulting over a piece of work, a very simple method is arrived at—so simple that we wonder afterward why we did not think of it before. The part of a frame is one of those jobs that at first looks a little troublesome for moulding, and yet, upon examination, the trouble vanishes. The shape of the frame was such as to necessitate casting the boxes down, the sides not being thick enough to allow it. This difficulty may be overcome by making the boxes loose, and locating them on the side of pattern with loose dowel pins that can be pulled while ramming up; two cores are made and dried for the boxes, and rammed up with the pattern, after which the cores are taken out, and the sides of boxes and the bracket are drawn out; replace the cores and cover over with sand, finish ramming up and roll over flask. There are other ways of making this pattern, as I have hinted; a core print might have been put on the pattern, and a core-box made with the box pattern in the core-box, but it was thought that the above way of doing it was cleaner—this plan is adopted on many jobs where there is not room enough to draw in the loose pieces.

"Be sure you are right, and then go ahead," is an old saying that needs reiterating in the pattern shop, because that is the birth-place of mistakes; and in saying this, I do not intend any reflection on the pattern-maker, but rather the reverse. I think the responsibility that rests upon the pattern department, as to whether work turns out right, is equal to that of the drawing room; for while the draftsman is responsible for the design, upon the pattern-maker rests a large portion of the responsibility of executing that design. The liability to mistakes is reduced considerably when the machinist takes hold where the pattern-maker and moulder have left off; the machinist's part is no doubt the most important as to the workmanship and right working of machinery—he can make it good, bad or indifferent; but mistakes in measurement he is not so liable to as the pattern-maker, because the machinist has the casting, and is given the drawing of it with instructions to finish to drawing.

When a pattern-maker is given a drawing he has to imagine the casting before him, and build something that will produce it; it may be called a pattern, but often it is really not a pattern of what is wanted, because of the complexity of the casting; it is sometimes all core-boxes and no pattern, and here is where the responsibility comes in, and will, I think, explain why the pattern shop is the birth-place of mistakes.

Of course, mistakes ought not to occur; but as long as pattern-makers are fallible, they will occur sometimes, though the utmost precaution may be taken. I am always suspicious of the man that never makes mistakes; he is not to be trusted. It has not been my intention here to defend those careless pattern-makers who are constantly making blunders, but to show that, from the nature of the trade of machinery pattern-making, there is more danger of errors being made in that branch of machinery building than others, and I do think that the careful, industrious workman, who seldom makes an error, is worthy of consideration when he does happen to be caught—for such a man usually feels bad enough over his mistakes, without having any one try to make him feel worse.—*American Machinist.*

LUXURY IN RAILROAD TRAVEL.

Ours is undoubtedly the age of innovations, useful and pleasurable as well. Nothing that could be devised to increase the comforts of the traveling public has been overlooked, and one road particularly is prominent in its regard for the convenience of its patrons. The C.C.C. & St. L. Railway, now better known as THE BIG FOUR ROUTE, in addition to advantages already offered the traveling public, has established a line of new Palace Sleeping Coaches, to be used on its through trains between Cincinnati and Chicago.

These cars, built especially for THE BIG FOUR ROUTE, by the WAGNER PALACE CAR COMPANY, are the very finest known in the railway service. Their interior finish is a marvel of upholstery, light mahogany and blue plush, heavy carpets and stylish drapery. Hot and cold water is provided in the several toilet-rooms. The buffet is a model of its kind. Electric bells communicate with all portions of the car, and in fact every detail which will add to the traveler's comfort or convenience has been provided.

No description could be adequate to the merits of these new coaches. They are palaces on wheels by day, sumptuous resting-places by night, a poet's dream and everybody's fancy at all times.

The arrangement of the drawing-room is a striking feature, affording all the comforts and privacy of a first-class hotel-room.

Lighted by the Pintsch compressed gas system, an absolutely safe illuminator, which provides twenty hours of coutinuous illumination with the incandescent power of five hundred candles.

With this new departure the BIG FOUR ROUTE is justly proud in offering to its patrons perfect safety, speed and luxury.

TURNING POINTS IN SCIENTIFIC MILLING.*

BY J. MURRAY CASE.

IN this paper I shall not presume to present anything new, but only to point out some of the essential rules in successful milling.

The money value of the product daily passing through a mill of ordinary capacity is so great, that seemingly insignificant matters become instrumental in making the successful or the unsuccessful mill.

A mill having a capacity for turning out £500 worth of flour daily, if a profit of 2 per cent. is realized on the output, will yield, in round numbers, £3,000 annually ; 2 per cent. margin is not excessive, yet, if by small imperfection in the details of the mill the percentage on the profit side is reduced by the figure 4, and the mill loses £3,000, the amount will appear quite large, for no miller cares to pay £3,000 annually for the glory of operating an unsuccessful mill.

I give this illustration to emphasize my point, which is the necessity for close attention to minor details or the turning points in scientific milling.

There are some fundamental principles in roller milling of such vital importance that the changing of one spout, and the delivery of the material from that spout to the right place or the wrong place, will either make the mill profitable or unprofitable. It is no unfrequent occurrence for a milling expert to make changes in the mode of dealing with some special product, representing a cost of some £2, which makes many hundreds of pounds profit in the aggregate results of that mill during the year, and, in fact, produces such a revolution as to change the mill from an unsuccessful to a successful one. If this be conceded, and I dare say no thoroughly informed milling expert will deny it, then how vitally important to the mill owner these minor points become.

In a short essay I can only touch upon them briefly, but I give five essential rules:—

1. Make the reductions with special reference to broad bran, small amount of chipped wheat, large percentage of semolina, and least abrasion of bran possible.
2. Make the separation so that there shall be no return of material from the tail towards the head of the mill.
3. Never permit granular stock to reach the tail of the mill, or become intermingled with low grade products.
4. Make a separation of impure materials at every possible point and send it to low grade stock or the feed-bin.
5. Select your machines with special reference to the work to be done, and see that they are kept in perfect order.

These five rules embody the essence of scientific roller milling, assuming, of course, that the wheat has been well cleaned, which is a matter of vital importance.

In relation to the first rule, the reduction of wheat to semolina, there exists a great diversity of opinion as to the best plan. The tendency is in the direction of a less number of breaks, and to a more extended length of roll surface on each break. This matter of rapid reduction at the head of the mill has many advantages; it produces a much higher grade of break flour, and, if the corrugations are properly adapted to each break, there is also an equal or larger quantity of semolina produced, and a broader bran.

When partly broken wheat is passed successfully through corrugated rolls, as in the extended reduction system, and only gently operated upon, there is a gentle scraping of the bran, which produces a bran dust, and which, on account of its extreme fineness, passes the meshes of the silk along with the flour, and thus discolors it. If, on the other hand, we perform a large percentage of the work of reduction at the head of the mill, instead of producing this fine bran fibre that will bolt, we are producing a coarse bran scale that will not bolt, and herein lies the principal advantage of rapid reduction.

To illustrate this more clearly, as it is an important point, I would say that if you take a knife and scrape a wheat berry three or four times gently, yon will find bran powder produced so fine that it will bolt with the flour. Then instead of three gentle scrapings, make one severe scrape, and you will find a bran scale produced that will not bolt with the flour. With this material advantage in favor of rapid reduction, if other favorable conditions can at the same time be sustained, it is unquestionably the superior system.

I think it can be proved that four reductions, with adequate length of roll surface, and proper main break corrugation, is sufficient for any kind or condition of wheat, and that as large a quantity of semolina will be produced, a better break flour, and, at the same time, a broader, and fully as well-cleaned bran. If this be true then the matter of the number of breaks becomes one of the points in successful milling.

In making this statement of the number of breaks, I do not take into account the wheat-splitting machine, if used, as that can only be regarded as a wheat cleaner.

The second rule, "make no returns," is of vital importance. It not unfrequently happens that some material, rich in flour, but intermingled with impure stock, is passing off at some point in the mill. The miller thinks it too good to go to low grade or feed, and therefore sends it back to the break chop or some point ahead in the mill, but while this may reduce the quantity of low grade, and also make a cleaner offal, yet, at the same time, it will reduce the value of the flour, sometimes from 2s. to 4s. per sack. But suppose it reduces it but 1s., in a plant of 300 sacks we have a loss of £15 per day, or £4,500 per year. One spout is doing this disastrous business.

The milling engineer having left his newly constructed mill in good condition and running well, it not unfrequently happens that after a time the rolls get out of trim, the bolts more or less filled up, and machines generally not doing their work properly for want of adjustment and attention; then these rich tailings appear, and the miller shoots them back into the break chop, or to some roll or bolt in advance, and thus loads the mill with impure stock, which is wallowed back and forth until it is sufficiently reduced to bolt with the flour.

In all cases where there is a rich product either passing into feed or into the low grade stock, if the mill, when in good running condition, will not handle it properly, the mill owner should put in the necessary machinery to do so.

Sometimes an extra roll and bolt will pay for themselves half-a-dozen times over in the course of a year in the matter of making a clean finish and preventing returns.

The third rule, "Do not let granular stock reach the tail of the mill," is of almost equal importance. This rule is violated more than any other, and costs the millers of Europe and America a fabulous sum of money annually.

It is not unfrequently the case that inexperienced milling experts(?) so diagram the mill that a large quantity of fine semolina reaches the tail of the mill and becomes intermingled with the low grade stocks. That which ought to be patent flour either goes into low grade or feed—generally a large percentage of it into the latter, since fine semolina will not grind well with second germ stock or bran fibre. The woody substances hold the rolls apart so that the fine semolina is not reduced, and hence tails off to feed. The mill should be so diagramed that it would be impossible for fine semolina to reach the tail of the mill. This can only be done by the proper numbers of cloth, and a sufficiency of smooth roller surface to ensure perfect reduction. I am an advocate of a short system at the head of the mill, but a proportionately elongated one at the tail. By this means the quantity of low grade flour can be materially decreased, and a perfect finish of the offal secured, and in many cases I would change a part of the corrugated rolls into smooth rolls, and the extra break scalpers into separating reels, and thus greatly improve the general results without additional machines.

The fourth rule given, that is, "To separate the pure from impure stocks at every point possible," is also important. Milling reduced to a science is simply an extended system of separating. When a reel, or purifier, or any other machine can be made to tail off a deleterious material it should be done at once, and this material sent to the low grade rolls or feed instead of carrying it through a successive number of rolls and reels, which is often done. Neither is it advisable to wallow semolina around through half-a-dozen grading reels, elevators, dusters, &c., which is sometimes done, to the great detriment of the general results. The aim should be to get every stock to its legitimate place, and the flour to the sack as soon as it can possibly be done, thus saving the continued abrasion and intermingling of impure stock with the pure in such a condition that it can not be separated.

In relation to the machines to be used, I am not here to advocate any special make. Every engineering firm of respectability in the milling line is making good machines, but it often occurs that they are not arranged in a manner to produce the best results.

The centrifugal reel is a machine of recognized merit, yet it may be used where it should not be, or where some other bolting machine would be better.

A perfectly equipped mill is one that possesses a specially constructed machine for each description of work, and each machine should be so arranged with regard to the others that no one of them should have either too much or too little to do. It is as great a mistake to have a bolt or purifier operate upon too small a quantity as it is to charge them beyond their capacity; in either case it is vain to look for satisfactory results. This I need scarcely point out to you, applies to the whole of the machines. A mill, in short, should resemble in its operation the organic action of a healthy human body, wherein each organ discharges its special functions, each is dependent upon the other, and the whole co-operate in producing that just balance of the system which is so essential to the maintenance of good health.

I may be permitted to mention one machine, which, so far, has not been introduced very extensively to European millers, and that is the "Inter-Elevator Bolt." This style of reel is now being made by every prominent American milling engineer, and no milling machine in America has ever met with such universal favor. As a separating machine on the break chop and the dusting of semolina it is unquestionably superior to any other class of reel. It is gentle in its action, and has a capacity almost equal to the centrifugal. It is used in America for all purposes except the dressing of low grade material, for which purpose the centrifugal is still in request.

Now in relation to the operation of a mill, I shall assume that every miller in Great Britain and on the Continent is a good miller, and that each attends to his duties properly, although I have known some millers who do not. I have seen purifiers running with a thick stream of semolina down the centre, the cloth bare on each side, and tailing off "rich" to low grade, and I have said, "There goes the two per cent. margin." I have seen rolls running with a feed half-way across in a thick stream and chopping the bran up, and the semolina rolls in the same condition, and stock going through unground, and I have said, "There goes the two per cent. loss." I have seen in the same mill, bolts clogged up until they tailed over one-fourth of their stock to the low grade department of the mill, and I have said, "There goes enough good material into low grade flour and feed to 'break' this miller in six months."

You have no such millers on this side of the water I am sure, but it would be well if the intelligent European mill owner should study these points, and measure the importance of employing first-class talent to operate his mill.

The miller is a most important financial personage to his employer; he is lending out so to speak, often several hundred pounds of the mill owner's money daily, and the interest received upon it or the interest paid upon it will depend largely upon his efficiency.

Furthermore, the mill owner, in order properly to direct these "turning points" in his favor, should know every part of the mechanical operation of his mill; and he should not only know this but he should "dob" his hands up in dough frequently. It won't hurt them; the dough will wash off and the hands be whiter for the "dob,"—and probably the flour whiter too the next day, for the miller will then know that his employer has got a practical eye on him, and he will put forth every effort to excel.

There is much more that might be said upon these vital points, and upon others of almost equal importance, but I refrain from taking up more of your time.

In conclusions, I would say that there is no business that offers greater opportunities to the enterprising, or dangers to those who fail to appreciate the importance of perfection in every mechanical detail, however small. The wheat bin is like the ore-bearing rock of Colorado, which contains gold, silver and lead, and as the miner who employes the most improved machinery extracts the largest percentage of the precious metal, so the miller who intelligently avails himself of the most improved system and appliances which scientific milling has placed at his command, may confidently look for the highest results.

*A paper read by J. Murray Case, Esq., of Columbus O., U. S. A., before the British and Irish Millers' Association held in Paris, France, Aug. 25, 1889.

BRICKLAYING IN NORWAY.

The singular fact is mentioned that while in Great Britain building operations are suspended on the slightest approach of frost, bricklaying is carried on in Norway during almost the coldest weather that prevails for any time. Thus, in Christiana, building during the winter months, it is stated, has now been practised for at least twelve years, but more frequently during the last five, all the buildings thus erected having stood remarkably well. Experience has not shown that walls built in winter exhibit, subsequently, more dampness than those erected in summer. The reverse may be the case, since the difference between temperature of the air and of the mortar cools the latter by evaporation and takes away a great part of the moisture. According to the opinion of the principal builders in Christiana, bricklayers' work executed with due care in winter, is really superior to similar work done in summer—the whole art of such work in frosty weather consisting simply in the use of unslacked lime, the mortar prepared with which is to be made in small quantities immediately before use, the proportion of lime being increased as the thermometer falls; the only care required is to utilize the unslacked lime so handily and quickly as to enable the mortar to bind with the bricks before it cools. Another very imporant condition is that the bricks be always kept covered on the building site.

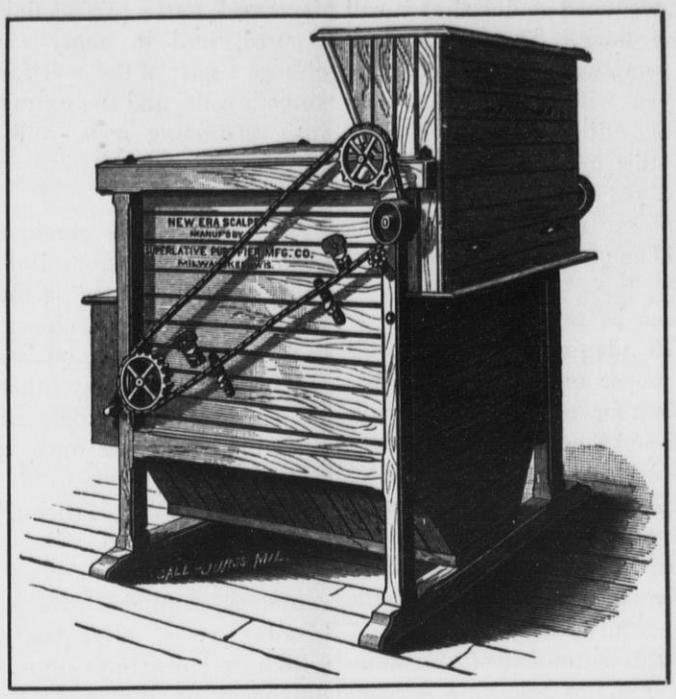
If you want to improve your milling, it will be worth your while to investigate the

NEW ERA SCALPER

Hundreds in use in many of the best mills in the country.

THEIR WORK SPEAKS FOR ITSELF.

Every machine guaranteed in every respect, and trial allowed if desired.



REQUIRES SMALL SPACE AND LITTLE POWER.

One machine will handle 4 breaks in in 75 or 100 bbl. mill, or one break in 500 bbl. mill.

The machine also does excellent work in handling Break Chop.

A SAMPLE REPORT.

SUPERLATIVE PURIFIER MFG. CO., MILWAUKEE, WIS.:

MENASHA, WIS., July 16th, 1889.

Gentlemen—I presume you think it strange not hearing from me sooner. I have been afraid to put in your Scalper, as I was afraid it would not do the scalping for all my breaks, but have been happily disappointed, as it does the work well, and has not caused any trouble in the least. It scalpers for four breaks making three bbls. an hour, and has improved my flour a good deal. They are making a Scalper at , but don't like it as well as yours. I am trying to have put one in, and think they will do so.

If you wish any testimonials, please let me know, and I will be pleased to give you mine. I will remit payment for the Scalper in a few days.

Yours Truly,

J. H. JONES.

FOR PRICES, ETC., ADDRESS

SUPERLATIVE PURIFIER MFG. CO.,

MILWAUKEE, WISCONSIN.

VORTEX DUST COLLECTOR

(Patented January 29, 1889; March 26, 1889; May 25, 1889.)

THE VORTEX

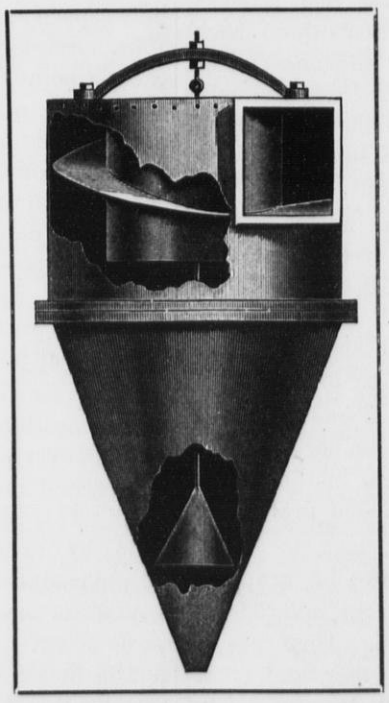
IS UNDOUBTEDLY THE

Best · Dust · Collector

ON THE MARKET FOR

PURIFIERS, GRAIN CLEANERS

AND OTHER DUST PRODUCING MACHINES.



Hundreds in Use Giving Best of Satisfaction.

Prices Reasonable

Machines Sold on their Merits.

We own Patents fully covering above machine, and will guarantee each and every user of same against all suits for infringement, SHOULD ANY BE BROUGHT.

PARTIES IN NEED OF DUST COLLECTORS WILL DO WELL TO WRITE US FOR CIRCULARS, ETC.

VORTEX DUST COLLECTOR CO.

MILWAUKEE, WISCONSIN.

MINOR MILLING MATTERS.*

BY MR. J. H. MACDONNELL.

MR. PRESIDENT AND GENTLEMEN—The various leading subjects bearing upon the manufacturing and commercial departments, in connection with flour milling, have already been so well and ably dealt with by members of the British and Irish Millers' Association, and by others at your previous proceedings, it would be but presuming upon your time if I should select any particular one of these subjects for consideration on the present occasion. I shall therefore only touch shortly upon a few things which, in the general administration of the details of our craft, are not always kept so prominently in view as they deserve to be, feeling certain at the same time that any remarks I may have to make in this connection have been anticipated, well thought out, and put into practice by some members of this Association already.

One of the chief matters in the modern system of flour milling which up to a recent date has received but scant attention, is that of *thorough and efficient wheat cleaning.*

We all know how frequently flour mills have been remodelled and fully equipped with the most perfect rolling, purifying, and dressing machinery, while the wheat cleaning departments were never even looked into. It is also pretty well known that whereas all this outlay and labor had been spent on the mill proper, uniform good results were not always obtained, and that a change from one kind of wheat to another greatly altered the quality and value of the flour produced, the difference showing itself more pronouncedly in the "patents." In fact, impurities showed themselves in the semolina and middlings, which no amount of manipulation on the purifiers could eliminate. Millers who carefully studied the matter and made microscopical examination, found that much of the impurity was mineral matter, and in searching back found that the wheat cleaning machinery was unequal to the task of removing this matter completely. Others overlooked the cause and condemned the wheat, which, if properly and sufficiently treated, would have yielded a high-class flour.

As well as mineral matter, there is frequently found among the middlings small foreign particles of about the same size and practically the same weight as the particles of middlings, which, when rolled, become reduced to fine powder, pass through the flour dressing machines, and contaminate the flour. This is owing to the fact that some seeds about the same size and gravity as the wheat have not been extracted. I am going on the assumption that ordinary small seeds, etc., have been extracted.

In some mills one may find the inner casing of the first break rolls—and indeed of the second break also—covered with a layer of dark brown dust, proving conclusively that the wheat in those mills might be more thoroughly cleaned.

This all points to the necessity which exists for securing in the first place the most perfect arrangement possible for thoroughly cleaning and polishing the wheat berry, while extracting every particle of foreign matter, if the highest standard of flour is sought after.

The details of such an arrangement may have been thought of minor consideration by some millers, but it is on these very minor matters that the successful results of the manufacture—or the contrary—depends.

It is unnecessary for me to point out the *modus operandi* which, to my mind, presents itself as the most perfect by which to attain this thorough and efficient wheat cleaning. You have to keep in view the fact that, owing to our dependence on the markets of the world for the greater portion of our wheat supplies, the varieties of quality are numerous, and that provision should be made to hanlde each and all of them to the best advantage, always remembering that the arrangement must be so comprehensive that any change of wheat containing from the least to the greatest variety of foreign matter, or varying in size from the smallest to the largest, can be dealt with in a satisfactory manner. I would impress this recommendation. Some may say, "Well, my mixtures are generally made up of such and such wheats, the impurities in which I know to be so and so, which can easily be eliminated by this or that apparatus already in the place."

That may be all very well for a year or two, until the particular wheats you depended on are not to be had, then the difficulty comes in. But, without waiting for this difficulty to arise, how often does it not happen that a cheap wheat is offered, which you know would answer your purposes very well, but you are deterred from buying it owing to the impossibility of dealing with the impurities in it with your present imperfect appliances?

Get these, then, into the most perfect and complete order that you can, if they have not already been remodelled; and when the alterations are being carried out, see that the arrangement is made with as few complicated, and what are called "combined," machines as possible, and that plenty of light and air are admitted all round, and particularly that the wheat leaving every machine is well aspirated. Have neither a fan nor a dust collector in your screen house. Let these be placed outside the mill for the greater safety of the property and the reduction of fire insurance rates.

After the wheat has been cleaned and sized, and before passing it through the automatic weighing machines preceding the first break rolls, I recommend a thorough good aspiration, so that no possibility of any dust may remain in it. If a crucial test is required to ascertain if the wheat is really clean, put a handful of it into a tumblerful of clean water, agitate for a few moments, and if the water remains clear you may be satisfied the wheat is fit to mill, but if the water becomes discolored you will understand that the wheat cleaning has been imperfectly done.

Now that rotary scalping sieves are more generally employed the first break rolls may be set to break the wheat more severely where they are used to treat the chop than where the ordinary scalping reels perform this work, and yet, although the rolls are set closer together, the quantity of break flour will be found to be less from a sieve than from a reel, the quality of the semolina better, and a larger quantity of the germ detached.

With reference to breaks, I consider the number of these might with advantage be reduced from the usual six to five, or when very dry wheat is handled, to even four.

In thus reducing the number of breaks I do not for a moment suggest the idea of reducing the granulating surface; on the contrary I should recommend that it be increased and extended to rather more than millers now employ for six or seven breaks. If rolls are employed for granulating it is advisable to have them as long as the circumstances of the situation will permit; 30in to 36in are perfectly safe to work with, and these keep cooler generally than shorter rolls. The aim should be to get the wheat or chop spread evenly along the entire length of the rolls, and only permit the feed to be one particle thick at any part of the roller surface, the object being of course to produce the broadest and cleanest bran flakes, the largest quantity of good bright semolina, and a minimum of break flour.

The feed rolls, or other feeding arrangements, have a great deal to do with the attainment of this object, and millers will learn something by experimenting with quick feed rolls in comparison with the ordinary slow going rolls.

I have heard millers say that it is unnecessary to employ aspiration on the break rolls, but with all due respect for their opinion I think it is very much needed for several reasons.

The point to aspirate from is a good deal governed by circumstances, but where these will allow I certainly think from the top of the machine is the correct place and not from the hopper beneath, or, as may be sometimes seen, from the conveyor, which takes the break meal to the elevator or the scalper. The heated air, evaporation, and light dust naturally ascend, and it is only necessary to provide a means for their escape at the top, aided by slight aspiration to get rid of these from the roller casing.

Millers are all now pretty well convinced, I think, that up to a certain point sieves are better for scalping the break products than ordinary reels. One thing, however, is frequently overlooked, whether sieves or reels are employed, and that is that the semolina and middlings leaving them and going to the purifiers are laden more or less with break flour. Nothing is more fruitful of loss than this; it is prejudical, too, to the quality of the bulk of the flour thereafter. First the loss is considerable, as the moment the material goes on the purifiers the flour is taken up with the fluffy and fibrous matter from the middlings, and although these (fluff and fibre) may be returned to the duster, the identity of the flour is lost, it is no longer so good as at the first.

Flour in the middlings also causes an obstruction of the meshes of the purifier sieve surface, which hinders the proper working of that machine, while a part of the flour gets down with the middlings to the reduction rolls, becomes darkened in the rolling, and prevents the rolls doing good work on the middlings. Some millers may say: We knew all this well enough before, and our technically-educated purifier and machine men are quite capable of attending to such minor matters of detail. Granted; but permit me to say there is very constant supervision required, and it is not always found that the smartest milling student at the technical examination proves to be the most attentive man to mind such minor matters. It will repay you to occasionally look into these things for yourselves.

In some mills centrifugals are employed to dust the middlings, but the most gentle centrifugal has a tendency to break the middlings, and sensibly reduce the quality and quantity of the "patents." The purification of semolina and middlings is perhaps now receiving more attention than at any previous time in the history of modern milling, and no miller need be at a loss to know where he can get machines to suit his purpose; but let me again impress the fact that unless the wheat has been thoroughly cleaned to begin with, and all impurities extracted, the purification of the semolina and middlings will be unsatisfactory with even the most perfect purifier, but having the semolina and middlings absolutely pure, properly sized and correctly distributed to the reduction rolls, it will be found that their gradual reduction will be produced with greater facility and ease than under less particular treatment; the power required for reductions will be smaller. The number of the silk covers may be lowered without detriment to the color of the flour, the flour will be light and granular, and the general clean up of the offals quickly and perfectly attained.

As in the case of the granulating rolls, so with the reduction rolls, the surfaces should be long enough for the distribution of the feed to them to be as thin as possible without leaving any portion uncovered.

In conclusion, I would ask you not to look on the matter in this short paper with too critical an eye, but rather to receive the suggestions I have made for what they are worth, and if any point is worthy of consideration think over it.

You will have noticed that I have confined my remarks to roller milling principally, but it is not unlikely that before another decade we may have to write of a different kind of milling. The details will, however, always remain about the same, and it will be to the interest of every miller to see that these are all carefully and strictly carried out at all times in order to ensure good work, satisfactory reports of the quality of the flour from his customers, a good yield of products, and a pleasing and profitable balance sheet at the finish.

* A paper read by Mr. J. H. Macdonnell, of Stockton-on-Tees, England, before the British and Irish Millers' Association in Paris, France, Aug. 25, 1889.

THE SAULT STE. MARIE CANAL.

BY R. E. PEARY, C. E. U. S. N.

THE St. Mary Canal, which forms the outlet of Lake Superior, is unique in several respects. It is one mile long, has a depth of 16 feet, and has the largest lock in the world, 515 feet x 80 feet x 18 feet lift.

This canal was originally constructed in 1855 with two locks, each 350 feet x 70 feet by 9 feet lift. About 1870 it became evident that the capacity of the canal had been nearly reached, and the work of enlargement was undertaken. This consisted of the construction of the present lock and the deepening of the canal to 16 feet.

These improvements were completed in 1881, at a cost of about $2,500,000, with a most astonishing result upon the traffic of the canal. The number of vessels increased and their size and draught increased to correspond with the larger water-way. The tonnage of the canal increased from 1,500,000 tons in 1881, the first year of the enlarged canal, to 4,500,000 in 1886, *i. e.* it trebled in five years. In 1888 the tonnage was over 5½ million tons. From 1885 to 1886 to total tonnage increased 37 per per cent., and from 1887 to 1888 the average tonnage per vessel increased some 20 per cent. The annual tonnage of the canal is now very nearly as great as that of Suez, 1,685 vessels having passed through the canal in one month. In 1886 it was seen that the capacity of the canal would be reached in two or three years, its ultimate capacity being 96 vessels per day of 24 hours, and 84 having already passed in that time, and a still further enlargement was proposed and is now in progress. This will consist of a lock 800 feet x 100 feet with a depth of 21 feet on the sills and a lift of 18 feet, and the deepening of the canal to 20 feet.

The new lock is to be placed upon the site of the two old ones, and will be used with the present new one. The cost of the enlargement is estimated at $4,738,865, and the time 5 years. If on its completion, the traffic of the canal takes such a bound upward as after the last enlargement—and there is no reason to doubt that it will—Suez, even with its enlargement completed, will have difficult work to keep pace with it.

The present lock in this canal is undoubtedly the finest, as it is the largest in the world. It is manipulated entirely by hydraulic power furnished by the fall at the lock, and the operation of hauling in, locking, and hauling out a vessel is easily accomplished in 13 minutes. The cost per ton of passing vessels through the canal was in 1882–83 1½ to 2 cents. It is now about one-half cent.

THE Standard, Excelsior and St. Anthony flour mills of Minneapolis, Minn., have been consolidated, and hereafter will be known as the Minneapolis Flour Manufacturing Company. The interests of D. Morrison & Co. and Morse & Sammis will be made into a stock company to be known as the company named above. The incorporators are to be D. Morrison, Clinton Morrison, Samuel Morse, Thomas A. Sammis and H. B. Whetmore. The capital stock will be $600,000. The three mills will give the company an aggregate of 3,400 barrrels of flour.

MILLING AND MECHANICAL NOTES.

[Condensed and compiled for the UNITED STATES MILLER AND MILLING ENGINEER.]

IN locating a flour mill it is generally better to do so with regard to shipping and other commercial facilities than for the sake of utilizing an ordinary water-power.

WHEN things go wrong in the mill the fault is either with the miller, the machinery or the stock. Ben. Franklin's advice, "be sure you are right and then go ahead," is good for the miller

TO do successful milling not only quality but quantity of yield must be carefully attended to and, of course the best results must be obtained in the most economical way possible.

"THE most expert workmen in any trade have no difficulty in obtaining plenty of work at good wages. A master knows that such men are too scarce to lose, and they are retained at any cost within reason."—*Wm. Jago.*

AN automatic damper regulator will not fire a boiler, although we notice that many engineers act as if they labored under that impression. It will check the draught at a certain pressure and thus economize fuel, but if the fireman allows his fires to run down with the damper wide open he cannot hope to obtain economical work.

IF a belt is new, or has been off the pulleys for some length of time, do not try to strain it together too quick. Better be a little lazy about it. A 24-inch belt 160 feet long will stretch 8 to 12 inches the first 24 hours it is on the pulleys. Let the belt stand in the clamps a few hours, or over night if possible, and much of the stretch can be taken out at once.

IT is sometimes taken for granted that every well-built engine, in good order, must of necessity, give profitable returns under any and all conditions of labor, provided only that the engine be large enough; no thought being taken that it may be too large for the work, the purchaser seeming to reason, as Pat did in declining to have his foot measured by the shoemaker, but wanted all the leather he could get for the money.

BULGING IN BOILER PLATES.—An authority upon the subject says that bagging or bulging of boiler plates over the fire is in nearly every case traced to the use of oil in the boiler. Oil is sometimes fed to boilers by the false economy of turning the exhaust steam into the water tank, where the engine oil is caught, and whence that oil is pumped with the water into the boiler. Oil gathers the scum and dirt into a cake, which may settle on the fire sheet and thus prevent contact with the water. The intense fire heats the iron red hot, and the pressure bulges the plate. Scale, if allowed to accumulate in large quantities, may also possibly cause bulging, but the first cause of all bulging in cylinder boiler plates may always be traced to oil.

INSPECTING BOILERS WHILE UNDER STEAM.—It is reported that a German scientist, Herr E. Blass, has devised an incandescent lamp arrangement by which the interior of a boiler may be inspected while the same is under steam. A thick, black tube is inserted through a stuffing box, through which a small incandescent lamp is introduced, which is connected with a battery. By means of a thick glass plate, placed in the shell of the boiler at a convenient place, the illuminated interior of the boiler may be inspected. While this appears at first sight but a scientific experiment, brought into practical shape it might prove a valuable aid in investigating the conditions of a boiler at work, and thereby be the means of providing remedies for many of the existing uncertainties in boiler manipulation.

PROF THURSTON says: "There is sufficient storage energy stored in a plain cylinder boiler with 100 pounds pressure to project it to a height of over three and one half miles; a two flue boiler about two and one half miles; a locomotive at 125 pounds from one half to two thirds of a mile; and a 60 h. p. return boiler at 70 pounds somewhat over a mile high."

"A cubic foot of heated water under a pressure of 60 or 70 pounds per square inch, has about the same energy as one pound of gunpowder. At a low red heat it has about forty times this amount of energy in a form to be so expanded."

"The heat which has been absorbed by one pound of water to convert it into a pound of steam at atmospheric pressure is sufficient to have melted three pounds of steel or thirteen pounds of gold."

COLLARS ON LINE SHAFTS.—No one is satisfied with a collar put on a line shaft with a set screw. Very few are ever put on any other way, and, when they are, no one else likes that way either. I have thought of a plan that I shall adopt when I get a chance. It is this: Have two good wrought-iron or steel collars turned and bored a shrink fit, and shrink one on the line at each end of the box next the main driving pulleys. If I ever want to get them off I will use hammer, cold chisel and sledge, and make new ones if wanted somewhere else. The collarsshould be at opposite ends of the same box, and not at the opposite ends of the shaft. The shafts seem to go nice when there is about ¼" end play, and goes that quarter of an inch too, if level and it has a chance. I know collars have been welded to a shaft times enough, and collars shrunk on in place of welding; but the point I wish to make is to shrink on a collar in the place of putting it on with a set screw or some complicated arrangement.—J. E. SWEET *in American Machinist.*

CONCERNING bolting with centrifugal reels and the use of smooth rollers a writer in *The Millstone* says:

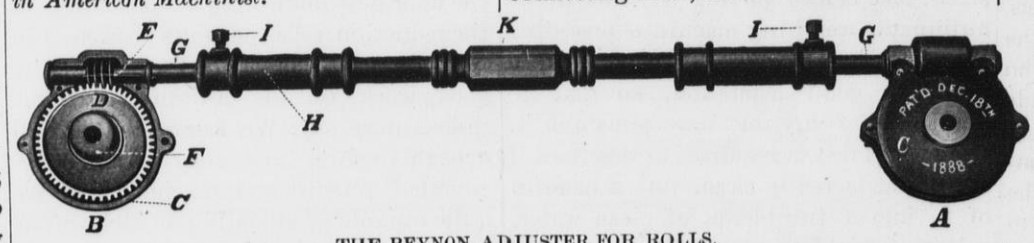
The centrifugal reel may be used in bolting nearly, if not all, of the various grades of flour stock. In order that this statement may not be misleading, it must be remembered that by flour stock is meant the material which is prepared to be bolted for the purpose of making a flour separation, that which has been scalped and the large bulk of coarse and sharp material removed from it. Flour stock may be material which has passed through a No. 7, 8, 9 or 10 cloth. After that it may be regarded as flour. The flour stock, it must be understood, is flour stock essentially—it is soft. If it is sharp it may not be altogether middlings, but it is not properly prepared for flour. The miller who keeps these points in view will not make a mistake in the use of a centrifugal reel.

The great mistake that is made in handling smooth rolls is in setting them too close, squeezing the stock, which operation is always wrong. All smooth rolls should be operated in a manner as though they were sizing rolls, and not as if they were mashing or grinding rolls. If, for any reason, the rolls are set too tight and flatten the stock, or if they have a heavy feed, there must always be a waste in the direction of the feed pile or the low-grade bin. There is a material mashed into and mingled with a superior grade of stock, which material is rated by the company which it keeps. It goes to the red-dog direct or makes rapid descent in that direction.

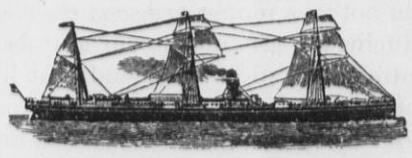
LEATHER BELTS.—In an article on the working and care of leather belts, a German paper says:—"If a belt slides on the pulley, and cannot be tightened by shortening, it must be thoroughly lubricated. Resin or resinous substances are entirely unsuitable for increasing adhesion; in fact, they are, under all circumstances, highly injurious to the leather. They are simply a makeshift, and a bad one at that as they make the leather hard and brittle. The pulley becomes dirty and uneven by the resin, and by reason of its raised places it stretches certain places in the belt unnecessarily, and the velocity of the driven pulley becomes variable. It is advisable to wash the belts from time to time with warm water and to brush them, after which they must be lubricated upon both sides with a mixture of equal parts of tallow and train oil. If a lubrication is necessary without throwing off the belt, only the outer side must be treated. The lubricant, when used, must show a temperature of from 113 deg. to 122 deg., Fah. If the belts are not lubricated at certain regular times, they lose their elasticity, become brittle and unsuitable for work. When lubricating a belt which has become hard and dry, the above lubricating mixture must be changed by taking only one third tallow and two-thirds train oil, and applying it after the belt has been moistened. Belts which run in damp localities must, after lubricating them be rubbed in with beeswax. Belt users are specially cautioned against lubricants containing vaseline, petroleum, or other mineral 'fads,' as they are not at all suitable to be put on leather."

THE BEYNON ADJUSTER FOR ROLLS.

THE device shown herewith is for use in connection with roller mills. In the cut, *A* shows an outside view; *B* an inside view; *C* the casing; *D* brass worm wheel; *E* steel worm; *F* hub of worm wheel; *G* spindle; *H* ferrule; *I* set screw; *K* handle. The connecting rods of the roll are fastened to the hubs *F* in the place of the hand wheels or other devices for adjusting. The bearings of the spindle *G* are clongated to admit a longitudinal movement of the handle *K*, so as to prevent kinking of the connecting rods, should a hard substance pass between the rolls. This is a successful device for adjusting the movable roll of a roller mill parallel with the stationary roll by means of an adjusting handle *K*, and is applicable to any of the different sizes of the leading roller mills. By its use considerable time is saved in adjusting the rolls to the work, the bearings of the movable roll are prevented from heating, and it is claimed that a much better and a more even granulation of the material is secured, than can be obtained by using hand wheels or other devices. It is said that the vibration of the rolls cannot possibly cause any change in the adjustment. It is the invention of Mr. John R. Beynon, who is also the inventor of the Beynon Aspirator and the Beynon Alarm. Parties interested may correspond with Beynon & Murphy, Watertown, Wis., who are the manufacturers, and who will be pleased to answer all inquiries.



THE BEYNON ADJUSTER FOR ROLLS.



ITEMS FROM BEYOND SEAS.

THE great Vienna corn fair was almost a failure. The Jews boycotted it, and consequently buyers were not half as plentiful as usual.

AT a recent meeting of the Belgium Milling Association the minister of justice was petitioned to take steps toward puting a stop to the mixing of any substance foreign to cereals with the flour. The chairman read an extract from the parliamentary debates containing a statement to the effect that human bones were ground up to be mixed with flour intended for human food.

ADULTERATED LINSEED.—A new method of adulterating linseed cake has been disclosed by the chemical committee of the Royal Agricultural Society of England. This consists of the admixture with the linseed before grinding, of a quantity of the refuse of saccharine factories. The presence of this adulterant is recognizable by an excessive percentage of ash, consisting largely of sulphate of lime (gypsum), a substance decidedly injurious to live stock. Several cases of adulteration in manures and feeding-stuffs, detected on analysis by the Society's chemist, are exposed, with the names of the vendors in some instances, in the report referred to.

THE EUROPEAN WHEAT CROP.—The following are the official conclusions of the Vienna Seed Congress on the European wheat crop in the form of percentages or conditions for the various countries. As presented in the table below, it was found necessary to make a general average of the several provinces in Russia, as well as Germany, and in that particular the results may be defective and subject to some slight modification. An apparent shortage of 124,146,509 bushels is shown, as compared with last year, and 71,527,116 bushels as compared with the average for the five preceding years. The details are as follows:

	1888		1889	
COUNTRY.	CONDITION.	BUSH'LS.	CONDITION.	BUSH'LS.
Austria ..	107	38,738,700	83	30,049,646
Hungary ..	110	136,871,064	72	89,588,833
Germany ..	90	68,112,000	88	66,895,070
Denmark ..	80	4,824,600	100	6,030,750
Norway & Sweden	95	4,420,870	95	4,420,870

FROMENTINE—A NEW WHEAT PRODUCT.—Dr. Dujardin-Beaumetz recently exhibited at the Paris Academy of Medicine a new alimentary substance, "*fromentine,*" which is obtained from wheat by the aid of millstones. Fromentine is the embryo of wheat reduced to flour, and deprived of the oil which it contains. The substance contains three times more nitrogenous substance than meat and a strong proportion of sugar. Thus the amount of nitro-genous matter in it is 51 per cent., while that of the richest meat, mutton, is but 21 per cent., and the proportion of digestible substance reaches 87 per cent. of the total weight. Hence it would appear that it might advantageously replace powdered meat as a concentrated food. It can be used for making soups, and even for making biscuits, the taste of which would not be disagreable. The wheat germs employed are a by-product in the Schwietzer process of manufacturing a flour which can be kept for a long time without deteriorating.

ANOTHER FLOATING EXPOSITION.—A monster floating exposition is reported being organized in Germany. Its object is to provide a large vessel—perhaps the largest afloat—fill it with exhibits of German industry, and send it from one port to another around the world, stopping and exhibiting where necessary. The plan of operation is thus described: The giant steamer Kaiser Wilhelm will be built at Kiel. She will be 570 feet long, 70 feet broad, and her depth will be 45 feet. She will contain eight immense exposition halls, with galleries and pavilions for separate exhibits. Passenger elevators and other conveniences will be provided. It will be a permanent institution, starting from Hamburg or Bremen every two years and touching every port of consequence in the world. The Floating Exposition Palace will exhibit exclusively the works of German manufacturers. The scheme is to bring the products of German industry directly to the notice of importers in foreign countries, and this at a small outlay. The exhibitors are asked to pay for every exposition port $1.25 for the cubic meter space their goods occupy. The goods will be placed in such a position and so thoroughly fastened that the movements of the vessel will not disturb or damage them. They may be changed or added to in every port. The company will take upon itself to introduce them to merchants of foreign countries, or a representative of the firm exhibiting goods may accompany the freight. Passengers will be carried at low rates.

OUR BALTIMORE LETTER.

A Sparkling Communication full of interest to the Trade. Some peculiar features of the Baltimore Flour Trade explained, etc., etc.

A BOMBSHELL thrown into the Baltimore flour market could not have produced a greater sensation than did my letter of a month ago.

The revelations which it contained caused intense excitement throughout the trade, and brought a demand for the UNITED STATES MILLER which seemed impossible to satisfy.

It is true that a few sore heads, actuated by jealousy or some motive equally honorable, denounced the letter in scathing terms, but the great bulk of our dealers not only warmly commended it, but also fully endorsed every sentiment it expressed.

The truth, you know, hurts, sometimes, and that, no doubt, is why certain ones in our midst winced and squirmed so when they saw for the first time such startling facts presented in cold type. It was a bitter pill for them to swallow, we admit, but they should hereafter learn to take their medicine in a more amiable frame of mind. It is not my desire or purpose to offend any one, but, at the same time, I want it distinctly understood that I cannot be deterred one iota, either by threats or any thing else, from doing my duty in this capacity at any cost. I shall therefore openly, fearlessly and unequivocally point out and discuss abuses existing in the trade, respectfully challenging those who may differ with me to a contradiction in these columns. With these preliminary remarks I will now pass to the subject under consideration this month, namely, the pernicious system of discounts in vogue here.

Millers throughout the country very naturally enquire from time to time why it is that they cannot obtain prices for their product in this market approximating at least those current for such brands as "Patapsco Superlative," "Snow Drop" and "Jamestown." The reason is obvious to those on the spot, but an exceedingly difficult thing for an outsider to understand. I will endeavor to explain.

The quotations of these and other local brands, which appear in the press, are simply the gross list prices to the trade, and do not represent at all the figures they are bringing in a wholesale way. For example, take "Patapsco Superlative Patent," which is quoted to-day at $5.60 a barrel, and let us see what it is really selling for in round lots: If a dealer buys 10 barrels of this flour in the current month he is entitled to 10 cents per barrel rebate; if 15 barrels, 15 cents; if 25 barrels, 25 cents; if 100 barrels, 30 cents.

Then an additional five cents per barrel is allowed for drayage, where the buyer hauls it himself. And then again, in instances, a small percentage is deducted for cash.

A customer is not compelled either to engage these amounts in a lump in order to obtain the stated discounts, but on the contrary, he can buy a barrel at a time, and at the end of the month receive his proportion of drawbacks according to his aggregate purchases.

So then instead of "Patapsco Superlative" bringing $5.60 a barrel as appears upon its face, it is really selling at $5.25 to the man or combination of men who contract for 100 barrels of it a month. The same rule prccisely is carried on too by the proprietors of the "Snow Drop," "Jamestown" and other leading stencils.

The system is pernicious in that it is misleading, and smacks too much of the Cheap John, Harrison street style of dealing to merit commendation.

The Baltimore flour market has ruled weak and lower since my last review, but at the decline business has revived, and at this writing considerable activity prevails. Jobbers have allowed their stocks to become reduced to the minimum, but are now taking advantage of current rates to augment them. Standard St. Louis patents are held at 4.90, with sales at slight concessions from these figures. Straights from the same point, however, are less exhorbitant, going in instances as low as $4.25.

Ohio, Indiana and Illinois mills are less pretentious in their views, and are consequently getting the bulk of the winter wheat orders. Patents from these localities range from $4.60 to 4.85; straights from $4.10 to $4.25; and clears $3.90 to 4.20.

The product of near by mills however, while inferior to that of the West, is selling correspondingly. Many of our dealers will invariably buy a low-priced article, irrespective of quality, in preference to a relatively cheaper one. These gentlemen have a wonderfully accommodating constituency, that will take any thing that they see fit to give it. It has been educated that way. The prices for such qualities range from $4.50 to $4.70 for Patents; $4.00 to $4.20 for straights; and $3.80 to $4.00 for clears.

The grades most in demand here at the moment are fancy patents at $4.75; straights at $4.20; clears at $4-00; and extras at 3.75. They must be exceptionally choice, however, to command these figures.

Little or nothing is being done in low grades at the moment. Spring wheat patents have had a big tumble within a month. Those from the new product have made their appearance and have caused the break in prices. The quality of the new, promises to far surpass that of the old, but most of our dealers are afraid to use that of the former exclusively until it has become more thoroughly seasoned. The consequence is that old wheat patents are in request now at a premium over the new, but are becoming exceedingly scarce, notwithstanding. Some large sales of Minneapolis old wheat patents have been effected here recently at $5.15 a barrel.

Country mills are offering those from the new as low as $4.75, with sales at that figure. Standard Minneapolis brands however, are generally held at $5.00, but nothing can be done with them here while just as good can be bought for less money. The woods are full of spring wheat patents, and at all kinds of prices, but it is safe to quote the range of the new and old from $4.75 to $5.15.

A cross-roads mill is selling patent here in sacks at $4.60, for which it wants $4.90 in wood. A difference greater than is usually allowed.

Spring bakers' have been in active demand, and some heavy business has been transacted in them at about $3.65 for standard brands. Quotations for the new and old range from $3,25 to $3.65.

City mills report trade as very slack, especially those making Rio flour exclusively.

There is nothing whatever doing here for export.

The estimated stock of flour in Baltimore to-day, in round numbers, and exclusive of that held by city mills, is 45,000 barrels. I quote the range of the flour market, as follows:

Western Winter Wheat Super	$2.50	@$2.75
" " " Extra	3.00	@ 3.75
" " " Family	4.00	@ 4.50
Winter Wheat Patent	4.50	@ 4.90
Spring " "	4.75	@ 5.15
" " Straight	4.00	@ 4.75
" " Bakers	3.25	@ 3.65
Baltimore Best Patent	5.60	@
" Choice	5.45	@
" High Grade Family	5.35	@
" Choice " Extra	5.10	@
Maryland, Virginia and Penna. Super	2.50	@ 2.75
" " " Extra	3.00	@ 3.75
" " " Family	4.00	@ 4.50
City Mills Super	2.25	@ 2.50
" (Rio Brands Extra'	4.40	@ 4.62½
Rye Flour	2.75	@ 3.00

The wheat market has been in a deplorable condition for some time past.

Values have rapidly declined until cash wheat in Baltimore has ruled 6 cents per bush. below the figures current in New York for the same thing.

It is not because of a glut, for there is only about 400,000 bushels of contract wheat in the elevators. Neither is it because of the poor quality of our grade, for it takes a mighty good article now to pass the standard. Well, what is it then that keeps us so much below the other markets of the country?

Without mincing matters I will tell you. It is the pure "cussedness" of our traders, and nothing more. They are all bears, with hardly an exception, and, consequently are short up to the neck all the time. They kick and pound this market out of shape, hoping thereby to influence values elsewhere. It is positively alarming to witness their audacity.

It is their old game, though, and yet they have the gall to ask for lower freight rates from the west on grain!

A market unable to obtain within 6 cents per bushel of what her rival is getting should have no rates at all.

Many of the men who operate in grain here sell on every rally, and then sit round like bumps on a log until the deal shows a profit, when they take it in, and squat again, preparatory for another "flyer." These "scalpers" are generally successful fellows, and most always operate on the bear side.

The receipts of southern wheat have fallen off to almost nothing while the condition continues equally as poor.

Every body here expects a big movement in wheat all over the country shortly, and also anticipates its going at low figures.

This sentiment is too general to be verrified, however.

I am rather skeptical about that movement panning out the way it is being pictured to us. There is too much anxiety for it to be so to suit me

I invariably believe in coppering one sided opinions like that. Owing to the scarcity and firmness of ocean tonnage, very few clearances have been made, but every indication points to a good business in the near future.

Millers experience great difficulty in obtaining proper selections for immediate grinding, and are now turning their attenwestward for supplies.

The extreme range of prices to-day for sample wheat was 40 @ 85 cents all as to condition.

STOCK OF GRAIN IN ELEVATORS THIS DAY:

CORN.	
1 White	1,499
2 "	183,442
Yellow	2,624
Mixed	301,558
Steamer White	6,133
" mixed	2,306
Special Bin.	16 751
Total	514,313
" 1888	54,485
RYE	12,672

WHEAT.	
2 Red winter	405,889
3 " "	4,757
Stmr. 2 red winter	91,393
" 3 winter	497
Mixed "	774
Special Bin	457,722
Total	961,032
" 1888	1,206,291
OATS.	
2 White	8,305
2 Mixed	1,009
Special Bin	117,813
Total	127,127

CLOSING AND COMPARATIVE PRICES.

Wheat.	Closing To-day.	Same time last year.
No. 2 Red.		
Spot	78½@78¾	94 @94¼
September	78½@78¾	94 @94¼
October	79⅜@79½	95 @95⅛
December	82⅝@82⅞	98 @98⅛
Steamer 2	—@72	—@—
Fultz	70 @85	95 @102
Longberry	75 @85	100 @103

CLOSING AND COMPARATIVE PRICES.

Corn. Mixed.	Closing To-day.	Same time last year.
Spot	40½@40⅝	54 @—
September	40½@40¾	53 @—
October	40¾@41	—@53
Year	39⅞@40⅛	46⅞@47
Steamer	—@—	—@—
White	40 @44	56 @58
Yellow	40 @44	55 @56½

ITEMS OF INTEREST TO THE TRADE.

The Baltimore Corn & Flour Exchange closed its rooms on the 9th and 12th of Sept. to give members a chance to enjoy Exposition ceremonies.

Robt. A. Galt, millers' agent of Baltimore has returned from a brief visit to Minneapolis and Duluth.

Harry A. Belt, millers' agent of this city, has returned from a visit to Virginia.

Andrew J. Palmer, of Wilson, Palmer & Co., wholesale flour and grocery dealers of this city, is back to his post again, after a most delightful visit to the White Sulphur Springs.

Among the floats in the trades display last Monday, none were more unique and attractive than those of the C. A. Gambrill Mfg. Co., E. N. Gardner & Co., Peter New & Co., and Rinehart, Childs & Co.

The special edition of the *Baltimore Journal of Commerce* is a very handsome affair indeed, and reflects great credit upon editor Shannon.

Gen. John Gill, formerly head of the firm of Gill & Fisher of this city, has returned to Europe where he will meet his family and spend sometime in continental travel.

Harry A. Wroth, statistician of the Corn & Flour Exchange has returned from his Eastern Shore trip.

Edward J. Snow carries his 60 years remarkably well.

James Knox of New York, formerly a leading grain exporter of Baltimore paid us a brief visit last week.

Conrad Ruhl, Sr., is gradually giving up his flour business to his boys Henry and Conrad, Jr.

L. Sinsheimer is improving every day from his recent European voyage.

Peter New & Sons, wholesale flour and grocery dealers of Baltimore, are about the busiest merchants we have at present.

John F. Blake, miller of Canton, Ohio, was on change yesterday for a while. He is about to estabiish an agent here.

President Wm. F. Wheatley is very much elated over the success of his journal.

J. Olney Norris, proprietor of the Monitor mill of Baltimore, has embarked on a voyage around the world and expects to be gone a year.

The C. A Gambrill Mfg. Co., is refusing offers daily for their celebrated "Chesapeak" flour which would make competitors in the Rio trade turn green with envy did they but know them.

ORIOLE.

Baltimore, Sept. 12, 1889.

HERVEY BATES, who is operating the Indianapolis, Ind., hominy mills, has filed a complaint with the interstate railway commission, charging discrimination by the Pennsylvania Railroad Company against his business. The complaint says the defendants now charge as freight on corn from Indianapolis to New York City 18½ cents for 100 pounds weight, at the same time charging and collecting as freight on ground corn, cracked corn and corn meal, grits, hominy and refuse at the rate of 23 cents per 100 pounds, thereby affording a direct advantage to the miller at the East of 4½ cents per 100 pounds, and placing upon the complainant a consequent loss.

HALF RATE HARVEST EXCURSIONS.

Will leave Chicago and Milwaukee, via the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY for points in Northern Iowa, Minnesota, South and North Dakota, Montana, Colorado, Kansas and Nebraska, on August 6 and 20, September 10 and 24, and October 8, 1829. Tickets good for return passage within 30 days from date of sale.

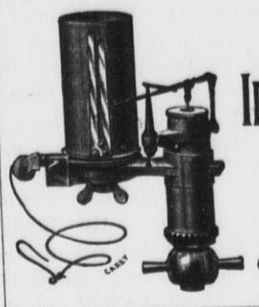
For further information, circulars showing rates of fare, maps, etc., address A. V. H. CARPENTER, General Passenger Agent, Milwaukee, Wis.

American Steam Guage Co.,

—SOLE MANUFACTURERS—

Bourdon Steam Guages,

WITH LANE'S IMPROVEMENT.



THOMPSON'S

Improved Indicator

Over 2,500 in Use.

American Pop Safety Valves,

For Locomotive, Stationary and Portable Boilers, and Instruments Incidental to the use of Steam. Send for Price List I.

36 Chardon St., BOSTON, MASS.

Send for Catalogue K.

AN AUTHENTIC BUYERS' GUIDE.

MILL AND ELEVATOR BUILDERS, MILL FURNISHERS, MANUFACTURERS OF AND DEALERS IN MILL AND ELEVATOR MACHINERY AND SUPPLIES.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year, cash with order. Additional lines, $1.00 each, per year.

Edw. P. Allis & Co., Milwaukee, Wis., builders of complete Flour Mills, manufacturers of Flour Mill Machinery, and dealers in Supplies of every description. [Mr.89.]

O. C. Ritter, Sta. A., Springfield, Mo., Patentee and Designer, Ritter's One Reduction Milling System. Full Roller Plants for small mills. [Aug. 10]

John C. Higgins & Son, 165 West Kinzie Street, Chicago, Ills., mfrs. of and dressers of Mill Picks. [Mr.89.]

Robert Poole & Son Co., Baltimore, Md., manufacturers of Steam Engines, Water Wheels, Flour, Corn, Paper, Saw and Cotton Mill Machinery.

B. H. & J. Sanford, Phoenix Iron Works, Sheboygan, Falls, Wis., manufacturers of the "IMPROVED WALSH DOUBLE TURBINE WATER WHEEL." [Mr.89.]

John C. Kilner, York Foundry and Engine Works, York, Neb. Mill and Elevator machinery of all kinds, Engines, Boilers, Pulleys, Shafting, etc. [Mr.89.]

The Gutta Percha and Rubber Mfg. Co., 159-161 Lake st., Chicago, Ill., Belting and Rubber Goods. [Mr.89.]

Richmond Mfg. Co., Lockport, N. Y., manufacturers of Grain Cleaning Machinery, Bran Dusters, etc. [89.Mr.]

N. Y. Belting and Packing Co., N. Y. Leather Belting Co., W. D. Allen & Co., Agents, 151 Lake Street, Chicago. [Apr.89.]

W. G. Avery M'f'g Co., 10 Vincent st., Cleveland, O., Specialties: Avery Lever Belt Punches, Avery Seamless Elevator Buckets, Belting, Elevator Bolts, &c. [May'89.]

The H. J. Deal Specialty Co., Bucyrus, Ohio. Headquarters for Flour and Grain Testing Appliances, and Specialties for the Milling, Flour and Grain trades. [May 89]

A. B. Bowman, 823 Second St., St. Louis, Mo., manufacturers of Wheat Heaters.

Sprague Electric Railway & Motor Co., 16 and 18 Broad St., New York. Electric Motors. Electric Transmission of Power.

Stilwell & Bierce Mfg. Co., Dayton Ohio. Mill Builders, Manufacturers of and dealers in Water Wheels, Feed Water Heaters and Flour Mill Machinery and Supplies.

Milwaukee Bag Co., No. 236 East Water St., Milwaukee, Wis., manufacturers of plain and printed Flour and Grain Sacks of all kinds.

B. F. Ryer, 66 S. Canal St., Chicago. Mill Furnisher. Bolting Cloths made to order.

Jas. Leffel & Co., Springfield, Ohio. Water Wheels.

Vacuum Oil Co., Rochester, N. Y. Oils.

CAWKER'S AMERICAN

FLOUR MILL

—AND—

GRAIN ELEVATOR

DIRECTORY

Published once in two years.

Gives nearly 23,000 Addresses, P. O., County and State, Capacity, Power, System, etc.; also lists of Millwrights, Miscellaneous Mills, Millbuilders and Furnishers, Flour and Grain Dealers, Foreign Flour and Grain Importers, etc., etc.

1888-9 Edition, Issued March, 1888.

PRICE, $10 PER COPY, post paid and registered to any part of the world. Address,

E. HARRISON CAWKER, Milwaukee, Wis.

OUR ENGLISH LETTER.

(*From our own Correspondent.*)

LONDON, Sept. 3, 1889.

The wheat which was gathered in during the first three weeks of the month of August will not be fit for threshing until Christmas. This is due to the unsettled weather that has prevailed. The rainfall has been excessive; the winds and gales have been of equinoctial violence. The temperature has been below the average 49 degrees, by accumulation, being lost on the month, and the mean daily temperature being only a small fraction of a degree over 59 degrees at a station when the August average in twenty-five years has been 61 degrees. The light has been uncertain, the nights damp and chilly. The climax of misfortune was reached during the week ending August 24, when probably about half the corn in the country was standing in shocks, or being in swaths in the fields, while the rain poured down day after day. The wheat sheaves were soaked through over and over again. We have had during the past few days a great improvement in the weather, with the result that the scared and harrassed wheat growers of the United Kingdom are now pulling themselves together, on the one hand to secure the large quantities of wheat still unharvested, and on the other to form some estimate of the damage done. It is somewhat curious, too, that with all the unsettled weather the market of the United Kingdom has been motionless during the past month, decline and advance meeting with equal resistance. A quantity of American flour which has been warehoused outside the Docks has been sold during the past week at a slight advance, and a quantity of English country flour has helped to make the Mark Lane market steady. There can be little doubt that if the Dock laborers' strike had not occurred, the prices of wheat and flour on Mark Lake market would be at this moment a shilling less. The great Dock strike has not lasted twenty-two days, and the laborers are still agitating for 6d in place of 5d an hour for ordinary time, a certainty of four hours' employment per day when engaged, the abolition of all contract work, which would mean that the Dock companies would be compelled to engage a number of foremen and overseers at permanent wages, and the division of what is termed the "plus" earned when a vessel is cleared in less than the stipulated time, in equal shares among men and foremen. To all these terms the Dock directors are willing to agree, except in so far as the extra penny is concerned, and so there is no prospect yet of a settlement. In the meantime the business of this great port is in a conditlon of complete stagnation. Thousands of quarters of wheat are lying in the vessels in the river, almost within touch of the flour mills, and yet not a kernel can be had to replenish the stock of foreign grain that is running short in nearly every large mill. Three mills, which together grind over two sacks of flour of 280 pounds each, per hour, are shut down, and by Thursday next, if wheat cannot be got from the river, more than half the mills in London will have to close down. Unfortunately for the London millers, the dissatisfaction is spreading among their own men in the mills. For example, Messrs. J. & H. Robinson, who carry on a milling business at Deptford-bridge mills, employ about forty hands, all badly paid, according to trade rates, the majority earning about 21s a week. All of them, except eight, signed, in the form of a "round robin," the following humble petition to the firm:

"We, the undersigned, in your employ, do humbly beg of you for an increase of wages, namely, 2s per week. Waiting for your reply, we remain your humble servants."

The reply of the firm was: "No alteration in wages can be made at present," and written at the foot of the petition was this sentence: "Tell the men whose names are marked out, that we shall not want them after to-night." Twelve names were scored through. They have not yet been discharged. They remain on at a minutes' notice.

As nearly as can be estimated, the Royal Agricultural Society loses from £5,000 to £6,000 by the Windsor show, owing to the enormous expenses of that historic gathering. Against this disaster may be set the increase of 2,752 in the membershlp, due to the *eclat* of the jubilee year of the Queen's presidency. The total number of governors and members is now 11,231. The announcement that the fifty-first meeting will be held at Plymouth next year has been already made.

Mr. Henry William Neville, who for more than half a century was a master baker, died on Sunday, August 18th, at Ramsgate. Like many other men, who afterwards attained to wealth, Mr. Neville made a false start in life, for his first venture ended in bankruptcy. He tried it again and soon became wealthy. He then invited each of the creditors he had been obliged to pay but partially, to come to a dinner. Each guest found under his cover a cheque for the balance due, with the interest up to date. Mr. Neville is said to have been offered and to have refused £800,000 for his business a short time before his death. The late Mr. Neville established in the northern, eastern, western and southern districts of London respectively a bread factory of practically unlimited capacity. These great establishments, taking one year with another, consumed on an average over three thousand sacks of flour per week.

The International Congress of Millers in Paris is now a thing of the past and from what I hear from a miller who was fortunate enough to be present everything seems to have passed off very satisfactory. At the first meeting in the British Section Mr. R. H. Appleton was elected President of the National Association of British and Irish Millers for the ensuing year. In the afternoon of the first day Mr. Carnot, the President of the French Republic, visited the congress. On the second day three papers were read at the English meeting. The first was by Mr. Frank Ashby, entitled "Observations on the color of Wheaten flour considered from the standpoint of the manufacturer and the merchant." The second paper was contributed by Mr. Henry Macdonnell on "Minor Milling Matters" and the third was by Mr. J. Murray Case, entitled "Turning Points in Scientific Milling." The third day was given up to an International meet, at which the gold medal for Technical Education was awarded by the National Association of British and Irish Millers to R. W. Voller, of Gloucester. Medals were also distributed by the French Millers' Association to four of their journeymen millers for long service and good conduct. In the evening the Congress was brought to a close by a superb banquet. M. Yoes Guyot, Minister of Public Works, presided, having on his right Mr. Appleton and on his left the ostensible author of the felicitous phrase "La Republique Aimable" M. Dubray. After the desert M. Guyot spoke in eloquent terms of the millers and their mills. "If all these buildings were pulled down," said M. Guyot, "Humanity would be in a sad plight. Here in France our 3,000 millers would suffice for the alimentation of the whole country, and in the name of all those who eat bread I drink to their preservation and their health! Let me also drink to practical utility!" The toasts were received with International applause, the Anglo-Saxon acclamation, or as the French call the "Hourras" predominating in sonority above the *Vivats* of the French, Belgians, Spanish, Roumanians and Italians. The toast of the English millers was then given by a French miller in very good English and not one miller of the whole 100 present could reply to that toast in French much to the disgust and humiliation of my informant who is a miller and was also present. After the banquet the millers with their partners footed it beautifully on the first floor of the Palace de l'Industrie to the sound of a Waldteufel orchestra, and nobody proceeded home until the morning star was due.

A London Bread Union is being formed, and will shortly appear as a limited company. The undertaking so far as the metropolis is concerned, will be arranged similar to the "Salt Union," nearly 300 of the bakeries controlled by the Association of Master Bakers in each district having been absorbed in the scheme, and whose net profits run not far short of £100,000 per annum, which, of course, under one management, would be greatly augmented, while the combination would help to maintain a remuneration price. In my next letter I shall be able to tell you more of this scheme.

I must not close this letter without giving a few details of what the condition of wheat is supposed to be like in the various countries. A quantitative estimate for the world is altogether premature at present. What is known of the general character of the harvest renders it almost certain that the world's wheat crop is smaller than that of last year. The list of recent reports is now a pretty full one, and the gist of them may be given as follows:—Russia, very poor; Roumania, deficient; Bulgaria, moderate; Montenegro, a failure; Austria and Hungary, bad; Germany and Italy, below average; Denmark, much below average; Holland, below average; Belgium, about an average; France, Spain and Portugal, above average; the United Kingdom, slightly above average, though probably only a bare average of marketable grain after the recent wet weather; the United States, a good crop; Canada, about an average; South America, very deficient; India, below average. The countries which have wheat crops better than those of last year are France, Spain, the United Kingdom, possibly Belgium and Italy, the United States and possibly Canada; while those which have worse crops are Russia, Roumania, Montenegro, Austria, Hungary, Germany, probably Holland, South America and India.

L. MAYGROVE.

A NEW ELEVATOR BOOT.

IN many establishments, such as grain elevators, malt houses, cotton-seed mills, etc., etc., the location of elevator boots is such as to make them difficult to get at and more difficult to oil than any other part of the machinery. Sand, dust, grit and fibre surrounding these boxes on outside of boot would contaminate the oil, cutting the journal bearings so as to cause the pulley to wobble, throwing the belt to one side thus often ruining the belt and sometimes' causing fire. The usual plan of constructing elevator boots has been essentially wrong. The pulley is generally fastened on the shaft in boot by set-screws or key-seat, and the outer ends run in babbitted boxes, subject to the troubles above named. H. W. Caldwell, 131 and 133 West Washington Street, Chicago, has had thirteen years' experience in elevator work, and has now invented a newly constructed elevator boot that meets with the universal approval of all elevator users. The construction is shown by cuts. The shaft is hollow and preferably brass; it is held stationary; the pulley has a long hub, the hub being longer than the face of pulley; the pulley revolves on the shaft; the cylinder is filled with oil; slots are cut in the brass cylinder where the hub has bearing; in these slots fits tightly a heavy cotton wick, made of cotton belting, and the oil is fed through this wick to the revolving hub. The pulley hub is chambered out so as not to touch the shaft except at bearings. This reservoir holds sufficient oil to run three to six months, and no sand, grit or fibre can get to the bearings. The pulley is adjustable up and down by means of hand screws, as other ordinary boots are. These boots are also so constructed that the ends can easily be removed in case of accident, and hand holes are so arranged that if there is a choke up they will lift out of place easily. These boots are meeting a very ready sale. as prices are but little more than the old style, troublesome boot.

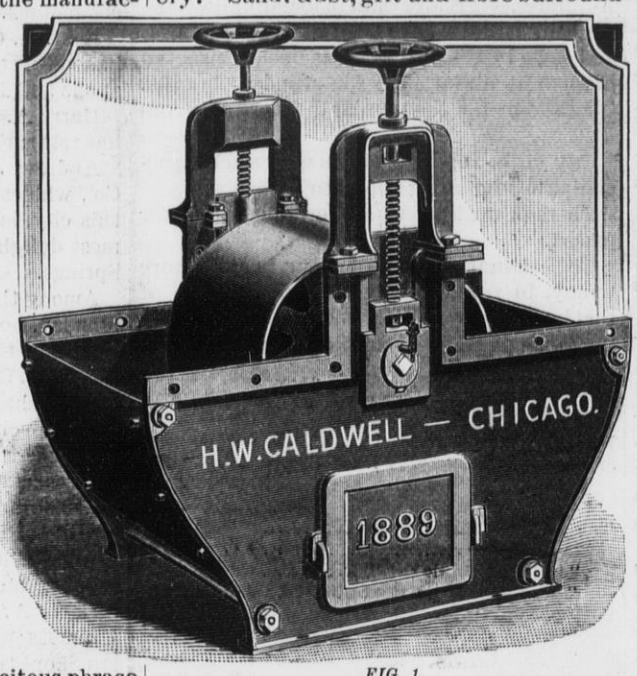


FIG. 1.

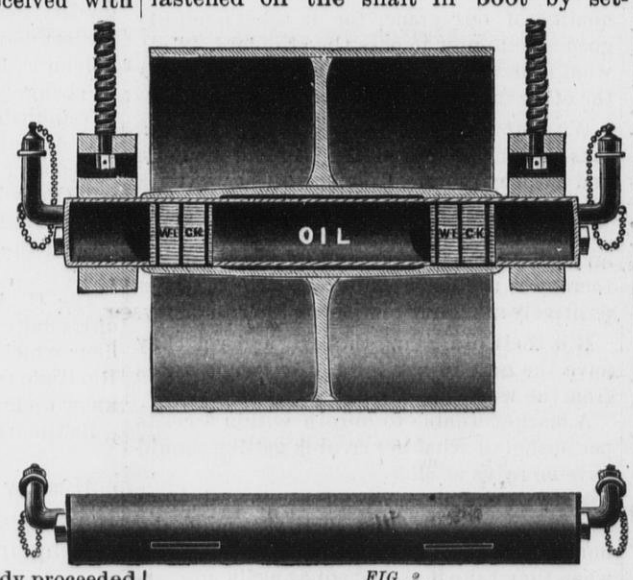


FIG. 2.

MILWAUKEE ITEMS.

THE MILWAUKEE BAG COMPANY has built up a great business in its line which reaches all over the North-western, Central, Western and Southern States. They are crowded with orders and have established a reputation for square dealing and promptness which has commanded success.

THE representatives of the Three Americas, who will visit Milwaukee on the 23d of next month, will be given a proper reception and afforded an opportunity to see some of the many things which Milwaukee possesses. The occasion will probably wind up with a Plankinton House banquet.

THE 23d Grand Army Re-union in this city passed off successfully in every sense of the word. The lowest estimate is that 162,000 visitors were brought here by the railroad and steamboat lines. The Naval Battle was pronounced *grand* by all but a portion of the spectators whose view was spoiled by clouds of smoke.

MILWAUKEE mills have been doing a fair trade during the past month, but have not been crowding production. The Jupiter Mills are not yet ready to start up. The Phœnix is temporarily shut down, owing to a breakage of the engine. Very soon, however, it is probable that all the mills will be running full time.

THE WISCONSIN STATE FAIR opens Sept. 16 and closes Sept. 20. Several acres of machinery will be kept in motion by ponderous engines. The mammoth exhibition building will be filled with the latest purchases of Milwaukee merchants, by the handiwork of women, the life-like pictures and charming landscapes of the artist's brush and pencil. The rarest flowers, the choicest fruits, the housewife's snow-white bread and toothsome cakes and jellies. The farmer, gardener and dairyman will exhibit the result of their winter's thought and summer's work. The greatest potato man of America (Harrington of Delavan,) will be there, exhibiting between seven and eight hundred varieties of potatoes and explaining how best to grow them.

MISSISSIPPI STEAMBOAT INTERESTS.

The statement was made by our river editor a day or two ago that steam navigation now in the great river of America extended in the main steram alone for the enormous length of 4,429 miles. That is, that a steamboat had gone above Fort Benton to the Great Falls of the Missouri, 3150 miles above the mouth of the river and 4429 miles above the heads of the Mississippi Passes. We are glad to be able to say that the Mississippi steamboat interests and river commerce generally have been looking up considerably this year; that they have done better than for seven or eight years. There are false prophets who have said that the railroad lines of the country would kill the steamboat and barge interest of the Mississippi River. They will never kill the passenger travel or the freight transportation of the Mississippi as long as steamboat owners build fine, fast and safe passenger boats, and as long as cheap freight rates can be had by river, which will be as long as the great river flows on down from the mountains to the sea. Comparative safety to travel and cheapness of freight may in the early future lead to a modification in the construction of both passenger and freight boats and their division into separate classes as far as possible. We do not think the day of the most famous passenger steamer of the Mississippi is yet over. In fact, we do not consider that is has yet arrived.—"*New Orleans Times Democrat.*"

WHY WE BUY AMERICAN FLOUR.

BY W. A. THOMS.

WHY buy American flour?" you ask in July issue, and suggest bakers should substitute Hungarian flour, which is cheap, for spring American patent, which is dear. While that was so when you wrote, it is not so now; adverse crop reports have sent Hungarian up several shillings per sack, while the near prospect of a good harvest in America has taken some shillings a sack off, with still lower offers for forward delivery. The high price of U. S. spring patents is, or rather was, due to exceptional circumstances that are not likely to recur, such as a damaged and short harvest of spring wheat last year, and the cornering of the most of that kind of wheat that was fit for milling by Minneapolis millers and speculators. The speculation has not been encouraging or profitable, and the "cyclone" in prices of flour and wheat, so confidently predicted by the leading cornering bulls, is as yet unfulfilled. Comparatively little spring patent has been sold at the high prices asked for it. Immense quantities were purchased last year, before and during the rise in price, by bakers, millers, and flour agents and importers. The importers stored their purchases as they arrived to await expected higher prices, while the bakers used up their purchases sparingly. When the bakers required more of the same kind they did not take the dear stored importers' flour, but Russian spring patents, or patents from gristed wheats, local milled, or American winter patents, and Hungarian–all much cheaper. The importers' flour stored at the end of last year, and offered at 42s. and 42s. 6d. per sack, is now being pressed on bakers at 35s. and under, and nothing save widespread disaster to the unharvested wheat will prevent spring patents being sold in a short time under 30s. per sack. These patents are a small proportion of the flour we receive from America, and we use them for the bulk and pile they give to loaf bread. Hungarian can only to a limited extent replace them, owing to the low volume and inferior pile it causes. Hard U. S. winter and Russian are better, and largely used, while they are cheaper than Hungarian, and generally quite as strong. With the fall in price of Hungarian there has also been a decided fall off in quality, and, save from a few mills, a fall off in strength. It is more largely composed of soft wheat than it used to be. Hungarian and spring patents are used for fancy and first quality of breads, and these bear, after all, a low proportion of the total bread required—not over one-fifth. The other four-fifths is composed of straight and bakers' grades, and our imports of American flour this year have been almost exclusively confined to these grades of spring and winter. Their price has been reasonable, though the quality has only been fair. As only from a very few of our own millers can we get these grades and varieties of flour separate, or, when we do get them, of so good value as the American, and further, as we do not have these kinds and grades from Hungary, that is why we buy American flour. We like it, find it good value, and cannot at present buy similar kinds and grades elsewhere.

As to the best methods of manipulating Hungarian flours, the difficulty with bakers is not there, but in the price obtained for the four-fifths of loaf bread, which must be composed of medium and inferior grades of cheap flour. Hungarian, cheap as it is, is relatively dear compared with these. Bakers generally are aware that Hungarian is a doughing flour from winter wheat—that it must not be used in a sponge taken on the second turn, but may be used in half, quarter, or whole sponges taken on the first turn when sufficient yeast is used to work them off rapidly, or in doughing direct, and the proportions used vary from one-fourth to one-half of the total flour; if for crusty or pan bread, one-half may be used or even three-fourths. If for close-packed crumby, not more than one third is desired.—*The British and Foreign Confectioner.*

TRADE NOTES.

WE have received from Messrs. Thornburg & Glessner of Chicago, a copy of their new catalogue. It is well executed and deserves a place in the files of every miller and millwright.

F. W. HOWELL of Buffalo, N. Y., announces that he will continue the business of Hodges & Howell, and will furnish new cockle machines or repairs to old ones.

THE H. J. DEAL SPECIALTY CO., of Bucyrus, O., quite overwhelm us with a list of names of parties using H. J. Deal's Clipper Baking Test and Deal's Standard Improved Grain Tester. This list shows a great many names of the most prominent milling and grain elevator firms in this country and quite a number from abroad. We are pleased to note that this firm is doing such a prosperous business.

GOODYEAR RUBBER CO., 372 and 374 East Water St., Milwaukee, are making a specialty of Belting of all kinds and mill supplies. They are exclusive agents for Schieren & Co.'s Electric, Perforated Planer, Extra Short Lap and Standard Oak Tanned Leather Belting. There are places where these special belts will do better service than anything else made. They also have a full stock of their celebrated GoldSeal Rubber Belt which is as good as anything can be made of rubber, and Packing of all kinds. They are also paying special attention to Hose and carry a complete stock of their Gold Seal, Extra and Standard grades in all sizes. There is nothing in the rubber goods line which this company cannot furnish and the prices in Milwaukee are the same as made in New York.

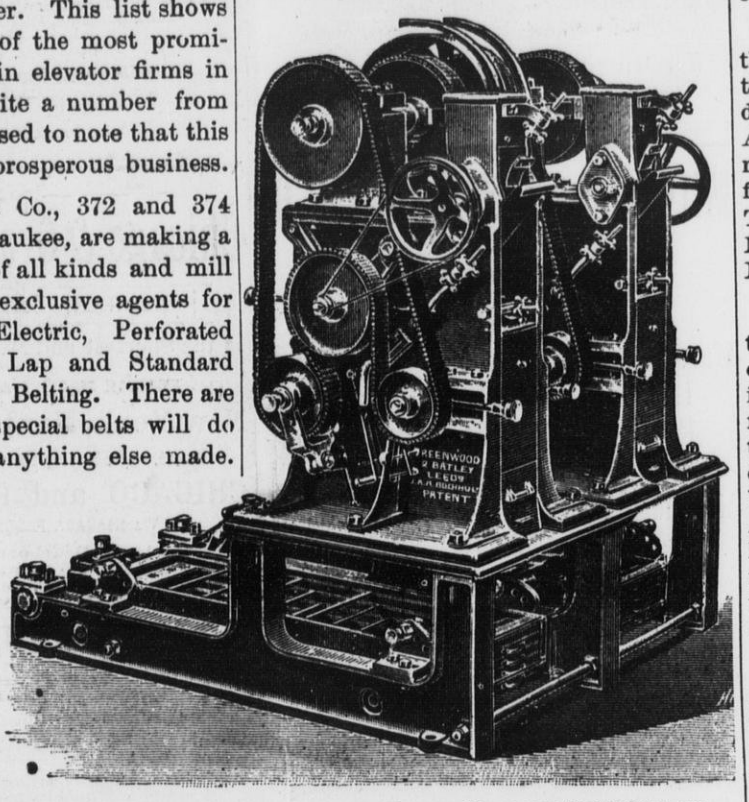
MEETING OF THE ARMY OF THE CUMBERLAND AT CHATTANOOGA.

For meeting of the Army of the Cumberland at Chattanooga, September 18th and 19th rate of one fare for round trip $9,75, will be made from Cincinnati, tickets sold Sept. 12th to 16th, good for return to Oct. 10th, via the Queen and Crescent Route. This is one of the grandest scenic lines on the continent, passing as it does through the beautiful blue grass region of Kentucky, crossing the famous High Bridge, which spans the Kentucky River at an elevation of 285 feet above the channel, passing through the pretty towns of Lexington, Danville, Nicholasville and the fruit counties of Lincoln and Pu aski. In the mountains at Point Burnside where the line crosses the Cumberland River, the scene is one of picturesque grandeur beyond description. This is the only direct line running entire trains through without change. Three Express Trains daily leave Central Union Depot, Cincinnati.

COMBINED ROLLER MILLS AND SIEVE SCALPER.

HAVING long since become aware of the encroachment upon their business which is threatened as a result of sharp competition abroad, and especially from this country, the English millers have sought the most effective remedy, to wit, the improvement of their own mills and milling methods. One of the establishments which has become noted for its enterprise in the construction of improved flour-mill machinery is that of Messrs. Greenwood & Batley, Limited, proprietors of the Albion Works at Leeds; and in the accompanying engraving is shown one of their recently designed machines, in which a sieve scalper is combined with the break rolls for small mills, where space is of great importance. The "Compactum" roller mill (Buchholz's patent is the one here employed. The illustration, which is reproduced from *The Miller*, represents a combination of two roller mills on an iron frame, with two scalpers below. The scalper consists of a series of trays set on an ascending incline in a strong frame, and worked by an eccentric shaft and check-lever. As the product from the roller mill falls on the silk the forward stroke throws it up and forwards, and at the succeeding stroke the falling meal meets the sieve at right angles and the fine particles are driven through the silk. In each of the roller mills shown in the illustration there are two rolls. The bearings of the bottom roll are adjustable, and the bearings of the top roll are fixed. A lever working on an adjustable ball and socket bearing carries an idle pulley on either end. A shaft fixed on the top of the frame of the machine, on which is fixed the driving pulley with a pulley at either end, completes the motive power, which is communicated to the pulley on the rolls by link belting, as shown in the illustration.

The two belts on each side of the roller mill are so arranged that as they pass round the idle pulleys on the balanced lever, any



COMBINED ROLLER MILLS AND SIEVE SCALPER.

undue strain coming on one side is immediately taken up by the other, thus securing the same pressure on both ends of the roll. These belts are tightened by means of a hand-wheel and screw, which communicate with the ball and socket bearing of the lever, raising it, or *vice versa*. By an unique arrangement, the distance between the rolls can, it is said, be adjusted to such a nicety that each division of the wheel represents one three-thousandth of an inch movement between the rolls. By this adjusting arrangement each end of the roll can be moved closer or *vice versa*, and when once the equal distance at each end has been obtained, both ends of the roll can be put into gear with the adjusting shaft, so that the one movement of the adjusting arrangement moves both ends of the rolls at once and to the same extent.

GEO. RUBRIGHT, a farmer, near Greensburg, Pa., went into his barn and got stung by a hornet. Discovering the nest he concluded to take revenge upon the pestiferous insects and proceeded to burn the nest. He not only succeeded in burning the hornets nest but his barn, containing his entire harvest valued at $3000.

Moral—Never monkey with a hornets nest.

RECENT PUBILCATIONS.

"HINTS ON HOUSEBUILDING" is the title of a neat little book issued by the Practical Publishing Co., Room 49, No. 21, Park Row, New York City. Price 50 cents.

"UNPARDONABLE SIN" is the title of a new and exciting novel written by Arthur Dudley Vinton, an American author of considerable real merit. It is issued from the press of J. S. Ogilvie, New York, in a 25-cent paper-covered volume.

PRACTICAL BLACKSMITHING is the title of a book just issued by M. T. Richardson, New York. This book is made up of a collection of articles covering the whole range of blacksmithing from the simplest job of work to some of the most complex forgings. Its price is one dollar, and it can be secured of the publisher postage free.

THE Practical Publication Co., of 21 Park Row, New York, have just issued the "Engineer's Hourly Log Book," arranged to record for each hour all essential points, such as boiler pressure, fuel fired, quantity of steam, etc. It is a useful book for the educated practical engineer.

THE publishers of *St. Nicholas*, announce that that popular children's magazine is to be enlarged, beginning with the new volume, which opens with November, 1889, and that a new and clearer type will be adopted. Four important serial stories by four well-known American authors will be given during the coming year.

DURING the coming volume *The Century* is to have an illustrated series of articles on the French Salons of the seventeenth and eighteenth centuries, including pen portraits of many of the leaders and a detailed account of the organization and composition of several historical salons. A great number of interesting portraits will be given with the series.

THE *Art Amateur* for September is one of the most attractive numbers we have seen of this thoroughly practical art magazine. Theodore Child has a critical review of Decorative Art at the Paris Exposition; and "Montezuma," in his "Note Book," gives some curious facts about the "Angelus" and other pictures. The colored plates are, as usual excellent. Montague Marks, Publisher, 23 Union Square New York.

THE advance sheets of the introduction of that useful work, the Messrs. Poor's Manual of Railroads of the United States for 1889, indicate that the publication will in no way fall behind its reputation for voluminous detail. The statistical matter drawn from the data contained in the forthcoming issue may be fittingly reserved for further consideration. As an annual publication the utility of the Messrs. Poor's enterprise has long been recognized. The growth of the railroads system, which it has recorded from year to year, widens its field of usefulness.

SCRIBNER'S MAGAZINE for August contains spirited out-door papers on the game of lawn tennis and on tarpon fishing; two papers on Tennyson, whose 80th birthday is thus commemorated; short stories by H. H. Boyesen. Brander Matthews, George Parsons Lathrop, and E. C. Martin, a new writer, and valuable additions to the electric and railway series. "Form in Lawn Tennis," by James Dwight, M. D., treats of the game from an entirely new point of view, using instantaneous photographs of the Sears Bros. and Petit, three noted players, as a basis of a more accurate analysis of the principal strokes in the game.

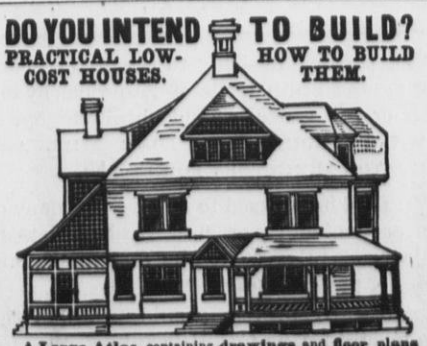
Prof. Henry Morton takes the reader with him into the great factories where dynamos and glow-lamps are made. Benjamin Norton describes the purchasing and supply department of a large railway system.

A. C. LORING, the Minneapolis, Minn., miller, puts the matter in this way: The control of some of the mills by an English syndicate could have no possible effect on prices even if the whole state was in the combine. A quarter of our flour is now exported, but it was demonstrated last fall that if prices go too high England will not buy American flour.

THE SUN AND WIND.

A Dispute once arose Betwixt the north Wind and The Sun, or at least Æsop says so, as to their Respective Superiority, and they agreed to See which could first induce a Traveler to part with His cloak. The North Wind began and blew through his Whiskers with a very Cold Blast, indeed, accompanied with a shower of wet, Wet Rain. That's where the Wind got Left. The Traveler Exclaimed: "Darn this Journeying on Foot, anyway. I shall save time, attain a Green old Age, and leave a respectable name to my children if I travel on that Famous Line, the Wisconsin Central." And he "came in out of the wet," and bought a ticket, and rode in the Luxurious Coaches, and slept at night in the Magnificent Sleepers furnished by that line.

DO YOU INTEND TO BUILD?
PRACTICAL LOW-COST HOUSES. HOW TO BUILD THEM.



A Large Atlas, containing drawings and floor plans of 40 Modern Houses with Correct Estimates of cost of building. All kinds of buildings ranging from a $400 cottage to a $10,000 residence. The latest, most complete, and only practical book published. It is false economy to attempt to build without these plans. Price by mail, post-paid, 50 cts. Stamps taken.

Address, UNITED STATES MILLER, Milwaukee, Wis.

THE CHICAGO MILWAUKEE AND ST. PAUL RAILWAY CO.

Fast Mail Line with Vestibuled Trains between Chicago, Milwaukee, St. Paul and Minneapolis.

Trans-Continental Route between Chicago, Council Bluffs, Omaha and the Pacific Coast.

Great National Route between Chicago, Kansas City and St. Joseph, Mo.

5700 Miles of Road reaching all principal points in Illinois, Wisconsin, Minnesota, Iowa, Missouri and Dakota.

For maps, time tables, rates of passage and freight, etc., apply to the nearest station agent of the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY, or to any Railroad Agent anywhere in the World.

ROSWELL MILLER, General Manager. A. V. H. CARPENTER, Gen'l Pass. and Tkt. Agt.

☞For information in reference to Lands and Towns owned by the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY COMPANY, write to H. G. HAUGEN, Land Commissioner, Milwaukee, Wisconsin.

ASHLAND ROUTE M.L.S. & W.R'Y.

THE MILWAUKEE, LAKE SHORE & WESTERN R'Y

IS THE DIRECT AND MOST POPULAR LINE AND Through Sleeping and Parlor Car Route FROM CHICAGO and MILWAUKEE TO SHEBOYGAN, MANITOWOC, APPLETON, NEW LONDON AND WAUSAU, TO ALL THE IMPORTANT TOWNS IN THE Gogebic, Penokee and Montreal Iron Ranges, HURLEY, BESSEMER, IRONWOOD, WAKEFIELD AND GOGEBIC, TO ASHLAND, SUPERIOR and DULUTH, To all Fox River Manufacturing Cities AND The Lumbering Districts of Northern Wisconsin and Michigan.

SPORTSMEN The best Fishing and Hunting in the NORTHWEST reached by the ASHLAND ROUTE. Send to the General Passenger and Ticket Agent for Descriptive and Illustrated Publications, Maps, Folders, Time Cards and General Information.

Milwaukee Office, 95 Wisconsin St.

H. G. FLEITH, Com. Freight Agt. F. P. REGAN, City Pass. & Tkt. Agt.

H. F. WHITCOMB, General Manager. ERNEST VLIET, Gen'l Pass. & Tkt. Agt.

MILWAUKEE.

THE CH&D CINCINNATI, HAMILTON & DAYTON R.R.

THE THROUGH CAR LINE —FROM AND TO— CINCINNATI

WITH THROUGH CAR SERVICE BETWEEN

CINCINNATI and INDIANAPOLIS,
CINCINNATI and TOLEDO and DETROIT,
CINCINNATI and CHICAGO,
CINCINNATI and ST. LOUIS,
CINCINNATI and DAYTON and RICHMOND,
CINCINNATI and FT. WAYNE and GRAND RAPIDS,
CINCINNATI and GREENVILLE and VAN WERT.

With THROUGH RECLINING CHAIR CAR between CINCINNATI, DECATUR and SPRINGFIELD, ILLS. and KEOKUK, IOWA, (daily)

PARLOR CHAIR CARS ON DAY, and SLEEPERS ON NIGHT TRAINS, "YEAR 'ROUND."

Ask for Tickets via C. H. & D. R. R.

For full information, Tickets, Sleeping Car Space, &c., Inquire of or Address,

W. H Fisher, Gen'l Agt., Indianapolis, Ind. W. H. Whittlesey, Central Pass'r Agt., Dayton, O.
John Bastable, District Pass'r Agt, Toledo, O. D. B. Tracy, Northern Pass'r Agt., Detroit, Mich.
Wm. A. Wiggins, Southern Passenger Agent, Chattanooga, Tenn.
J. G. Mason, City Passenger Agent, Cincinnati, O.

Or General Passenger Agent's Office, - No. 200 W. Fourth St., Cincinnati, O.

C. C. WAITE, Vice-Pres't & Gen'l Manager. CHAS. H. ROCKWELL, Gen'l Pass'r & Ticket Agent.

THE CHICAGO AND NORTH-WESTERN RAILWAY.

OVER 7,000 MILES

Of steel track in Illinois, Iowa, Wisconsin, Michigan, Minnesota, Nebraska, Dakota and Wyoming, penetrates the Agricultural, Mining and Commercial Centres of the

WEST AND NORTHWEST.

The Unrivaled Equipment of the Line embraces Sumptuous Dining Cars, New Wagner and Pullman Sleepers, Superb day Coaches and

FAST VESTIBULED TRAINS

Running direct between Chicago, St. Paul and Minneapolis, Council Bluffs and Omaha, connecting for Portland, Denver, San Francisco and all Pacific Coast Points.

ONLY LINE TO THE BLACK HILLS

For Tickets, Rates, Maps, Time Tables and full information, apply to any Ticket Agent or address the Gen'l Passenger Agent, Chicago, Ill.

J. M. WHITMAN, General Manager. H. C. WICKES, Traffic Manager. E. P. WILSON, Gen'l Pass. Agt.

Milwaukee & Northern R. R.

SHORT LINE

—TO—

Marquette, Negaunee, Ishpeming, Hancock, Houghton, Champion, Republic. Iron Mountain, Menominee, Mich.

Marinette, Green Bay, Depere, Neenah, Menasha, Appleton, Wis.

THE TABLE OF EXPRESS TRAINS.

STATIONS.	DEPART.	ARRIVE.
Champion, Republic,	*2:00 A. M.	*3:25 A. M.
Iron Mountain, Menominee, Marinette, Green Bay, Depere,	*2:00 A. M. 3:10 P. M.	*3:25 A. M. 3:55 P. M.
Green Bay, Depere, Appleton, Menasha, Neenah,	2:00 A. M. 7:55 A. M. 3:10 P. M.	3:55 P. M. 10:10 A. M.

*Daily. All other trains daily except Sunday.

Pullman Sleeping Cars are run on all night trains, and are ready for occupancy at 9:00 P. M.

New Passenger Station, Fourth Ward Park.

C. F. DUTTON, General Manager. W. B. SHEARDOWN, General Ticket Agent.

THE Chicago & Grand Trunk R'y

NIAGARA FALLS AIR LINE

Is the Shortest and Most Direct Route East.

THROUGH SLEEPING AND PARLOR CARS TO

New York, Montreal and Boston.

The Only Line running Through Sleeping Cars between

CHICAGO and PHILADELPHIA

Via NIAGARA FALLS Without Change.

Trains leave Dearborn Station at 9.05 a. m., 3.25 p. m. and 8.15 p. m. 8.15 p. m. train has elegant Pullman Sleeping Car to Detroit daily.

GRAND HAVEN ROUTE.

Detroit, Grand Haven & Milwaukee, R'y,

Is the Shortest, Cheapest and Quickest Line between MILWAUKEE, Points in MICHIGAN, CANADA and the EAST.

A delightful 5 Hour Daylight Trip on the Palace, Iron Side Wheel Passenger Steamer,

CITY OF MILWAUKEE.

Steamer leaves Milwaukee daily at 11.30 A. M., connects at Grand Haven at 5.30 P. M. with Fast Limited Express, which reaches Detroit, 11.30 P. M.; Niagara Falls, 7.30 A. M.; New York, 10.00 P. M.

34 Hours Milwaukee to New York.

Round Trip Tourist Tickets to the Thousand Islands, Rapids of the St. Lawrence, Mountains and Sea Shore now on Sale. Pamphlets descriptive, Rates, Routes, etc., sent by mail from Company's Office, 99 WISCONSIN STREET.

2nd class tickets good on all trains.

W. E. DAVIS, Gen'l Pass's & Ticket Agent, CHICAGO. E. H. HUGHES, Gen'l Western Pass'r Agent, CHICAGO. B. C. MEDDAUGH, Nor. Pass'r Ag't, 99 Wisconsin St., MILWAUKEE.

STEAMSHIP TICKETS

To or from Europe at lowest rates, by all lines. Cabin plans can be consulted and best accommodations secured as far in advance as desired.

Information furnished by mail or on application at office, 99 Wisconsin St., southwest cor. Broadway.

B. C. MEDDAUGH, Gen'l S. S. Agent. MILWAUKEE, WIS.

Queen & Crescent ROUTE

94 MILES THE SHORTEST, 8 HOURS THE QUICKEST,

CINCINNATI TO NEW ORLEANS

Time, 27 Hours.

Entire Trains, Baggage Car, Day Coaches and Sleepers run through without change.

110 MILES THE SHORTEST, 7 HOURS THE QUICKEST,

CINCINNATI to JACKSONVILLE, Fla.

Time, 28 Hours.

Through Sleepers without change. The Short Line between Cincinnati and

Lexington,	Ky.,	Time,	2½ Hours.
Knoxville,	Tenn.,	"	12 "
Asheville,	N. C.,	"	17 "
Chattanooga,	Tenn.,	"	11 "
Atlanta,	Ga.,	"	15 "
Birmingham,	Ala.,	"	16 "

Direct Connections at New Orleans, and Shreveport, for Texas, Mexico and California.

Trains leave Central Union Depot, Cincinnati, crossing the Famous High Bridge of Kentucky, and rounding the base of Lookout Mountain.

Over One Million Acres of Land in Alabama, the Future Great State of the South, subject to pre-emption. Unsurpassed Climate.

For Rates, Maps, etc., address,

C. S. HENRY, Traveling Passenger Agent, 193 Clark St., Chicago, Ill.

J. C. GAULT, Gen'l Mgr. CINCINNATI, OHIO. D. G. EDWARDS, G. P. & T. A.

NOTES from the diary of tourists, commercial travelers, business men and others has revealed:

That the **Wisconsin Central** has the unqualified endorsement of all:

That the **Wisconsin Central** has to-day the most popular line between **Chicago** and **Milwaukee**, and **St. Paul, Minneapolis** and the **Northwest;**

That the **Wisconsin Central** is daily adding to its admirers as the recognized **Pullman** line between **Chicago** and **Milwaukee** and **Ashland, Duluth** and **Lake Superior;**

That the **Wisconsin Central** touches the most prominent points in Wisconsin, and that it has more important business centers on its through line than any other railway to and from the **Northwest;**

That the **Wisconsin Central** has made an enviable reputation with its peerless **Dining Car Service;**

That the **Wisconsin Central** runs fast trains on which all classes of passengers are carried with commodious and distinct accomodation for all:

That the **Wisconsin Central** has representatives distributed throughout the country, who will cheerfully give any information that may be desired and that its terminal Agents are specially instructed to look after the comfort of passengers who may be routed via its line.

For detailed information, apply to your nearest Ticket Agent; or to representatives of the Wisconsin Central Company.

S. R. AINSLIE, General Manager. H. C. BARLOW, Gen'l Traffic Manager.

LOUIS ECKSTEIN, Asst. Genl. Passr. & Tkt. Agt.

MILWAUKEE, WIS.

CHOICE OF 3 TRAINS

—VIA—

MONON ROUTE

—BETWEEN—

CHICAGO and INDIANAPOLIS, CINCINNATI, LOUISVILLE, LEXINGTON.

Unsurpassed Pullman Car Service.

Fast Trains. Sure Connections.

Short Route to Florida.

☞ Be sure your tickets read via Monon Route (L. N. A. & C. R'y), and your comfort is guaranteed.

For Maps, Guides, etc., address

JAMES BARKER, Gen'l Pass'r Agent, CHICAGO.

Adams Express Building.

Goodrich Passenger Steamers

TWICE DAILY EACH WAY BETWEEN

MILWAUKEE and CHICAGO.

CHICAGO AND RACINE LINE.

Leave Milwaukee.	FOR	Arrive at Milwaukee
7.00 P. M.	Chicago	5.00 A. M.
*7.30 A. M.	Chicago	4.00 P. M.
7.00 P. M.	Racine	5.00 A. M.

FARE TO CHICAGO ONLY $2.00.

ROUND TRIPS, $3.50. Meals and berths included on first-class tickets. Sure connections at Chicago with all morning trains for all points east, south and southwest.

†*Sheboygan and Manitowoc Line.—*Daily 7.00 A. M. Arrives 5.00 A. M. Sundays 7.00 P. M.

Kewaunee and Ahnapee Line.—Tuesdays, Wednesdays, Thursdays, Saturdays and Sundays at 7.00 A. M.

Menominee and Sturgeon Bay Line.—Tuesdays, Wednesdays, Thursdays, Saturdays and Sundays at 7.00 A. M.

Green Bay and Depere Line.—Wednesdays and Sundays at 7.00 A. M.

Manistique, Thompson and Gladstone Line.—Wednesdays and Sundays at 7.00 A. M.

Fayette, Garden and Nahma Line.—Wednesdays, Saturdays and Sundays at 7.00 A. M.

Escanaba Line.—Tuesdays, Wednesdays, Thursdays, Saturdays and Sundays at 7.00 A. M.

Bailey's Harbor and Jacksonport Line.—Wednesdays at 7.00 A. M.

Fish Creek, Egg Harbor and Sister Bay Line.—Tuesdays, Thursdays and Saturdays at 7.00 A. M.

Close connections with railroad at Escanaba for Negaunee, Ishpeming, Quinnessec, Norway and all Lake Superior points.

The new steamer City of Racine will be the daily 7.00 P. M. boat out of Milwaukee for Chicago, except Sunday nights. The steamer Chicago will be the Sunday nights boat.

C. HURSON, Secretary and Agent.

THOS. FORBES, Passenger Agent.

* Except Sundays and Mondays. †* Except Mondays.

THE Cleveland, Cincinnati, Chicago & St. Louis RAILWAY.

BIG · FOUR · ROUTE

Consists of the lines formerly operated under the names of Cincinnati, Indianapolis, St. Louis & Chicago R'y ("Kankakee Line"), the Cleveland, Columbus, Cincinnati & Indianapolis, and Indianapolis & St. Louis R'y ("Bee Line Route"), and with its connections now form direct routes of travel between ALL POINTS in the

North, East, South and West

With schedules arranged to accommodate the traveling public in each direction, and the finest equipment of Day Coaches and Parlor Cars, Reclining-chair Cars and Palace Sleeping and Drawing-room Cars in America, the management of the consolidated system confidently expect a continuance of the popularity enjoyed by the individual lines.

☞ Rates to and from all points reached by the "Big Four Route" will always be as low as via any other first-class line.

For further information call on ticket agents throughout the country.

O. Q. MURRAY, Traffic Manager. D. B. MARTIN, Gen'l Pass'r Agent.

CINCINNATI, O.

PRIVATE · TELEGRAPHIC · CIPHER

CODE

Compiled Expressly for the use of

Millers, Flour & Grain Brokers

For Private Telegraphic Correspondence, either for Land or Cable Lines.

☞ 1888 Edition, just out, March 1, 1888, revised, amended and added to, to meet all the requirements suggested by the members of the Miller's National Association, *who use more copies of the Code than all others combined.*

Published by the Riverside Printing Co., Milwaukee, Wis.
For terms, etc., address, stating number of Codes probably wanted,

RIVERSIDE PRINTING CO., Milwaukee, Wis.

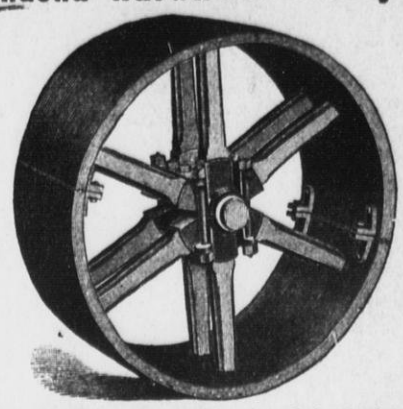
ALL persons desiring to reach the entire milling and grain trade of America, by circular or otherwise, should obtain a copy of CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888-89.

WE shall be pleased to receive from any of our readers, short, crisp, sensible letters on subjects of interest to the flour and grain trade for publication.

EXPORTING millers should write to the Riverside Printing Co., Milwaukee, Wis., for the best Flour Cable Code ever published. There are more copies of this Code in use than of ALL other flour codes published. It is simple and accurate.

OUR readers will confer a favor by writing to us giving us any item of news such as new mills, elevators, etc., or improvements in the same, or giving information of a practical nature of general interest to the trade.

Menasha Hardwood Pulleys.



We are sole makers of hardwood bent rim, oak spoke arm, iron hub pulleys; gripped to shaft with bolts and using patent paper bushings. They can be put on shaft without taking it down or cutting key seats. No glue or nails used in their construction.

Also sole makers of only small split pulley 1 inch to 8 inches in diameter in the market. They are light, handsome and reliable. Best machine pulley made, and can be taken off or put on in five minutes. See above cut of them. No glue or nails in them. No key seats to cut. Also makers of only split loose pulley in the market. Send for circulars and discounts of Menasha Pulleys.

MENASHA SPLIT PULLEY WORKS,
MENASHA, WIS.

Improved ✣ Walsh ✣ Double ✣ Turbine

This wheel has a perfect fitting cylinder gate and draft tube combined, and allows no water to escape when closed.

POWER GUARANTEED

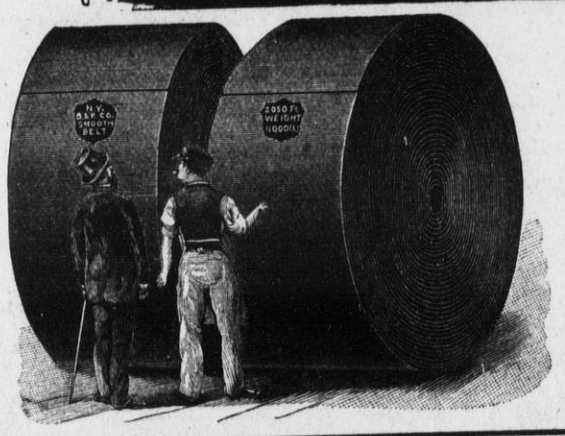
equal to any wheel on the market using equal amount of water. Address for particulars,

B. H. & I. SANFORD,
Phœnix Iron Works,
Sheboygan Falls, Wis.

NEW YORK BELTING & PACKING CO

JOHN H. CHEEVER, Treasurer. 15 PARK ROW, NEW YORK.

Oldest and Largest Manufacturers in the U. S. A. of



Vulcanized Rubber Fabrics for Mechanical Purposes

MILLERS' HOSE A SPECIALTY.

Also a Good STEAM HOSE.

RUBBER MATS, RUBBER MATTING, and STAIR TREADS.

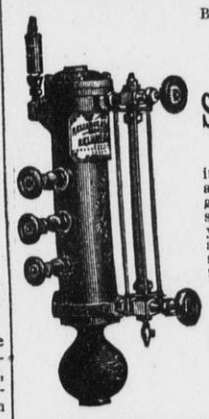
RUBBER BELTING, PACKING AND HOSE.

SALESROOMS: PHILADELPHIA, 308 Chestnut St.; BOSTON, 52 Summer St.; CHICAGO, 151 Lake St.; ST. LOUIS, 907-911 N. Main St.; DENVER, 1601-1611 17th St.; CHARLESTON, 160 Meeting St.; MINNEAPOLIS, 28 South 2d St.; CINCINNATI, 161-165 W. Pearl St.; ATLANTA, 16 Decatur St.; DETROIT, 16-24 Woodward Ave.; BALTIMORE, 12 N. Charles St.; BUFFALO, 124-128 Washington St.; NEW ORLEANS, 48 Canal St.; KANSAS CITY, 1311-1313 W. 12th St.; RICHMOND, 1206 East Main St.; European Branch, HAMBURG, GER., Pickhuben 5, (Freihafengebiet).

Before shutting down for repairs or putting in any boilers, investigate the merits of the

RELIANCE

Safety Water Columns



Many large corporations have found it profitable to discard the common appliances, and adopt these safeguards. Of course, you need not do so unless you wish to, but it is worth your time to investigate. There is always economy in safety, and any safety appliance is worth the time it takes to examine it.

Send for Illustrated Price List.

RELIANCE GAUGE CO.,
863 Sheriff St.,
CLEVELAND, OHIO.

JOHN C. HIGGINS & SON.

Manufacturers and Dressers of

MILL PICKS

167 W. Kinzie St.,
CHICAGO, ILL.

Picks will be sent on 30 or 60 days' trial, to any responsible miller in the United States or Canadas, and if not superior in every respect to any other pick made in this or any other country there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is *manufactured expressly for me* at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct Importation. References furnished from every State and Territory in the U. S. and Canadas. Send for Circular and Price List.

WESTINGHOUSE ENGINES

Westinghouse Machine Co. PITTSBURGH, PA. U.S.A.

COMPOUND Condensing or Non-Condensing.
16 SIZES, 5 to 500 H. P.
Not yet equaled by any form of Engine for
HIGH FUEL DUTY AND SIMPLICITY.

STANDARD 13 Sizes in Stock. 5 to 250 H. P.
3000 in use in all parts of the Civilized World.

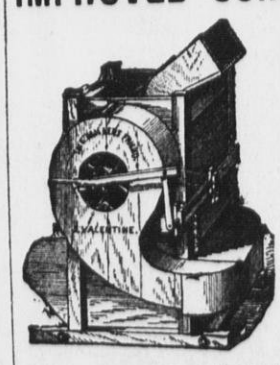
JUNIOR 6 Sizes in Stock, 5 to 50 H. P.
An Automatic Engine cheaper than a Slide Valve.
WELL BUILT. ECONOMICAL. RELIABLE.
Over 300 Sold the First Year.

All the above built strictly to Gauge with INTERCHANGEABLE PARTS.
REPAIRS CARRIED IN STOCK.
SEND FOR ILLUSTRATED CATALOGUES.

SELLING DEPARTMENT IN THE UNITED STATES.

New York, Boston, Pittsburgh, Chicago,	17 Cortlandt St. Hathaway Building, Westinghouse Build'g, 156, 158 Lake St.	Westinghouse, Church, Kerr & Co.
Philadelphia,	608 Chestnut St. M. R. Muckle, Jr. & Co.	
St. Louis, Kansas City, Denver,	302, 304 Washington Av. 312 Union Avenue, 1330 Seventeenth St.	Fairbanks & Co.
Omaha,	1619 Capitol Avenue, F. C. Ayer.	
Pine Bluffs, Ark.	Geo. M. Dilley & Sons.	
Salt Lake City, Butte, Mont.	259 S. Main St. 4 Granite St.	Utah & Montana Machinery Co.
San Francisco, Portland, Or.	21, 23 Fremont Street, 33, 35 N. Front St.	Parke & Lacy Co. Parke & Lacy Mch. Co.
Charlotte, N. C. Atlanta, Ga.	36 College St. 45 S. Prior St.	The D. A. Tompkins Co.
Dallas, Tex. Chattanooga, Tenn.,		Keating Imp. & Machine Co. C. E. James & Co.

IMPROVED CORN SHELLER,



IT IS THE
BEST CORN SHELLER
MADE FOR MILL USE.

IT IS
Simple in Construction
Almost Noiseless,
—AND—
Requires Little Power

HUNDREDS ARE IN USE.

For descriptive circular, price list, etc., Address

JACOB VALENTINE,
Gorham, Ontario Co., N. Y.

Condemnation · of · Competitors

IS THE MEASURE OF SUCCESS.

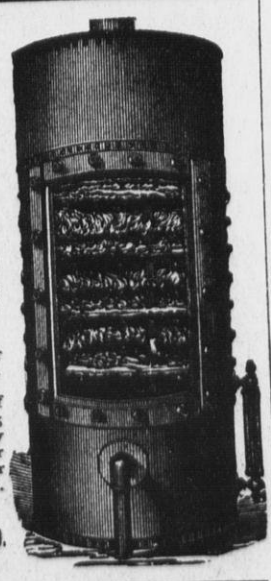
I CHALLENGE the wheat heater concern advertising their heater as "replacing the Welch" to publish the terms on which the Welch Wheat Heaters are replaced. I could replace any other make of heater by allowing a big price for it and selling mine low, which is equal to paying a bonus.

The "Welch" is fully guaranteed, sold on its merits and used more than any heater on the market.

823 SECOND ST.,
ST. LOUIS, MISSOURI. A. B. BOWMAN.

Stilwell's Pat.

Lime Extracting
HEATER —AND— FILTER
COMBINED.



Is the only Lime Extracting Heater that will

Prevent Scale in Steam Boilers

Removing all Impurities from the water before it enters the boiler.

Thoroughly tested. Over 3,000 of them in daily use.

This cut is a facsimile of the appearance of a No. 5 Heater at work on ordinary lime water when the door was removed after the Heater had been running two weeks.

Illustrated Catalogues.

STILWELL & BIERCE MFG. CO.
DAYTON, OHIO.

CHAS. A. PRAHL

MANUFACTURER OF

Artificial Limbs and Apparatus

Elevated Feet for Shortened Limbs, Braces for Weak Ankles and Spinal Curvatures, Elastic Stockings & Trusses.

300 GRAND AVENUE, MILWAUKEE, WIS.

✳ EVERY ✳ MILLER ✳

Whether using Water or Steam Power, who wants

To Save His Machinery

And reduce the cost of running expenses, should have a copy of a Pamphlet on Lubrication, which will be SENT FREE on application to

VACUUM OIL CO., ROCHESTER, N. Y.

MANUFACTURERS OF HIGH-GRADE OILS.

☞ Branch Offices and Warehouses in all the Leading Cities. ☜

For All Kinds IRON & STEEL ROOFING
CEILING, SIDING, IRON DOORS, SHUTTERS.
ADDRESS SCOTT & CO. CINCINNATI, OHIO.

The INK used on this paper is from the factory of

CHAS. ENEU JOHNSON & CO.,
PHILADELPHIA, PA.
Western Branch House: 40 La Salle St., CHICAGO

G. M. MANN. F. P. MANN

MILWAUKEE BAG COMPANY,

MANUFACTURERS OF

COTTON, PAPER AND JUTE

FLOUR SACKS

DEALERS IN

Grain Bags, Twines, Centals, Etc.

TELEPHONE NO. 427.

No. 236 East Water Street, MILWAUKEE, WISCONSIN.

SCHIEREN'S

OAK-TANNED

LEATHER BELTING

Cotton Belting and Hose

GOODYEAR RUBBER CO.

"Gold Seal" Rubber Belting.

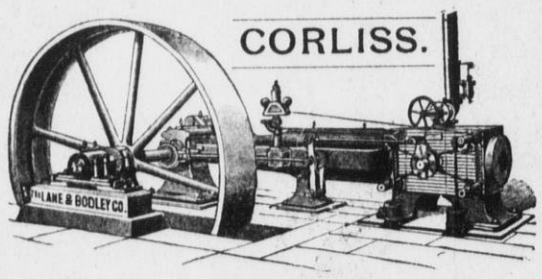
PRICE LIST SENT ON APPLICATION.

372 & 374 EAST WATER STREET
MILWAUKEE.

131 EAST THIRD STREET
ST. PAUL.

201 NICOLLET AVENUE
MINNEAPOLIS.

THE LANE & BODLEY CO.,



MANUFACTURERS OF

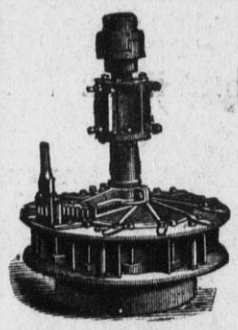
AUTOMATIC CUT-OFF

ENGINES

From Heavy Patterns and of Unexcelled Workmanship.

Steel Boilers, Feed Water Heaters
Shafting, Pulleys and Gearing.

THE LANE & BODLEY CO., Cor. John & Water Sts., CINCINNATI, O.



ROBERT POOLE & SON CO.,

Leffel Turbine Water Wheel

Made of best material and in best style of workmanship.

Machine Molded Mill Gearing

From 1 to 20 feet diameter, of any desired face or pitch, molded by our own SPECIAL MACHINERY. **Shafting, Pulleys, and Hangers,** of the latest and most improved designs.

Mixers and General Outfit for Fertilizer Works.

☞ **Shipping Facilities the Best in all Directions.**

ROBERT POOLE & SON CO., BALTIMORE, Md.

N. B.—Special attention given to Heavy Gearing for Pulp and Paper Mills.

[Mention this paper when you write to us.]

"TRIUMPH" CORN SHELLER

CAPACITY
2000 BUSHELS PER DAY.
Shells wet or dry corn.
CHEAPEST AND BEST SHELLER.
PAIGE MFG. CO,
No. 12 Fourth St., Painesville, O.

GANZ & CO.

Budapest, Austria-Hungary.

We are the first introducers of the Chilled Iron Rollers for milling purposes, and hold Letters Patent for the United States of America. For full particulars address as above.

[Mention this paper when you write to us.]

WM. PLANKINTON, President.
FREDERICK D. DAY, Treasurer.

CAPITAL STOCK, $100,000.

GEO. N. SCEETS, V. Pres't & Mgr.
J. G. THOMPSON, Secretary.

Milwaukee Brass and Copper Works

MILWAUKEE, WIS.

BABBITT METALS,

(Standard and Special Mixtures),

Brass and Bronze Castings. Ingot Metals.

Our "Badger State Metal" is the best anti-friction Metal on the market. We make a specialty of furnishing special mixtures to large consumers, putting on buyer's brand when desired.

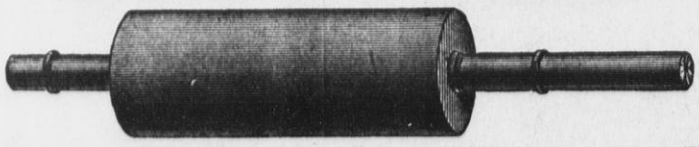
MILWAUKEE BRASS AND COPPER WORKS, MILWAUKEE, WIS.

☞ Send for Circular and Price Lists. Mention this Paper.

Farrel Foundry & Machine Company,

ANSONIA, CONN.,

Sole Manufacturers of the Celebrated



ANSONIA ROLLS

FOR USE IN ROLLER MILLS.

The general experience of American Millers unites in pronouncing these rolls the very best for Flouring Mill use.

These Rolls are now used in all Leading Flouring Mills

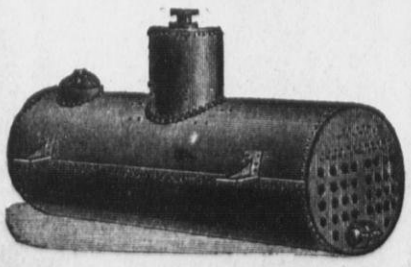
Chilled Rolls for Paper Mills a Specialty.

☞ Mention this paper when you write to us.

BRANCH HOUSE, 1425 EAST MAIN ST., RICHMOND, VA.

BASS FOUNDRY AND MACHINE WORKS,

FORT WAYNE, INDIANA.



—MANUFACTURERS OF—

First Class Steam Boilers,

INCLUDING

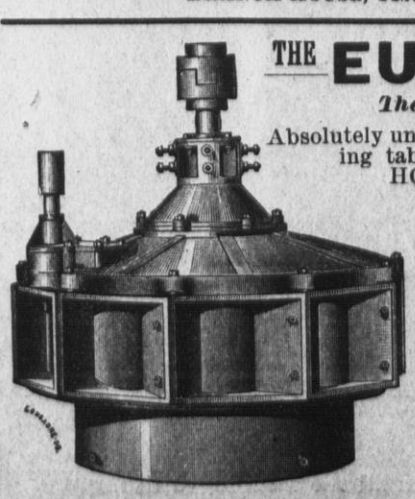
Locomotive, Upright, Flued and Tubular

—AND—

Portable Boilers of all Sizes and Styles.

TWO SHEET BOILERS A SPECIALTY.

Contracts taken for Complete Power Plants. ***Prices furnished on Application.***



THE **EUREKA TURBINE.**

The Best Part-Gate Wheel Ever Built.

Absolutely unequalled in efficiency, is shown by the accompanying table from the records of actual tests at the HOLYOKE, MASS., TESTING FLUME.

	PERCENTAGE OF EFFICIENCY.			
	Full Gate.	⅞ Water.	¾ Water.	½ Water.
24" Wheel	.8436	.8416	.8202	.8002
24" Wheel	.8206	.7910	.7700	.7003
24" Wheel	.8078	.7578	.7275	.6796
34" Wheel	.8000	.8011	.7814	.6850

No other turbine ever approached the above figures at part-gate.

We publish our part-gate figures. Others significantly omit them.

For Catalogue and information, address

The Allentown Foundry & Machine Co.,

ALLENTOWN, PA., U. S. A.

1876. 1889.

The United States MILLER

AND THE MILLING ENGINEER.

Fourteenth Year.—No. 10. MILWAUKEE, OCTOBER, 1889. Subscription Price, $1.00 Per Year.

STILWELL & BIERCE MFG. CO.

DAYTON, OHIO, U. S. A.

MILLING ENGINEERS

Manufacturers of the Celebrated ODELL ROLLER MILLS and a full line of

Flour and Corn Mill Machinery.

MILLS BUILT ON THE

ODELL SYSTEM.

Contracts taken for mills of any size, large or small, and results GUARANTEED.

CAWKER'S AMERICAN FLOUR MILL AND GRAIN ELEVATOR DIRECTORY

FOR 1890-'91

Will be issued about March 1, 1890. Price Ten Dollars. It will be the most complete of any we have yet published, and will possess many new and valuable features. Send in your orders now to be placed on file. No payment required until delivery of the work. See editorial page.

Perfect in Construction and Results!

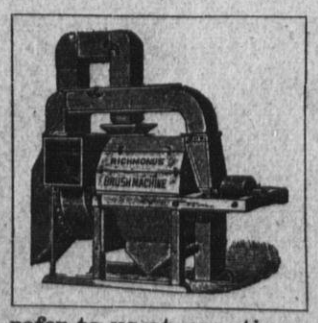
THE

RICHMOND

Grain-Cleaning-Machinery

AND

BRAN DUSTERS



TESTIMONIAL.

QUINCY, ILL., March 1, 1889.

THE RICHMOND MFG. CO., Lockport, N. Y.:

Dear Sirs:—We have been using six No. 5 Richmond Horizontal Scourers and Polishers for upwards of six months, and after a thorough test are pleased to report that we are entirely satisfied with them. They work perfectly and require less power than any Scourers we have ever used. You may refer to us at any time, and if parties with whom you are negotiating will take the trouble to come and see us, we believe we can convince them your machines are the best in the market. These machines seem to be perfect in their construction and results, and we assure you of our thorough appreciation of their merits.

Yours very truly,

TAYLOR BROS. & CO.

RICHMOND MANUFACTURING CO.

LOCKPORT, N. Y., U. S. A.

Hughes Bros. Steam Pump Co.,

CLEVELAND, OHIO.

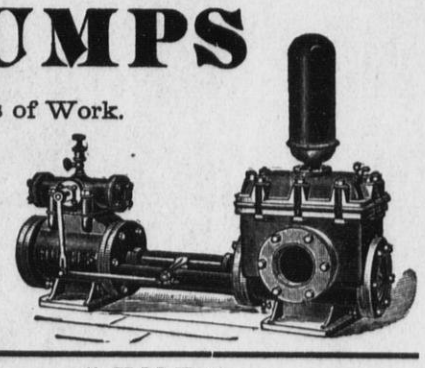
Builders of Single and Duplex

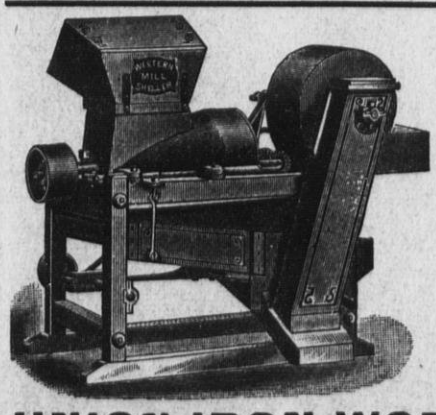
STEAM * PUMPS

Of Every Description for all kinds of Work.

Satisfaction Guaranteed.

Send for 1888 Catalogue.





* THE *

"WESTERN"

MILL SHELLER.

The most Compact, Durable, Best Sheller and Best Cleaner.

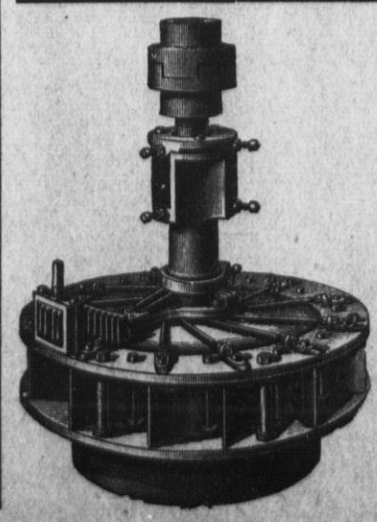
Takes up but little room, runs at low rate of speed, requires no attention. It is in every respect the

Best Sheller ever offered to the Public.

Please mention this paper. Write for full particulars to

UNION IRON WORKS, - DECATUR, ILL.

Mfrs. of "Western" Shellers, Cleaners, Separators, and all kinds of Elevator Machinery.



Leffel Water Wheel,

Made by JAMES LEFFEL & CO.

The "OLD RELIABLE" with Important Improvements, making it the

Most Perfect Turbine now in Use.

Comprising the LARGEST and the SMALLEST Wheels, under both the HIGHEST and LOWEST Head in this country. Our New Illustrated Book sent free to those owning water power.

Write us for NEW PRICES before buying elsewhere. New shops and New Machinery are provided for making this Wheel. Address,

JAMES LEFFEL & CO.,

Springfield, Ohio or 110 Liberty St., New York.

EDW. P. ALLIS & CO.

Mill Builders and Mill Furnishers,

RELIANCE WORKS, - - MILWAUKEE, WIS.

SPECIALTIES:

Gray's Noiseless Belt Roller Mill.

Gray's Improved Centrifugal Reel.

Gray's Improved Flour Dresser.

The Reliance Purifier.

PLEASE REMEMBER THAT

NOT ONE of the above-named machines was **ever** taken out of any mill in America, large or small, because of failure to do its work properly. All statements to the contrary are made either from misinformation or from a deliberate intention to mislead.

EVERY MILL built by us during the last two or three years, including the largest and best built in America in that period, uses this line of machines and gives them an emphatic endorsement.

THIS LINE OF MACHINES was selected by the Duluth Imperial Mill Co, for its splendid 2,000 bbl. mill, after a most thorough and exhaustive investigation in **Minneapolis** and elsewhere, as being unquestionably the best the market affords. This was in the face of every form of misrepresentation that could be used against our machines.

LARGE ORDERS for our **Rolls, Reels** and **Purifiers** are coming in daily from the leading mills in Minneapolis during their annual shut-down for repairs. That shows what is thought of our work in the greatest milling center in America.

THE VALUE of any machine or system can be gauged to a nicety by the bitterness and unscrupulousness of the warfare against it by would-be rivals. Judged by this standard (and there is no safer one) our line of machines **stands without an equal.**

IT IS TO YOUR INTEREST to know the truth and to get the best. Let us know your wants and we can give you favorable figures, and tell you where you can see our machines in operation.

EDW. P. ALLIS & CO.

Mill Builders and Mill Furnishers,

RELIANCE WORKS, - - MILWAUKEE, WIS.

The United States MILLER AND THE MILLING ENGINEER.

Fourteenth Year.—No. 10. MILWAUKEE, OCTOBER, 1889. Subscription Price, $1.00 Per Year.

GERM FLOUR AND GERM BREAD.

A Study for United States Millers and Bakers.

MR. W. A. THOMS, of Alyth, Scotland, a well known scientific as well as practical miller and baker of long experience recently wrote an article for *The British Baker and Confectioner* (London) under the above caption which we deem of sufficient interest to the millers and bakers of this country to republish, somewhat condensed however.

Germ Flour (patented in Great Britian by Richard Smith) is a mixture composed of three parts of wheat flour, of what is called "straight" grade, and one part of wheat germs which have not been crushed flat or ground to pieces, but which have been subjected to a cooking process at a temperature high enough to kill their vitality and diatastic power in dough and about 3 pounds per sack of 280 pounds of salt as a preservative. Thus it is ordinary flour, whole cooked wheat germs and salt. Great claims are made for this flour for its richness in fat, flesh and bone forming matters.

Mr. Thoms, further says—"From a baker's point of view, I am inclined to put germ flour high in the list of special preparations or products offered us for special breads, because it is so easy to make into bread of a high yield per sack, and its unrivalled flavor on eating, when properly made and thoroughly baked. But if the reader has a middle-aged or weak stomach that takes objection to hard work he will not eat this bread until it is at least 24 hours old.

Older age improves it; it keeps quite moist, cuts clean is then very easy of mastication and digestion. It is best baked in tins, because it does not stand up well, baked crusty.

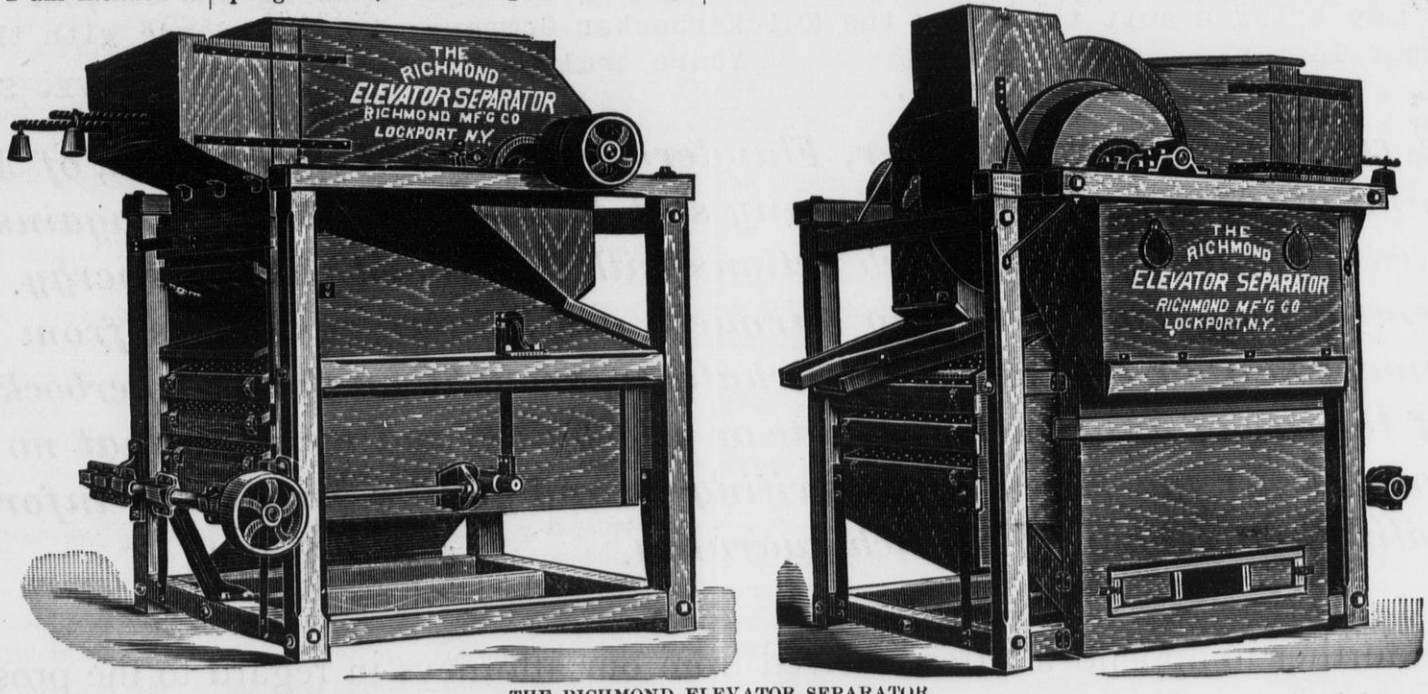
I remarked that the germ bread is easy to make. It is best worked off rapidly with pressed yeast. Mr. Smith's own baking instructions are:—"Dissolve half an ounce of yeast in fully one quart of water, use no salt, and mix thoroughly with three and half pounds of germ flour all at once—no sponging. This should be light enough to put into the oven in less than one hour. Bake it well if you like it sweet."

These instructions have the merit of brevity, but omit several important points. They assume all yeast to be alike in fermenting power. Only the strongest yeast, would do the work satisfactorily with half-ounce to one quart of water; even with that yeast it would be better to use three-quarters of an ounce. I find one quart of water takes in more than three and a half pounds of germ flour, as at present sent out, to make a dough stiff enough. The heat of the water is not given, but it may be taken as 90° F. (But really the heat of the water here, as for other similar work, depends on the heat of the flour, the heat of the bake-house, and the bulk to be fermented. The heat *when mixed* is the real guide; it should not exceed 70° to 76° for sponges and 76° to 80° F. for doughs. When these heats are used, and the sponges or doughs come away too slow, it is no proof that they are too cold, but that insufficient yeast has been used.) After doughing direct Mr. Smith says it will be ready for the oven in less than one hour. The wise baker does not work by time, but by feel. In this case, half an hour after mixing, the dough should have a good dry head up; in another fifteen minutes if the dough is sufficiently ripe or proved, it may be headed up again and scaled off at once, moulded, and put into oiled pans, which are set aside covered till the dough is light enough; then baked at 400° F. for, say, one hour and a half. Or a very weak sponge of the entire water and germ flour may be set away at 90° to 95° F., with the necessary yeast, and dough made when the sponge is full up; or sponge, a little stiffer than the former, half the water, and add the other half when the sponge turns, then dough. The dough after sponging works much faster than dough made direct without sponge, and over-proving must be watched against. When over-proved, the bread does not taste so well nor cut so well. It cuts crumbly.

Certain millers are sending out samples of raw germs to bakers to mix with flour for germ bread. The germs are mostly in a crushed state, not whole as Smith's are, but the results, whether with whole or crushed raw germs, are not satisfactory. I have experimented somewhat with both, and have tried the germs in the proportion Smith uses, sponging with strong flour alone and adding the germs at doughing; the bread was neither so good in flavor, color, texture, or volume as that made of Smith's flour. The reason is: As soon as raw germ comes in contact with gluten at a fermenting temperature the germ exerts an intense dissolving action on the gluten; the dough softens quickly, rises badly, and sours if not hastened into the oven. This bread cannot compete with Smith's.

This patent germ flour is good for other things beside loaf bread. Mr. Torrance, of Edinburgh, is making an excellent health biscuit from it, and I am using it for rusks. As rusks it is perhaps the most concentrated food offered for sale. I set away a ferment of, say, one quart of water at 90° F., 4 ozs. sugar, ¾ oz. pure yeast, and a little Hungarian flour. It rises high, and as soon as it turns it is poured into a set or bay, composed of 3½ lbs. of patent germ flour, into which has been rubbed 12 ozs. butter; three or more eggs are added, and 1 lb of sugar, and dough made. No salt, because the germ flour contains enough of it. The dough is kept covered in a warm place and dry headed up three times, till sufficiently light to scale off. There will be over six pounds of dough, and it may be scaled off into six pieces, and these moulded into long loaf form, and placed across a clean tin, the loaves not quite touching, the end one pinned in with clean upset to prevent it spreading; then proved in a warm press or boxes and baked. The loaves will be in one piece when baked. They are allowed to cool till next day, then cut apart with a sharp knife; the loaves are then cut across into slices of about ¾ of an inch in thickness, put flat side on tins, and browned in a moderately warm oven. Or the dough may be scaled off and moulded up as for tops and bottoms, which I assume my readers are all familiar with, and I need not further describe.

I believe cooked germ or germ flour has come to stay, and the enlightened baker should make himself familiar with it, and what it is worth and capable of.



THE RICHMOND ELEVATOR SEPARATOR.

THE RICHMOND ELEVATOR SEPARATOR.

THE cuts shown herewith represent The Richmond Elevator Separator, manufactured by the Richmond Manufacturing Co., Lockport, N. Y., upon which have been made many valuable improvements, concerning, which the manufacturers says "they are not found in any other separator, and they place this machine in the lead of all other separators now on the market." A serious objection to the elevator separators now on the market is, that the vibration of the sieves is so great that it is difficult to brace them sufficiently. In this separator that difficulty has been overcome, as they are now so well balanced that they require very little bracing.

Two sets of sieves go with each machine, with any size perforations that may be desired.

The grain is first fed into a hopper which is arranged with an automatic feed valve, which distributes the grain evenly in a thin sheet into the first separating spout, where it is met by a strong upward current of air, which removes chess and light impurities, the dust passing into the fan, while the light chess and other impurities are discharged into the screenings spout. The wheat is then distributed evenly over the full width of the sieves, which removes straws, headings, sticks, etc., also sand and small seeds, and from thence it passes into the last separating spout which removes such impurities as remain. The last separating spout is arranged with an automatic valve, which prevents any air passing into the spout with the wheat, which effects a more perfect separation than is possible in any other machine. The sieves are so arranged that they can be easily removed and changed for a finer or coarser set. The separating spouts of this machine are the full width of the sieves, which gives it a most perfect separation, and it is provided with a counterbalance, which gives it a steady and perfect motion.

The machine is built in a thoroughly workmanlike manner and of selected material.

In this machine is found a combination of all the elements necessary to constitute a perfect separator; it removes all dust and consequently can be placed in any part of the building. Full particulars, prices, etc, can be obtained by writing to THE RICHMOND MANUFACTURING CO., LOCKPORT, N. Y.

VERY few are aware of the fact that crackers are the oldest form of bread. Fragments of unfermented cakes were discovered in the Swiss lake dwellings, which belong to the Neolithic age, an age dating back far beyond the received age of the world. Although this rude form of bread was early discarded for the fermented variety, yet in this, as in many other matters, it was found convenient to return to a discarded and apparently valueless process. Thin unfermented cakes were found to possess merits for special purposes. They would keep good for a great length of time, and they were convenient to carry, and thus afforded wholesome and nutritious food in a portable and convenient form. The simplicity of their making and baking was also a point in their favor.

THE *American Machinist* says: The cupola is, and is likely to remain, the only rejuvenator for machinery, and those who refuse to accept it must continue in the future as in the past, to go to the wall—which, of course, is a good thing for the tool builders.

Vortex Dust Collector Co.

To Our Customers and the Public!

In response to the comments and statements made by the Knickerbocker Co., of Jackson, Mich., we are compelled in self-defense to make this reply:

It is true that at a meeting in Chicago between our Mr. Ferdinand Schlesinger, president of the Vortex Dust Collector Co., and Mr. Knickerbocker, the president of the Knickerbocker Co., it was agreed that an amicable suit should be conducted for the purpose of determining the validity of the Knickerbocker Company's claim; and that we should permit a customer of ours to be sued in the Northern District of Illinois for the purpose of determining that question. It was further agreed that until the determination of that suit, our customers and our trade should not be annoyed by any threats or other action on the part of the Knickerbocker Company.

In accordance with that agreement we received the following letter from the Attorneys for the Knickerbocker Company, which conclusively shows the existence of such an agreement, although the agreement itself it was not thought necessary at the time to reduce to writing:

Law Office of JENNEY, MARSHALL & RUGER,
No. 15 Third National Bank Building.

SYRACUSE, N. Y., August 1, 1889.

VORTEX DUST COLLECTOR CO., Milwaukee, Wis.:

Gentlemen: Your letter of the 23d ult to the Knickerbocker Company has been referred by that company to me. Will you kindly inform me who at Chicago is using one of your machines, so that I may bring a suit there for the Knickerbocker Company, in accordance with the suggestion of your letter.

Yours truly,

E. S. JENNEY.

We have retained Messrs. Winkler, Flanders, Smith, Bottum & Vilas, of Milwaukee, to defend any and all of our customers in any suit that may be brought against them, and have instructed them to defend all such actions with the utmost possible energy. We further agree to indemnify and save and keep harmless any of our customers from the result of any infringement suit, or any other suit whatever, brought by the Knickerbocker Company on account of the use of any machine made or sold by us, and we hope that no one will refuse to buy one of our machines before writing us and getting particular information as to the responsibility and reliability of such guaranty.

We desire further to append a letter received from our attorneys in regard to the prospective litigation, and we consider ourselves safe from any ultimate loss at the hands of the Knickerbocker Co.:

F. C. WINKLER,
J. G. FLANDERS,
A. A. L. SMITH,
E. H. BOTTUM,
E. P. VILAS.

WINKLER, FLANDERS, SMITH, BOTTUM & VILAS,
Counselors at Law.

VORTEX DUST COLLECTOR CO., City.

Gentlemen: We have at your request looked into the matter of the claim of infringement made by the Knickerbocker Company, based upon the manufacture of your Vortex Dust Collector. The state of the art, in our judgment, discloses no sufficient foundation for the claims of the Knickerbocker Company.

We believe that an absolutely impregnable defense can be made in any action for infringement, based upon the manufacture or use of the Vortex Dust Collector, as made by you.

We acknowledge your instructions to appear and defend any and all of your customers in any action brought against them, and will cheerfully act in accordance with your wishes under your retainer. (Dictated.)

Yours very respectfully,

WINKLER, FLANDERS, SMITH, BOTTUM & VILAS.

Vortex Dust Collector Co., Milwaukee, Wis.

UNITED STATES MILLER

AND THE MILLING ENGINEER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.

OFFICE, No. 124 GRAND AVENUE, MILWAUKEE.

SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.

To American subscribers, postage prepaid..... $1.00
To Canadian subscribers, postage prepaid..... 1.00
Foreign subscriptions..... 5s.

All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.

Bills for advertising will be sent monthly, unless otherwise agreed upon.

For estimates for advertising, address the UNITED STATES MILLER AND THE MILLING ENGINEER.

[Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE, OCTOBER, 1889.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER AND THE MILLING ENGINEER. You will thereby oblige not only this paper, but the advertisers.

WE send out a number of SAMPLE COPIES of this issue. We solicit a critical examination of our Journal and invite you to subscribe. The price is one dollar per year. No premiums—no discount. Our November number will contain matters of *special interest* to millers which you will not find elsewhere.

F. L. GREENLEAF, ESQ., has just been elected President of the Minneapolis Chamber of Commerce.

THE tendency of the times in every department of trade is toward consolidation of business interests. In many places we know of millers who formerly owned but one mill that now own half a dozen or more. If this practice should become general, what will become of the small millers?

WE cordially invite inventors of any valuable device used in flouring mills or grain elevators, to send illustrations and descriptions thereof to the publisher of this journal for publication. To secure the insertion of such articles free of charge, they must be new and not have been published in any other milling journal.

THE *Commercial Advertiser*, of Buffalo, N. Y., very appropriately says:

"No other way can be devised by the wit of man to restore the American carrying trade than the universally accepted policy of national subsidies. We have given such subsidies to Pacific railroads and created a new republic. Why not lend a hand to Pacific and South American steamships, and recreate an American merchant marine."

THE COCKLE SEPARATOR CO., of Milwaukee, when informed by the Secretary of the Millers' National Association, that one of its members had been sued for infringement of patent on cockle machine and requested to defend the case in the interest of that member and all the rest of their customers, readily consented to do so and have employed able counsel to defend the suit. Millers should not forget this in their future dealings.

THE Pan-American Congress now being held in this country, will probably take such action as will be of the greatest importance to our manufacturers and producers. The milling interests will be ably represented by some very prominent members of the trade, and we have no doubt but the ultimate result to flour and grain exporters and United States manufacturers of mill and elevator machinery and supplies will be of great value.

THE letters of our Baltimore correspondent "Oriole" have attracted wide-spread attention in milling and grain circles. Some *peculiarities* of the Baltimore flour trade are explained in a vigorous manner. We have every confidence in the writer of these letters, knowing him to be a gentleman of wide experience and close observation. Our readers will find these letters well worth perusing. In this number the transportation companies are "taken to task."

PRESTON LEA, ESQ., President of Wm. Lea & Sons Co., Wilmington, Del., has been appointed a member of the Committee on Pan-American Congress from the Wilmington Chamber of Commerce, and will co-operate with Mr. P. N. Macgill of Baltimore, Md., who has been commissioned as representative of the Miller's National Association, in bringing the flour manufacturing industry of the United States prominently before the delegates of the Congress.

A SUBSCRIBER writes asking if it would not be a good plan for milling journals to publish a price list of mill machinery and supplies. We think not. We believe it far better for millers to write to advertisers for their price lists and descriptive circulars, and when received *to carefully place them on file* for reference at a moment's notice. Of course, if you want some special *patented* machine you must make the best terms you can with the manufacturer or his agent.

WE take pleasure in calling the attention of our readers to the full page announcement of the Vortex Dust Collector Co. in this number. It is a business-like statement and deserves the attention and respect of the milling public. The Vortex Company have the confidence of the trade and merit it. They build a machine acknowledged to do as good work as any on the market and sell at a reasonable price and we are pleased to know are selling lots of them to the best millers in this country.

SUCH of our readers as have been of the opinion that the Millers National Association was of little consequence, will please note the fact that recently when suit was commenced against the well known Minneapolis milling firm of C. A. Pillsbury & Co. for an infringement of a patent on cockle machines, said Company simply turned over the documents to the Secretary, with request to take such steps for their protection as were necessary. The Association counsel takes all such matters in hand and defends or compromises such claims, as deemed best for the interests of members.

OUR London letter this month contains a good deal of interesting matter. Among other things, it indicates that there is a growing feeling of dissatisfaction among officers and members of the British Millers Association. If this is true it is to be regretted. Here, matters are entirely different. The only dissatisfaction manifest here is between a milling journal afflicted with "big-head" and its imitators and an officer of the Association, who persists in attending to his business by studying and working for the interests of the Millers National Association. The members and their officers are evidently working harmoniously together.

IF the *American Miller* and its journalistic henchmen have influenced millers to any considerable extent to keep out of the Millers' National Association, said millers must feel anything but kindly towards the influence that kept them out, now that patentees are commencing to shove in the patent infringement knife and twist it around, metaphorically speaking. Pecuniary disaster, to a greater or less extent will certainly result to millers who have been encouraged to keep out of the M. N. A.

Those who have allowed their membership to lapse, would doubtless now like very much to again get into the Association by paying up back dues, and thereby secure protection from prosecution by owners of certain patents. This cannot be done.

By becoming a member now, the miller will however secure the most ample protection in the power of the Association against any new infringement suits and we KNOW that there will be a number commenced in the near future. Millers should bear in mind that it is far easier for an organized body to fight or compromise a claim than for one person or firm to do so.

Patentees of good inventions have learned by experience that it is for their pecuniary interests to wait until the life of a patent which has been infringed generally, has nearly expired before commencing suit, and then if they are successful, their claims for damages will be proportionately heavy, for the the patent will have been used for years.

CAWKER'S AMERICAN FLOUR-MILL AND GRAIN ELEVATOR DIRECTORY FOR 1890-'91.

THE above standard work will be ready for delivery in March, 1890. This will be the seventh directory of the flour and grain trade, issued by the publisher, and all who have used them, testify to their increasing accuracy and utility to the trade. Briefly outlined, the principal features will be as follows:

1. List of Flour Mill owners of the United States and Dominion of Canada, Post Office address, County and State, and where information is obtained capacity in barrels of flour per day of 24 hours, kind of power used (steam or water), roller or stone system. 2. Lists of Corn, Oatmeal, Rice, Rye Mills, etc. 3. List of Grain Elevators and Warehouses. 4. List of Millwrights. 5. List of prominent American Flour and Grain Brokers. 6. List of Foreign Flour and Grain Importers. 7. List of Mill Furnishers, etc. 8. Statistics valuable to the trade.

Communications from millers in all parts of the United States and Canada on any of the above mentioned points, will be thankfully received by the publisher. Further, any suggestions that will tend to add to the value of the work will be fairly considered. All letters concerning this matter should be addressed to E. H. Cawker, Milwaukee, Wis.

IS FLAX SEED GRAIN?

THE question above has excited considerable discussion especially among Minnesota dealers in flax-seed. We have received a number of letters from Minnesota parties asking for an opinion upon the subject. Our humble opinion is that the word "grain" as generally used, indicates such cereal products as are used for human food. We have endeavored to secure opinions from a number of parties, that should be considered good authorities. We addressed the following to the Secretaries of several State Agricultural Departments, and to the Secretary of the U. S. Department of Agriculture:

Milwaukee, Sept. 25, 1889.

DEAR SIR: Will you kindly give us your opinion on the following question: Is flax-seed, grain?" There appears to be a difference of opinion on the subject. The Attorney-General of Minnesota has decided that it is, and is therefore subject to inspection under the public warehouse law of that State. Others maintain that grain in its general sense is such grain as is used for human food only. Awaiting your reply, we are

Yours etc.

We have received the following replies:

From United States Dep't. of Agriculture:

DEPARTMENT OF AGRICULTURE,
WASHINGTON, D. C.,

Office of Assistant Secretary,
October 2, 1889.

EDITOR UNITED STATES MILLER,
Milwaukee, Wisconsin,

Sir:—Yours of September 25th, to Secretary Rusk is at hand, and has been referred to me to answer. You say that the Attorney General of Minnesota has decided that flax seed is grain and is therefore subject to inspection by the Minnesota Public Inspectors.

You ask, in short, would the Department consider flax seed grain? It is not our province to criticize the law of Minnesota, or question the correctness of official decisions, interpreting it. We may say, however, in a general way, that the technical commercial meaning of "grain" is, as interpreted by this Department, generally limited to the seeds of cereals, while the term "seeds" as applied to various oil seeds and grass seeds is equally well understood and quite as definite in its significance. It may be that the law of Minnesota is susceptible nevertheless by some peculiar phraseology to the construction given it by the Attorney General.

The law could put both classes of products together as it has done things much more incongruous. Yours truly

EDWIN STREETS, Ass't Secretary.

From Wisconsin State Agricultural Society:

WISCONSIN STATE AGRICULTURAL SOCIETY.
Madison, Sept. 26th, 1889.

E. Harrison Cawker, Esq.,

Dear Sir—Yours of 25th at hand. I am of opinion that flax-seed *is* grain. The Secretary of Agriculture. Hon. J. M. Rusk, would probably settle the matter if referred to him.

Respectfully Yours,
T. L. NEWTON, Sec'y W. S. A. S.

From Kansas State Board of Agriculture:

Topeka, Kansas, Sept. 28, 1889.

EDITOR U. S. MILLER AND MILLING ENG'R:

Your favor of the 25th inst. is received. "Is Flax seed Grain?" you ask.

Since this question is propounded I will answer it briefly, with no idea however that my opinion will settle the question.

All grain is seed, but all seed is not grain.

For instance all grain possesses the principle of reproduction and therefore is seed. But seed used only for reproduction is not grain, such as apple, cherry, clover seed &c.

But when a seed possesses in addition to the principle of production qualities which render it valuable when manufactured into a given product, either as food for man or beast, it is certainly something more than *seed*, and when handled in warehouses the same as corn and wheat, it may be classed as grain and of course is subject to inspection.

But on the other hand it is true that in the general acceptation of the term, the word grain includes such products only as are used for human food.

This briefly is my opinion given freely for what it is worth. Yours truly,

M. MOHLER, Secretary.

TRADE NOTES.

MARSHALL BROS. of Dubuque, Ia., are building a patent Lime Extractor and Heater for steam boilers which is meeting with success wherever introduced. There is a good demand for such apparatus in the Northwest.

KERFOOT BROS., Des Moines, Ia., have a model mill and elevator supply house. They carry a large supply of goods in their line, and are able to fill orders promptly, and at reasonable prices. Iowa millers and elevator owners know this to be a fact.

THE Novelty Iron Works, Dubuque, Ia., are running to full capacity. They build engines, make castings, etc., and do a large amount of work for flouring mills and elevators. They also make a specialty of building oat-meal mills. They are well located, having facilities for shipping both by rail and river.

THE Iowa Iron Works Co., Dubuque, Ia., have a plant occupying a whole block with railroad tracks direct to their doors. They do a general business in castings, engine building, saw and flour-mill machinery, steamboat work, etc. It is one of the solid institutions of that quaint and solid old city, Dubuque.

THE Des Moines Mfg. and Supply Co., Des Moines, Ia., is well located in the capital city of Iowa, and is kept crowded with work from all parts of the great west. Mr. Geo. I. Jarrett looks after the flour mill department, and he is kept very busy. The record of this company for mill building and remodeling this year is enviable.

THE JONATHAN MILLS MFG. CO., have removed from Cleveland to Columbus, O. In their new location they have one of the finest and best equipped plants for building special mill machinery in this country. The present officers of the company are as follows: L. C. Newsom, president; W. A. Hardesty, secretary and treasurer; Jonathan Mills, vice-president and general manager.

THE Flenniken Turbine Co, Dubuque, Ia., are filling a number of orders for their turbine wheels. They have also successfully built and furnished a number of short system mills in the West. They are about to place on the market a new roller mill of unique design, and a new reel, scalper and bolter. They have good facilities for doing a large amount of good work.

MESSRS. BEYNON & MURPHY, Watertown, Wis., are crowded with orders for their specialties and those who have introduced them speak highly of them. In these days of new inventions, they certainly can take pride in this success which they have attained. Their specialties are the Beynon Electric Alarm to announce and relieve "choke ups"; the Beynon Aspirator and the Beynon Adjuster for Rolls.

OUR BALTIMORE LETTER.

"Oriole" Makes Further Observations.

Our Correspondent Castigates the Transportation Companies.

AN INTERESTING LETTER TO MILLERS, FLOUR AND GRAIN DEALERS.

THE Baltimore letter in the September edition of the UNITED STATES MILLER created another furore in this locality. It was not only extensively copied and commended by the Press, but also the recipient of a hearty endorsement from the trade.

It is both gratifying and encouraging to to have ones efforts accorded such a reception at any time, but more particularly when the subject matter, as in this case, augured just a revulsion of feeling.

We will give our readers a breathing spell this month before further exhuming the revolting evils which underlie and impede the progress and development of our market in order to touch briefly upon the present damnable practices of certain railroads leading to the seaboard. We refer now to the time consumed by them in the transportation of flour from the northwest to Baltimore.

No language is too strong to express the enormity of their actions. These roads forget that they are the servants of the people from whom solely they derive their rights, privileges and in fact their very existence.

But as it has become the rule in our domestic affairs that the servant is greater than his lord, so also have these public hirelings transcended their station as well, until now they have actually reached that point where they virtually control our business by refusing to furnish us with stock until it suits their pleasure to do so. These high and mighty officials consider it a great condescension on their part even to listen to complaints of patrons.

They would have us bow down to them and worship them and even lick their boots before daring to approach them upon a subject so momentous as the one under consideration. They have an idea that they run the universe and that mankind generally must needs stand down and out when they pass by.

Why should it take 35 and 40 days for flour to come from the Northwest to Baltimore? That is the question we wish to discuss. We can get no information on the subject at this end of the line, except that the delay is occasioned at the transfer stations.

It is claimed that by storing consignments at these points that the first stored oftentimes is the last to leave, and *vice versa*. If that is true then we can account for the outrageous delay that is experienced almost daily by our dealers.

When the transfer steamers arrive, they are frequently loaded before reaching those shipments which have been in store long before those which are taken aboard first, and consequently are left behind until the next trip. And if an accumulation should then follow in the meantime the same thing occurs again, thus leaving the oldest receipt in the shed indefinitely.

There is certainly nothing fair or just in such a proceeding.

Why can not this thing be worked upon the business principle of first come first served?

We have known of flour laying at Milwaukee for 30 days and after having been loaded on the transfer-boat to arrive here in 7 days thereafter. The whole trouble therefore is apparently at the transfer stations, so why not put on more steamers in the busy season, or else store the flour there differently?

Mills should urge at once the importance of correcting the abuse. Pillsbury and the Sidle Fletcher Holmes Co. of Minneapolis obviate the difficulty by keeping flour stored in the east. Competitors should either do the same or else patronize those roads only which guarantee despatch.

If mills and dealers would combine and "boycott" the roads which keep flour in transit so long, the trouble would soon disappear.

Merchants are sick and tired of paying sight drafts on invoices which are kept out for 30 days and more.

Besides loosing the interest on the money, and the great inconveniance of the thing, they object most decidedly also to speculating to that extent on the market.

If all the receipts at the transfer stations could be regularly numbered as they arrive, and then loaded upon the boats exactly according to those numbers, we would have no more cause for complaint in the future.

If those interested will experiment with the plan for awhile we venture to say that it will be found adequate for the emergency.

The Baltimore flour market has ruled active, strong and higher since our last review.

Leading city mills have advanced prices 15 cents per barrel during the month and the whole market is correspondingly better. Dealers generally have anticipated wants quite liberally through agents in lots to arrive.

Stocks, exclusive of those held by city mills, however aggregate only 44,000 barrels, as against 54,000 barrels for the same period a year ago.

Owing to the delay of stock in transit there is a great scarcity here now of all desirable grades of flour. Spot spring patents are particularly urgent, and in instances command a handsome premium over the mill price.

St. Louis patents range from $4.85 to $5.00 and straights $4.35 to 4.50. The Kauffman Milling Co. is having the swing here at present in these goods for the reason that it is willing to undersell standard brands 10 to 15 cents per barrel.

Plant's and Stanard's agents are in the soup while this continues. Ohio, Indiana and Illinois patents, straights and clears range respectively from $4.75 to $4.90, 4.40 to $4.65 and $4.15 to $4.30.

Choice winter extras are in good demand at $3 75 to $4.00.

Minneapolis patents have fluctuated considerable recently, and range today all the way from $5.10 to $5.40, which is a net gain of 25 cents per barrel on the best brands, Dealers however, will not entertain them at these figures here while country makes of equal quality can be had at prices ranging from $4.85 to $5.10.

Large transactions in Minneapolis stencils to arrive were effected by agents just prior to the advance, but until they have been absorbed no new business is possible unless perhaps they should happen to decline to a point where it would prove tempting to anticipate again.

Spring bakers' have been relatively quiet during the month, the few sales recorded being mostly at old figures.

They do not all partake of the changes experienced by the better qualities. We quote them to-day however, at $3.50 to $3.75.

City mills are heavily over-sold on Rio extra at prices ranging from $4.50 to $4.75. Some 20,000 barrels having been placed at these figures. The West India trade, too, has bought freely of super at $2.20 to $2.25, and standard family at $4.20 to $4.30.

Quite a fleet of vessels from the tropics is due here now to load flour for these points. It has all been engaged, however, and will cut no figure whatever in current market values.

City mills also report a large demand from their local, southern and New England trade. It is exceedingly difficult for them to catch up with orders.

The general trade here takes no stock in higher prices for flour, but, on the other hand rather expects a slight abatement from present rates.

We quote the range of the flour market as follows:

Western Winter Wheat Super	$2.50	@$3.00
" " " Extra	3.25	@ 4.00
" " " Family	4.15	@ 4.65
Winter Wheat Patent	4 75	@ 5.00
Spring " "	4.85	@ 5.25
" " Straight	4.25	@ 4.75
" " Bakers	3.50	@ 3.75
Baltimore Best Patent	5.45	@ 5.75
" Choice	5.30	@ 5.60
" High Grade Family	5.20	@ 5.50
" Choice " Extra	4.95	@ 5.25
Maryland, Virginia and Penna. Super	2.50	@ 2.75
" " " Extra	3.00	@ 3.75
" " " Family	4.15	@ 4.65
City Mills Super	2.25	@
" (Rio Brands Extra)	4.62½	@ 4.75
Rye Flour	2.75	@ 3.00

The wheat market here has been excited and buoyant, since a month ago, and closes at this writing on the cash stuff about 4 cents above our last quotations. The options, however, show a gain of only 2 cents in the same period. The great disparity in price which existed between spot wheat in Baltimore and that of New York has disappeared entirely, leaving the two markets now in a relatively normal condition, with the difference as it should be. We have been doing considerable export business of late in wheat, and that explains the improvement noted.

Indeed some claim that all of the No. 2, Red Winter has been sold here, and that it will certainly go out of elevators this month. Clearances from the port show up remarkably well, and if there are really 300,000 bushels of contract wheat yet to go, our supplies for a fact will be materially reduced.

We know of no source from which to replenish them, either, while the west remains as high as the seaboard.

A vast amount of crossing has been done between this and the Chicago and New York markets. It looks like a good thing, and will doubtless prove profitable to those engaged in it.

The latest Government Report, which estimated the yield of wheat at 494,000,000 of measured bushels, caused the boys to jump on the market and pound values down regardless of consequences.

We fail to see that we have any more wheat to-day than we had yesterday, "Uncle Sam" to the contrary notwithstanding.

It was sufficient, however, for the wild-cat operators to sell on to their heart's content. It looked as though they intended to market the whole crop to-day at whatever it might bring, irrespective of what to-morrow might bring forth. These fellows evidently forgot that Government Reports do not fill short sales; that they do not make receipts good enough to grade; that they do not satisfy the foreign demand. Well, they will find it out soon enough without our telling them.

Some of our larger traders have flopped over to the bull side, and prefer now to buy on breaks rather than to sell on bulges.

We see nothing in the situation to change our faith in higher prices while the visible supply hangs where it is; the foreign demand continues, and values remain nearly 30 cents a bushel below the figures of last year. We will find too, that the estimated yield by measured bushels will far exceed the actual returns by weight.

Millers experience great difficulty in obtaining assortments suitable for requirements. Nothing desirable comes this way at the moment. Most of the western arrivals are out of condition as well as those from near-by points. Receipts are so limited that they practically amount to nothing.

STOCK OF GRAIN IN ELEVATORS THIS DAY:

CORN.	
1 White	559
2 "	131,276
Yellow	5,896
Mixed	85,090
Steamer White	3,422
" mixed	2,012
Special Bin	22 909
Total	251,164
" 1888	72,239
RYE	1,116
" 1888	12,108

WHEAT.	
2 Red winter	515,428
3 " "	3,773
Stmr. 2 red winter	130,039
" 3 winter	1,317
Mixed "	774
Special Bin	325,160
Total	976,491
" 1888	1,347,511
OATS.	
2 White	12,373
2 Mixed	399
Special Bin	85,609
Total	98,381
" 1888	149,909

CLOSING AND COMPARATIVE PRICES.

Wheat. No. 2 Red.	Closing To-day.	Same time last year.
Spot	82½@82¾	108 @108¼
October	82½@82¾	108 @108¼
November	83½@83⅝	—@110
December	84¼@84⅜	111½@111¾
January	85½@85¾	113½@114
Steamer 2	—@76½	100 @—
Fultz	78 @88	110 @120
Longberry	80 @88	112 @120

CLOSING AND COMPARATIVE PRICES.

Corn. Mixed.	Closing To-day.	Same time last year.
Spot	—@40	51 @51¼
October	39¾@40	—@51
November	39¼@39½	—@—
Year	38⅝@38¾	46 @46¼
January	38⅝@38⅞	45½@45¾
Steamer	37½@—	—@—
White	40 @42	53 @55
Yellow	40 @41½	52 @54

FREIGHTS.—Grain freights are quiet, but very firm. Late free engagements nearly cover tonnage available at the moment, and there is a pause. Berth room Liverpool 5½d.; Glasgow 3 | 9; Belfast 4 | 3; London 4 | ; Antwerp 4 | 3@—, and Rotterdam 4 | @4 | 3 Havre 4 | 6-. Full cargos steam handy sizes, Cork f. o., October, 5 | -; November, December, January 4 | 9. Note engagement 1,000 qrs. steam to Bristol, November 4 | 6, and charters S. S. Baltimore City 15,000 qrs. November, and S. S. Trevorian 13,000 quarters, November, both 5 | Cork, f. o. Also 20,000 bus. steam to Liverpool, October 5½d., 4,000 qrs. do. Belfast, January 4 | 6, and 3,000 qrs. do. London. October, 4 | .

Grain charters have been immense here this week, aggregating more than the combined engagements in New York, Philadelphia and Boston, and we have no maritime exchange either.

ITEMS OF INTEREST TO THE TRADE.

H. A. Lederer, of S. P. Thompson & Co., who has been on an extended Western tour for his firm, returned home a few days ago.

J. S. Moore, formerly of Chicago, but now sub-agent for D. W. Carhart of New York, was in Baltimore this week representing the Daisy Roller Mills of Milwaukee.

M. H. Davis, secretary and treasurer of the Shelby Mill Co., of Shelby, O., has returned from his visit to Michigan.

A. A. Keene representing the Sidle Fletcher Holmes Co. of Minneapolis is back home from his trip to that city.

Rinehart, Childs & Co. are doing a whaling big business, and seem wholly unable to supply their ever increasing demand for "Jamestown."

C, Ruhl Sr. is confined to his house by sickness—His sons Henry and Conrad Jr. conduct the business in his absence.

Frank Boehmer, the popular jolly and handsome salesman of Louis Sinsheimer, wholesale flour jobber of Baltimore, has recently taken unto himself a wife.—May they both live long and prosper.

Mudge, Smith & Co., of Baltimore are rapidly pushing ahead of some of our oldest flour houses in point of business. Pluck, perseverence and integrity you know, will get there every time.

Statistician Wroth, otherwise known as "Our Harry," beat all the experts on his estimate of the new wheat crop. He came within 6,000,000 of the Government's estimate. This entitles him to a high seat in the synagogue of professionals.

S. C. Patterson has returned from a brief western trip in the interest of the BALTIMORE JOURNAL OF COMMERCE.

Short weight flour is complained of again. The miller who will persistently do that thing would steal the cents off a dead man's eyes, if he had a chance.

J. Hume Smith is said to have made considerable money on this crop of wheat. His business is that of a mixer.

E. N. Gardner & Co. have just finished decorating their offices very handsomely. The improvement was needed, and will doubtless add much to the comfort of their many customers.

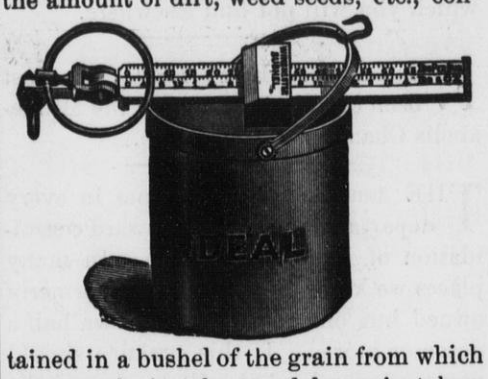
Tate, Mueller & Co. will shortly clear another cargo of wheat for Rio to take the place of the one recently lost on the coast after being enroute but a few days.

There seems to be no let up in Peter New & Sons trade, They are always busy, and must of necessity be making money hand over fist. ORIOLE.

Baltimore, Oct. 12, 1889.

DEAL'S STANDARD IMPROVED GRAIN TESTERS.

The illustration herewith shows at a glance one of the most useful and important and necessary implements that the grain buyer can have. When purchasing grain he can fill up his tester, (they are made of three sizes—one pint, one quart and two quarts,) weigh it quickly, read the weight per bushel and determine closely the amount of dirt, weed seeds, etc., contained in a bushel of the grain from which the sample is taken and know just how much he ought to pay per bushel. This practical and useful implement is manufactured and sold by the H. J. Deal Specialty Co., of Bucyrus, O. Send for their latest folder giving a list of the specialties they sell.



THE AMERICAN MILL CO. OF NASHVILLE, TENN.

THIS company is about to greatly increase the capacity of their flour mill and also of their grain elevators. Messrs. E. P. Allis & Co., of Milwaukee, will do the work. The mill, when completed, will without doubt be the greatest winter-wheat mill in this or any other country. Referring to this matter the Nashville *Herald*, of Oct. 2, says:

In 1871 there was not an elevator in the city, and only two small mills, one owned by Noel & Plater and the other by the Reservoir Mill Co. So rapid was the increase in the business that in the year 1875 Mr. Noel purchased a tract of land running parallel with the railroad track, near Ewing avenue, and built an elevator with a capacity of 120,000 bus. The milling capacity of the firm has since been increased to 1,500 bbls per day, but even this has been found to be inadequate, and now these gentlemen propose to build a mill and elevator which will be the largest for winter wheat in the world and the third largest mill of any kind in the United States.

In addition to the capacity of the Noel mill, three other elevators are now in operation in the city, and yet the combined capacity of these elevators is entirely too limited to accommodate the quantities of wheat which seek a market here, and it is stated by the grain dealers that thousands of bushels of wheat are turned away for lack of storage room.

All the mills in the city are now running on full time, day and night, and are behind with their orders. The American Mill Co. will begin at once the construction of the buildings for the additional capacity and expect to have it in operation by next October. In the meantime the present mill will be run to its full capacity. J. E. Watson, representing the Reliance Works, arrived in the city yesterday and was busily engaged to-day in making the preliminary surveys for the erection of the plant.

ONE-HALF FARE TO MONTGOMERY.

On account of the Exposition the Queen and Crescent Route will sell excursion tickets to Montgomery, Ala., and return on Nov. 4, 8 and 12, at one fare for round trip from all coupon stations between Cincinnati and Junction City, inclusive. Tickets good for return for 20 days. The route is via Lookout Mountain. Three trains each way daily with Pullman Buffet and Sleeping cars.

THE publisher of the UNITED STATES MILLER is desirous of having the names and addresses of Head Millers, Millwrights and Head Engineers in all mills having a capacity of 150 bbls. per day or more.

SPECIAL STAMPERS OF SHEET METALS.

We do Stamping and Pressing of Sheet Metals for All Classes of Work. Also Tinning, Galvanizing & Japanning.

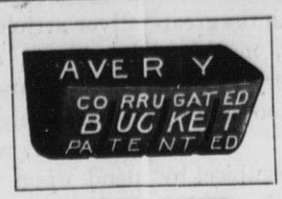
—ALSO SOLE MANUFACTURERS OF—

SEAMLESS STEEL BUCKETS

INSIST on having this Bucket furnished when ordering.

Ask your dealer for the Avery Pat. Seamless Steel Elev. Bucket.

H. W. CALDWELL, General Agent,



CALDWELL PATENT.

We do not advertise Seamless Elevator Buckets and fill orders with "Pieced Ones"

. . . . SEND FOR DISCOUNTS. . . . .

THE AVERY STAMPING CO.,

—SUCCESSORS TO—

AVERY ELEVATOR BUCKET CO., CLEVELAND, OHIO, U. S. A.

131 West Washington Street, CHICAGO, ILL.

The Link-Belt Machinery Co.

Are Prepared to Furnish Machinery and Appliances for

Transmission of Power

After the most approved Plans, by use of

MANILLA ROPE.

SHAFTING · PULLEYS HANGERS GEARS ·

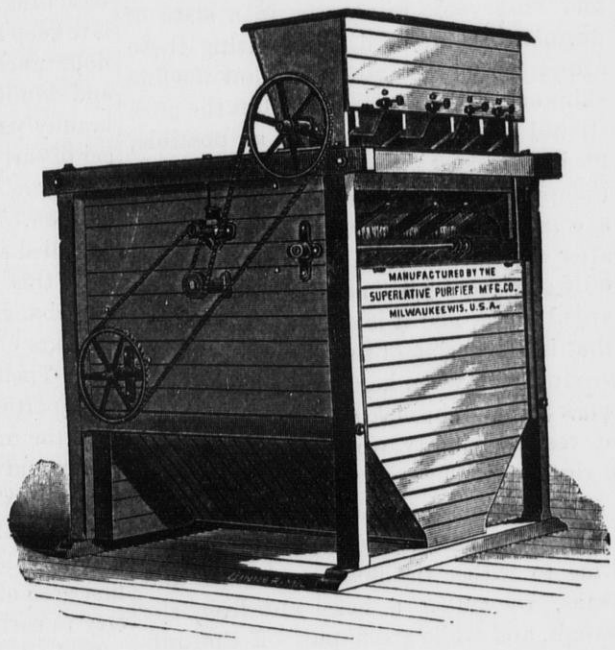
For Particulars and Estimates apply to them at

CHICAGO: 11 to 23 S. Jefferson St. **MINNEAPOLIS:** 200 to 202 Washington Ave. S.

Improve Your Scalping, and Thus Improve Your Flour

BY USING THE

NEW ERA SCALPER.



These machines are in use in many leading mills in the country and their work speaks for itself. Guaranteed in every respect and trial allowed if desired. One machine will handle four breaks in a 75 to 100 bbl. mill, or one break in a 500 bbl. mill. Also built two or three or four high, to handle break stock, chop and middlings.

Read the Following. We Can Give You Equal Satisfaction

MILROY, IND., Sept. 18, 1889.

SUPERLATIVE PURIFIER MFG. CO., Milwaukee, Wis.

Gentlemen: The machines bought of you—Scalper and Bran Duster—are at work, and have been for several days, and are doing the work splendidly and take very little power—in fact are working beyond my expectations. The cloths all came in good shape, and fit nice and neat. They are the nicest fitting cloths I ever put on a reel. I have increased the capacity of my mill 20 bbls. and am well pleased with the results.

Respectfully yours, G. J. BICKHART & CO.

WRITE FOR CIRCULARS AND PRICES.

SUPERLATIVE PURIFIER MFG. CO.,

MILWAUKEE, WISCONSIN.

ESTABLISHED 1846.

J. B. A. KERN & SON,

Merchant Millers,

Capacity 2,000 Barrels Per Day. MILWAUKEE, WIS.

Manufacturers of Choice Minnesota and Dakota Hard Wheat Flour.

RYE FLOUR

By most approved roller process, guaranteed the best and purest rye flour manufactured

WE INVITE CORRESPONDENCE FROM CASH BUYERS.

SCIENTIFIC AMERICAN

ESTABLISHED 1845.

Is the oldest and most popular scientific and mechanical paper published and has the largest circulation of any paper of its class in the world. Fully illustrated. Best class of Wood Engravings. Published weekly. Send for specimen copy. Price $3 a year. Four months' trial, $1. MUNN & CO., PUBLISHERS, 361 Broadway, N.Y.

ARCHITECTS & BUILDERS Edition of Scientific American.

A great success. Each issue contains colored lithographic plates of country and city residences or public buildings. Numerous engravings and full plans and specifications for the use of such as contemplate building. Price $2.50 a year, 25 cts. a copy. MUNN & CO., PUBLISHERS.

PATENTS may be secured by applying to MUNN & Co., who have had over 40 years' experience and have made over 100,000 applications for American and Foreign patents. Send for Handbook. Correspondence strictly confidential.

TRADE MARKS.

In case your mark is not registered in the Patent Office, apply to MUNN & Co., and procure immediate protection. Send for Handbook.

COPYRIGHTS for books, charts, maps, etc. quickly procured. Address

MUNN & CO., Patent Solicitors,

GENERAL OFFICE: 361 BROADWAY, N. Y.

WANTED.

[*Short ads. inserted in this column for $1 per insertion.*]

PARTNER WANTED. A practical miller, owns a first-class water-power in Dunn County, Wis. It has rock bottom and rock banks. It is worthy of careful inspection. No mill within 20 miles. Would be plenty of custom trade. The owner has not sufficient means to build a mill and wants a partner with from $4,000 to $6,000 to take an interest with him. If you mean straight business, write or come and see A. BELLACH, Red Cedar Falls, Dunn Co., Wis.

PARTNER WANTED. A sober, industrious man, who understands the flour milling bnsiness, and has a capital of three thousand dollars. For particulars apply to W. J. MILLER & Co., Ballinger, Texas.

WANTED. A position as head miller in a mill from 150 bbls. upwards, by a miller of over 20 years' experience in first-class mills; have been in charge of mills from 200 to 800 bbls. capacity for 12 years; have first-class references; 10 years in one mill. Address MILLER, care of U. S. Miller, Milwaukee, Wis.

FOR SALE AND TO RENT.

[*Short ads. inserted in this column for $1 per insertion.*]

FOR SALE OR LEASE. Mill site and improved water power for sale or lease on good terms, or will turn the property in and take partnership in flour milling business with a practical man who can furnish additional capital required. Address, F. P. BLAKE, Canon City, Colo.

FOR SALE OR LEASE. Fine elevator and milling property. A 150-barrel roller mill, located in central South Dakota; also two elevators, capacity 25,000 and 35,000 bushels; easy terms; small amount cash down, balance long time, low rate interest. Good crop of finest quality of wheat secured in this section. Investigation invited. Full particulars by addressing, X. X. UNITED STATES MILLER, Milwaukee, Wis.

Sep3t

FOR SALE. A full roller process flouring mill, 100 barrels' capacity. Equipped with most approved modern machinery. Built less than one year. Citizens gave a bonus of $2,500, which I will allow to purchaser of mill. Having an interest in a mill furnishing business, I desire to give it all my time. Full particulars on application. H. C. DUTTON, Port Austin, Mich.

FOR SALE. GRAY'S HARBOR. Having come into possession of a flour mill, and being wholly unacquainted with the business, I desire to sell either a part or the whole of the property. It is the only flour mill in this, Gray's Harbor, region, and has a good custom and merchant business, which is rapidly increasing. It requires a man who understands handling a merchant and custom mill. There are fifty-one acres of excellent bottom land included in the property. First-class water power. Address REV. HIRAM F. WHITE, Elma, Chehalis Co., Wash. Ter.

PATENTS!

WRITE AT ONCE FOR ILLUSTRATED CIRCULAR and INSTRUCTIONS.

ADVICE FREE.

J. B. CRALLE & CO.,

WASHINGTON, D. C.

READ

—THE—

NEW YORK

Daily Commercial Bulletin

Its reputation as the most reliable commercial paper is conceded by all.

Sample Copies Free.

Its markets Reports are the most complete and trustworthy of any published and cover all trades.

Save Your Money

by subscribing to the "Daily Commercial Bulletin" and read its reports of the New York Markets.

PRICE:

	Per Year.	Six Mos.
Daily.	$12 00	$6 50
Tri-Weekly.	6 75	3 50
Semi-Weekly.	5 00	2 75

ADDRESS:

New York Daily Bulletin Association,

No. 32 Broadway, - NEW YORK CITY.

OBSERVATIONS ON THE COLOR OF WHEAT FLOUR CONSIDERED FROM THE STANDPOINT OF THE MANUFACTURER AND THE MERCHANT.

BY MR. FRANK ASHBY.

I propose firstly to consider

COLOR AS AFFECTED BY THE PROCESSES OF MANUFACTURE, CONTRASTING, OR RATHER COMPARING, AUTOMATIC WITH NON-AUTOMATIC MILLING.

We are too liable to forget that in milling we are dealing with a living organism—that we are not, as quartz crushers, engaged in grinding inorganic rock which simply has to be reduced and granulated; for though the wheat berry lies passive in our hands, to be scrubbed and blown and set hopping over our sieves, and though we design finally to dissect him skin from skin and cell from cell, we must do this tenderly and with the least possible friction, for he is worthy of our respect. Were the iron upon the globe to be reduced to a single ounce, the supply of that metal would be irrecoverably lost, but a single grain of wheat saved, and in a very few years the world's population would be again fed with bread.

I emphasize this because I wish to impress the point that we must give the wheat berry time to *die.*

Disregard of this fact, I submit, is a defect in our modern automatic roller milling. The wheat berry consisting of a kernel with several protecting skins, germ and embryonic membrane in a state of dormant life, we need, after cutting these asunder from each other, to allow the fine skins or membranes to *wither;* but the *germ* should be removed as soon as possible, for in it resides the principle of life, quite independent of the rest of the grain. As a consequence the germ will grow even after being dissected from the grain if only some equivalent nourishment be provided for it; and it is often to be observed that in the spring of the year flour newly ground will, when kept in a warm place, work through the sack showing an amount of restless vitality which the process of disintegration has not wholly destroyed.

To illustrate the thought I am endeavoring to bring forward, as to the need of time to wither the fine membranes and skins, we gather a hazel nut from the bough, and while green pull off the outside husk. You will find that it adheres tenaciously to the shell, but if kept awhile and harvested these separate, the skin withering and the nut hardening.

This, I believe, is the process going on when a sack of meal is kept for a few weeks before dressing, which system was so highly approved by our forefathers; and in modern milling, if the unpurified middlings are kept for a time, the light inner skin still adhering or being in mixture with the small kernel or semolina requires time to dry and wither, after which a much more perfect purification can be effected and the hardened kernel more quickly reduced to flour; and the flour is more granular and is more in the condition suited to the growth of the yeast plant in fermentation.

This pause in the manufacture also enables the miller to make his selections for his highest grades.

But knowing the impossibility in large mills in England to allow this pause and the manual grading or selection, on account of its great cost, the balance of advantage is doubtless on the side of automatic milling, though in our mills at Croydon the finest flour, and that upon which we can place the most dependence, is still made upon a small non-automatic plant.

Would it not be possible to provide an artificial harvesting of the middlings at this point of the reductions by heating the air supplied to purifiers or drying the material over heated rollers? No doubt constant and unremitting acts of purification have largely this drying and harvesting effect, and are not the least of the advantages gained by those millers who follow up the process of purifying with the greatest continuity to the very end, machines for this fine work being of very modern production, and cannot be too eagerly sought after.

I conclude this branch of the subject by reminding you how wonderful is the life principle in the wheat berry, when wheat grains preserved in the mummies of Egypt for 6,000 years have grown when planted in good soil, and have propagated after their kind as though but of yesterday.

OVER-HEATING IN GRINDING.—The effect of over-heating in manufacture has been so largely treated in other papers that from fear of getting my paper too long and merely repeating others, I forbear going into detail further than to say it is one of the most mischievous forms of discoloration, as it not only lowers the color, but if the heat is over 112 deg. Fahr. the gluten is much injured and loses its power of elasticity.

Over-heating also indicates many other evils sure to be in attendance, such as cutting up the skins, &c. The rule to bear in mind is, make as little flour as possible while the outer skins are present in large proportions, right through the reductions and granulation, grind with light pressure till the woody fibre is scalped, dressed or purified from the chop.

ATMOSPHERIC EFFECT UPON COLOR.—We are familiar with the words in our flour contracts, "Due allowance being made for bleaching," and how almost impossible it is to keep in condition a standard sample of flour unchanged for any length of time, and doubtless the presence of germ and branny particles greatly increase the danger of early deterioration. Upon this subject there is room for much difference of opinion. The deterioration may, perhaps, be called simply decay, but it is not always this, for in pure flours there is much less change than in flours with large admixture of germ and bran.

1. Then I submit the change arising from particles of branny matter, softening with the moisture in the flour and atmosphere, and a consequent fermentation set up, the oxygen then combines with the carbon of the vegetable matter in ferment, and the coloring matter being decomposed first goes off with some of the oily property in carbonic acid gas.

2. In the process of grinding the oily matter residing in the germ (which is largely the coloring property so far as yellow is concerned in it) comes in contact with the alkaline salts which exist in very small quantities in the wheat berry (according to Dr. Kick's analysis), the oily matter is dissolved (soap formed) and the heat of the atmosphere causes exhalation. It may be a debatable point whether the alkalies are free to unite with the oily matter until they are reduced to the ash state, which has been done in the analysis mentioned, but having regard to the fermentation in the first place, I should submit that both processes are concerned in the result. We know that light, temperature and moisture are the agents affecting the changes. Yet no rule or regulation or system is adhered to in keeping flour samples awaiting delivery of bulk, and therefore arbitrators have great difficulty in estimating the degree of bleaching which may have taken place in the bought sample.

Such samples are often packed away in the blue paper, so usually employed in the trade, which paper is not suitable for the purpose, and is, I believe, one of the factors in bleaching the flour so packed. I had a quantity of this analyzed by Mr. Lester Reed, F.I.C., F.C.S., of Croydon. He says:

"I have been doing some experiments with the blue paper, which lead me to the concluison that some organic coloring matter has been used, very probably indigo, which the blue of the paper closely resembles in its properties.

"I find a trace of sulphur in some form. I am told that such blue paper cannot suitably be used by jewelers for packing silver articles in on account of its tarnishing them, although they attribute the effect to arsenic. Now the presence of sulphur might perhaps account (although whether it would do so or not would depend upon the form in which it is present) both for the tarnishing and for the bleaching.

"It is quite unlikely that the bleaching action of the paper is due to chlorine, as that would destroy the blue of the paper, and so can hardly be present in it, and sulphur is, I think, the only other likely thing to account for the effect."

Flour for the above purpose should be packed in canvas bags, placed in a room away from strong light, in an even temperature of, say 60 degs., in not less than 2lb. samples, and in a place free from damp.

PHYSIOLOGICAL CAUSES OF COLOR.—The color of flour is not only affected by the various tints of the wheat used, but also by the impurities with which we find it admixed. Assuming that even after most methods of cleaning there yet remain some of these impurities in what we technically call cleaned wheat, I am about to demonstrate the effect of this upon color in the flour. We commence our process of grinding upon material of the following colors:—Red, yellow of the outer skin, according to the varieties of wheat, and the yellow tint of the germ and oily particles, the white, grey and orange of the gluten and starch cells, and the blue or milky tints of the inner skins, and the black and blue tints added by such impurities as cockle, barley, rye and dirt; these colors are by grinding more or less mixed, and are seen in the flour when marketed.

The flour is then a compound of granular particles differing in color, density, form, size and degree of transparency, and consisting of woody matter, gluten, starch &c., and in color red, yellow, blue and black, with every variety of shade in these colors mixed in various proportions. We examine this compound in a light which may be strong or weak, white light of noonday or tinted with the prismatic rays of early morning or evening, or perhaps in which a light which is tinted by objects from it has reached us by reflection; the eye also being affected by the constant change of the angle of incidence, the retina itself being subject to an extraordinary and interesting number of delusions, by which the judgment is liable often to be misled.

This part of my subject may be illustrated by noticing the effect made upon the eye by particles in motion, which are all of one size, shape and color. Obtain two pieces of perforated zinc, holes, say $\frac{1}{32}$ inch, cut two discs three inches in diameter, rivet together in the centre, and revolve one on the other, notice the number of patterns in the holes associated with each other, and the remarkable half-tones and patterns thrown up from the surface. It would be a hopeless task to attempt to count the numberless combinations possible of form and light and shade upon this simple instrument, and how the rays of light play among the particles.

In this interesting question of permutation of numbers, Rev. S. Kines, Ph. D., mentions that at one period a bell ringer, E. White, had been in charge of the spendid peal of 12 bells in St. Bride's, Fleet st., London, and on his cottage wall was hanging an account of an achievement upon them which came off December 13, 1841, when 5,136 changes were rung by his company in 3 hours and 53 minutes. Now the number of possible changes on 12 bells would be 479,001,600. Supposing 12 men for 300 days in every year were to repeat this, it would take them 300 years to complete all the possible changes upon 12 bells.

The same writer points out that a lock has been supplied to the bank of England, the key of which has 15 levers; there is a million millions to one against the man who attempts to pick it, and this means that if a burglar tries a key every second of his life, night and day from birth to 60 years of age, he would have to live 500 such lives, employing the whole of his seconds of existence, before he could try all the possible changes in the keys with 15 levers. This will help the mind to value the possible changes in the disc zinc before us.

But in a sample of flour we have items of all shapes and sizes, and varying in density—a fact which adds immensely to to the possible combinations of light and shade when the flour is presented to the eye in motion and placed in various lights. The great difference, however, remains to be explained, viz., Color. We must, therefore, go back to our original material. Red or a reddish brown is present when wheat has not been carefully cleaned and brushed, too much of the episperm being left upon it; or when in wheat reduction the last break roller has gone too close to the "bone," and the gluten cells have been removed with too much woody matter attached, we then have red.

Yellow is present, but is not so objectionable unless it arises from germ. The gluten cells often have a yellow tint. Blue and black are present when the wheat has been imperfectly cleaned, or when the first break flour, and with it the fine milky blue skin, is present, which skin should undoubtedly be removed by the rotary scalper. This is the best scalper for the first four breaks.

Now with these three colors we can account for all the tints found in flour, for in mixing pigment out of these, three colors can be produced in secondary combination—orange, green, purple; and in the tertiary, brown, broken green, and grey, and a very small quantity of blue and black will affect the whole mass. It has been said by Bacon, that to produce harmony in a landscape all the primary colors must be present; but this is all changed in our work, for to produce harmony in the bakehouse, two at least must be absent.

I will write these colors down again and proceed to cancel them:—Primary, red, yellow, blue or black; secondary, orange, green, purple; tertiary, brown, broken green, grey.

It may be said, whoever saw green or purple flour? These two colors may not be seen in dry flour, nor until the fine dirty powder goes into solution, but green or broken green is often found in the gluten when the starch has been washed out, and a deep brown purple is also occasionally found, while grey is the prevailing tint.

It is well known to painters that representation in all colors can be produced with very few pigments, and that red, yellow, blue and indigo, or lamp black will produce almost any tint required. This again confirms my statement accounting for the great number of shades found in flour.

Now, if by cleaning and washing wheat and making perfect separation of impurities we cancel blue and black, we thus get removed nearly all the objectionable colors, for with these must follow the compounds, green, purple, brown, broken green, and grey.

And then if by polishing and brushing the wheat and purifying, the coloring matteris removed of the red color, the orange and foxy tint must follow, and we have left only the pure yellow and white flour—and it is perfectly wonderful to see the result when, in the careful manufacture of flour, this is properly done, when compared with the neglect of so doing.

To demonstrate the neglect, I have here some copper filings, which is the nearest metalic powder I can use to represent the fine red branny particles of the outside coat of the wheat berry, and some powdered sulphur to represent the floury part. Mixed together you get a dirty blue-green, all the beautiful yellow has entirely gone and no sign of red remains, yet, if placed under the microscope it is seen to be merely a mechanical mixture, both, as it were, spoiled in color and yet not changed. And so it is with the flour; the mischief

CONTINUED ON NEXT PAGE.

done by bran-dust is out of all proportion to the weight it brings to the grist.

The remarkable effect of colored particles brought into close mixture is shown in shot silk, where the warp and woof are of different colors, in some light, looking one color, and the slightest change of position giving a different reflection of tint to the observer; and while upon this subject I may be pardoned the digression to instance the interesting fact known to fishermen, that all freshwater fish in our millponds and streams can change color by expanding or contracting their spots of red, yellow, black, and after a few trials match the bottom of the river or pond in which they may be at the moment, no doubt assisted by the medium in which they float, to blend the color to the eye of an observer, to the end of self-preservation; a pigeon's breast and a peacock's plumage also give results showing the effect of small particles differing in color ever changing in position, and delighting the eye with endless changes.

If we need further proof of the mischief arising of mixing low grade with bright colors, I instance the practice of sending back returns to nearly finished early products in our flow sheets, commonly practised in early days of roller-milling experience—and how soon results show us the error. And again, many of us have had to deal with the problem in this way: you have in the mill 50 sacks of fine flour, say patent, 20 sacks of medium, 40 sacks of thirds, and you have an order for 60 sacks of medium flour; you perhaps order 20 sacks of thirds to be mixed with 10 patents, hoping to make a medium flour equal to your stock, but you will be entirely wrong—you will find the 20 bad ears blighted with the east wind swallow up the 10 good ears. "And when they had eaten them up, it could not be known that they had eaten them, but they were still ill-favored as at the beginning."

Light in which Flour is Examined, and the Objects which Reflect it.—A surface of flour held in 20 different lights will probably reflect to the eye as many shades or tints, for when we remember that all different objects reflect some, and usually colored light, we see that the tints of our flour under these circumstances depend not only on its own proper color as seen in pure sunlight, but also upon the presence of its surroundings, not merely from contrast, which I shall consider presently, but the tints due to mediums. Note, for instance, an extreme case in the Blue Cavern at Capri.

Thus we find if the flour we wish to examine is a slight red hue, and is in the neighborhood of something green the red will incline to orange. If near some yellow object the tendency will be more deeply marked; and again if the same sample is placed in a light reflected by a blue or violet curtain or blind the result will be a deeper red or slight purple. The amount of light also makes much change in the appearance of flour, and also whether we look close up to them, or some distance away, or whether we examine them with eyes half-closed or wide open.

Flour too, of a bright yellow color would contrast differently when compared against a dull gray flour, in different amounts of light, because the bright flour has in itself, more luminosity, and would look brighter in a dull light than the grey flour, as compared with a former test in a bright light.

Much care is necessary when on the walls of your room or market you can note differing colors reflected, or outside the windows, perhaps, a red brick wall or yellow fence.

Contrast and Association of Colors.—Great apparent changes take place by contrast, hence importance of the background.

If we cut out of a sheet of red paper two square pieces, and then place one of them on the sheet from which it has been taken, and place the other upon a green sheet, the red square upon the red sheet will not look so brilliant as the red square upon the green ground.

In the same way we find that a sample of flour slightly reddish when placed upon a white ground appears darker and more intense, and upon a black ground it becomes tinted somewhat orange red, and upon a dark grey ground it loses intensity and looks a purer white. If you place a sample slightly reddish upon a mahogany table or desk, and a sample of the same flour on a child's slate, holding them about two feet apart, you would not believe them to be the same flour, the background will so completely change their appearance.

Orange tinted flour on a white ground looks darker and reddish, and on a black ground more yellow.

Yellow on a white ground appears darker and more greenish, or in some shades brownish, and on a black ground whiter. Thus you take a sample of flour from the mills and look at it again in your house, place it upon a table or near a curtain, it will look very different; and even a change from a brown suit of clothes to a darker suit, will make, perhaps, to many an unaccountable, and frequently a perplexing alteration.

An interesting account is given by Chevreul in his great work on the simultaneous contrasts of color. He says: "Plain red, violet and blue woven stuffs were given by certain dealers to manufacture with the request that they should ornament them with black patterns; when the goods were returned the dealers complained that the patterns were not black, maintaining that those traced on the red stuffs were green, on the violet dark greenish yellow, and on the blue copper-colored." Chevreul covered the ground with white paper in such away as to expose only the patterns, when it was found that the color of each pattern was truly black. The effect had been only due to contrast. Thus again contrast of samples of flour with each other, apart from the question of background, is important.

If it is desired to produce a strong effect of contrast, the samples must be placed as near each other as possible, and as you remove them to some distance the difference shades off, in proportion to the distance.

When "Red Dog" is placed close to good orange flour, the red flour looks somewhat purplish, and the orange appears more yellowish.

When orange is close to yellow, the former looks more reddish and the yellow greenish-yellow.

It is a rule of contrast in color that all bright colors in association increase each other in brilliancy, that is they all become more saturated, while all dull colors have an opposite effect, that is, they are made to appear duller and more indistinct; therefore it is evident that contrast may be helpful or harmful. Fine bright samples improve each other's appearance, while impure and dull samples may appear paler and even more dirty.

There is yet another point to call attention to, viz., if a number of narrow slips of flour of differing tints are arranged close together and viewed at such a distance that the blending is more or less accomplished by the eye of the beholder—a very frequent practice in many mills—the tints will differ with each other and mix on the retina of the eye and produce new colors. This is often a very troublesome effect.

In fact this question of contrast can hardly be overstated. A great master upon color says, "The extent of the difficulty can be appreciated when we remember that contrast affects not only the intensity of the color, but its position in the chromatic circle; and also its apparent luminosity, and is particularly lively in the case of the pale colors of nature.

The Eye.—It seems to me no paper on color would be complete without allusion to the organ with which we are able to enjoy light and the many shades of color.

Sir J. Lubbock's work upon the eyes of animals and insects should be read by all interested—he considers most creatures are sensible of differences in color, though many can only detect light from darkness and are not able to define a clear image upon the retina or such other nerve of sight as they may possess.

It is also a fact that in nearly every company of 18 persons, one will be blind to some one color or more.

So sensitive is the human retina, it has been estimated that a change of tint is perceived in a forty-billionth of a second, and that 2,000,000 tints are appreciated by the eye and brain. Young and Hemhold's theory of sight is the one now largely accepted, viz., that three sets of nerves exist in the retina for appreciating color, and that they somewhat easily tire, so that if we gaze long on any color, we tire the nerve devoted to measure, as it were, the wave length of that color—so that on thus gazing intently and then closing the eyes or removing the sight upon another background, we see an image of the color farther away on the chromatic scale, or its complementary color, so-called. Thus, look long on a bright red, and we see as its complementary color a blue green, when removing the sight; and in case of green we should see a rose red, and again a long and too constant attention of the eyes upon yellowish flour will produce a misty ghost of a purple shade, troubling the sight and balking the judgment. We thus arrive at another application in our work; who has not shut his eyes in weariness saying. "I cannot look at these samples any more now, they bother me; I really do not know which is the best color!" When we are thus suffering from weariness of the nerve of the retina, our brain is not correctly informed on the subject, and failure must result.

I have only thus dealt with flour in a dry state and in a fine powder.

I must not omit to call attention to the effect of dirt or coloring matter when water is added, and as the most valuable flour test for color is M. Pekar's (and I will assume all are acquainted with it) I need not do more than refer those who are uninformed to Prof. Kick's work, page 251.

But there is one characteristic in this test which has often been noted by me, and my attention has been called to it by other millers; that after wetting a number of samples of flour till the surface is properly saturated, you must make your comparison either at once, or when they are quite dry, and to learn all you can you should compare them in both these conditions; but it will be worse than useless to examine them for the purpose of comparison any time while drying, as the changes that go on in each sample are inconstant and somewhat difficult to account for. I believe it may be due to the dirt or other coloring matter going into solution and staining the particles.

If the floor of a room has been swept ever so clean with a hair broom, yet if it is then washed the water in the pail reveals that much dirt was left; and if a wheat is ever so well cleaned with the dry process and then washed in a good wheat washing machine, the water reveals the dirt still remaining. And M. Pekar's test shows, perhaps, in the very best way how much of free soluble coloring matter is left in the flour, which will discolor the bread when the flour has been put through the final test in the dough.

Before giving a few hints on the care to be exercised in testing flour for color, I should like to remark, after a well-known writer, how our "unconscious education is enormously in advance of our conscious; our memory of sensations is immense; our recollections of the *causes* that produce them utterly insignificant; we do not remember the causes mainly because we never know them." It will, I hope, be found my work has been to endeavor to trace back to these causes, and make them plain to us in the subject which I have undertaken in my paper.

And though troublesome in judging flour we cannot regret the difficulty we have to overcome, for color gradations are the most pleasant and the most precious of the beauties in nature, and the orderly succession of tints gently blending into one another the real delight to every landscape.

Accurately to test flour samples it is needful to reduce to the smallest limits the varying conditions of our surroundings. To this end a few suggestions may be helpful.

1. Choose a certain color for your background or sampling board, and having observed the effect of each tint, use only the one you have become accustomed to.

2. Place all the samples at equal distances, see that they are of the same area, shape and thickness, and not too thin upon the board, as the transmitted light from the background will affect seriously the test; press them to equal density.

3. Take note of the light, both in amount and of any surrounding object by which it is transmitted, reflected or saturated, and try and obtain a northern light free from colored objects.

4. Place your samples where the same light in amount will fall on each, and if you have doubts use a good mirror to assist your judgment viewing them by a reflection.

5. With regard to the eye, rest the nerve by shutting the eye till you see only blackness, or rest them upon a black ground; constantly fear the ghost image.

6. It being impossible to decide about the actual tints of a flour when surrounded by a colored field, it is useful to employ a large piece of black card board with a slit large enough cut in it, and to be held in such a way as to admit to view in the field of vision only the flour you wish to compare.

7. In using M. Pekar's test wait till your test samples are quite dry before you conclude your work.

It is a very interesting investigation. Can any test be found which would enable an analysis of color to be made, and percentages of grades recorded? There are a few good and useful attempts to solve this question now offered us, but there is yet room for an invention which shall produce a perfect standard or color constant.

About Grain-cleaning Machinnery.—A valued contributor writes The U. S. Miller and Milling Engineer as follows:

"Although the question of grain cleaning seem to have been worn almost threadbare, still there appears to be a certain amount of uncertainty in choosing a machine. Some handle the grain too roughly, requiring much power to drive them and taking off more of the kernel than is desirable, but turn out well-cleaned grain rapidly. Other machines treat the grain more gently, require little power, are of less capacity and want more machines to do the work. It appears to the writer that it would be more economical and satisfactory in the long run, to use the latter class of machines."

Chicago, Milwaukee & St. Paul Railway.

Steam Heated and Electric Lighted Vestibuled Trains between Chicago, St. Paul and Minneapolis.
Electric Lighted and Steam Heated Vestibuled Trains between Chicago, Council Bluffs and Omaha.
Finest Dining Cars in the world.
Through Sleeping Cars between Chicago and Denver.
Free Reclining Chair Cars between Chicago and Omaha.
Fast Mail Line between Chicago, Milwaukee, St. Paul and Minneapolis.
Transcontinental Route between Chicago, Council Bluffs, and Omaha or St. Paul.
Great National Route between Chicago, Kansas City and St. Joseph, Mo.
5,700 miles of road in Illinois, Wisconsin, Minnesota, Iowa, Missouri, South and North Dakota.
Everything First-Class.
First-Class People patronize First-Class Lines.
Ticket Agents everywhere sell Tickets over the Chicago, Milwaukee & St. Paul Railway.

THE EXHIBITION OF WHEAT AT THE PARIS CONVENTION.

MR. M. J. LAVERRIERE, in the Paris *Journal des Debats*, gives the following account of the wheat exhibit at the recent Convention:

A feature of the Congress was the fine exhibition of samples of cereals, and the various appliances used in the processes of milling. Amongst the varieties of wheat on view there were several which appeared to possess special agricultural interest. The nitrogenous ingredient of wheat, or gluten, is usually present to the extent of from 10 to 11 per cent. of the weight of the grain, as has been shown by the analyses of Professor Aimé Girard. M. Henry L de Vilmorin has attempted to augment this richness in gluten by establishing new varieties, either by the process of hybridization or or crossing, or by that of selection. In the course of his hybridizing experiments, M. de Vilmorin has obtained two wheats —the autumn Lamed, which is a cross between Noé wheat and Prince Albert; and the Dattel, with white straw, red ear, and white grain, a cross between Prince Albert and Chiddam. The Lamed, which comes from seed, originated at Verrieres in 1872, has a mean percentage of 10.8 of gluten; the Dattel, established in 1874, has 12.06 per cent. of gluten. These two varieties, especially the Dattel, have become more and more cultivated in France, and give excellent results in many different parts of the country. There was, for example, on view a sample of Lamed, recently harvested by M. Fériol, at Cintegabelle, in the Haute-Garonne, upon a calcareous clay, the yield being 32 hectolitres per hectare (=36 bushels per acre), whilst in the alluvial soils of the Garonne, M. Ferran has obtained 28 hectolitres (=31 bushels per acre.) In the Eure-et-Loir, at Tachainville, Dattel has given upon a calcareous soil an average yield of 35 hectolitres (=38 bushels per acre.) M. Perrusset, a skilful cultivator in the Ain, has grown Lamed for ten years in a cold, sandy clay soil, and the results have been so satisfactory that he is inclined henceforward to cultivate this variety to the exclusion of others. In Lamed and Dattel, then, we have two cross-bred varieties which appear to be perfectly fixed and permanent, and which go on producing seed possessed of the of the richness in gluten and the high-yielding qualities characteristic of the original, and this under various conditions of soil and climate.

Not content with having established these two varieties, which have added fresh honors to the ancient renown of the house of Vilmorin, the present accomplished head of the firm placed on view two other varieties which are likely to substantially reinforce the number of successful hybrids. One of these, the Bordier, is the result of crossing the blue wheat (le blé blue, a variety of Noé wheat) with Prince Albert. Bordier is a very hardy variety, tall, rather early, with an elongated white ear and large white grain. The other, the Massue, is a cross between the varieties Browick and Miracle; it is equally hardy with Bordier, but should not be sown late. It produces freely, and its general qualities suffice to place it at the head of the red wheats. These two novelties are not yet in the hands of the trade, so that little is yet known as to their actual agricultural value under varying conditions of soil, situation and climate. Analyses by M. Aubin show Bordier to contain 10.25 per cent. of gluten, and Massue 10.87 per cent. on an average.

Besides the collection of M. de Vilmorin there were several excellent varieties from different districts of France, Among them were the Bordeaux and the Victoria, grown by M. Beaufresne, at St. Jaques in the Marne; the bearded Champagne, from the canton of Epernay; and the Saumur. The Eure-et-Loire sent, in addition to the Dattel already mentioned, some superb samples of nursery wheat; the Drome sent fine specimens of Saissette, grown near Valence, and the Aude some white Bladette, grown near Carcassone. The Bouches du Rhone, representing the milling district of Marseilles, sent about 60 samples, whose origin must probably be sought in the Levant, with which Marseilles has a large trading connection. The Haute-Garonne distinguished itself by sending a curious display of old and new varieties. Among the latter were complete specimens, including straw and roots, grown by M. Cornu at Auterive, of a cross between Golden Drops and Richelle; a fine Victoria wheat grown by Mr. Duchan; and some Bordeaux which gave M. Bonnet, 30 hectolitres to the acre (= 33 bushels per acre), at Noé, on the alluvial soil of Garonne. Inasmuch as the general average yield of wheat in France does not exceed sixteen bushels per acre, there appears to be reasonable ground for hoping that the extension of the cultivation of the better yielding varieties which have been indicated will be attended by useful results.

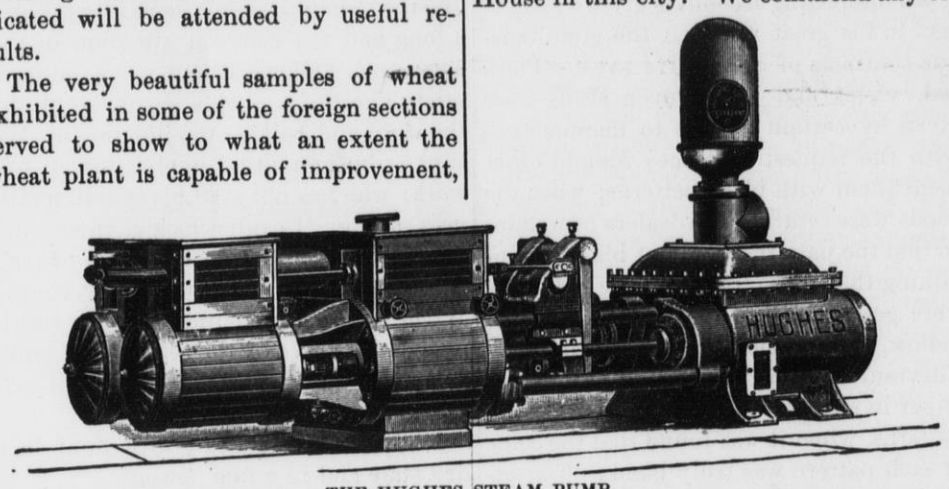
The very beautiful samples of wheat exhibited in some of the foreign sections served to show to what an extent the wheat plant is capable of improvement, and they helped to teach France the lesson that, despite all her protective duties, foreign wheats may prove too attractive for her own millers. The little red wheat of Lovain, Belgium; the Essex, Victoria, and Zelande wheats sent from Groningen and Middleburg (Holland) are not to be lightly regarded by the flour manufacturers of France. England, especially, says M. Laverriere, occupied at the exhibition a position of an entirely superior character, both for the wheats of her own soil and for the thousands of samples of Russian, Indian and American wheats, which she is able to draw to her vast markets. But what was above all put in evidence was the consummate art which English growers display in perfecting their races and varieties of cereals. As with farm animals so with plants, they are instinctive breeders, endowed with special aptitude for improving the living products of the farm. Such a disposition undoubtedly exists also in France, as the examples above cited serve to prove, but the number of those who furnish the testimony is comparatively small. These remarks from so accomplished an authority as M. Laverriere, are of much interest.

In the display of implements and machines there was nothing of greater interest than the Zapfle Fire Extinguisher—"les extincteurs d'incendie Zaphfle." They are of very simple construction, and consist of a pump light enough to be carried, by hand to wherever required. A special liquid is employed, and the apparatus is capable of projecting it to a distance of 45 to 50 feet The charge which is made of eight or nine pints of the extinguishing fluid in three times as much water, is effected in 8 or 10 seconds. The certain action of this mixture has been verified upon the highest authority in Paris, and besides its use for extinguishing fire in cases of emergency, the apparatus can be applied to numerous other purposes. Considering the risk of fire in town and farm granaries, and particularly in the dust-laden atmosphere of mills, it seems surprising that this appliance is not in more general requisition.

THE HUGHES STEAM PUMPS.

THE HUGHES STEAM PUMP CO., of Cleveland, O., recently sent us a catalogue of their steam pumps, which appears to us to be a model one. Condensed into about 60 pages we find illustrations, descriptions, prices, hints to users, etc., which furnish all the information necessary for either the prospective or present user of steam pumps. Full information in regard to ordering, either by mail or telegraph are given, also how to set and use pumps. In a recent letter from the Company they say: "Our pumps are all made heavier and with a longer stroke than any other pump in the market. This we consider a *very important* feature as it makes less wear for the pump. We have just fitted out the *Pioneer Press* Building, St. Paul, Minn., the Plankinton House, Milwaukee, Wis., and are building water-works for Albion and Wyandotte, Mich. We have been running our shop day and night for six months, being overstocked with orders for our general, single and duplex work."

We present herewith an illustration of the pump just placed in the Plankinton House in this city. We commend any of our readers desiring to obtain a steam pump for any purpose to address the HUGHES STEAM PUMP Co., Cleveland, O., for any information desired on the subject.



THE HUGHES STEAM PUMP.

NEWS.—THE W. Trow Company flour mills at Madison, Ind., are being run day and night, turning out every twenty-four hours between 700 and 800 barels of flour.

BURNED, Sept. 19, Oskamp & Haine's mill at Omaha, Neb. Loss $25,000.

M. S. ESLICK, Lincoln County, Tenn., has sold his flour mill to O. J. Dundas.

EDWARD RANDALL, an employee in the mill at Chippewa Falls, Wis., was probably fatally injured by getting caught in a wheel Sept. 19.

THE FOX River Flour & Paper Co., Appleton, Wis., has sold out its flouring mill interests, and the style is changed to the Fox River Paper Co. The company is doing a large business in wood pulp and paper manufacture.

HENRY C. MCCOOL, of Perryville, Ohio, an inventor and manufacturer of milling machinery, died Sept. 5, 1889. He leaves a family consisting of widow and two children. The business of H. C. McCool Mfg. Co. will go on as usual.

CANADIAN PACIFIC officials state that, that company will not build elevators at Duluth, as has been stated, but will increase the capacity at Fort William 1,500,000 bushels by building an annex to elevator A, which will bring the total storage capacity at the head of lake navigation to nearly 5,000,000 bushels, all owned by the Canadian Pacific Railway.

MR. FRED MESSER, Beloit, Wis., aged 41 years, president and manager of the Beloit Iron Works, one of the most extensive and prosperous institutions of its kind, died Sept. 27th, of typhoid pneumonia, after a week's illness. He was a very hard worker, had overtaxed himself in his duties, and was much debilitated when he was taken sick. His death creates a vacancy not easily filled. He leaves a widow and one child.

A SYNDICATE composed of Arnold, Carlton & McCord, Geo. E. Hoppie & Co., J. F. Simonds & Co., and E. A. Robertson & Co., of Atlanta, Ga., and P. P. Williams & Co., of Vicksburg, Miss., have recently purchased the Atlanta Elevator for $40,000, including a ½-acre of valuable ground, located in the heart of the city. They have formed a stock company under the name of "Atlanta Elevator & Warehouse Co." J. K. P. Carlton of Arnold, Carlton & McCord, President; Geo. E. Hoppie of Geo. E. Hoppie & Co., Gen'l Mng'r and Treas'r; Geo. M. Hope of E. A. Robertson & Co., Auditor. They propose to operate the property at once. Capacity 200,000 bushels.

AT Farmersville, Ala., the mill of J. S. Peakes was burned recently. Loss $2,500.

R. L. FRAZEE'S mill at Frazee City, Minn. was completely destroyed by fire, Oct. 13.

AT West Point, Georgia, Sept. 22, the grist and flour mill of the Union Milling & Manufacturing Company was burned; loss about $15,000.

AT Omaha, Neb., Sept. 17, the flouring mills of Oskamp & Haines, at Twentieth and Pierce streets, were burned shortly after midnight. Loss $25,000; insurance $12,000.

AT Cana, Ind., Sept. 27, the flouring and heading mills of Elmer Wilson, with all the machinery and other materials, were destroyed by an incendiary fire. Loss, $10,000; no insurance.

AT Delta, N. Y., Aug. 29, the 30 barrel grist mill of E. A. Walsworth, a three story frame building, was destroyed by fire. Loss $4,000; insurance $2,000. Cause of fire supposed to be incendiary.

AT 11 P. M. Oct 5, a steam pipe in the Galaxy flour mill, Minneapolis, burst and suffocated Frank Banks, assistant engineer, and Joseph Evans, fireman. Banks was married last summer and Evans leaves a wife and one child.

AT East Patchogue, L. I. Sept. 11 the old grist mill, which has been a land mark for near a hundred years, was destroyed by fire, with all its contents. It was owned by Henry Swezy. The loss is $3,000; insured. The cause of the fire is unknown.

AT Decatur, Tex., Sept., 19, D. Rosenberg & Co.'s roller mill was burned. The machinery was new and with the building cost over $20,000. Five thousand dollars' worth of stock on hand also burned. Insurance, $9,300, in nine different companies.

AT Elk Lake, Grant County, Minn., Sept. 15, the flour mill of Louis Meeker was destroyed by fire, together with about 80 sacks of flour and 350 bushels of wheat. The fire originated in the top story. Mr. Meeker claims that the mill cost about $24,000. The insurance was $8,000.

AT Pittsburg, Pa., Sept. 27, the large building of the Westinghouse Electric Company, situated on Duquesne Way and the Allegheny River and almost in the heart of the city, was partially destroyed by fire, entailing a loss of $100,000. The building is a five-story brick. The laboratory is situated on the second story. Here the fire originated and completely gutted the third and fourth floors. Both floors were filled with fine electrical machinery, all of which is so badly injured that it will have to be replaced. The loss is fully covered by insurance.

AT Depere, Wis., Sept. 20, fire damaged A. G. Wells' elevator, warehouse and feed mill, and at one time threatened the total destruction of the building and contents. But the heat and smoke permeated the entire building, probably badly damaging thousands of bushels of wheat stored in bins on the upper floors. Water also damaged large quantities of flour, corn, peas and oats. The shafting and elevating machinery in the main building are ruined. The fire is supposed to have started in some sawdust on the outside of the building. The loss is estimated at between $5,000 and $6,000, with insurance on stock $4,000, on building $4,000.

HARVEST EXCURSION.

The Queen and Crescent will sell Excursion tickets on October 8th at (⅓ fare)—one fare for the round trip to points in Tennessee, Alabama, Louisiana, Mississippi, Florida and Texas; tickets good for 30 days from date of sale to return. Tickets on sale by agents of connecting lines North and East. This line is the shortest and quickest route to Florida and New Orleans. Three Express Trains each way daily. The route is via the famous Blue Grass Region and Lookout Mountain.

PRINZ'S PATENT IMPROVED COCKLE MACHINE

FOUR SIZES FROM 20 TO 110 BUSHELS PER HOUR CAPACITY.

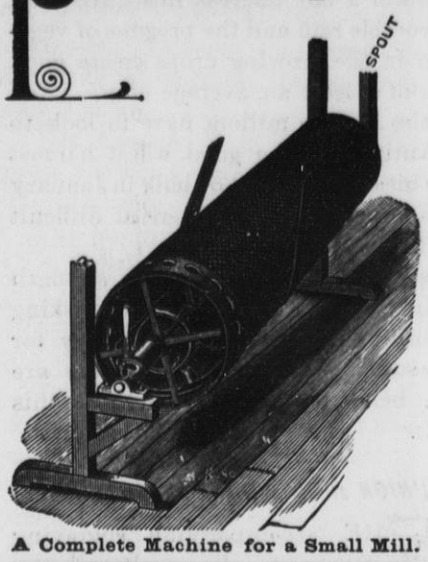
WE GUARANTEE IT WILL TAKE OUT ALL COCKLE, GARLIC AND SIMILAR SEEDS WITHOUT WASTING WHEAT. ONLY MACHINE IN THE WORLD WHICH HAS AN

INDENTED STEEL CYLINDER.

NO COMPARING WITH ZINC CYLINDERS.
ONLY TWO BEARINGS TO OIL.
SLOW MOTION, LITTLE POWER, SMALL SPACE.

We send you One on Trial. You will SAVE 30 to 50 per cent. of Purchase Money by BUYING this MACHINE.

HANG IT ON THE CEILING, AGAINST THE WALL, OR SET IT ON THE FLOOR—IT WORKS EQUALLY WELL EVERYWHERE.



A Complete Machine for a Small Mill.

WATERTOWN, WIS., Oct. 7, '89.
The Prinz & Rau Mfg. Co.:
Gentlemen—The Cockle Machine works O. K. We are well pleased with it.
Yours truly,
THE GLOBE MILLING CO.

COHOCTON, N. Y., June 22, '89.
The Prinz & Rau Mfg. Co.:
Gentlemen—The Cockle Machine which we purchased of you some time ago, is working to our entire satisfaction, and we can recommend your machine to anyone in want of a Cockle Separator. Yours, etc.,
MODEL ROLLER MILLS.

MULBERRY, TENN., Aug. 29, '89.
The Prinz & Rau Mfg. Co.:
Dear Sirs—I have tried the Cockle Machine to my satisfaction, and herewith enclose check for same.
Yours truly,
J. B. THOMISON.

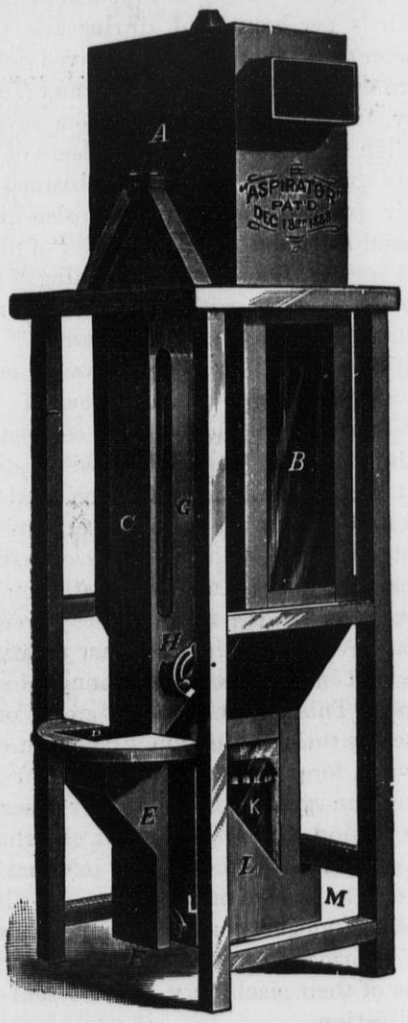
Address, **THE PRINZ & RAU MFG. CO.,** 659–663 East Water St. MILWAUKEE, WIS.

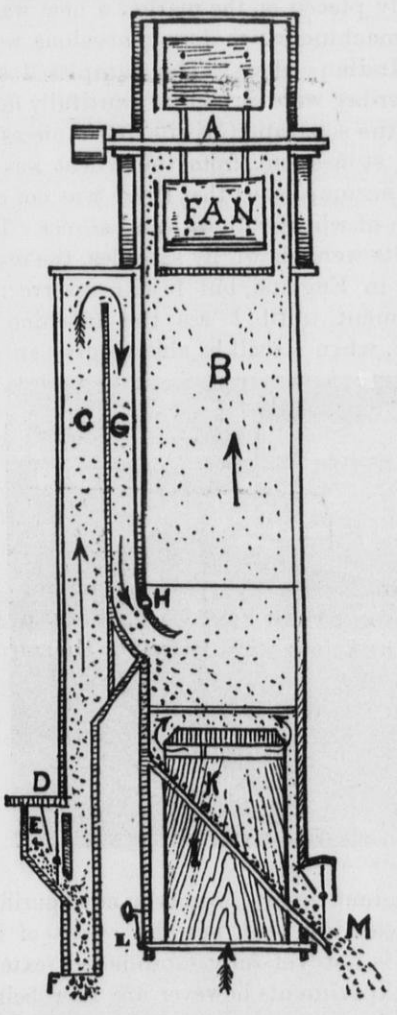
THE BEYNON ASPIRATOR.

This Aspirator makes three separations of the material. It removes all Branny and Fluffy material.

It removes the Crease Dirt from the material of the first-break Roll better than any Double Scalper or other machine ever produced. For dusting the break-material as it leaves each Scalper it has no equal, and works to perfection on the different reductions of Germ Stock.

Being upright, it requires very little space, and is the lightest running machine in the market.





The material enters at Hopper D, having an Automatic Valve E to prevent the air entering over the material into Flue C, the clean material discharges at F and the air current carries the lighter material over the Return Flue G and entering the Chamber B, which is provided with a Hopper Bottom, and passes into the Supplementary Flue I, while a draft of air from Flue K carries the lighter material up through the Fan A, while the heavier material discharges through the Automatic Valve M, thus making three separations of the material: one at F, one at M, and one through the Fan A.

The Automatic Valve E distributes the feed evenly its entire width, excluding the air from going over the material into the Flue C, consequently securing a fine draft of air its entire length. Valve H is to regulate the draft in Flue C and G. The bottom of Flue K is provided with a Valve L to regulate draft in Flue I.

The Automatic Valve M excludes air from entering the Supplementary Flue I, and is so sensitive as to discharge the smallest quantity of material.

Give capacity of your Mill, and enquire for prices and particulars.

BEYNON & MURPHY, Watertown, Wis.

— ALSO MANUFACTURERS OF THE —

BEYNON ROLLER MILL ADJUSTER

A most perfect device that may be applied to any of the Rollers now in use.

THE BEYNON ELECTRIC RELIEF AND ALARM

An effective preventive for choking Elevators, Conveyors, Spouts, etc.

Flour and Grain Testing Appliances

AND SPECIALTIES FOR THE

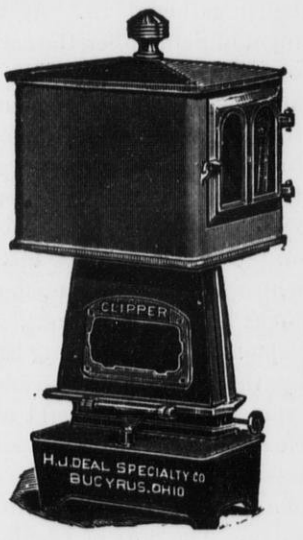
MILLING, FLOUR AND GRAIN TRADES.

Deal's Improved Grain Tester

Cannot be Surpassed for Accuracy and Durability.

Thousands of them in successful use in all parts of the United States and Canada. We make three sizes. Special prices on application.

WRITE FOR
NEW ILLUSTRATED FOLDER "U"
FOR THE
FALL SEASON OF 1889.



Now is the Time to Order your Grain Tester for New Wheat.

The Clipper Baking Test for Flour is the Greatest "Eye-Opener"

Invented in this line. Hundreds of them in successful operation among the largest and best mills in the United States and foreign countries.

H. J. DEAL SPECIALTY CO.,

BUCYRUS, OHIO.

EVERYBODY'S PAINT BOOK.

A new work on INDOOR and OUTDOOR painting which is designed to teach people how to DO THEIR OWN PAINTING and save the expense of a professional painter. The most practical and valuable work of the kind ever issued. Full directions are given for mixing paints for ALL PURPOSES. Tells all about PAPER HANGING, KALSOMINING, STAINING, VARNISHING, POLISHING, as well as how to RENOVATE FURNITURE, so that it will look as good as new. Tells all about HOUSE-CLEANING with paint and kalsomine. Full directions are given for making the beautiful SPATTER-WORK pictures in which the ladies are so much interested. Tells how to paint OUTBUILDINGS, ROOFS, FARM WAGONS, FARM IMPLEMENTS and CARRIAGES as well as how to polish a PIANO or ORGAN; how to imitate GROUND GLASS or make paint for BLACKBOARDS; GRAINING in oak and black walnut, painting in imitation of EBONY, MAHOGANY and ROSEWOOD stain, GILDING, BRONZING and SILVERING. Elegantly printed, beautifully bound. Will SAVE ITS COST in a short time. Sent by mail on receipt of price, One Dollar.

Address, UNITED STATES MILLER, Milwaukee, Wis.

If you are about to build write to the UNITED STATES MILLER for a copy of "Practical Low Cost Houses," and enclose fifty cents in stamps. It will help you.

TO ATLANTA, GA., ONE-HALF FARE.

The Queen and Crescent Route will on October 16th, 23rd and 30th sell excursion tickets from all stations between Cincinnati and Junction City, inclusive to Atlanta and return, good 20 days from date of sale at one fare for the round trip. Full particulars on application to agents Queen and Crescent Route.

MILLING AND MECHANICAL NOTES.

[Condensed and compiled from various sources for the UNITED STATES MILLER AND MILLING ENGINEER.]

To preserve iron from rust: Dip the article in hot soda water, to cleanse it from oil, then in hot lime water, and dry it thoroughly.

AN oil-stone that has been discarded because it has become saturated with oil can be restored by soaking for two or three days in benzine, which eats out the oil.

IN sharpening tools, a mixture of glycerine and alcohol is recommended instead of oil, to put upon an oil-stone. The usual proportion is three parts of glycerine to one of a alcohol.

THE quality of steel goods may be tested by applying nitric acid to the surface. The acid produces a black stain upon good steel, and the blacker the stain, the better is the quality of the metal.

MAKE as little flour as possible while the outer skins are present in large proportions, right through the reductions and granulation, grind with light pressure till the woody fibre is scalped, sifted, dressed or purified from the chop.

Is it not possible that United States millers are not paying sufficient attention to the value of wheat-washing machines to be used after other cleaning machinery? Is there not a field here open to the inventor of flour-mill machinery? [Editor.]

"N. L." writes that bright steel goods may be preserved from rust if painted with a wax varnish made by dissolving one part of solid paraffin in 15 parts of benzole. This, he states, will not give the goods that greasy feel which has been found so objectionable.

A good varnish to prevent polished metals from rusting is stated by a correspondent to be made as follows: Take 12 parts of resin, 18 of sandarac, and 5 of gum lac. Heat these gradually until they are melted and mixed. Then add 12 parts of turpentine, and, after further heating, 18 parts of rectified alcohol. This varnish should be filtered carefully and kept well corked.

OUR ENGLISH LETTER.

(*From our own Correspondent.*)

LONDON, Oct. 1, 1889.

AT last an upward movement in the price of wheat appears to have set in, for during the past month there has been a gain in prices on three out of four weeks and yesterday with a demand of 6d more money, the advance in price of some wheat was 2 / over what it was a month ago. The shortness of the quantity of wheat on passage to this country is nearly sufficient to account for the advance which has at present taken place, but some consideration is also given to the small export surpluses of Russia and India, and to the obvious indisposition of American holders of wheat to ship it at current prices. It is further believed that first-rate samples of foreign wheat will be unusally scarce this year. A report from the Russian Department of Agriculture on the crops of Russia, just issued by the British Board of Agriculture is vague and devoid of quantitative estimates, while it appears to be intended to represent the wheat crop as less deficient than private reports continue to declare it to be. Another official report from Austria Hungary represents the wheat crop of Hungary as 35 per cent. less than that of last year and the Austrian crop as 17 per cent. below average. As to the English crop great irregularity is the only one true feature of the 1889 harvest, which is due to the very unsettled and wet weather prevailing, while the corn was being gathered in. At the commencement of September the corn trade suffered severely over the great dock labor strike and on the 9th of September, several of the largest mills in London were obliged to close. A miller who produces at his two mills more than 1½ sacks of flour of 280 lbs. per minute is said to have had on the River Thames 40,000 quarters of which he could not touch a kernel. This strike happily terminated on the 16th of September, after having lasted five weeks, by the men being assured of *the ext a penny an hour* from and after the 4th of November next as well as the other concessions demanded by the men in respect of a minimum engagement of four hours a day. The port of London is slowly recovering from the deadlock into which its trade has been thrown, but the effect of the strike is noticable in many trades and at the present time many industrial complications exist. Indeed, strikes would almost appear to have been epidemic during the month, and even trades not effected in any direct way by the question in dispute have suflered indirectly from the stoppages of labors in other departments of industry. According to the labor correspondent of the Board of Trade the percentage of unemployed is 2.5 during September against 1.7 for August.

On Sunday afternoon the 22d of September the amalgamated Union of operative bakers and confectioners held a meeting in Hyde Park which was largely attended for the purpose of considering how the condition of the journeyman baker might be improved. The assembly was addressed by John Burns, who moved the following resolution, which was passed by acclamation—"That this meeting is of opinion that the time has arrived when the operative bakers of the metropolis should demand from their employers sixty hours a week and time and half for all over time and this meeting pledges itself to support the Amalgamated Union in its efforts to bring about the same." During the last few days several meetings have been held in different parts of London and a large number of journeymen bakers have joined the union. Notices have been forwarded to the master bakers demanding less hours and more pay, and a month has been given them to make up their minds. Unless these demands are granted by the masters, the journeymen bakers of London say that they will strike work on the 9th of November and leave London without bread until the masters give way. It is thought by some people that with this and other trade complications the whole business of the United Kingdom will be much disturbed and serious trouble will take place between this and the new year.

During the London strike of dock laborers, it was decided to establish a London Clearing House for grain. Many important firms have given in their adhesion to the scheme. These houses do between them no inconsiderable portion of the grain cargo of the trade of London. The great Greek houses however, hold aloof and it is to be remembered that the previous attempts in the directions of encouraging contracts for future delivery have not met with much favor.

Some of the readers of the UNITED STATES MILLER will remember that some months since I mentioned the fire that burned down the Sun Flour Mills at Waltham Abbey. Since then the Sun Flour Mills Company have sold the property and rebuilt a fine mill at Bromly-by Bow on the Simon system, which was started in the middle of September. This mill has its roller mills fitted with rolls 40 inches long and 10 inches wide lessen the cost of fire insurance as the fire insurance Companies in England make their calculations on the number of roller mills employed in a mill and do not take into account the length of surface. This is one of the English ways of lessening the amounts paid to the fire officers.

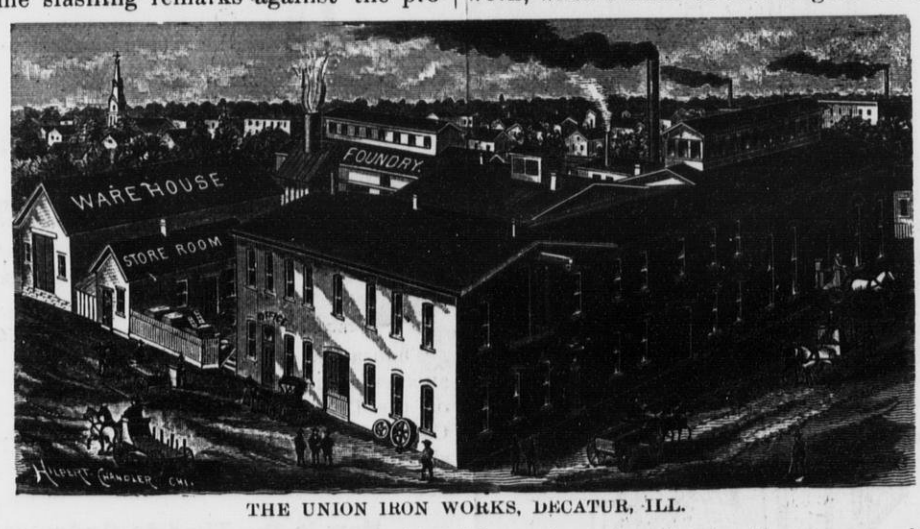
The *Financial Times* of September gives some slashing remarks against the proposed syndicate, that has been thinking for some few months past of buying up the Pillsbury and other mills. The journal in question picks out Senator Washburn in particular and throws a good deal of mud at that gentlemann who has been staying in England for some time past. At the present time there are being launched in London two American companies to control and work at a profit two sets of elevators one set having its terminal in Minneapolis and the other having a line of elevators from Minneapolis to a well-known city in New York state. Whether either scheme will be sufficiently mature to place on the market as stock is a question. It is very difficult to drill into the English mind anything worth taking up, but if it is an absurd scheme or on the face of it a swindle the English public are always willing to subscribe largely and to support it until the crash when they remark that "the investment was not a good one."

The list of applications for shares in the bread union closed on Saturday last so that it is not known yet if the capital of $500,000 in 100,000 shares of £5 each has been subscribed or not, but no doubt we shall hear in a few days time.

Hitherto the syndicate spirit has been confined to minerals, coal, tin and salt have had their turn, but some clever people with an eye to good business have turned their attention to the more immediate necessaries of life, and bread itself is now a monopoly. Already 280 retail bread businesses have been secured for incorporation. The net annual profit of the amalgamating bakeries amount to no less a sum than £91,000.

Mr. J. W. Chatterton, the secretary of the national association of British and Irish Millers has got into disgrace with three-fourths of the millers who went under his care to the Paris congress, on account of not looking after them sufficiently well and not having made proper arrangements for their accommodation. The millers say he studies other interests and not theirs and some go so far as to say he is the cause of the fire premiums for insurance being so high so high all the more. To withstand all the grumbling that has been getting stronger and stronger as time goes on, the secretary used all his influence to get his man in for president and he has succeeded much to the disgust of some of the other millers who are now preparing to have a row at the next council meeting. This meeting, which will be the first after the annual meeting and the one at which the secretary is elected for the year will be held in London during the present month so that in my next letter I may have some very lively doings to report.

Mr. Henry Simon of Manchester the now well-known milling engineer has recently placed on the market a new washing machine which does marvelous work on Indian wheat. The samples I saw yesterday were certainly beautifully done and the separation of the hard pieces of dirt, stones, etc., from the wheat was so well accomplished that there was not one grain of wheat with dirt and stones. The results were shown by samples, the usual way in England, but I will reserve my judgment until I see the machine at work, when I shall be able to give an independent report. Another new purifier has been invented, but the result of its work is not yet fully established, extensive experiments however are now being carried out at the Grey Frears Works, Ipswich, so that in a few weeks it will be brought on the market with a "flourish of trumpets." As far as the experiments have gone, the inventor says he is more than satisfied with the results. To-day the tenders of three firms of milling engineers. Mr. Henry Simon of Manchester, Messrs. E. R. & F. Turner of London, and Ipswich and Mr. Thomas Robinson & Sons, Limited of Rochdale, for the large co-operative mill at Newcastle were opened, and to-morrow the various milling experts from the three firms of milling engineers will be carpeted before the co-operative society's committee to explain their drawings and make out their cases. Each of the three firms are straining every nerve for the order. Who will get it? is the question asked in several parts of England for on the result depends a number of smaller orders in the south part of the country. Messrs. E. R. & F. Turner stand the best chance at the present time, but Mr. Henry Simon may be able to wrest the order from them. It all depends on the eloquence, tact and judgment of the milling engineers when they are carpeted before the committee, any animosity between the milling engineers must be left out, but if possible each party will give the other a sly push on one side. The committee, which consists of a number of gentlemen are to be the judges, so that great care on the part of each milling engineer will have to be exercised to make the best impression.



THE UNION IRON WORKS, DECATUR, ILL.

AUSTRALIA which at present is only sending a small quantity of wheat, is expectant of a fair harvest this Christmas, as favorable rain and the progress of vegetation in the growing crops create good hopes of at least an average crop. Even now the English millers have to look to the Antipodes, as a good wheat harvest there means shipment of bulk in January and February, a supply here at difficult time in the spring season.

RUSSIA keeps on exhibiting strength over its surplus wheat and is now asking one shilling per quarter more money for most sorts. The recent shipments are much below those of last year at this period.

L. MAYGROVE.

THE UNION IRON WORKS, DECATUR, ILL.

THE accompanying engraving represents the works of the Union Iron Works, Decatur, Ill., who are manufacturers of "Western Shellers, Cleaners, Separators and all kinds of Elevator machinery.

This firm make a specialty of the "Western" Sheller, of which they build all sizes, up to those having a capacity of 2,000 bushels per hour, and during the past season they report having received orders from every corn-growing State and Territory in this country, also from several foreign countries, which is evidence of the wide spread good reputation obtained for their production. The firm also gives special attention to the furnishing of plans and specifications and the building of elevators, together with all necessary machinery and supplies for the same.

We call attention to the advertisement on another page of this issue, of the "Western" Mill Sheller, in connection with which we are authorized to state, that the firm will on application, send the machine to any responsible party in the United States, with privilege of testing same, and should it not prove satisfactory, as represented, the firm will pay freight both ways, and all the necessary expenses incurred in setting up and testing the machine. This certainly shows great confidence in their production. The firm employs a force of about 60 men, and are having an excellent trade, as they deserve. The Union Iron Works, will cheerfully respond to all requests for information relative to their manufactures. An illustrated catalogue, containing much valuable information in addition to descriptions of their machinery, will be sent on application.

ITEMS FROM BEYOND SEAS.

THE German War Office, having resolved to erect a military bakery at Potsdam, for the supply of the large garrison there, the Bakers' Association of that place hastily formed a deputation, and hied themselves to the Emperor of Germany, to protect against a measure so menacing to their own interests. They appear, however, to have met with a curt answer.

THE small European household in India finds it convenient to patronize Mohammedan bakers, of whom, however. the bread must be ordered in advance, Sometimes two or three English families combine and hire a baker, paying him a monthly salary and providing him with raw material. The Hindoos eat unleavened bread by mixing flour and baking in thin loaves or cakes on an iron plate over a wood fire.

AN ANCIENT STRIKE.—The antiquity of strikes is attested by an incident in the history of mediæval Strasburg, in Alsace. In 1409 the millers of Hagenowe (a suburb of Strasburg) banded themselves together to get better terms from the bakers. All the millers took an oath by which they bound themselves not to grind without the leave of the union. He who transgressed was to be sent to Coventry—that is to say, with him no miller was to work, eat or drink. The journeymen were included in the union.

MILWAUKEE ITEMS.

THE Wilkin Mfg. Co. are making quite an addition to their works.

GEORGE TEITJEN, representing The Nordyke & Marmon Co., made a brief call Nov. 15.

THE Asmuth Malt & Grain Co. will erect another malt-house in this city on Florida street.

THE Eagle, Duluth, Reliance, Daisy and Gem mills are all running full time. The Jupiter is about ready to start up for a steady run. The repairs in the Phœnix are about completed.

THE Reliance Works of Edw. P. Allis & Co. are constantly being added to. Recently an addition which would be considered a large building by itself was made to accommodate the ever increasing demands of the engine department.

THE Prinz and Rau Mfg Co. have found it necessary to increase their capacity by adding new machinery. They are also compelled to work overtime. Their special machinery for millers' and brewers' use is meeting with high favor.

A GREAT MILWAUKEE INDUSTRY.

Edw. P. Allis & Co.'s Reliance Works.

We have neither time or space in this issue to attempt any description of these works, but simply desire to record here a few items that will give our readers an idea of what is being done right here in our midst without noise, bluster or ostentation. Within the last few weeks the following orders have been received by Messrs. Edw. P. Allis & Co.:

F. Wildermuth, Rosario, Argentine Republic, complete 250 bbl. mill, (8th complete mill sold to same party; A Campas & Co., New York City, 25 bbl. mill to be sent to Yucatan, Mexico; Gray Milling Co., Standish, Mich., new 50 bbl. mill complete; Oakland Milling Co., Oakland Mills, Ia., new 50 bbl. mill complete; M. Sheehan, Graceville, Minn. rolls, reels and purifiers to remodel 250 bbl. mill; D. J. Rummel, Belleville, Ohio, remodeling 50 bbl. mill; Rapid River Milling Co., Rapid City, S. Dakota, new 125 bbl. mill complete; Dunham & Egle, Hector, Minn., rolls, reels and purifiers to remodel 50 bbl. mill; Meeker Milling Co., Meeker, Colorado, new 75 bbl. mill complete, with 12x30 Reynolds' Corliss engine; Jacob Strouse & Co., Laketon, Ind., new 50 bbl. mill complete; M. B. Sheffield, Faribault, Minn., 5 Dbl. 9x24 roller mills; Jewell Milling Co., Brooklyn, N. Y., 7 Dbl. 9x30 roller mills; Loring Fletcher & Co., Minneapolis, Minn., 5 Dbl. 9x24 roller mills; James Pye, Minneapolis, Minn., 10 Dbl. roller mills of various sizes; Des Moines Mfg. & Supply Co., Des Moines, Ia., 5 Dbl. roller mills and 2 Reliance Purifiers; Aug. Wolf & Co., Chambersburg, Pa., 3 Dbl. 6x16 and 6x20 roller mills; Capitol Milling Co., Los Angeles, Cal., 2 Dbl. 6x16 roller mills; Diamond Iron Works, Minneapolis, Minn., 3 No. 0 Reliance Purifiers; D. F. Hess, Freeport, Ohio, 2 Dbl. 9x18 roller mills.

A very large number of smaller orders. All of above are of late date.

Have sold far more machinery in this line, than any previous year.

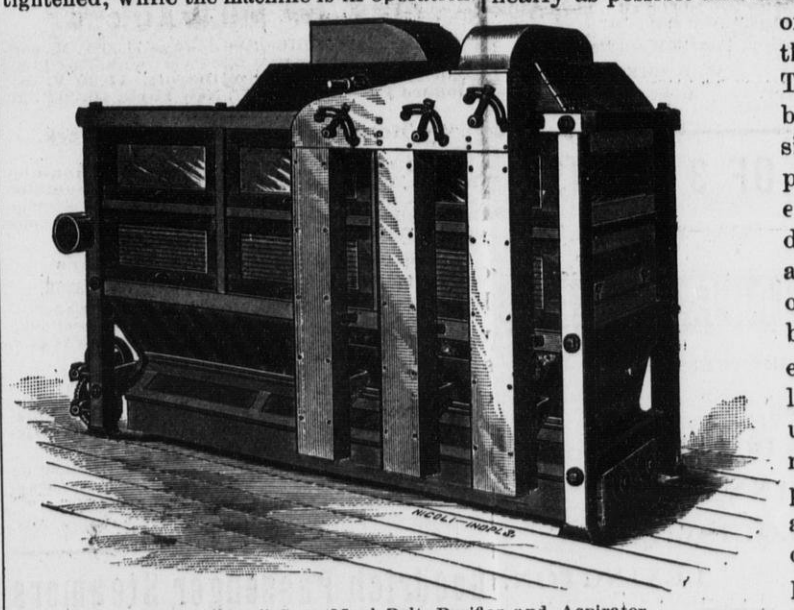
In addition to the immense flour mill business, have now more than $1,000,000 worth of engine work under contract, including some of the largest engines ever built in America.

Have found it necessary to erect a new machine shop 325 ft. long, 72 ft. wide and two stories high. Great part of the works running day and night and employing 1,500 men.

THE ALFREE CORN MEAL BOLT PURIFIER AND ASPIRATOR.

WE illustrate this machine herewith, and careful inspection of same will interest our readers. In keeping with the introduction and almost general use of rolls for Milling Corn, there is a demand for a better and more advanced method for bolting and purifying corn meal and grits. The adaptation of the ordinary middlings' purifier to this class of work, while not filling all the requirements, has proven conclusively that the sieve is the correct principle of bolting corn goods. The purifier in itself, is not able to take the place of the numerous gravity separators required, still it makes the most approved machine for this work, where the air currents are properly applied by means of an aspirator attachment. After an extended experience with all makes of corn meal bolts and purifiers, "the manufacturers say," we have constructed a machine that is free from the objectionable features to be found in other machines, and at the same time possesses all the sterling qualities of our middlings purifier combined with numerous valuable improvements, including a perfect aspirating device.

This machine consists of three distinct divisions; the first or bolting division consists of a feeding device and supplementary scalping sieve, whereby the grits and coarse meal are kept from passing over the dusting cloth, and thus allowing a perfect dusting of the meal and grits; the air is excluded from this division to prevent the loss of flour and fine meal that is usually drawn into the fan. The second or purifying division, is so constructed as to apply the air currents to the stock on the sieve in a scientific manner, and under complete control of the operator, whereby the meal can be thoroughly purified without waste. The third or grading and aspirating division is so constructed as to size the grits evenly and at the same time admits of making any desirable grade; the aspirating device is the result of years of practical observation of the action of air currents and their application to gravity separation, whereby the grits are thoroughly aspirated, and the bran, etc., is caught in a settling chamber within the machine, and thereby prevented from passing into the dust room. The carrying boards and deflections are independent of the sieve, being actuated by a separate eccentric, thus leaving the riddle very light. The cloth cleaning device consists of the most approved type of traveling brushes. The cloth tightening device is most effective and allows the cloth to be tightened, while the machine is in operation.



The "Allfree" Corn Meal Bolt, Purifier and Aspirator.

The machine has two conveyors that allows of the material being carried to any point desired. This machine has no equal and is constructed of the very best material in a strong and substantial manner; in elegance of design and finish it has no comparison and will prove itself a boon to the Corn Millers.

For further particulars, prices, etc., the reader should address The J. B. Alfree Co., Indianapolis, Ind.

ABOUT TRUSTS.

Liability of Owners of Trust Certificates.

ALL classes of the business and social world are interested in having the obligations of Trusts to the law of the country properly understood. The *Engineering and Mining Journal* says: "It has been well settled that *trustees and holders of trust certificates alike are unlimited partners, jointly and severally liable for all acts of the association.* There is, therefore, a clear legal remedy for all wrongs they may commit. The injury which Trusts may do to their rivals in business and to consumers may thus be brought home to any individual holder of Trust certificates, and he may be made to pay the damage. This is a prospect that should certainly cause investors to hesitate before parting with their good money in the purchase of such unlimited liability." In view of the threatened craze for this class of securities, such views are not very inviting to credulous owners. Very fortunately, public opposition to the monopolistic efforts of these Trusts and distrust concerning their management have served the useful purpose of preventing a speculative outbreak. The attempts to unload millions of heavily-watered certificates upon an unsuspecting public have not been very successful. Even the banks are shy of making advances upon such flimsy collateral, and the great bulk of these new-fangled securities are still in possession of their original owners. The prime objects of these combinations, in spite of declarations to the contrary, are to eliminate competition as nearly as possible and enhance the values of the articles they produce. They pretend to be organized simply for the purposes of more economical production and management; their other purposes being unexpressed, but nevertheless understood, unless human nature has completely changed and the Trusts developed into philanthropic institutions. The courts have frequently declared all combinations of this sort illegal; and this being so, owners of trust certificates have responsibilities placed upon them which it will be well not to lose sight of. The failure of the North American Salt Company to find purchasers for its securities is some indication of how the public are beginning to regard such schemes.—*N. Y. Commercial Bulletin.*

MESSRS. C. F. Johnson & Co., owners of a new 200 bbl. roller-mill at Marshall, Minn., under date of Sept. 27, write us as follows: "We have now got our mill at this point in running order. We are running night and day and orders come in faster than we can fill them. We have built a first-class mill and are manufacturing a high grade of flour. Enclosed please find P. O. order for year's subscription."

AN Italian engineer has experimented with sugar as a means of preventing the incrustation of boilers, with satisfactory results. A boiler which used to be encrusted in six weeks, had two kilogrammes of sugar introduced every week, for four months, and then a film of incrustations was found which could be easily washed off.

ORGANIZATION OF MILLERS IN THE UNITED STATES.

THE MILLERS' NATIONAL ASSOCIATION.

President—F. L. GREENLEAF,	Minneapolis, Minn.
1st Vice-Pres't—A. R. JAMES,	Buffalo. N. Y.
2d Vice-Pres't—WM. SANDERSON,	Milwaukee, Wis.
3d Vice-Pres't—GEO. H. PLANT,	St. Louis, Mo.
Treasurer—S. H. SEAMANS,	Milwaukee, Wis.
Secretary—FRANK BARRY,	Milwaukee, Wis.

EXECUTIVE COMMITTEE.	STATE.	OFFICERS OF STATE ASSOCIATIONS.
*C. B. Cole, Chester	ILLINOIS	President, E. C. Kreider, Jacksonville. Secretary, C. H. Seybt, Highland.
M. S. Blish, Seymour	INDIANA	President, S. B. Boyer, Logansport. Secretary, D. H. Ranck, Indianapolis.
J. J. Snouffer, Cedar Rapids	IOWA	
	KANSAS	President, W. W. Clark, Harper. Secretary, C. B. Hoffman, Enterprise.
P. H. Macgill, Baltimore	MARYLAND	President, P. H. Macgill, Baltimore. Secretary, J. O. Norris, Baltimore.
F. W. Stock, Hillsdale	MICHIGAN	President, D. B. Merrill, Kalamazoo.
*A. C. Loring, Minneapolis	MINNESOTA	President, F. L. Greenleaf, Minneapolis. Secretary, W. C. Edgar, Minneapolis.
Geo. H. Plant, St. Louis	MISSOURI	President, S. M. Carter, Hannibal. Secretary, H. C. Craft, St. Louis.
	NEBRASKA	President, C. C. White, Crete. Secretary, D. H. Harris, Bennett.
*A. R. James, (Chairman) Buffalo	NEW YORK	President, A. R. James, Buffalo. Secretary, H. F. Shuttleworth, Buffalo.
Jno. M. Turner, Mandan	NORTH DAKOTA	President, J. S. Hillyer, Bismarck. Secretary, J. M. Turner, Mandan.
*Homer Baldwin, Youngstown	OHIO	President, F. Schumacher, Akron. Secretary, M. H. Davis, Shelby.
	PENNSYLVANIA	President, B. F. Isenberg, Huntingdon. Secretary, L. Levan, Lancaster.
	SOUTH DAKOTA	President, W. H. Stokes, Watertown. Secretary, C. A. Lum, Aberdeen.
J. J. McCann, Nashville	TENNESSEE	
*S. H. Seamans, Milwaukee	WISCONSIN	Vice-Pres't, E. J. Lachman, Neenah. Secretary, S. H. Seamans, Milwaukee.

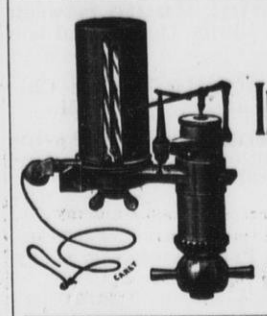
* Members of Sub Executive Committee of National Association.

American Steam Guage Co.,

—SOLE MANUFACTURERS—

Bourdon Steam Guages,

WITH LANE'S IMPROVEMENT.



THOMPSON'S

Improved Indicator

Over 2,500 in Use.

American Pop Safety Valves,

For Locomotive, Stationary and Portable Boilers, and Instruments Incidental to the use of Steam. Send for Price List I.

36 Chardon St., BOSTON, MASS.

Send for Catalogue K.

MILLWRIGHTS WANTED. A head millwright, competent to take charge of large work; also millwrights to work under leader. Long job to satisfactory parties.
Address, THE ROSEMALT WORKS,
oct3t Waukegan, Ill.

AN AUTHENTIC BUYERS' GUIDE.

MILL AND ELEVATOR BUILDERS, MILL FURNISHERS, MANUFACTURERS OF AND DEALERS IN MILL AND ELEVATOR MACHINERY AND SUPPLIES.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year, cash with order. Additional lines, $1.00 each, per year.

Edw. P. Allis & Co., Milwaukee, Wis., builders of complete Flour Mills, manufacturers of Flour Mill Machinery, and dealers in Supplies of every description. [Mr.89.]

O. C. Ritter, Sta. A., Springfield Mo., Patentee and Designer, Ritter's One Reduction Milling System. Full Roller Plants for small mills. [Aug. 10]

John C. Higgins & Son, 165 West Kinzie Street, Chicago, Ills., mfrs. of and dressers of Mill Picks. [Mr.89.]

Robert Poole & Son Co., Baltimore, Md., manufacturers of Steam Engines, Water Wheels, Flour, Corn, Paper, Saw and Cotton Mill Machinery.

B. H. & J. Sanford, Phoenix Iron Works, Sheboygan, Falls, Wis., manufacturers of the "IMPROVED WALSH DOUBLE TURBINE WATER WHEEL." [Mr.89.]

John C. Kilner, York Foundry and Engine Works, York, Neb. Mill and Elevator machinery of all kinds, Engines, Boilers, Pulleys, Shafting, etc. [Mr.89.]

The Gutta Percha and Rubber Mfg. Co., 159-161 Lake st., Chicago. Ill., Belting and Rubber Goods. [Mr.89.]

Richmond Mfg. Co., Lockport, N. Y., manufacturers of Grain Cleaning Machinery, Bran Dusters, etc. [89.Mr.]

N. Y. Belting and Packing Co., N. Y. Leather Belting Co., W. D. Allen & Co., Agents, 151 Lake Street, Chicago. [Apr.89.]

W. G. Avery M'f'g Co., 10 Vincent st., Cleveland, O., Specialties: Avery Lever Belt Punches, Avery Seamless Elevator Buckets, Belting, Elevator Bolts, &c. [May'89.]

The H. J. Deal Specialty Co., Bucyrus, Ohio. Headquarters for Flour and Grain Testing Appliances, and Specialties for the Milling, Flour and Grain trades. [May 89]

A. B. Bowman, 823 Second St., St. Louis, Mo., manufacturers of Wheat Heaters.

Sprague Electric Railway & Motor Co., 16 and 18 Broad St., New York. Electric Motors. Electric Transmission of Power.

Stilwell & Bierce Mfg. Co., Dayton Ohio. Mill Builders, Manufacturers of and dealers in Water Wheels, Feed Water Heaters and Flour Mill Machinery and Supplies.

Milwaukee Bag Co., No. 236 East Water St., Milwaukee, Wis., manufacturers of plain and printed Flour and Grain Sacks of all kinds.

B. F. Ryer, 66 S. Canal St., Chicago. Mill Furnisher. Bolting Cloths made to order.

Jas. Leffel & Co., Springfield, Ohio. Water Wheels.

Vacuum Oil Co., Rochester, N. Y. Oils.

CAWKER'S AMERICAN

FLOUR MILL

—AND—

GRAIN ELEVATOR

DIRECTORY

Published once in two years.

Gives nearly 23,000 Addresses, P. O., County and State, Capacity, Power, System, etc.; also lists of Millwrights, Miscellaneous Mills, Millbuilders and Furnishers, Flour and Grain Dealers, Foreign Flour and Grain Importers, etc., etc.

1888-9 Edition, Issued March, 1888.

PRICE, $10 PER COPY,

post paid and registered to any part of the world. Address,

E. HARRISON CAWKER, Milwaukee, Wis.

THE CHICAGO MILWAUKEE AND ST. PAUL RAILWAY CO.

Fast Mail Line with Vestibuled Trains between Chicago, Milwaukee, St. Paul and Minneapolis.

Trans-Continental Route between Chicago, Council Bluffs, Omaha and the Pacific Coast.

Great National Route between Chicago, Kansas City and St. Joseph, Mo.

5700 Miles of Road reaching all principal points in Illinois, Wisconsin, Minnesota, Iowa, Missouri and Dakota.

For maps, time tables, rates of passage and freight, etc., apply to the nearest station agent of the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY, or to any Railroad Agent anywhere in the World.

ROSWELL MILLER. A. V. H. CARPENTER,
General Manager. Gen'l Pass. and Tkt. Agt.

☞ For in ormation in reference to Lands and Towns owned by the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY COMPANY, write to H. G. HAUGEN, Land Commissioner, Milwaukee, Wisconsin.

THE CHICAGO AND
NORTH-WESTERN RAILWAY.
OVER 7,000 MILES
Of steel track in Illinois, Iowa, Wisconsin, Michigan, Minnesota, Nebraska, Dakota and Wyoming, penetrates the Agricultural, Mining and Commercial Centres of the
WEST AND NORTHWEST.
The Unrivaled Equipment of the Line embraces Sumptuous Dining Cars, New Wagner and Pullman Sleepers, Superb day Coaches and
FAST VESTIBULED TRAINS
Running direct between Chicago, St. Paul and Minneapolis, Council Bluffs and Omaha, connecting for Portland, Denver, San Francisco and all Pacific Coast Points.
ONLY LINE TO THE BLACK HILLS
For Tickets, Rates, Maps, Time Tables and full information, apply to any Ticket Agent or address the Gen'l Passenger Agent, Chicago, Ill.
J. M. WHITMAN, H. C. WICKER, E. P. WILSON,
General Manager. Traffic Manager. Gen'l Pass. Agt.

NOTES from the diary of tourists, commercial travelers, business men and others has revealed:

That the **Wisconsin Central** has the unqualified endorsement of all:

That the **Wisconsin Central** has to-day the most popular line between **Chicago** and **Milwaukee**, and **St. Paul, Minneapolis** and the **Northwest**;

That the **Wisconsin Central** is daily adding to its admirers as the recognized **Pullman** line between **Chicago** and **Milwaukee** and **Ashland, Duluth** and **Lake Superior**;

That the **Wisconsin Central** touches the most prominent points in Wisconsin, and that it has more important business centers on its through line than any other railway to and from the **Northwest**;

That the **Wisconsin Central** has made an enviable reputation with its peerless **Dining Car Service**;

That the **Wisconsin Central** runs fast trains on which all classes of passengers are carried with commodious and distinct accomodation for all:

That the **Wisconsin Central** has representatives distributed throughout the country, who will cheerfully give any information that may be desired and that its terminal Agents are specially instructed to look after the comfort of passengers who may be routed via its line.

For detailed information, apply to your nearest Ticket Agent; or to representatives of the Wisconsin Central Company.

S. R. AINSLIE, General Manager. H. C. BARLOW, Gen'l Traffic Manager.
LOUIS ECKSTEIN, Asst, Genl. Passr. & Tkt. Agt.
MILWAUKEE, WIS.

ALL persons desiring to reach the entire milling and grain trade of America, by circular or otherwise, should obtain a copy of CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888-89.

WE shall be pleased to receive from any of our readers, short, crisp, sensible letters on subjects of interest to the flour and grain trade for publication.

EXPORTING millers should write to the E. Harrison Cawker, Milwaukee, Wis., for the best Flour Cable Code ever published. There are more copies of this Code in use than of ALL other flour codes published. It is simple and accurate.

ASHLAND M.L.S.&W.R'Y ROUTE
THE MILWAUKEE, LAKE SHORE & WESTERN R'Y
IS THE DIRECT AND MOST POPULAR LINE AND
Through Sleeping and Parlor Car Route
FROM
CHICAGO and MILWAUKEE
TO
SHEBOYGAN, MANITOWOC, APPLETON, NEW LONDON AND WAUSAU,
TO ALL THE IMPORTANT TOWNS IN THE
Gogebic, Penokee and Montreal Iron Ranges,
HURLEY, BESSEMER, IRONWOOD, WAKEFIELD AND GOGEBIC,
TO
ASHLAND, SUPERIOR and DULUTH,
To all Fox River Manufacturing Cities
AND
The Lumbering Districts of Northern Wisconsin and Michigan.
SPORTSMEN The best Fishing and Hunting in the NORTHWEST reached by the ASHLAND ROUTE. Send to the General Passenger and Ticket Agent for Descriptive and Illustrated Publications, Maps, Folders, Time Cards and General Information.
Milwaukee Office, 95 Wisconsin St.
H. G. FLEITH, Com. Freight Agt. F. P. REGAN, City Pass. & Tkt. Agt.
H. F. WHITCOMB, General Manager. ERNEST VLIET, Gen'l Pass. & Tkt. Agt.
MILWAUKEE.

Milwaukee & Northern R. R.
SHORT LINE
—TO—
Marquette, Negaunee, Ishpeming, Hancock, Houghton, Champion, Republic, Iron Mountain, Menominee, Mich.
Marinette, Green Bay, Depere, Neenah, Menasha, Appleton, Wis.
THE TABLE OF EXPRESS TRAINS.

STATIONS.	DEPART.	ARRIVE.
Champion, Republic,	*2:00 A. M.	*3:25 A. M.
Iron Mountain, Menominee, Marinette, Green Bay, Depere,	*2:00 A. M. 3:10 P. M.	*3:25 A. M. 3:55 P. M.
Green Bay, Depere, Appleton, Menasha, Neenah,	2:00 A. M. 7:55 A. M. 3:10 P. M.	3:55 P. M. 10:10 A. M.

*Daily. All other trains daily except Sunday.
Pullman Sleeping Cars are run on all night trains, and are ready for occupancy at 9:00 P. M.
New Passenger Station, Fourth Ward Park.
C. F. DUTTON, General Manager. W. B. SHEARDOWN, General Ticket Agent.

CHOICE OF 3 TRAINS
—VIA—
MONON ROUTE
—BETWEEN—
CHICAGO and
INDIANAPOLIS,
CINCINNATI,
LOUISVILLE,
LEXINGTON.
Unsurpassed Pullman Car Service.
Fast Trains. Sure Connections.
Short Route to Florida.
☞ Be sure your tickets read via Monon Route (L. N. A. & C. R'y), and your comfort is guaranteed.
For Maps, Guides, etc., address
JAMES BARKER, Gen'l Pass'r Agent, CHICAGO.
Adams Express Building.

DO YOU INTEND TO BUILD?
PRACTICAL LOW-COST HOUSES. HOW TO BUILD THEM.

A Large Atlas, containing drawings and floor plans of 40 Modern Houses with Correct Estimates of cost of building. All kinds of buildings ranging from a $400 cottage to a $10,000 residence. The latest, most complete, and only practical book published. It is false economy to attempt to build without these plans. Price by mail, post-paid, 50 cts. Stamps taken.
Address, UNITED STATES MILLER, Milwaukee, Wis.

THE THROUGH CAR LINE
—FROM AND TO—
CINCINNATI
C H & D — CINCINNATI, HAMILTON & DAYTON R.R.
WITH THROUGH CAR SERVICE BETWEEN
CINCINNATI and INDIANAPOLIS,
CINCINNATI and TOLEDO and DETROIT,
CINCINNATI and CHICAGO,
CINCINNATI and ST. LOUIS,
CINCINNATI and DAYTON and RICHMOND,
CINCINNATI and FT. WAYNE and GRAND RAPIDS,
CINCINNATI and GREENVILLE and VAN WERT.
With THROUGH RECLINING CHAIR CAR between
CINCINNATI, DECATUR and SPRINGFIELD, ILLS. and KEOKUK, IOWA, (daily)
PARLOR CHAIR CARS ON DAY, and SLEEPERS ON NIGHT TRAINS, "YEAR 'ROUND."
Ask for Tickets via C. H. & D. R. R.
For full information, Tickets, Sleeping Car Space, &c., Inquire of or Address,
W. H Fisher, Gen'l Agt., Indianapolis, Ind. W. H. Whittlesey, Central Pass'r Agt., Dayton, O.
John Bastable, District Pass'r Agt, Toledo, O. D. B. Tracy, Northern Pass'r Agt., Detroit, Mich.
Wm. A. Wiggins, Southern Passenger Agent, Chattanooga, Tenn.
J. G. Mason, City Passenger Agent, Cincinnati, O.
Or General Passenger Agent's Office, - No. 200 W. Fourth St., Cincinnati, O.
C. C. WAITE, Vice-Pres't & Gen'l Manager. CHAS. H. ROCKWELL, Gen'l Pass'r & Ticket Agent.

THE
Chicago & Grand Trunk R'y
NIAGARA FALLS AIR LINE
Is the Shortest and Most Direct Route East.
THROUGH SLEEPING AND PARLOR CARS TO
New York, Montreal and Boston.
The Only Line running Through Sleeping Cars between
CHICAGO and PHILADELPHIA
Via NIAGARA FALLS Without Change.
Trains leave Dearborn Station at 9.05 a. m., 3.25 p. m. and 8.15 p. m. 8.15 p. m. train has elegant Pullman Sleeping Car to Detroit daily.
GRAND HAVEN ROUTE.
Detroit, Grand Haven & Milwaukee, R'y,
Is the Shortest, Cheapest and Quickest Line between MILWAUKEE, Points in MICHIGAN, CANADA and the EAST.
A delightful 5 Hour Daylight Trip on the Palace, Iron Side Wheel Passenger Steamer,
CITY OF MILWAUKEE.
Steamer leaves Milwaukee daily at 11.30 A. M., connects at Grand Haven at 5.30 P. M. with Fast Limited Express, which reaches Detroit, 11.30 P. M.; Niagara Falls, 7.30 A. M.; New York, 10.00 P. M.
34 Hours Milwaukee to New York.
Round Trip Tourist Tickets to the Thousand Islands, Rapids of the St. Lawrence, Mountains and Sea Shore now on Sale. Pamphlets descriptive, Rates, Routes, etc., sent by mail from Company's Office, 99 WISCONSIN STREET.
2nd class tickets good on all trains.
W. E. DAVIS, Gen'l Pass'r & Ticket Agent, CHICAGO. E. H. HUGHES, Gen'l Western Pass'r Agent, CHICAGO. B. C. MEDDAUGH, Nor. Pass'r Ag't, 99 Wisconsin St., MILWAUKEE.
STEAMSHIP TICKETS
To or from Europe at lowest rates, by all lines. Cabin plans can be consulted and best accommodations secured as far in advance as desired.
Information furnished by mail or on application at office, 99 Wisconsin St., southwest cor. Broadway.
B. C. MEDDAUGH, Gen'l S. S. Agent. MILWAUKEE, WIS.

Goodrich Passenger Steamers
TWICE DAILY EACH WAY BETWEEN
MILWAUKEE and CHICAGO.
CHICAGO AND RACINE LINE.

Leave Milwaukee.	FOR	Arrive at Milwaukee
7.00 P. M.	Chicago	5.00 A. M.
*7.30 A. M.	Chicago	4.00 P. M.
7.00 P. M.	Racine	5 00 A. M.

FARE TO CHICAGO ONLY $2.00.
ROUND TRIPS, $3.50. Meals and berths included on first-class tickets. Sure connections at Chicago with all morning trains for all points east, south and southwest.
†*Sheboygan and Manitowoc Line.—
*Daily 7.00 A. M. Arrives 5.00 A. M.
Sundays 7.00 P. M.
Kewaunee and Ahnapee Line. — Tuesdays, Wednesdays, Thursdays, Saturdays and Sundays at 7.00 A. M.
Menominee and Sturgeon Bay Line.—Tuesdays, Wednesdays, Thursdays, Saturdays and Sundays at 7.00 A. M.
Green Bay and Depere Line.—Wednesdays and Sundays at 7 00 A. M.
Manistique, Thompson and Gladstone Line.—Wednesdays and Sundays at 7 00 A. M.
Fayette, Garden and Nahma Line.—Wednesdays, Saturdays and Sundays at 7.00 A. M.
Escanaba Line.—Tuesdays, Wednesdays, Thursdays, Saturdays and Sundays at 7.00 A. M.
Bailey's Harbor and Jacksonport Line.—Wednesdays at 7.00 A. M.
Fish Creek, Egg Harbor and Sister Bay Line.—Tuesdays, Thursdays and Saturdays at 7.00 A. M.
Close connections with railroad at Escanaba for Negaunee, Ishpeming, Quinnessec, Norway and all Lake Superior points.
The new steamer City of Racine will be the daily 7.00 P. M. boat out of Milwaukee for Chicago, except Sunday nights. The steamer Chicago will be the Sunday nights boat.
C. HURSON, Secretary and Agent.
THOS. FORBES, Passenger Agent.
*Except Sundays and Mondays. †*Except Mondays.

Queen & Crescent ROUTE

94 MILES THE SHORTEST, 8 HOURS THE QUICKEST,
CINCINNATI TO NEW ORLEANS
Time, 27 Hours.
Entire Trains, Baggage Car, Day Coaches and Sleepers run through without change.
110 MILES THE SHORTEST, 7 HOURS THE QUICKEST,
CINCINNATI to JACKSONVILLE, Fla.
Time, 28 Hours.
Through Sleepers without change. The Short Line between Cincinnati and

Lexington,	Ky.,	Time,	2½ Hours.
Knoxville,	Tenn.,	"	12 "
Asheville,	N. C.,	"	17 "
Chattanooga,	Tenn.,	"	11 "
Atlanta,	Ga.,	"	15 "
Birmingham,	Ala.,	"	16 "

Direct Connections at New Orleans, and Shreveport, for Texas, Mexico and California.
Trains leave Central Union Depot, Cincinnati, crossing the Famous High Bridge of Kentucky, and rounding the base of Lookout Mountain.
Over One Million Acres of Land in Alabama, the Future Great State of the South, subject to pre-emption. Unsurpassed Climate.
For Rates, Maps, etc., address,
C. S. HENRY, Traveling Passenger Agent, 193 Clark St., Chicago, Ill.
J. C. GAULT, Gen'l Mgr. CINCINNATI, OHIO. D. G. EDWARDS, G. P. & T. A.

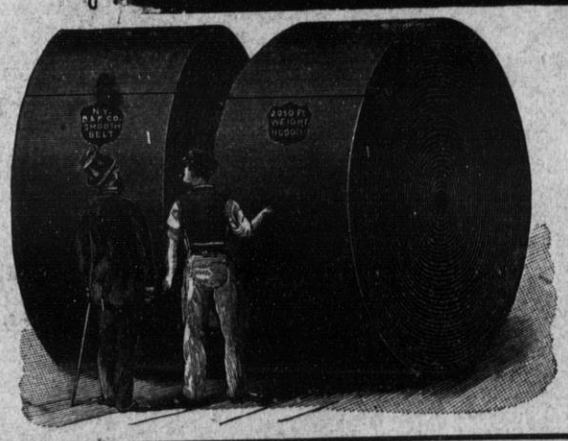
THE
Cleveland, Cincinnati, Chicago & St. Louis
RAILWAY.
BIG · FOUR · ROUTE
Consists of the lines formerly operated under the names of Cincinnati, Indianapolis, St. Louis & Chicago R'y ("Kankakee Line"), the Cleveland, Columbus, Cincinnati & Indianapolis, and Indianapolis & St. Louis R'y ("Bee Line Route"), and with its connections now form direct routes of travel between ALL POINTS in the
North, East, South and West
With schedules arranged to accommodate the traveling public in each direction, and the finest equipment of Day Coaches and Parlor Cars, Reclining-chair Cars and Palace Sleeping and Drawing-room Cars in America, the management of the consolidated system confidently expect a continuance of the popularity enjoyed by the individual lines.
☞ Rates to and from all points reached by the "Big Four Route" will always be as low as via any other first-class line.
For further information call on ticket agents throughout the country.
O. G. MURRAY, Traffic Manager. D. B. MARTIN, Gen'l Pass'r Agent.
CINCINNATI, O.

OUR readers will confer a favor by writing to us giving us any item of news such as new mills, elevators, etc., or improvements in the same, or giving information of a practical nature of general interest to the trade.

NEW YORK BELTING & PACKING CO

JOHN H. CHEEVER, Treasurer. 15 PARK ROW, NEW YORK.

Oldest and Largest Manufacturers in the U. S. A. of



Vulcanized Rubber Fabrics for Mechanical Purposes

MILLERS' HOSE A SPECIALTY.

Also a Good STEAM HOSE.

RUBBER MATS, RUBBER MATTING, and STAIR TREADS.

RUBBER BELTING, PACKING AND HOSE.

SALESROOMS: PHILADELPHIA, 308 Chestnut St.; BOSTON, 52 Summer St.; CHICAGO, 151 Lake St.; ST. LOUIS, 907-911 N. Main St.; DENVER, 1601-1611 17th St.; CHARLESTON, 160 Meeting St.; MINNEAPOLIS, 28 South 2d St.; CINCINNATI, 161-165 W. Pearl St.; ATLANTA, 16 Decatur St.; DETROIT, 16-24 Woodward Ave.; BALTIMORE, 12 N. Charles St.; BUFFALO, 124-128 Washington St.; NEW ORLEANS, 48 Canal St.; KANSAS CITY, 1311-1313 W. 12th St.; RICHMOND, 1206 East Main St.; European Branch, HAMBURG, GER., Pickhuben 5, (Freihafengebiet).

WESTINGHOUSE ENGINES

The Westinghouse Machine Co. PITTSBURGH, PA. U.S.A.

COMPOUND Condensing or Non-Condensing.
16 SIZES, 5 to 500 H. P.
Not yet equaled by any form of Engine for *HIGH FUEL DUTY AND SIMPLICITY.*

STANDARD 13 Sizes in Stock. 5 to 250 H. P.
3000 in use in all parts of the Civilized World.

JUNIOR 6 Sizes in Stock, 5 to 50 H. P.
An Automatic Engine cheaper than a Slide Valve.
WELL BUILT. ECONOMICAL. RELIABLE.
Over 300 Sold the First Year.

All the above built strictly to Gauge with INTERCHANGEABLE PARTS.
REPAIRS CARRIED IN STOCK.
SEND FOR ILLUSTRATED CATALOGUES.

SELLING DEPARTMENT IN THE UNITED STATES.

New York, Boston, Pittsburgh, Chicago,	17 Cortlandt St. Hathaway Building, Westinghouse Build'g, 156, 158 Lake St.	Westinghouse, Church, Kerr & Co.
Philadelphia,	608 Chestnut St. M. R. Muckle, Jr. & Co.	
St. Louis, Kansas City, Denver,	302, 304 Washington Av. 312 Union Avenue, 1330 Seventeenth St.	Fairbanks & Co.
Omaha,	1619 Capitol Avenue, F. C. Ayer.	
Pine Bluffs, Ark.		Geo. M. Dilley & Sons.
Salt Lake City, Butte, Mont.	259 S. Main St. 4. Granite St.	Utah & Montana Machinery Co.
San Francisco, Portland, Or.	21, 23 Fremont Street, Parke & Lacy Co. 33, 35 N. Front St. Parke & Lacy Mch. Co.	
Charlotte, N. C. Atlanta, Ga.	36 College St. 45 S. Prior St.	The D. A. Tompkins Co.
Dallas, Tex.		Keating Imp. & Machine Co.
Chattanooga, Tenn.,		C. R. James & Co.

Condemnation · of · Competitors

IS THE MEASURE OF SUCCESS.

I CHALLENGE the wheat heater concern advertising their heater as "replacing the Welch" to publish the terms on which the Welch Wheat Heaters are replaced. I could replace any other make of heater by allowing a big price for it and selling mine low, which is equal to paying a bonus.

The "Welch" is fully guaranteed, sold on its merits and used more than any heater on the market.

823 SECOND ST., ST. LOUIS, MISSOURI. A. B. BOWMAN.

✳ EVERY ✳ MILLER ✳

Whether using Water or Steam Power, who wants

To Save His Machinery

And reduce the cost of running expenses, should have a copy of a Pamphlet on Lubrication, which will be SENT FREE on application to

VACUUM OIL CO., ROCHESTER, N. Y.

MANUFACTURERS OF HIGH-GRADE OILS.

☞ Branch Offices and Warehouses in all the Leading Cities. ☜

Stilwell's Pat.

Lime Extracting

HEATER —AND— *FILTER*

COMBINED.

Is the only Lime Extracting Heater that will

Prevent Scale in Steam Boilers

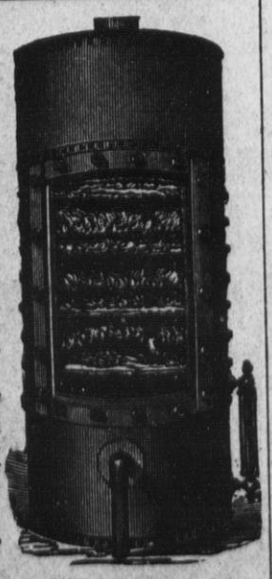
Removing all Impurities from the water before it enters the boiler.

Thoroughly tested. Over 3,000 of them in daily use.

This cut is a facsimile of the appearance of a No. 5 Heater at work on ordinary lime water when the door was removed after the Heater had been running two weeks.

Illustrated Catalogues.

STILWELL & BIERCE MFG. CO. DAYTON, OHIO.

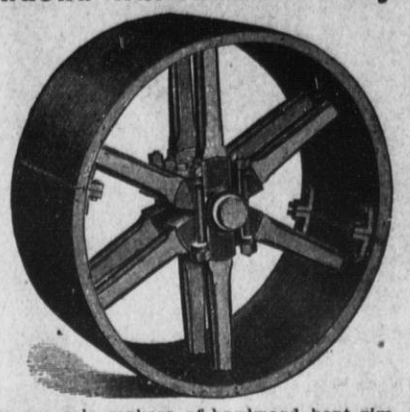


For All Kinds IRON & STEEL **ROOFING**

CEILING, SIDING, IRON DOORS, SHUTTERS.

ADDRESS SCOTT & CO. CINCINNATI, OHIO.

Menasha Hardwood Pulleys.

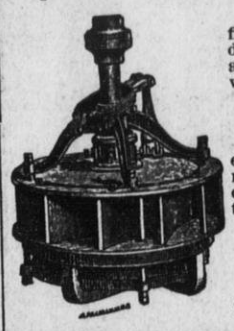


We are sole makers of hardwood bent rim, oak spoke arm, iron hub pulleys; gripped to shaft with bolts and using patent paper bushings. They can be put on shaft without taking it down or cutting key seats. No glue or nails used in their construction.

Also sole makers of only small split pulley 1 inch to 8 inches in diameter in the market. They are light, handsome and reliable. Best machine pulley made, and can be taken off or put on in five minutes. See above cut of them. No glue or nails in them. No key seats to cut. Also makers of only split loose pulley in the market. Send for circulars and discounts of Menasha Pulleys.

MENASHA SPLIT PULLEY WORKS, MENASHA, WIS.

Improved ✣ Walsh ✣ Double ✣ Turbine

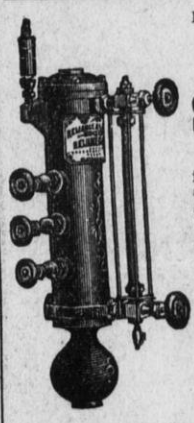


This wheel has a perfect fitting cylinder gate and draft tube combined, and allows no water to escape when closed.

POWER GUARANTEED

equal to any wheel on the market using equal amount of water. Address for particulars,

B. H. & J. SANFORD, Phœnix Iron Works, Sheboygan Falls, Wis.



Before shutting down for repairs or putting in any boilers, investigate the merits of the

RELIANCE

Safety Water Columns

Many large corporations have found it profitable to discard the common appliances, and adopt these safeguards. Of course, you need not do so unless you wish to, but it is worth your time to investigate. There is always economy in safety, and any safety appliance is worth the time it takes to examine it.

Send for Illustrated Price List.

RELIANCE GAUGE CO., 863 Sheriff St., CLEVELAND, OHIO.

JOHN C. HIGGINS & SON.

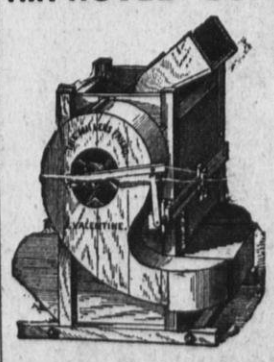
Manufacturers and Dressers of

MILL PICKS

167 W. Kinzie St., CHICAGO, ILL.

Picks will be sent on 30 or 60 days' trial, to any responsible miller in the United States or Canadas, and if not superior in every respect to any other pick made in this or any other country there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is *manufactured expressly for me* at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct Importation. References furnished from every State and Territory in the U. S. and Canadas. Send for Circular and Price List.

IMPROVED CORN SHELLER,



IT IS THE BEST CORN SHELLER MADE FOR MILL USE.

IT IS Simple in Construction Almost Noiseless, —AND— Requires Little Power

HUNDREDS ARE IN USE.

For descriptive circular, price list, etc., Address

JACOB VALENTINE, Gorham, Ontario Co., N. Y.

CHAS. A. PRAHL

MANUFACTURER OF

Artificial Limbs and Apparatus

Elevated Feet for Shortened Limbs Braces for Weak Ankles and Spina Curvatures, Elastic Stockings & Trusses

300 GRAND AVENUE, MILWAUKEE, WIS.

The INK used on this paper is from the factory of

CHAS. ENEU JOHNSON & CO., PHILADELPHIA, PA.

Western Branch House: 40 La Salle St., CHICAGO

G. M. MANN. F. P. MANN

MILWAUKEE BAG COMPANY,

MANUFACTURERS OF

COTTON, PAPER AND JUTE

FLOUR SACKS

DEALERS IN

Grain Bags, Twines, Centals, Etc.

TELEPHONE NO. 427.

No. 236 East Water Street, MILWAUKEE, WISCONSIN.

SCHIEREN'S

OAK-TANNED

LEATHER BELTING

Cotton Belting and Hose

GOODYEAR RUBBER CO.

"Gold Seal" Rubber Belting.

PRICE LIST SENT ON APPLICATION.

372 & 374 EAST WATER STREET

MILWAUKEE.

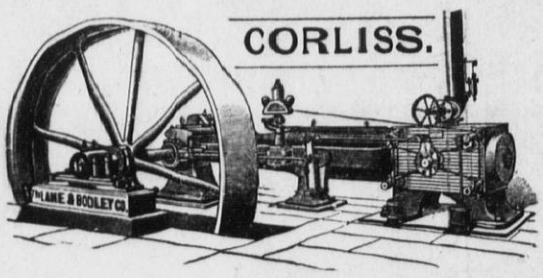
131 EAST THIRD STREET

ST. PAUL.

201 NICOLLET AVENUE

MINNEAPOLIS.

THE LANE & BODLEY CO.,



MANUFACTURERS OF

AUTOMATIC CUT-OFF

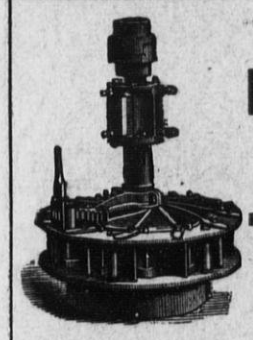
ENGINES

From Heavy Patterns and of Unexcelled Workmanship.

Steel Boilers, Feed Water Heaters Shafting, Pulleys and Gearing.

THE LANE & BODLEY CO., Cor. John & Water Sts., CINCINNATI, O.

ROBERT POOLE & SON CO.,



Leffel Turbine Water Wheel

Made of best material and in best style of workmanship.

Machine Molded Mill Gearing

From 1 to 20 feet diameter, of any desired face or pitch, molded by our own SPECIAL MACHINERY. Shafting, Pulleys, and Hangers, of the latest and most improved designs.

Mixers and General Outfit for Fertilizer Works.

☞ Shipping Facilities the Best in all Directions.

ROBERT POOLE & SON CO., BALTIMORE, Md.

N. B.—Special attention given to Heavy Gearing for Pulp and Paper Mills.

[Mention this paper when you write to us.]

"TRIUMPH" CORN SHELLER

CAPACITY

2000 BUSHELS PER DAY.

Shells wet or dry corn.

CHEAPEST AND BEST SHELLER.

PAIGE MFG. CO.,

No. 12 Fourth St., Painesville, O.

GANZ & CO.

Budapest, Austria-Hungary.

We are the first introducers of the Chilled Iron Rollers for milling purposes, and hold Letters Patent for the United States of America. For full particulars address as above.

[Mention this paper when you write to us.]

WM. PLANKINTON, President. FREDERICK D. DAY, Treasurer.

CAPITAL STOCK, $100,000.

GEO. N. SCEETS, V. Pres't & Mgr. J. G. THOMPSON, Secretary.

Milwaukee Brass and Copper Works

MILWAUKEE, WIS.

BABBITT METALS,

(Standard and Special Mixtures),

Brass and Bronze Castings. Ingot Metals.

Our "Badger State Metal" is the best anti-friction Metal on the market. We make a specialty of furnishing special mixtures to large consumers, putting on buyer's brand when desired.

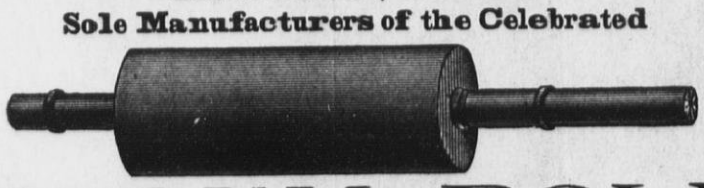
MILWAUKEE BRASS AND COPPER WORKS, MILWAUKEE, WIS.

☞ Send for Circular and Price Lists. Mention this Paper.

Farrel Foundry & Machine Company,

ANSONIA, CONN.,

Sole Manufacturers of the Celebrated



ANSONIA ROLLS

FOR USE IN ROLLER MILLS.

The general experience of American Millers unites in pronouncing these rolls the very best for Flouring Mill use.

These Rolls are now used in all Leading Flouring Mills

Chilled Rolls for Paper Mills a Specialty.

☞ Mention this paper when you write to us.

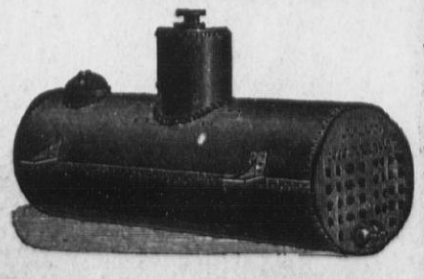
THE JOHN H. McGOWAN CO.

BRANCH HOUSE, 1425 EAST MAIN ST., RICHMOND, VA.

BASS FOUNDRY AND MACHINE WORKS,

Fort Wayne, Indiana.

—MANUFACTURERS OF—



First Class Steam Boilers,

INCLUDING

Locomotive, Upright, Flued and Tubular

—AND—

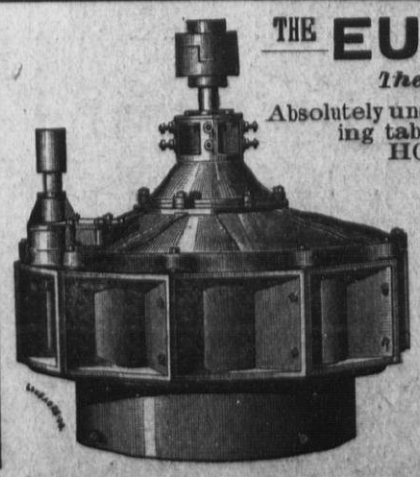
Portable Boilers of all Sizes and Styles.

TWO SHEET BOILERS A SPECIALTY.

Contracts taken for Complete Power Plants. *Prices furnished on Application.*

THE EUREKA TURBINE.

The Best Part-Gate Wheel Ever Built.



Absolutely unequalled in efficiency, is shown by the accompanying table from the records of actual tests at the HOLYOKE, MASS., TESTING FLUME.

PERCENTAGE OF EFFICIENCY.

	Full Gate.	⅞ Water.	¾ Water.	½ Water.
24" Wheel	.8436	.8416	.8202	.8002
24" Wheel	.8206	.7910	.7700	.7003
24" Wheel	.8078	.7578	.7275	.6796
34" Wheel	.8000	.8011	.7814	.6850

No other turbine ever approached the above figures at part-gate.

We publish our part-gate figures. Others significantly omit them.

For Catalogue and information, address

The Allentown Foundry & Machine Co.,

ALLENTOWN, PA., U. S. A.

1876. 1889.

The United States MILLER

AND THE MILLING ENGINEER.

Fourteenth Year.—No. 11. MILWAUKEE, NOVEMBER, 1889. Subscription Price, $1.00 Per Year.

STILWELL & BIERCE MFG. CO.

DAYTON, OHIO, U. S. A.

MILLING·ENGINEERS

Manufacturers of the Celebrated ODELL ROLLER MILLS and a full line of

Flour and Corn Mill Machinery.

MILLS BUILT ON THE

ODELL SYSTEM.

Contracts taken for mills of any size, large or small, and results GUARANTEED.

CAWKER'S AMERICAN FLOUR MILL AND GRAIN ELEVATOR DIRECTORY

FOR 1890-'91

(Copyrighted.)

Will be issued about March 1, 1890. Price Ten Dollars. It will be the most complete of any we have yet published, and will possess many new and valuable features. Send in your orders now to be placed on file. No payment required until delivery of the work. Send for descriptive circular.

WHO ARE THE PEOPLE

OPERATING

The RICHMOND

THE LARGEST AND BEST LINE OF GRAIN CLEANING MACHINERY

—AND—

BRAN DUSTERS?

THE

Careful and Successful

MILLERS.

RICHMOND MANUFACTURING CO., Lockport, N. Y., U. S. A.

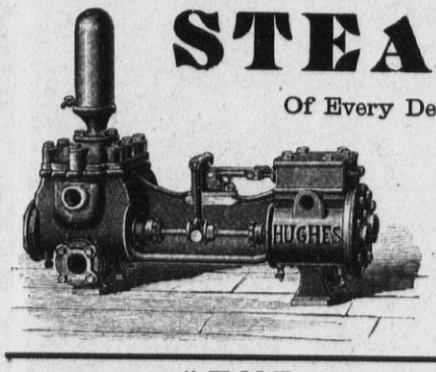
Hughes Bros. Steam Pump Co.,

CLEVELAND, OHIO.

Builders of Single and Duplex

STEAM * PUMPS

Of Every Description for all kinds of Work.



Satisfaction Guaranteed

Send for 1889 Catalogue.

THE

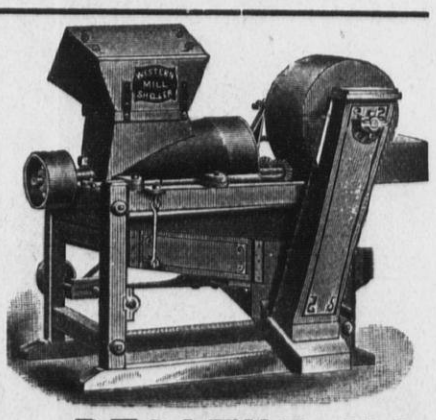
"WESTERN"

MILL SHELLER.

The most Compact, Durable, Best Sheller and Best Cleaner.

Takes up but little room, runs at low rate of speed, requires no attention. It is in every respect the

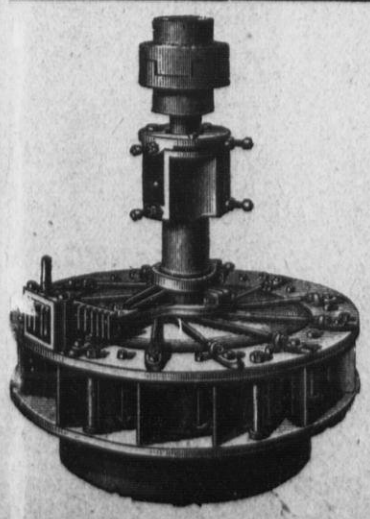
Best Sheller ever offered to the Public.



Please mention this paper. Write for full particulars to

UNION IRON WORKS, - DECATUR, ILL.

Mfrs. of "Western" Sheller, Cleaners, Separators, and all kinds of Elevator Machinery.



Leffel Water Wheel

Made by JAMES LEFFEL & CO.

The "OLD RELIABLE" with Important Improvements, making it the

Most Perfect Turbine now in Use.

Comprising the LARGEST and the SMALLEST Wheels, under both the HIGHEST and LOWEST Head in this country. Our New Illustrated Book sent free to those owning water power.

Write us for NEW PRICES before buying elsewhere. New shops and New Machinery are provided for making this Wheel. Address,

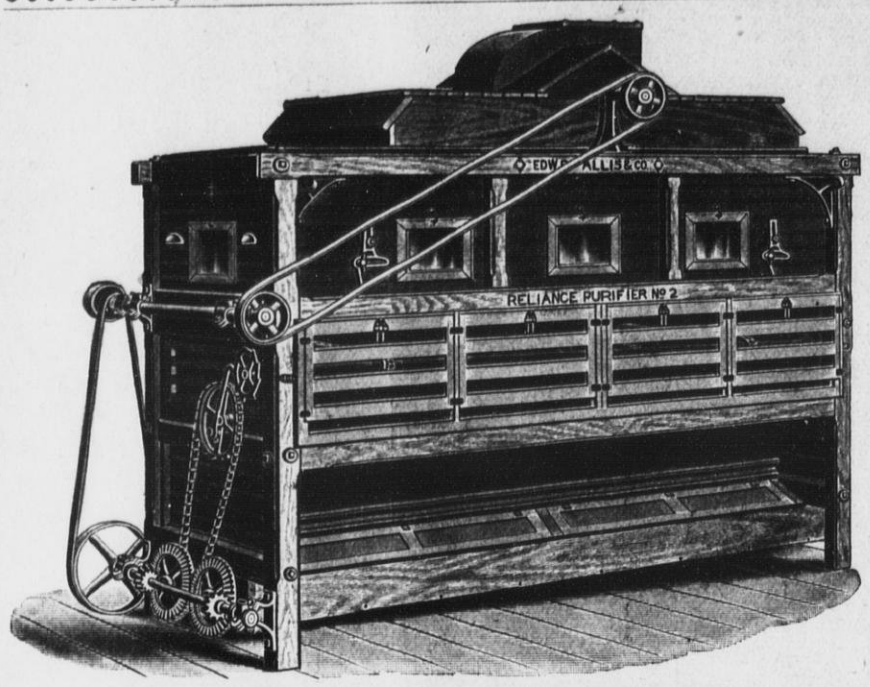
JAMES LEFFEL & CO.,

Springfield, Ohio, or 110 Liberty St., New York.

EDW. P. ALLIS & CO.

Mill Builders and Mill Furnishers,

RELIANCE WORKS, - - MILWAUKEE, WIS.



SOLE MANUFACTURERS OF

. . . THE . . .

Reliance Purifier.

IMPORTANT NOTICE.

The Principal Features of the RELIANCE PURIFIERS are covered by our own patents, but to afford the fullest protection to our customers we have made arrangements by which it is now Licensed under all the patents of the

CONSOLIDATED MIDDLINGS PURIFIER CO.

This puts it out of the power of Anybody to trouble its purchasers, and backed by the acknowledged excellence of the machine itself, makes it to the interest of every Miller who wants The Best to purchase the RELIANCE.

THE RELIANCE PURIFIER Has been on the market but a short time, but has become a recognized necessity in the best mills, and is used by the Staten Island Mill, New York City, 1,500 bbls ; the Imperial Mill, Duluth Minn., 2,000 bbls.; the Listman Mill Co., La Crosse, Wis., 1,000 bbls.; the C. C. Washburn Flouring Mills, Minneapolis, and hundreds of others.

50

Gray's Noiseless Belt Roller Mills,

19

Gray's Improved Centrifugal Reels,

64

Gray's Improved Flour Dressers,

AN IMPERIAL SUCCESS.

DULUTH IMPERIAL MILL CO.,
DAILY CAPACITY, 2,000 BARRELS.

DULUTH, MINN., Oct. 24, 1889.

Messrs. EDW. P. ALLIS & Co., Milwaukee, Wis.

Gentlemen: In accepting and making final settlement with you for the building and furnishing of the Imperial Mill we wish to state that all of the machinery manufactured and furnished by you, viz.: the ***Reliance Purifiers, Flour Dressers, Centrifugal Reels*** and ***Sieve Scalpers,*** are, like your ***Gray Roller Mills,*** standard machinery, and not excelled by any in the market.

Before making our contracts we made a careful inspection of the different systems and machinery in the best mills, and now feel that we made no mistake in awarding you the contract. We are well satisfied that your guarantees have been more than fulfilled as regards quality, percentages, yield and capacity. We undoubtedly have ***the best mill that has ever been built,*** which, together with the superior quality of Duluth hard wheat, enables us to turn out grades of flour that are unequaled, and reports we have received from expert bakers fully substantiate this statement.

Yours truly,

DULUTH IMPERIAL MILL CO.

Per B. C. CHURCH, Secretary and Manager.

10

Gray's Sieve Scalpers,

26

Reliance Purifiers,

ARE USED BY THE

NEW

Imperial Mill

—AT—

DULUTH,

AND ARE ENDORSED AS THE BEST

The United States MILLER AND THE MILLING ENGINEER.

Fourteenth Year.—No. 11. MILWAUKEE, NOVEMBER, 1889. Subscription Price, $1.00 Per Year.

A GREAT ESTABLISHMENT.

ROBERT POOLE & SON CO., Baltimore, Md.

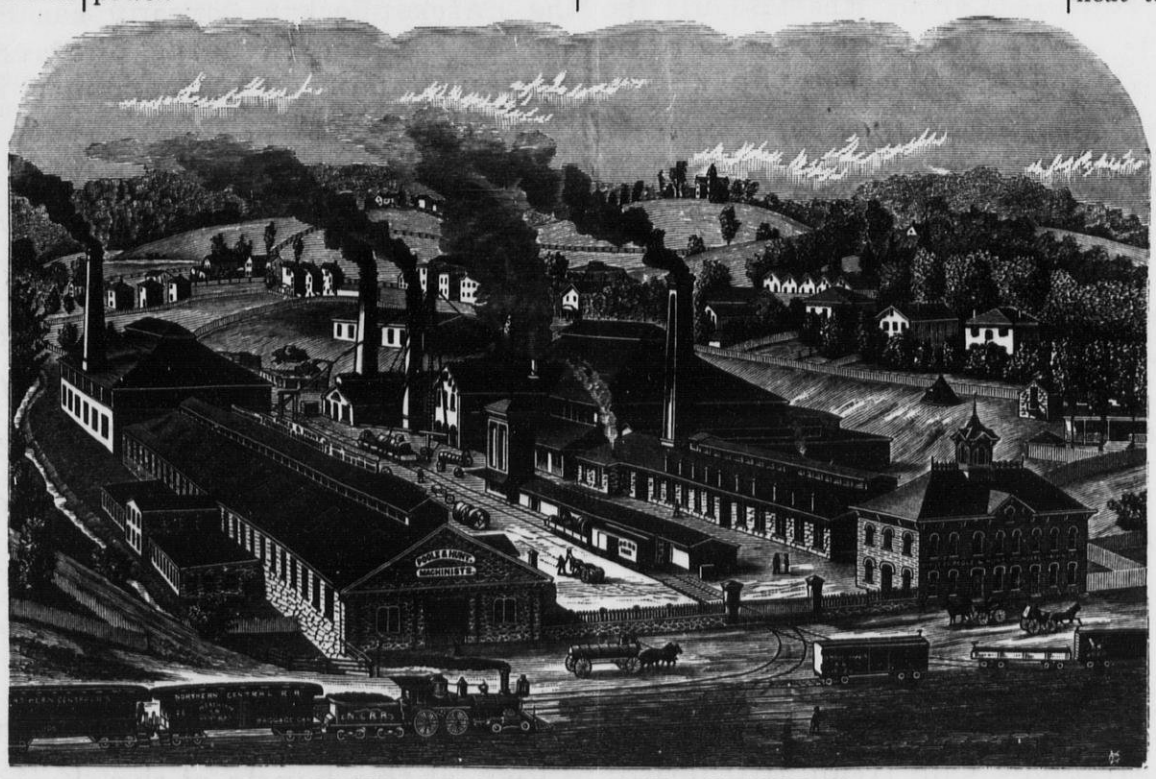
THE city of Baltimore has long been known for its rapid development of engineering and machinery, and with the march of improvement there has been a pronounced tendency to encourage manufactures and industries contributing to the prosperity of the States. A revolution most extraordinary in character has been developed in machinery and mechanical engineering, and the changes effected in the last half century are of the highest importance. In practical mechanism it is interesting to know something of the invention and progress of machines which have contributed so largely to multiply the manufacture as well as the construction of other machines in every day employ. For a single example of success, note the firm of Robert Poole & Son Co., who are now so extensively engaged in the manufacture of machinery.

Robert Poole, the founder of the present concern, as a youth received a practical education, and entered the business arena with a full and complete knowledge of the principles of construction and design. Commencing business in 1843, he associated with him William Ferguson, under the firm name of Poole & Ferguson. In 1847 German Hunt, who had been in the employ of the firm, and whose knowledge of machinery and engineering was highly valued, was taken as a partner and the firm changed to Poole & Hunt. In 1853 their works in Baltimore were destroyed by fire, and after considerable delay in the selection of a more favorable site for business, Woodberry was decided upon as a place for future operations. For nearly half a century the firm has steadily grown to its present proportions, and on the first of January of the current year a final and likely permanent change was made in the firm, hereafter to be known as Robert Poole & Son Co.

Their workshops are handsomely and substantially built of stone and brick, covering about 15 acres of ground, the Northern Central Railway passing directly through their premises. The iron foundry is 270 feet in length, by 160 feet in width, the machine shop, 530 feet long by 60 feet wide; the erection shop, 125 by 80 feet; the smithery, 180 by 53 feet; the boiler shop 175 by 70; the pattern shop 68 by 40 and the storehouse for stock of finished machinery 175 by 75. Throughout the entire establishment, in every department, are to be found the most improved machinery, tools, and appliances for the production of transmission machinery and castings of the heaviest order of workmanship.

The cable railway system, which has been introduced into many of the leading cities of the country, and finds additional favor as its advantages are demonstrated, contributes a special and most exhaustive feature in engineering skill and machinery. The operating machinery of the principal cable roads of the country have been manufactured by this firm, and the perfect illustration herewith will afford the reader some idea of the massive machinery required to operate a cable railway. That the production of such machinery requires both brain and great manual labor to plan and construct, so that each part shall perform its work, is most notably present in viewing from all points this most extensive plant. The *Scientific American* says: "The operating machinery of the 10th Avenue cable railway of New York city was built by Messrs. Poole & Hunt of Baltimore, Md. Its smooth and almost noiseles motion exhibits skill in executing the design; while the great size of many of the parts, shows the facilities at their command and conveys some idea of the extent of their works."

The introduction and manufacture of the Leffel Turbine Water Wheel by this firm during the lifetime of the inventor, and the ultimate security of the right to sell to all States and Territories, forms a special department of manufacture, which is most attractive to those who use water power.



ROBERT POOLE & SON CO.'S WORKS, BALTIMORE, MD.

"The Leffel Double Turbine should not be confounded with other classes of wheels, as it is constructed and acts upon entirely and essentially different principles, which are peculiarly characteristic of it as a water-wheel. There is in it a combination of two independent sets and kinds of buckets, one a vertical, the other a central discharge, each entirely different in its principle of action, yet each wheel or series of buckets receiving its water from the same set of guides at the same time; but the water is acted upon but once, since half of the water admitted by the guides passes to one wheel, and the other half of the water to the other wheel, the water leaving both wheels or sets of buckets at the same time and as quickly as possible. These two sets of buckets are so combined as to make really but one wheel; that is, both are cast in one piece and placed upon the same shaft."

This firm, in a highly illustrated guide to millers, manufacturers and others, give a series of 21 cuts, showing the different conditions and positions under which this wheel operates. The lines in each illustration are finely drawn, and the most minute points of action are readily observed. A most exhaustive and accurate tabulated statement of sizes of wheel are also embraced in this pamphlet, running from 7⅛ to 87 inch, with horse-power, cubic feet and revolutions of each. Directions for setting the wheel are also given in detail, with a relative and scientific article on the measurement of water, all knowledge of which is of vital importance to those using the Leffel wheel.

They are the manufacturers of the celebrated dredge known as the "Von Schmidt Hydraulic Dredge." Their plant for the production of machine moulded gearing is perfect in design, and possesses the facilities for producing all kinds of heavy g aring of the most approved proportions and accuracy of pitch. Their lines of manufacture are most numerous, all machinery for the transmission and distribution of power for flour, grist, cotton, woolen and paper mills and fertilizer and other factories, are embraced in their extensive catalogue.

STEAM JACKETS.

IN Watt's first patent the steam jacket as a means of preventing condensation in the steam cylinder is mentioned, and in his second patent it is shown in the drawings. No doubt Watt had a general notion that it was good to keep steam in a cylinder warm, but it is very difficult to see that he could have justified the use of the jacket on any principle then known to science. In fact, we must go rather deeply into the most modern views of the action of steam to understand at all how a jacket can increase efficiency. For, note first that a jacket does not diminish but rather increases the direct loss of heat due to radiation. Whatever radiation takes place from an unjacketed cylinder the same must occur from the jacket, increased a little by the greater surface of the jacket and more continuous high temperature inside. In the next place the heat supplied by the jacket to the steam in the cylinder would, at first sight, seem to be necessarily less efficient than heat supplied directly into the cylinder. for the heat supplied from the jacket acts on the average through only part of the stroke and some of it passes away during exhaust, when it does no good directly in increasing.

There is another anomaly about the use of a jacket I should like to point out in a popular but, I think, striking way. Turning to modern and exact measurements it appears that in good, ordinary engines the initial condensation of steam in the cylinder at each stroke amounts to, in very favorable cases, 10 to 20 per cent. of the steam admitted. In a great many engines not considered to be working in unfavorable conditions it amounts to 50 or 60 per cent. of the steam admitted. Now, I suppose, it is not an uncommon idea about a steam jacket that its influence is very largely due either to its keeping the steam dry or to its causing direct re-evaporation of the water in the cylinder. But just see how totally inadequate a jacket must be for any purpose of that kind. Take an engine in which 40 per cent. of the steam is actually condensed. To be adequate to re-evaporate 40 per cent. of the steam supplied by heat transmitted through the wall the cylinder surface ought to be at least equal in area to four-tenths of the boiler surface. In fact, from the small difference of temperature on two sides of the cylinder wall compared with that on two sides of the boiler wall, less heat goes through a square foot of cylinder wall than through a square foot of boiler wall. Yet the cylinder area is only a small faction of the boiler area. Hence, the value of the jacket, so far as it acts in directly increasing the work of the cylinder by re-evaporation, must be an insignificant one.

Look at another point. Suppose it was possible to construct a cylinder with a perfectly non-conducting wall. How would the steam work in such a cylinder?There would be no loss by radiation. There would be no possible cooling of the steam during admission by the wall itself. In that case if the steam entered the cylinder dry I do not think there would be any initial condensation. For suppose we start with one pound of water put into the cylinder. Initially that must be heated up to the temperature of the entering steam, causing condensation. During exhaust evaporation would take place and the pound of water cool down again. In the main, each ounce of steam initially condensed to heat the water in the cylinder would be condensed at a high temperature (that of admission) and re-evaporated at a low temperature (that of exhaust.) Hence, as the total heat is less at the low temperture less heat is taken to re-evaporate an ounce of water than it initially gave up in condensing. A little heat would be left behind which would tend to dry the cylinder. Going on in this way, the pound of water initially put in the cylinder would gradually disappear.—*Prof. Unwin.*

THE new Minneapolis milling combine is to be known as the Pillsbury-Washburn Flouring Mill Company.

Vortex Dust Collector Co.

To Our Customers and the Public!

In response to the comments and statements made by the Knickerbocker Co., of Jackson, Mich., we are compelled in self-defense to make this reply:

It is true that at a meeting in Chicago between our Mr. Ferdinand Schlesinger, president of the Vortex Dust Collector Co., and Mr. Knickerbocker, the president of the Knickerbocker Co., it was agreed that an amicable suit should be conducted for the purpose of determining the validity of the Knickerbocker Company's claim; and that we should permit a customer of ours to be sued in the Northern District of Illinois for the purpose of determining that question. It was further agreed that until the determination of that suit, our customers and our trade should not be annoyed by any threats or other action on the part of the Knickerbocker Company.

In accordance with that agreement we received the following letter from the Attorneys for the Knickerbocker Company, which conclusively shows the existence of such an agreement, although the agreement itself it was not thought necessary at the time to reduce to writing:

Law Office of JENNEY, MARSHALL & RUGER,
No. 15 Third National Bank Building.

SYRACUSE, N. Y., August 1, 1889.

VORTEX DUST COLLECTOR CO., Milwaukee, Wis.:

Gentlemen: Your letter of the 23d ult to the Knickerbocker Company has been referred by that company to me. Will you kindly inform me who at Chicago is using one of your machines, so that I may bring a suit there for the Knickerbocker Company, in accordance with the suggestion of your letter.

Yours truly,

E. S. JENNEY.

We have retained Messrs. Winkler, Flanders, Smith, Bottum & Vilas, of Milwaukee, to defend any and all of our customers in any suit that may e brought against them, and have instructed them to defend all such actions with the utmost possible energy. We further agree to indemnify and save and keep harmless any of our customers from the result of any infringement suit, or any other suit whatever, brought by the Knickerbocker Company on account of the use of any machine made or sold by us, and we hope that no one will refuse to buy one of our machines before writing us and getting particular information as to the responsibility and reliability of such guaranty.

We desire further to append a letter received from our attorneys in regard to the prospective litigation, and we consider ourselves safe from any ultimate loss at the hands of the Knickerbocker Co.:

F. C. WINKLER,
J. G. FLANDERS,
A. A. L. SMITH,
E. H. BOTTUM,
E. P. VILAS.

WINKLER, FLANDERS, SMITH, BOTTUM & VILAS,
Counselors at Law.

VORTEX DUST COLLECTOR CO., City.

Gentlemen: We have at your request looked into the matter of the claim of infringement made by the Knickerbocker Company, based upon the manufacture of your Vortex Dust Collector. The state of the art, in our judgment, discloses no sufficient foundation for the claims of the Knickerbocker Company.

We believe that an absolutely impregnable defense can be made in any action for infringement, based upon the manufacture or use of the Vortex Dust Collector, as made by you.

We acknowledge your instructions to appear and defend any and all of your customers in any action brought against them, and will cheerfully act in accordance with your wishes under your retainer. (Dictated.)

Yours very respectfully,

WINKLER, FLANDERS, SMITH, BOTTUM & VILAS.

Vortex Dust Collector Co., Milwaukee, Wis.

UNITED STATES MILLER
AND THE MILLING ENGINEER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.
OFFICE, NO. 124 GRAND AVENUE, MILWAUKEE.

SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.

To American subscribers, postage prepaid..... $1.00
To Canadian subscribers, postage prepaid..... 1.00
Foreign subscriptions..... 5s.

All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.

Bills for advertising will be sent monthly, unless otherwise agreed upon.

For estimates for advertising, address the UNITED STATES MILLER AND THE MILLING ENGINEER.

[Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE, NOVEMBER, 1889.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER AND THE MILLING ENGINEER. You will thereby oblige not only this paper, but the advertisers.

WE send out a number of SAMPLE COPIES of this issue. We solicit a critical examination of our Journal and invite you to subscribe. The price is one dollar per year. No premiums—no discount. Our December number will contain matters of *special interest* to millers which you will not find elsewhere.

CANADIAN oatmeal millers are again organizing a "Combine."

A VERY unique, perhaps we ought to say antique looking advertisement of the Richmond Manufacturing Co., appears in this issue.

THE Cockle Separator Mfg. Co. of Milwaukee, have just issued a new and handsome catalogue of their specialties. Millers and grain dealers should send for it.

THE suit which has been pending so long between the Consolidated Roller Mill Co. vs. The Barnard & Leas Mfg. Co., of Moline, Ill., has been set for hearing Nov. 19.

WITH this number we commence the publication of a series of articles pertaining to flour milling by J. F. Mueller, M. E. We commend them to the careful attention of our readers.

THE Manitoba department of agriculture finally reports that 7,201.519 bushels of wheat were raised in that province in 1889 on 623.245 acres, showing a yield of 12.4 bushels per acre.

THE idea seems prevalent among a great many millers and mill-machinery men that the patent on the traveling brush expires next year. The patent does not expire, we believe until 1892.

THE Geo. T. Smith Middlings Purifier Co., have moved into their immense new works. A considerable portion of the plant is now in operation, but it will not be complete for a month or more yet.

THE cracker manufacturers met in Jackson, Mich., Oct. 26, organized and transacted their business behind closed doors. Crackers will probably go up a cent or two, until someone cuts prices.

WE regret to learn of the death of Harry, youngest son of Geo. T. Smith, of Jackson, Mich. He died Oct. 15. He was a bright lad, and his parents have the sympathy of all who know them, over this irreparable loss.

THE first annual meeting of the Stone Millers' Association of Michigan, will be held at the parlors of the Wayne Hotel in Detroit, on November 20, at 1 P. M. Every stone miller is requested to be present by J. Hardenberg, President.

THE Wheat Grower Convention held recently in St. Louis passed a resolution recommending "farmers when and where practicable to build joint stock elevators for their own use and benefit." This will suit elevator builders, but the average farmer will find it up-hill work to run an elevator.

WE acknowledge the receipt from Hon. Charles F. Peck, Commissioner of Labor of New York, of the report of the Bureau of Statistics of Labor, for the year 1888. It treats the subject in an exhaustive manner. Elsewhere will be found some statistics relating to wages in New York flouring mills and grain elevators.

MR. GEO. T. SMITH, of the Geo. T. Smith Middlings Purifier Co., of Jackson, Mich,, is in Milwaukee, (Nov. 13) on a business visit. He reports business thriving. The company has recently received some very heavy orders from abroad for their specialties. He expresses great satisfaction with Judge Brown's decision which will be found elsewhere.

H. D. PORTEOUS, ESQ., of the flour and grain importing house of H. D. Porteous & Co., Liverpool, England, called on us recently. Mr. Porteous has been visiting a number of the leading exporting millers in this country, during the last few weeks. He anticipates a good year's business. Having nearly completed his mission here he will soon return home. *Bon Voyage.*

THE steel steamship America recently arrived in Buffalo with a cargo of 104,000 bushels of corn. In 22 hours thereafter she was ready to sail again, having discharged her cargo and taken on a return cargo of 2,700 tons of coal. No special effort at speed was made. If there had been, it is claimed that the work could have been done easily in 18 hours. So much for modern appliances.

THE *Modern Miller*, Kansas City, Mo., comes to hand this month full of good things, editorially and otherwise and is very handsomely printed. It is well patronized and we have no reason to doubt that it renders valuable service to its patrons. Its publisher is full of Western "push" and is one of those happy spirits that makes friends of those with whom he comes in contact. His paper is the only real milling journal published West of the Mississippi.

THERE has not been a time during the past six years when there was so much large and important flour milling work in progress of construction or planning for construction as at the present date. Plans are being prepared for some mills larger than any yet built. Dealers in mill supplies are kept busy in supplying the daily wants of the trade and good flour mills in favorable locations are as a rule running up to capacity. The export trade is not all that could be wished for by any means but there is comparatively little grumbling.

H. C. THOM, Dairy and Food Commissioner, writes us as follows:

As a most suggestive indication of the wide spread adulteration of food and drugs which has been going on, I desire to state that the Wisconsin Dairy and Food Commissioner recently took thirty samples of Cream of Tartar from reputable dealers in this state, and in all but six not a trace of cream of tartar was found by chemical analysis. The twenty-four adulterated samples were composed of tartaric acid, alum, starch, lime, plaster paris, sand and various other adulterants. The people hardly realize the extent of the fraud that is imposed on them.

FROM observation of the sayings and writings of men, we conclude that it is human nature to exaggerate even when such a course might readily be foreseen to lead to unprofitable results. We like to speak of our great country, its inexhaustible resources, it bountiful crops' etc., but it is self evident that if our statisticians take too rosy a view of things and over-estimate our crops in giving their report to the world, they do the farmer a direct injury, which reflects on every other branch of trade. Some pretty plain talk on this subject was indulged in at the Farmers' Convention held recently in St. Louis. It was claimed that if the government statistician at Washington should in making up his returns lean as much towards a short crop report as he has for years past towards a big crop report, it would make a difference of a hundred millions of dollars to the farmers of the country on wheat and corn alone. This conclusion is also doubtless an exaggeration. It is suggestive however, that great care should be taken in making these reports and that they should rather be underestimated than overestimated even if our vanity for big figures has to suffer.

THE WASHBURN-CROSBY MILLING COMPANY announces that by September, 1890, the time when its lease will expire on the Washburn mills in Minneapolis, it will have a $2,000,000 plant in operation in Duluth, with a daily capacity of 6,000 barrels. An officer of the Company is reported to have said: "The plans for the plant at Duluth embrace a mill with a 6,000 barrel capacity, an elevator of 750,000 bushels capacity, and a large warehouse capable of holding 300,000 barrels of flour. The buildings will be located on the lake front, and will have ample dock and rail facilities. Our company owns the St. Anthony and Dakota elevators along the Manitoba lines: hence you can readily see that Duluth is just as accessible to the great wheat producing region of Minnesota and Dakota as is Minneapolis. We have been looking over the ground at Duluth and find that we can secure an excellent location there. In case we locate there, the same company will build and operate the mills as is now in control here. We also expect to secure the co-operation of persons who are largely interested in Duluth real estate.

THE *Northwestern Miller* has published some articles recently which have had the effect of stirring up the Richmond, Va. flour trade. We regret that our contemporary should have deemed it advisable to especially select Richmond alone, for there are certainly other points in the South that can show as many instances of unsatisfactory deals as Richmond. It is not fair, in our opinion to crucify the trade in a general way at a certain point. There are, unquesably, crooked flour dealers not only in Richmond and Atlanta but in almost every place which is considered a flour market. But there are straight honest dealers at all these points, and the miller frequently has himself to blame for not making strict inquiry concerning the financial condition and character of the dealer soliciting his trade. In our opinion a man's character, even from a commercial point of view, is of as much importance, to say the least, as his fincial condition, and it is easy for a miller in these days of commercial agencies and banks to find out a good deal about a prospective customer. It is true that several millers at recent conventions have spoken of Richmond and some other points quite bitterly, but the sins of one or more dealers in a town should not blast the reputation of all the rest. While we can not endorse the course taken by the *Northwestern Miller*, we believe it will be in the end a good thing for Richmond. Square dealers will be aroused from the lethargy they have fallen into and will purge out of their city the evil doers and in the future they may even thank the lancet of criticism that removed the tumor of dishonesty which threatened to utterly ruin the Richmond flour trade.

CAWKER'S AMERICAN FLOUR-MILL AND GRAIN ELEVATOR DIRECTORY FOR 1890-'91.

THE above standard work will be ready for delivery in March, 1890. This will be the seventh directory of the flour and grain trade, issued by the publisher, and all who have used them, testify to their increasing accuracy and utility to the trade. Briefly outlined, the principal features will be as follows:

1. List of Flour Mill owners of the United States and Dominion of Canada, Post Office address, County and State, and where information is obtained capacity in barrels of flour per day of 24 hours, kind of power used (steam or water), roller or stone system. 2. Lists of Corn, Oatmeal, Rice, Rye Mills, etc. 3. List of Grain Elevators and Warehouses. 4. List of Millwrights. 5. List of prominent American Flour and Grain Brokers. 6. List of Foreign Flour and Grain Importers. 7. List of Mill Furnishers, etc. 8. Statistics valuable to the trade.

Communications from millers in all parts of the United States and Canada on any of the above mentioned points, will be thankfully received by the publisher. Further, any suggestions that will tend to add to the value of the work will be fairly considered. All letters concerning this matter should be addressed to E. H. Cawker, Miwaukee, Wis.

ONE GREAT MILLING DEAL MADE.

WHERE WILL THE NEXT BE?

AT last the announcement is made without contradiction that the great Pillsbury-Washburn deal has been consummated. The newly organized company is styled "The Pillsbury and Washburn Flouring Mills Co., Limited." Its property consists of the Pillsbury mills "A" and "B," "Anchor" and "Palisade" mills in Minneapolis, and the "Lincoln" mills at Anoka, Minn., also Minneapolis and Northern elevators, having 6,000,000 bushels or more capacity; the Atlantic Elevator System with something over a million capacity; the St. Anthony Water-power, etc., etc. It is said that the price paid for all this property was $6,250,000.

* * * *

It is a great consolidation. The only wonder is that something of the kind was not done long ago. The questions which agitate the minds of the milling public just now, are how rapidly will other consolidations take place? How will they affect the milling industry not only of this country but of the world?

* * *

It is a mistaken idea of a large portion of the public that all or most all of the money invested in these so-called "syndicate purchases is from foreign sources. Doubtless much of it is, but we believe but little more than half. There are countless millions of American capital seeking investment, and the idea of placing it in conjunction with foreign capital in American enterprises is peculiarly fascinating, especially where the product or a large portion of it is to be sold in the country from which a considerable portion of the invested capital comes.

* * * *

The air is full of rumors of prospective purchases of milling and elevator property and other manufactories, and London financial papers are teeming with advertisements encouraging their readers to invest. Many of these schemes are good, and many more we dare say are being pushed for the sole benefit of the promoters.

* * * *

There is one good thing about this mutual investment of domestic and foreign capital. It tends to secure peace between the United States and foreign countries. It leads to that happy termination so well expressed in the words of Holy Writ, "Then shall they beat their swords into plowshares and their spears into pruning-

CONTINUED ON NEXT PAGE.

hooks; nation shall not lift up sword against nation neither shall they learn war any more."

* * * *

In the meantime more great mills are being built here by men of sound business views, and they believe they are going to make money out of their investments. There is little doubt but United States millers and milling engineers, working together, with the magnificent wheat resources of the country to work upon, can compete successfully for the trade of any flour importing country in the world.

* * * *

CORRESPONDENCE.

(From our own Correspondent.)

OUR ENGLISH LETTER.

English wheat situation.—Crop prospects in Australia.—Prospective labor troubles of English millers and bakers.—Anglo-American Companies.—Grain Elevators to be built in Russia.—Proposals wanted for an Eiffel tower in London, etc., etc.

LONDON, Nov. 2, 1889.

From some parts of England complaints are heard of the wheat sowing having been delayed by the wet state of the land. Fine weather is urgently wanted for a few weeks so as to get the farm work over before the winter comes on. Most disheartening accounts are to hand from the mountainous districts of North Wales, where some fields are even yet uncut, though the acreage in this condition is not large, but there are hundreds of acres yet unharvested, and the continued wet weather is seriously injuring the corn lying on the ground. Business has gone on at a slower pace during the past week or ten days than that which animated the first half of October. An estimate of the yield of the wheat crop of 1889 in Great Britain has been made by that well-known English authority, Sir J. B. Lawes, who uses as a basis for his calculations the results obtained from the experimental plats at Rothamsted which have grown wheat for forty-six years. He points out that although up to the middle of June the conditions were favorable to the growth of a large crop, about that time there was a change in the prospect. For fifty-five days from early July to the end of August there were only two days on which the large guage at Rothamsted did not register rain, and on July 12th over three inches were recorded. Sir J. B. Lawes concludes:—Our estimate of the yield of the country is 27½ bushels per acre at the standard weight of 61 lbs. per bushel. Taking the area of the 1889 crop and a yield of 27½ bushels per acre, the gross produce will be about 8¾ million quarters, and deducting two bushels per acre for seed on the same area, the home produce available for consumption will amount to a little over eight million quarters (8,098,545.) Taking the population for the current harvest year at rather over 38 millions (38,140,830) the amount required for consumption at 5.65 bushels per head will be neariy 27 million quarters (26,936,961) and deducting from this the quantity available from the home crop, there remains nearly 19,000,000 qrs. (18,838,-416) to be provided by stocks and imports. The receipts of wheat in quarters of 960 lbs. for the past cereal year, by this country is thus given in a table published by *Dornbusch's List:—*

America	Russia	India	Central Europe
6,868,591	5,639,762	2,259,133	2,144,433

and from other countries 2,243,805 qrs. If these figures are compared with the estimate made by Sir J. B. Lawes, we shall find that there will be a little less foreign wheat required for feeding the English people during the next eleven months. From Russia at this time of the year we expect large wheat shipments, but if we compare the shipments of last week with those of the corresponding week of 1888 and 1887, we find a great falling off, which is likely to continue to about the same extent for some months to come. Those of last week compared with 1888 and 1887 are:

1889	1888	1887
327,911	453,941	345,970

This falling off must be supplied by other countries and no doubt America will soon make great progress with her present export figures of flour, so that the English millers will again feel their shoes pinching, although American millers have a lot of lost ground to make up.

Harvest in Australia appears likely to be early, as there was wheat three feet high and in ear before the middle of September in one of the northern districts of Victoria, which is not by any means the earliest of the Australian colonies. Up to the date of the latest postal advices prospects continued to be favorable and a good harvest was confidently expected. It is quite possible that sanguine expectations will be disappointed; but after the crops have come into ear under highly favorable circumstances, there is not much reason to fear such a bad failure as occurred on the last occasion. Shippers therefore expect a good export surplus of wheat from the growing crops and are now offering Dec.-June at 36s. 9d. per 480 lbs. Even at these prices English white wheat seems good and cheap at 36s. per 504 lbs. At the present time India, who has several times been a thorn in the American wheat sellers side, is exporting very small quantities of wheat.

Germany, Hungary, etc., which last season sent some two million quarters of wheat to the United Kingdom, are now competitive buyers of wheat and rye.

The English millers will have to pass through a severe period directly from the competition of American millers and their tempers are just now not at the best, when they look ahead and see, besides outside troubles, inside discontent. The executive of the Millers' National Union has issued an appeal to the working millers of the United Kingdom inviting them to join the Union, which asks for a fifty-four hour week, time and a half for overtime, double pay for Sunday labor, a uniform rate of pay for each section throughout the trade, all mills to be made as safe and healthy as possible and the abolition of the character system. A large meeting of master bakers was held on Wednesday last, the 30th October, and a resolution was moved expressing sympathy with the operatives in their endeavor to secure a limitation to the hours of labor, but affirming that a working day of ten hours or sixty hours per week, was not suitable for the general trade, and therefore could not be of a lasting character if attempted to be enforced. The resolution, after a lengthy discussion was carried with fourteen dissentients. Another resolution carried was that declaring that a twelve hours' working day or seventy-two hours per week, iuclusive of meal times, could be adopted by the trade to the advantage of both employers and employed. Should it be necessary—as it is believed it will be, for the bakers to strike on November 9th to secure their demands, the difficulty of dealing with those masters who have consented to the concessions asked for will be got over in this way. A certificate duly signed, will be drawn up and given to each "fair" master baker to be exhibited in his window. The public will be asked to deal only with those tradesmen holding the certificate. Already the London Trades Council have decided to appeal to the members of the several trade societies of the metropolis to support the action of the strikers by refraining from purchasing at the shops where the certificate is not found. With a bakers' strike now which will do some damage to the milling trade and a strike amongst the milling operatives, American flour should soon get to its old position on the English market.

Two large companies have been placed on the English market, namely, The Chicago and North-Western Granaries Company, limited, and the Pillsbury-Washburn Flour Mills Company, limited. The Chicago and North-Western Granaries is formed for the purpose of acquiring (as from August 1st, 1889) the capital stocks of, and taking over and carrying on the business and properties known as the Star Elevator Company, of Minneapolis, and G. W. Van Dusen & Company, of Rochester, Minnesota, both of which have had virtually the same stockholders and the same management. The share capital is £240,000, according to the prospects issued on the 19th October.

London board of directors:

Lord Thurlow, P. C., F. R. S., 33 Chesham Place, S. W., (chairman of the Salt Union Limited.)

Sir Roper Lethbridge, C. I. E., M. P., (director of the Hansard Publishing Union, limited), Lynsted Lodge, Sittingbourne.

H. Seton-Karr, Esq., M. P,. (chairman Hills Union Brewery Company, limited), Kippilaw, St. Boswells, N. B.

William A. Bevan, Esq., (director of the Economic Fire Office, limited), 148 Cromwell Road, South Kensington.

M. S. Vanderbyl, Esq., 8 Great Winchester St., E. C.

F. W. Honischer, Esq., (Messrs. F. W. Honischer & Co.), Merchants and Corn Importers, 30 Lime St., E. C.

Board of management in Chicago:

John C. Black, Esq., president Continental National Bank, Chicago.

Morris Rosenbaum, Esq., (Rosenbaum Brothers), Board of Trade, Chicago.

Arthur Orr, Esq., Board of Trade, Chicago.

Levy Mayer, Esq., (Messrs. Kraus, Mayer & Stein), Chicago.

*G. W. Van Dusen, Esq., Rochester and Minneapolis, Minnesota, managing director.

The list of applications closed on Thursday, the 24th October, after having been opened four days. In that short space of time the capital was, I hear, subscribed three times over and the letters of allotments have now been sent out.

The Pillsbury-Washburn Flour Mills Company, limited, has been formed to acquire as a going concern and carry on the following flour mills, business and properties at Minneapolis, in the state of Minnesota.

1. Chas. A. Pillsbury & Co.
2. Washburn Mill Company (The Palisade and Lincoln Flour Mills.)
3. Minneapolis & Northern Elevator Company.
4. Minneapolis Mill Company.
5. St. Anthony Falls Water-Power Company.
6. 1,340 shares (being the majority) of the capital stock of the Atlantic Elevator Company.

The prospectus was issued on Oct. 31st and states that the company is incorporated under the companies acts 1862 to 1889. Share capital £1,000,000 divided into

50,000 eight per cent. cumulative preference shares of £10 each	£ 500,000
50,000 ordinary shares of £10 each	500,000
	£1,000,000

Six per cent. first mortgage debentures for £635,000.

The preference shares are preferred both as to capital and dividend.

The dividends on the preference shares are payable half-yearly on the 1st July and 1st January in each year, and the directors have taken power to pay interim dividends on the ordinary shares. The debentures will be secured upon all the bonds to be issued under a registered mortgage and trust deed made by an American company, charging the freehold property and buildings, fixed plant and machinery to be acquired. Interest will be payable half-yearly on the 1st May or 1st November.

The debenture issue may hereafter be increased by an amount not exceeding £240,000 for the purpose of extending the water-power.

£70,000 preference shares, £70,000 ordinary shares and £160,000 debentures are to be reserved for issue fully paid-up at par to the venders, in part payment of their purchase money. The remainder of the shares and debentures are offered for public subscription.

The directors are:

Richard H. Glyn, Esq., director Bank of British North America.

J. Flower Jackson, Esq., Jackson Bros., Hop Merchants, Denman Chambers, London Bridge.

Sydney T. Klein, Esq., Wm. Klein & Sons, Flour Merchants, St. Tower St.

E. T. Rose, Esq., 1 Wilton Place, S. W.

Committee of management in America:

*Chas. A. Pillsbury, Esq., managing director;

*John S. Pillsbury, Esq., Ex-Governor of Minnesota;

*W. D. Washburn, Esq., U. S. Senator for Minnesota.

Mr. Bernard Dyer, of Great Tower Street, has made for the London Corn Trade Association a number of analyses of Indian wheats sent from the several ports of India during every month in the past year, in most cases. The average impurities for the year, including grain other than wheat, seeds and dirt, were from 3.45 to 5.12 per cent. in the different varieties from Calcutta, from 2 77 to 3.08 in wheats from Bombay, from 7.05 to 7.49 in those wheats from Kurrachee, from 4.41 to 5.41 in Delhi wheats, 3.72 in cargoes from Jubbulpore and 2.87 in Atbara shipments.

By a decree, Russian decree of the Imperial Council, approved by the Emperor, the construction of 10 grain elevator depots is authorized on the railway lines of the South-west, namely an elevator at Odessa and nine at the stations of Kyrjopol, Novoakrainka, Prylitea, Bojistche, Polonnoe, Schowbooka, Proskourow, Popelnia and Skinosy. The appropriation of the ground required for the Odessa elevator are enjoined. The South-Western Railway Company is authorized to borrow on the pension's stock of its employees a sum of 675,000 rubles for the construction of the aforsaid elevators. The well-known firm of S. Howes, of Silver Creek, New York, and 64 Mark Lane, London, E. C., has been asked to tender for the necessary warehouse cleaning machinery.

The rates for the Odessa elevator will be as follows per pood (=36 pounds avoirdupois.) A copeck is about ½ of a cent.

	Copecks.
For unloading in their warehouses	.25
For weighing in their warehouses	.20
	.45
For warehousing the wheat one month	.33
For the necessary ventilation of the wheat, bi-monthly	.33
If according to the condition of the wheat, or on the desire of the proprietor, ventilation is effected more than twice monthly, 15 copecks for each ventilation.	
Wheat Insurance	.15
	.81

The above dues are payable for 15 days at the least; they are not to be refunded if the wheat remains less than 15 days in the warehouses of the elevator.

	Copecks.
For weighing on leaving the warehouses	.15
Loading in waggons or sacks	.35
	.50
Winnowing of wheat, if the owner requires it	.24

As regards the elevators at the nine intermediary stations above mentioned they will charge for warehousing and forwarding the wheat to its destination a tax of 2 rubles per wagon.

The National Association of British and Irish millers have not yet met since their visit to Paris, but a meeting has been fixed for the 13th of this month. It will be a very warm one and many members of the council think that the secretary will not be re-elected, as so many millers are against him.

We are to have our own Eiffel Tower, for I understand that the promotors of the Tower Company, limited, which has been organized for the erection of a tower of not less than 1200 feet in height are now offering two prizes of 500 guineas for the best and 250 guineas for the second best design of such a tower. The estimates are to show the weight of material, cost of lifts and cost of erection.

The designs and estimates are open to all competitors and must be sent in on or before the end of February next. The specifications can be obtained from the office of the company, St. Stephen's Chambers, Broadway, Westminster, S. W. A very strong committee has been formed to adjudicate on the designs.

L. MAYGROVE.

* Will join the Board after allotment.

IS FLAX-SEED, GRAIN?

Hon. J. R. Shaffer, secretary of the Iowa State Agricultural Society, in answer to the question above writes us. "My answer would be, no; I consider it a seed, just as much as timothy and clover are called seed. It is true that flax-seed is a Fall crop and so is timothy and clover.

USERS OF ODELL ROLLS NEED NOT WORRY.

Dayton, Ohio, Nov. 7, 1889.

Editor THE UNITED STATES MILLER:

We are constantly receiving letters in large numbers from our customers written in response to circular sent them by the consolidated Roller Mill Co., requesting settlement for infringement of their patents in the use of aur Odell Roller Mills.

Will you permit us to say through your columns, that we have settled with the Consolidated Roller Mill Co. in full for all the roller mills we ever made, and now operate under their license covering every feature of our rolls, so that our customers may now rest easy under the ample protection thus afforded them, with the assurance that they will not be disturbed in the peaceful use of their Odell Rolls. Yours truly,

Stilwell & Bierce Mfg. Co.
G. N. Bierce, Sec.

THE L. C. PORTER MILL CONTRACT LET.

Dayton, Ohio. Nov. 6, 1889.

Publishers UNITED STATES MILLER:

GENTS:—You have been informed that the 1500 bbl. mill belonging to L C. Porter Milling Co., Winona, Minn., was recently entirely destroyed by fire. We built this mill in 1887, since which time it has been continuously and profitably operated, easily taking rank among the best mills on this continent. While the ruins were still smoking, we were awarded the contract to rebuild the mill larger and better than ever, and the fact that we were awarded this important contract without competition affords conclusive evidence of their high appreciation of the superior merits of our machinery and system of milling. Such an indorsement is most gratifiying.

Yours Truly,
Stilwell & Bierce Mfg. Co.

THE publisher of the UNITED STATES MILLER is desirous of having the names and addresses of Head Millers, Millwrights and Head Engineers in all mills having a capacity of 150 bbls. per day or more.

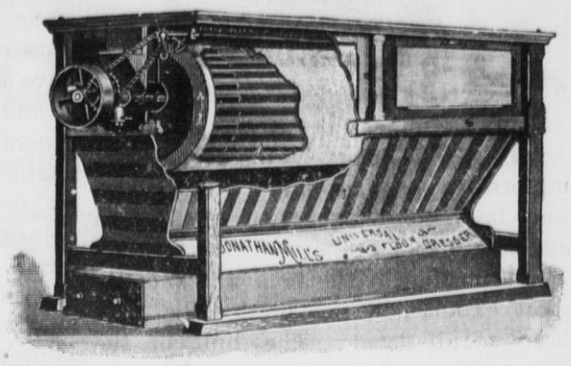
MILLERS

OF THE UNITED STATES AND CANADA.

Write us for our new pamphlet and revised price list of our Jonathan Mills UNIVERSAL FLOUR DRESSER. The best machine on the market. Giving satisfaction everywhere in the best mills in the country. Thousands in use. We carry a full line of Crown Silk Anchor Bolting Cloths and Grit Gauzes.

THE JONATHAN MILLS MFG. CO.,

COLUMBUS, OHIO, U. S. A.



WE SOLICIT YOUR TRADE.

Undoubtedly THE GREATEST SUCCESS of the Day!

THE·NEW·ERA·SCALPER

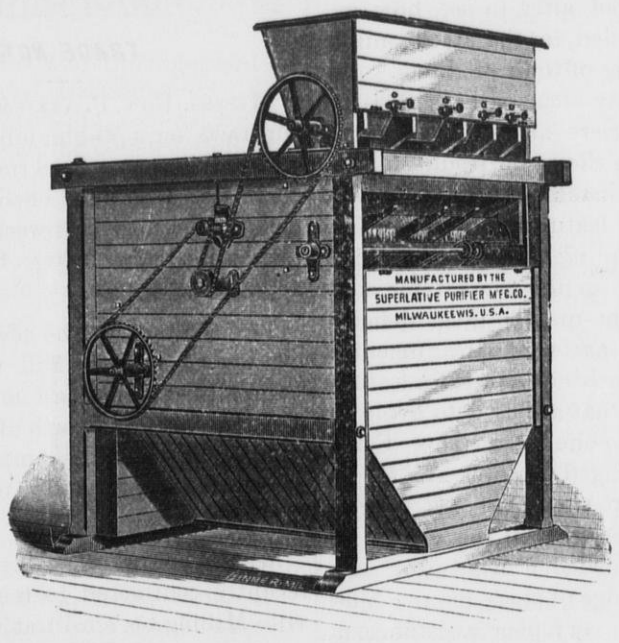
No Scouring of Bran or Middlings. **Break Flour as White as any in the Mill.**

These Scalpers are in use in many Leading Mills of the country. and their work speaks for itself.

RESULTS·GUARANTEED

AND TRIAL ALLOWED IF DESIRED.

Works Equally Well on hard or soft wheat, long or short system. Occupies but small space and requires little power.



Will handle 4 breaks in a 75 to 100 bbl. mill, or one break in a 500 bbl. mill. Also built two, three and four high,

For Handling Breaks, Chop and Middlings.

Following is a sample of the reports we receive. We can do as well by you.

SAN ANTONIO, TEX., September 7, 1889.

SUPERLATIVE PURIFIER MFG. CO., Milwaukee, Wis.:

GENTLEMEN—Your New Era Scalper is now in tip-top running order, and separates the three first breaks of our 100-bbl. mill easily and perfectly. The machine does all you claim.

Very respectfully, C. H. GUENTHER & SONS.

For Circulars and Prices Address

SUPERLATIVE PURIFIER MFG. CO., - MILWAUKEE, WIS.

The Link-Belt Machinery Co.

SHAFTING· PULLEYS HANGERS CEARS·

Are Prepared to Furnish Machinery and Appliances for

Transmission of Power

After the most approved Plans, by use of

MANILLA ROPE.

For Particulars and Estimates apply to them at

CHICAGO: 11 to 23 S. Jefferson St. **MINNEAPOLIS:** 200 to 202 Washington Ave. S.

Deal's Improved Grain Tester

FOR TESTING

Wheat, Barley, Malt, Oats, etc.,

Is an Indispensable Article to all Dealers in Grain.

THOUSANDS OF THEM IN USE. ☼ GRAIN SAMPLERS OR TRIERS.

Write for Illustrated Folder of Flour and Grain Testing Appliances and SPECIAL PRICES.

They Are Standard.

H. J. DEAL SPECIALTY CO.,

BUCYRUS, OHIO.

FOR SALE AND TO RENT.

[*Short ads. inserted in this column for $1 per insertion.*]

FOR SALE OR LEASE. Mill site and improved water power for sale or lease on good terms, or will turn the property in and take partnership in flour milling business with a practical man who can furnish additional capital required. Address, F. P. BLAKE, Canon City, Colo.

FOR SALE OR LEASE. Fine elevator and milling property. A 150-barrel roller mill, located in central South Dakota; also two elevators, capacity 25,000 and 35,000 bushels; easy terms; small amount cash down, balance long time, low rate interest. Good crop of finest quality of wheat secured in this section. Investigation invited. Full particulars by addressing, X. X. UNITED STATES MILLER, Sep3t Milwaukee, Wis.

FOR SALE. GRAY'S HARBOR. Having come into possession of a flour mill, and being wholly unacquainted with the business, I desire to sell either a part or the whole of the property. It is the only flour mill in this, Gray's Harbor, region, and has a good custom and merchant business, which is rapidly increasing. It requires a man who understands handling a merchant and custom mill. There are fifty-one acres of excellent bottom land included in the property. First-class water power. Address REV. HIRAM F. WHITE, Elma, Chehalis Co., Wash. Ter.

PARTNER WANTED. A practical miller, owns a first-class water-power in Dunn County, Wis. It has rock bottom and rock banks. It is worthy of careful inspection. No mill within 20 miles. Would be plenty of custom trade. The owner has not sufficient means to build a mill and wants a partner with from $4,000 to $6,000 to take an interest with him. If you mean straight business, write or come and see A. BELLACH, Red Cedar Falls, Dunn Co., Wis.

Steam Launches

STEAM YACHTS, TUG BOATS,

Marine Engines and Boilers, Propeller Wheels and Boat Machinery.

Send for free Illustrated Catalogue.

CHAS. P. WILLARD & CO.,

236 Randolph St., Chicago, Ill.

Written for THE UNITED STATES MILLER AND MILLING ENGINEER.]

MILLING THOUGHTS.

BY J. F. MUELLER.

THE knowledge of grinding which a miller posesses may be judged principally by the evenness or uniformity of material ground. This may be noticed at every stage and on examination of every stock in the mill. The condition of the bran will show to great extent how the break rolls have been manipulated. The hull of the wheat cut up into fragments does not deserve the name of bran, nor is broad bran indicative of good grinding. The millstone millers' ambition was to have broad flaky bran and he had good reasons for it—any fine particles would work their way on through, escaping the bran bin. In roller milling the principle aim should be to make uniform bran of moderately small size.

It is very essential to have long surface. When the wheat is very dry it is comparatively easy to finish up well, but when the wheat is not dry, as in the wet season a large amount of surface is needed for a close finish. Where rolls are overloaded there is only a small proportion of the stock which passes through them which receives the legitimate action of these rolls—that is the scraping action. Those particles which are next to the rolls receive this benefit, while all of the other particles are influenced by compression alone, by the friction of one particle against another. The feed for any kind of stock should be decided by the amount which will most thoroughly expose each particle to the scraping action of the rolls. It is absolutely necessary to have an even feed on every roll. Do not depend on looking at the feed as it enters, but be convinced that the stock is being delivered in a perfectly uninterrupted flow across the entire length. A good test to determine how evenly a feed is delivering from one end to the other is to take a board or plane surface and hold it underneath the rolls to catch the stock the entire length. Leave it there for a time, then withdraw it and take notice how evenly the board is covered in a straight line. There is another test to be made, particularly where there are shake feeds, to determine whether the feed is delivered in an uninterrupted continuous stream. It is often the case with some shake feeds that the material enters the rolls by jerks. This can be detected by entering a board to catch the grinding from the rolls and withdrawing in a slow but regular movement. If the ground material shows up in ridges it is an indication that the feed does not deliver as much on the back stroke as on the forward or visa versa. This trouble, however, is not the case with *all* shake feeds. There are some very good ones that have come to my notice. The feed certainly has a great deal to do with grinding evenly. It sometimes happens that the weight of the material in the hopper has a great deal to do with how it is fed. If a spout is fed into the center of the feed hopper, it is likely that it will pile up in the center and if there is but a small stream it is likely to feed heavier in the middle than at either end.

* * *

Millers often despair of adding new machinery or instituting a change in their mill. Some try to content themselves by thinking that they are well up with the times and nothing is wanted to require any change, as long as they are making as good results as their neighbors or competitors. It is always best to study well the movements of competitors, even in the smallest details. It may not always be agreeable to some of our friends to know what progress rivals are making, but the ostrich policy is always bad and a vigilant watch should be kept on all that is done by others whether their capacity is large or small.

* * *

It is often amusing to see how much some millers are wedded to a particular class or make of machines. They must have so and so's rolls, so and so's cleaners, so and so's purifiers and so on. You will generally find that only one particular engine or water-wheel will be good enough for them. In these, their favorite machines, they see perfection itself while in others they can find nothing that would suit their requirments. If you ask them to give you their reason why they adhere so much to the particular makes, they are likely to answer you that they have operated the machines in question and no others, and by sifting matters a little farther it will be apparent that they often have but a faint idea of the general construction of the machines that they would not have "at any price." Possibly they are laboring under delusions because one or two of their progressive neighbors are operating this special outfit of machinery. It seldom occurs that these parties, after whom they are trying to copy, are looked after to see how well they are qualified in the art of milling and in disposing of their products.

The popularity of a machine does not indicate that there are not others that will accomplish the same results fully as well. A new machine just introduced may have some features that are superior to the corresponding features of machines that have been on the market for some time. Yet, there may be great deficiencies in other parts of the machine. Sometimes a machine has certain features or adjustments that are used to avoid infringing on some one else's rights. Sometimes these changed features are for the better and often times not. It is very evident, however, that if the miller has no thorough knowledge of grinding or is no particular judge of stock, his machines will render him very poor assistance, no matter how perfect or convenient the machines may be.

The writer has in mind a number of mills where there are hardly two stands of rolls of the same make, some are among the first rolls put on the market and are deficient in many respects some of which were without springs, no throw out device and poor feeds which are anything but automatic. It is in these mills that we are apt to find purifiers in their crudest possible state, excentrics continually causing trouble, seives requiring brushing by hand at every round made by the miller to keep the meshes from clogging. Nearly all of their reels are likely to be old style with perhaps a centrifugal or two. It is in many of these mills that results are made fully up to standard both as to quality and yield. The attendants, however, are not asleep. The miller never looses his head nor his temper. It it always gratifying to the observer to witness a thoughtful and competent miller treat a deranged and refractory piece of machinery. It is easy to restore order, and make the inefficient efficient, by the exercise of intelligence and skill. It is needless to say that such a miller is a treasure and really deserves a better fate than to be continually annoyed by old-fashioned time-worn machinery.

* * *

To the advancement of the art of milling it is especially essential to study the system in order to ascertain the weak spots. Some millers look with so much anxiety to their offal as to overlook the first object of adjusting their rolls which is to make good flour. Others again so intently aim at the superiority of the flour, that the feed is entirely neglected. Ordinarily, neither course is advisable, nor can be profitable.

There probably never has been a time when the systems of milling have been so varying. There are the short, medium and long systems. There was a time when there was but one. It was not known by any particular name. It soon branched out in various forms. It is evident that this system was not devoid of all advantages on which its claim was based, otherwise it would have held its own as it first started out. It is yet and forever will be the case that each individual miller must decide for himself how to suit all the conditions with which he is surrounded.

It may be depended on that a system based on simplicity must be the best. A system to be simple need not necessarily be short, but if every machine is made to do all that it was built for, or rather that its actual capacity will admit of, then that system must necessarily be as short as it is advisable to make it. It has been my observation that in some short mills it was found convenient to return stock that lacked a finish at times. Whether a system be long, medium or short, there should be sufficient leeway to enable the miller to grind without any drawback or loss in any kind of weather or with any kind of wheat. These requirements are very essential.

TRADE NOTES.

MESSRS. EDW. P. ALLIS & Co. have taken contracts for a 50-bbl. mill for A. Graves, Loyal, Wis.; also for 8 run of 4½ ft. stone and a large amount of shafting and pulleys for the Rosemalt works, an immense institution now being built at Waukegan, Ill.

THE contract for the new 3000 bbl. mill for the American Mill Co., Nashville, Tenn., (mentioned last month) amounts to about $300,000 worth of work. When this is completed the American Mill Co., have a daily capacity of about 5000 barrels.

MESSRS. Edw. P. Allis & Co., have recently contracted to remodel the Orrville Milling Co.'s mill at Orrville, O., to a 600 bbl. roller mill; a new 50 bbl. mill for John H. Nordick, Stephen, Minn.; a new 75 bbl. mill for V. Batz, St. Cloud, Minn.; a new 50 bbl. mill for Alfred Gillett, Vermillion, S. Dak.

THE STILWELL & BIERCE Manufacturing Co., of Dayton, O., have good reason to feel proud of their well-known "Victor" turbine, for the *Academie Nationale* of France awarded the Grand Gold Medal to the one on exhibition at the Paris Exposition. The demand from foreign sources for turbines of the "Victor" pattern is large and is constantly growing, and it is evident that it is appreciated abroad as well as at home.

THE H. J. Deal Specialty Co., of Bucyrus, O., have for a long time past had and now enjoy a heavy trade with millers for various special articles. The Improved Grain Tester has come to be considered an absolute necessity. Of late, brewers and maltsters and barley buyers generally have become acquainted with its value and they are purchasing and using them as liberally as the millers and wheat buyers. The tester will pay for itself very quickly.

WE are gratified to learn that Messrs. Beynon & Murphy of Watertown, Wis., are meeting with great success in introducing their specialties, the Beynon Aspirator, Beynon Roller Mill Adjuster and Beynon Electric Relief and Alarm for preventing elevators, conveyors, spouts, etc., from choking up. The firm is kept very busy in filling orders, and we have heard that their devices give satisfaction wherever they have been placed. See description advertisement elsewhere.

THE CASE MANUFACTURING CO., Columbus, O., whose works were burned out some months ago, are moving into their large new establishment where their facilities will be of the best for the ecnomical manufacturing and shipping. Although they have been obliged to work under difficulties while their new plant was being erected, they have been able to turn out a large amount of work. We congratulate this company on their new move, and trust it may be the beginning of an era of prosperity to them.

THE JONATHAN MILLS MFG. CO., have got settled in their new plant at Columbus, O., and are better prepared than ever to carry on the large and increasing business which they have built up. Their works are centrally located and all goods can be shipped from their doors. Some very fine machinery for special work has been placed in position and works to perfection. The Company will, it is said, introduce some new milling machinery on the market during the coming year, which will create a sensation. Recently they have received the order for the complete bolting system in the large new mill at Toledo, O., also for the new mill at Liverpool, O., and for a mill at Comberland, Md., besides a large number of single orders from different parts of the country.

THE WESTINGHOUSE MACHINE CO., report the following sales for October, 1889, up to and including Oct. 21: Juniors, 50 Engines, 935 H. P., Standards, 16 Engines, 645 H. P., Compounds, 30 Engines, 2510 H. P., total 76 Engines 4090 H. P.

Among the prominent buyers may be mentioned the following: Otis Iron and Steel Co., Cleveland, O.; G. H. Nichols & Co., New York, N. Y.; Allegheny County Light Co., Allegheny City, Pa.; Thomas Dolan & Co., Philadelphia, Pa.; Albion Electric Light Co., Albion, N. Y.; Parent Paper Co., Amanda, O.; Missouri Electric Light and Power Co., St. Louis, Mo.; Philadelphia and Reading R. R. Co., Philadelphia, Pa.; Girolamo Taddei, Rome, Italy; Koefoed & Hauberg, Copenhagen, Denmark; New York Cent. & Hudson River R. R., New York, N. Y.

PROGRESS OF INVENTIONS SINCE 1845.

In the year 1845 the present owners of the SCIENTIFIC AMERICAN newspaper commenced its publication, and soon after established a bureau for the procuring of patents for inventions at home and in foreign countries. During the year 1845 there were only 502 patents issued from the U. S. Patent Office, and the total issue from the establishment of the Patent Office, up to the end of that year, numbered only 4,347.

Up to the first of July this year there have been granted 406,413. Showing that since the commencement of the publication of the SCIENTIFIC AMERICAN there have been issued from the U. S. Patent Office 402,166 patents, and about one third more applications have been made than have been granted, showing the igenuity of our people to be phenomenal, and much greater than even the enormous number of patents issued indicates. Probably a good many of our readers have had business transacted through the offices of the SCIENTIFIC AMERICAN, in New York or Washington, and are familiar with Munn & Co.'s mode of doing business, but those who have not will be interested in knowing something about this, the oldest patent soliciting firm in this country, probably in the world.

Persons visiting the offices of the SCIENTIFIC AMERICAN, 361 Broadway, N. Y., for the first time, will be surprised, on entering the main office, to find such an extensive and elegantly equipped establishment, with its walnut counters, desks, and chairs to correspond, and its enormous safes, and such a large number of draughtsmen, specification writers, and clerks, all busy as bees, reminding one of a large banking or insurance office, with its hundred employees.

In conversation with one of the firm, who had commenced the business of soliciting patents in connection with the publication of the SCIENTIFIC AMERICAN, more than forty years ago, I learned that his firm had made application for patents for upward of one hundred thousand inventors in the United States, and several thousands in different foreign countries, and had filed as many cases in the Patent Office in a single month as there were patents issued during the entire first year of their business career. This gentleman had seen the Patent Office grow from a sapling to a sturdy oak, and he modestly hinted that many thought the SCIENTIFIC AMERICAN, with its large circulation, had performed no mean share in stimulating inventions and advancing the interests of the Patent Office. But it is not alone the patent soliciting that occupies the attention of the one hundred persons employed by Munn & Co., but a large number are engaged on the four publications issued weekly and monthly from their office, 361 Broadway, N. Y., viz.: The SCIENTIFIC AMERICAN, the SCIENTIFIC AMERICAN SUPPLEMENT, the Export Edition of the SCIENTIFIC AMERICAN, and the Architects and Builders Edition of the SCIENTIFIC AMERICAN. The first two publications are issued every week, and the latter two, the first of every month.

The Geo. T. Smith Roller Mill

AN IMPORTANT DECISION.

A CERTIFIED COPY
— OF —
JUDGE BROWN'S DECISION
— IN THE —
U. S. CIRCUIT COURT, EASTERN DISTRICT OF MICHIGAN,
IN EQUITY.

THE CONSOLIDATED ROLLER MILL COMPANY,
vs.
GEORGE T. SMITH MIDDLINGS PURIFIER COMPANY.

On Motion for Preliminary Injunction.

This was a bill in equity to recover damages for the infringement of letters patent No. 222,895, issued to William D. Gray, December 23, 1879, for an improvement in roller grinding mills. The invention covered by the patent was stated in the preamble to consist "in a peculiar construction and arrangement of devices for adjusting the rolls vertically as well as horizontally, whereby any unevenness in the wear of the rolls, or in their journals or bearings may be compensated for, and the grinding or crushing surfaces kept exactly in line," and also "in the special devices for separating the rolls when not in action, and in other details." The defense raised upon this motion is fully stated in the opinion of the court.

Mr. George H. Lothrop, for the Plaintiff.

Messrs. Parker & Burton, for the Defendant.

BROWN: J.

A preliminary objection in the nature of a plea of *res adjudicata* is taken by the defendant against the issue of this injunction. Prior to the opinion of this court in the case of the Consolidated Roller Mill Company vs. Coombs, 39 Fed. Rep., 25, sustaining the validity of the plaintiff's patent, a bill had been filed in the Western District of Wisconsin by one Allis against Freeman to compel the defendant to desist from using a machine which was claimed to infringe several patents, among which was the Gray patent, upon which this suit is based. A decree was made dismissing the bill, and it would appear from a letter of the learned Judge to the solicitors put in evidence in the case, that the court was of the opinion that the Gray patent had been anticipated by an English patent to one Lake, and hence was invalid for want of novelty. It appeared that plaintiff in that case claimed and perfected an appeal to the supreme court from this decree, and the cause was docketed in that court in October, 1887. Subsequently this appeal was dismissed upon the motion or by the consent of the appellant.

Had the opinion of the Court in that case been called to our attention at the time the Coombs case was argued, it is quite probable that out of the usual comity obtaining among courts of co-ordinate juristiction in this class of cases, we should have waived our own views and deferred to it, so far at least as it covered the issues involved in this case. It seems, however, that the reason for dismissing the bill in the Wisconsin case was not then known, and no stress was laid upon it in the argument of the Coombs case. Having expressed our own opinion of the patent in that case, it is now too late to claim that, as matter of comity, we ought to follow the Wisconsin case. It is equally clear that it does not create a case of estoppel. Not only is no record produced showing upon what ground the bill was dismissed, but neither the plaintiff nor the defendant in this suit were parties to that. A decree declaring the invalidity of the patent is in no sense a proceeding *in rem.* and does not prevent the same or a different plaintiff from prosecuting a suit against another defendant and establishing its validity upon different or even upon the same evidence. This precise thing was done in Ingersoll *vs.* Hewett, 16 Blatchford, 378, which was also a bill in equity for the intringement of a patent. In defense it was argued that the plaintiff had previously filed a bill against different parties for an infringement of the same patent. The defense of which had been assumed by one Topham, under whom the defendants in that suit as well as the defendants in the suit under consideration, were licensees. It was held by Judge Wallace that, assuming that Topham was a party to the former suit, that defendants could not avail themselves of the decree in his favor, upon the ground that there was a want of mutuality in the estoppel. The same ruling was made by Mr. Justice Blatchford, in respect to the same decree in the United States Stamping Company vs. Jewett, 18 Blatchford, 469. The facts of the present case are much more conclusive against the estoppel, as neither of the parties to this suit were parties or privies to the case of Allis vs. Freeman.

Second, In the case of the Consolidated Roller Mill Company vs. Coombs, 39 Fed. Rep., 25, we had occasion to consider the Gray patent in issue in this case, and came to the following conclusions:

1st. That it had not been anticipated by the Lake-Nemelka patent or by any other of the devices offered in evidence, and that the second, third, fourth and fifth claims were valid.

2d. That the patentee was not debarred from the benefit of the doctrine of mechanical equivalents by the fact that his original claims for a combination of a vertical and horizontal adjustment by any method had been rejected by the patent office, and he had accepted restricted claims in their place.

3d. That the Mawhood machine, containing as it did all the elements of the patentee's combination, though differently arranged and located and with a lever of a different order, was an infringement of the Gray patent.

It was not, however, intended to decide that the Gray patent covered all methods of horizontal and vertical adjustments, or methods of making such adjustments by means essentially different from those employed by the patentee. Indeed, this could not have been done without disregarding the limitations put by the patent office upon the original claims as well as the state of the art as it existed at the time the patent was issued. Other methods of adjusting rolls, both vertically and horizontally, existed before Gray filed his application, and in at least one there was a combination of both adjustments as applied to the same roll. That the defendant has produced a machine which accomplishes the same results as the plaintiff's, will not be disputed, and the only question is whether it has accomplished them hy the same or by an essentially different device. These results are four in number.

1st. A vertical adjustment at each end of the movable roll.

2d. The horizontal grinding adjustment, by which the distance between the two rolls is kept precisely the same while the rolls are in operation.

3d. A spring device by which the rolls are made to yield to a breaking strain whenever a nail or other hard substance enters between them.

4th. A stop and holding device by which the rolls are spread apart when not in operation, and are thrown together again without a new adjustment.

To accomplish these results the patentee makes use of:

1st. Two rolls, one of which is fixed and the other adjustable. His specifications also seem to contemplate that both rolls may be made adjustable, but in what manner is not stated. Indeed, it is difficult to see how this could be done without taking away from the combined devices applied to the other roll some one of the elements which would destroy the integrity of the combination.

2d. An upright swinging arm at each end of the adjustable roll, upon the pivot of which the roll is moved in a vertical direction.

3d. A rod, G, at one end of which are devices for the grinding adjustment, and a spring urging the upper end of the arm inward, but yielding to a breaking strain. and at the other end of the stop and holding devices for the spreading adjustment.

In defendant's machine both rolls are adjustable. To one is attached the spring and a nut and eccentric for vertical adjustment, and to the other the grinding adjustment and the stop and holding device. There is no lever or swinging arm, but the journals of both rolls rest upon horizontal shafts, one of which may be raised and lowered for the vertical adjustment, and the other of which the slides forward and back, carrying the second roll to and fro from its fellow. There is no rod, G, fitted at either end with the several devices for horizontal adjustment, and nothing properly corresponding to it, since the shaft attached to one of defendant's rolls corresponds about as nearly with it as the one attached to the other. If we were to attempt to locate it we should have to say that it was divided into two seperate parts, by one of which the vertical adjustment is accomplished, while in plaintiff's patent this adjustment is made by means of a swinging arm and not by means of the rod. This rod and the upright swinging arm we regard as of the essence of the plaintiff's patent. Should defendant's device be adjudged an infrigment, we should not know where to draw the line, providing the defendant's device accomplished four results. This evidently was not the scope of the Gray patent, since the original claims for the combination of those adjustments had been rejected by the commissioner. While the sliding support might be, under certain circumstances, equivalent for the swinging support, in view of the state of the art, and the limitations upon plaintiff's claims, we cannot consider it so in this case. Under the view we have taken we find it unneccessary to consider the claims separately. The departure of the defendant's machine from the underlying theory of the plaintiff's is too radical to require us to descend to details. We are clear in our opinion that the injunction should be denied.

UNITED STATES OF AMERICA.

THE CIRCUIT COURT OF THE UNITED STATES
FOR THE EASTERN DISTRICT OF MICHIGAN.

THE CONSOLIDATED ROLLER MILL COMPANY,
vs.
GEORGE T. SMITH MIDDLINGS PURIFIER COMPANY.

I, Walter S. Harsha, Clerk of the Circuit Court of the United States for the Eastern District of Michigan, do hereby certify, that the above and foregoing is a true copy of the opinion of Judge Brown rendered in the above entitled cause; that I have compared the same with the original and it is a true and correct transcript therefrom and of the whole thereof.

SEAL OF COURT.

In Testimony Whereof, I have hereunto set my hand and affixed the seal of said Court at Detroit, in said district, this 4th day of November, in the year one thousand eight hundred and eighty-nine, and of the Independence of the United States the one hundred and fourteenth.

WALTER S. HARSHA,
Clerk.

Geo. T. Smith Middlings Purifier Co.

CANADIAN SHOPS--STRATFORD, ONT. **JACKSON, MICH.**

[From our own Correspondent.]

OUR BALTIMORE LETTER.

Rich Reading for Millers—"Oriole" has His "Say" About Tricky Brokers—Trade Situation in Baltimore—Trade Notes, Etc.

WE beg leave to digress from our jurisdiction this month in order to touch upon the wholesome lessons which have recently been brought to our attention.

There is no surer way of correcting an evil than by agitating it, and for that very reason we most heartily commend and endorse the manly action of the *Northwestern Miller* in giving publicity to the abuses which have for a long time existed in the Richmond flour market. No one posted on the subject can doubt for an instant the truthfulness of its statements.

Through trickery and chicanery, therefore, that market has become a target for calumny and a synonym for corruption.

Salesmen of this country who formerly worked that territory have been instructed by their constituents to do so no more forever.

The reputation of the town in fact has been notoriously bad for many years, as the estimable letters of "H. Jay Greene" will abundantly testify.

We do not pretend for one moment to say that all flour dealers in Richmond are unprincipled. No, no, far from that, for we know to the contrary, but we do assert that there is a foul and polluted minority down there whose deeds contaminate the whole as a drop of ink contaminates a glass of clear water, and it is this very same minority that invariably rises up and shouts its innocence whenever the subject is broached.

We do not believe that any one "to the manner born" would be guilty of besmirching the name of Richmond, so it must be the scapegoats, carpetbaggers, plunderers, and fugitives from justice that really do the business. Not content with casting odium upon their own beautiful city these miserable runts of creation are actually bringing discredit upon the entire South as well, by their abominable and nefarious practices, and when the victims of their iniquity expose them to the world, these renegades of pollution have the gall and audacity to pose as white-robed martyrs before the public!

We have no reference whatever to the high-minded honorable gentlemen of Richmond, who are honest and straightforward in their dealings, but they too, as we, must feel deeply mortified and aggrieved at the conduct of these miscreants, who continually bring their market into disrepute. Another case where the innocent is made to suffer for the guilty. We are not hounding down the upright merchant, who, with a clear record, has nothing to fear, but we are after, and intend to bring to grass, too, the wolves in sheeps' clothing, the devils masquerading as saints, that infect our markets, and which are a stench in our nostrils, a curse to our country, and a hindrance to our prosperity.

It is therefore high time for all reputable southern merchants to stand together—not to disclaim evils which have really existed in the trade, but to go to work systematically and with energy and eradicate and eliminate from our midst that element which alone is responsible for the unscrupulous methods which are so often ascribed to us as a people.

Apropos of the irregularities noted in the Richmond flour trade we are reminded to cast the beam out of our own eye first, before considering the mote that is in our brothers eye.

We are always so prone to speak of imperfections in others when in reality, closer examination of ourselves would develop similar defects.

A wholesome lesson therefore can be drawn from this Richmond episode.

We are to remember that Richmond is not the only place where rascals abide, for, on the contrary, they are found in every other market as well.

We have them here, to be sure, in a limited way only, but we have them all the same.

New York, Chicago, Boston and Philadelphia have them also, and in a greater ratio too possibly than even the rest of us, but that does not condone the offense a particle. Might does not always necessarily imply right by any means.

Now what is the nature of this canker that is slowly but surely gnawing at the vitals of trade, necessitating the imperative withdrawal of mills from certain markets and causing dissatisfaction everywhere?

Well, to be plain, it is a set of men with elastic consciences, or with no consciences at all, who are ever on the alert for an opportunity to take advantage of you.

These fellows have an insatiable fondness for the *skin game*—"heads I win and tails you lose."

And then too the "flim-flam" racket, which chisels you out of something in spite of yourself, is another one of their popular pastimes.

These plausible, oily tongued pirates have a way too of glossing over their rascality so as to appear consistent. They invariably put you on the defensive, when in reality they belong there themselves.

They "bob up serenely" every time, no matter how hard you strive to keep them down.

On a declining market invoices never come up to expectations, for, with microscopes in hand they dig and root out those defects and blemishes which invariably pass muster when the conditions are reversed.

They never accept anything unless it is positively to their interest to do so.

These desperadoes are in their element only when markets are weak, sick and declining, for then like so many hungry vultures they pounce upon their prey, and having it at their mercy, then thrive and fatten upon it, until markets advance, when they crawl back into their holes again and await another chance.

In every instance they are veritable "Shylocks" who demand a pound and more of flesh.

With these sharpers, shipments must come through by limited express via their favorite road; measure fully up to old bleached out samples alike in color, strength and uniformity; weigh 196 pounds net to the barrel, and be packed in scrupulously clean round hoop barrels, else there will be a rejection or a rebate claimed. The latter way of settlement of course is far more preferable to them, for it is on just such reclamations that these pests of the trade "live, move and have their being." Why, we have known of those who have openly boasted that their annual rebates on purchases were more than enough to pay their store expenses.

The man who will deliberately reject an invoice without sufficient provocation and accept a rebate upon it through false representations is a thief and a robber, and should be so treated and shunned by all honest men. The evil can be stamped out speedily and completely if mills will but boycott continually every dealer engaged in the practice. In conclusion we wish to say that our remarks are not intended for those in the trade who from time to time have just and ligitimate causes for rejection, nor do we wish it understood that we recognize all the morality and purity in the world on the side of the miller, for, on the contrary, we do not, as our subsequent letters will show.

None but the guilty should take offense at what we have said, and their enmity we court, by the way, irrespective of consequences.

* * * *

The Baltimore flour market has ruled dull, weak and lower since our last review.

During the month, leading city mills have lowered prices 15 cents, while jobbers have followed suit to the extent of 25 cents per barrel.

At this writing, therefore, everything seems utterly demoralized here. The stock of flour in Baltimore to-day, exclusive of that held by local mills, is 66,000 barrels Agents have sold to arrive during the month large lines of spring patents and baker's at $5.00 and $3.50 respectively, but since then they have improved sufficiently to cover the increased tariff on all rail freights which go into effect at once.

Outside of these transactions little or no business has been done excepting of course the regular trade here with South American exporters.

Considerable spot flour is offered here now, both by agents and dealers at concessions, but it moves very slowly indeed. Until this pressure is removed from the market we can hope for no business in stock to arrive.

St. Louis patents and straights are held to-day at prices ranging from $4.75 to $4.85; and $4.25 to $4.35 respectively.

Ohio, Indiana and Illinois patents, straights and clears are offered at figures ranging from $4.50 to $4.75; $4.00 to $4.25; and $3.75 to $4.00 respectively.

Minneapolis, and spring patents generally, range to-day, including first and seconds, at $4.75 to $5.15. Spring bakers' are quoted from $3.40 to $3.65.

City mills report trade for both local and foreign account as quiet.

Rio extra is nominally held at $4.59 to $4.65, but moving very sparingly at these figures.

The wheat market here has also been weak and dull throughout the month.

Cash wheat shows a decline of 3 cents per bushel since our last report.

There seems to be no demand here for the actual stuff just now.

While clearances for the month have been unusually good, they have suddenly dropped off entirely in the last few days.

Speculation is equally as dull as the other branches of trade. Operators here are generally bullish, however, on soft spots, but see nothing very tempting in the situation, while receipts in the northwest continue so large.

The most healthy and promising thing in the outlook to us is that we are having an old fashioned fall with its tremendous movement of wheat at low prices. Such conditions augur prosperity for us every time.

Our city mills are drawing supplies largely from Kansas in the absence of them, roundabout here.

The seaboard is relatively much lower than the west and northwest on wheat, and until the difference adjusts itself, no volume of trading is likely.

We had those who felt tempted to cross the two sections, but "Old Hutch's" missionaries succeeded in scaring them off.

Stocks of wheat here are very small while quality is improving.

Values will in all probability improve steadily after the stuff is well in hand and housed for the winter.

The holiday season is approaching too, and we most always have a spurt of activity you know before that time.

ITEMS OF INTEREST TO THE TRADE.

Charles D. Fisher, head of the grain firm of Gill & Fisher, has just returned from a protracted visit to Europe.

P. H. Hill, millers' agent of Washington, D. C., who has been dangerously ill with typhoid fever, is convalescing.

E. Thomas Rinehart, of Rinehart, Childs & Co., flour jobbers of Baltimore, is spending a few weeks at Ashville, N. C. for his health.

The new bark "Good News," twin vessel to the "White Wings," of C. Morton Stewart & Co.'s South American fleet, was successfully launched here last week.

The Centennial of the Roman Catholic hierarchy of America, was celebrated here this week with great pomp and splendor.

Conrad Reihl, Sr., who has been confined to his house for ten weeks with poison-oak poisoning in his face, is gradually improving now.

Wm. M. Powell & Co., wholesale flour jobbers of Baltimore, are about to move into their magnificent new and mammoth warehouse on South st.

Gen. John Gill, President of the Mercantile Trust Company of Baltimore, has returned from an extended trip to Europe.

Baltimore is getting back her old-time corn trade. Clearances of the cereal so far this year from this port are four times greater than those of a year ago.

A new sugar refinery is now under construction at Curtis Bay, just outside of Baltimore. When completed its capacity will be 1,200 barrels daily. It will revive too our lost reciprocal trade with the tropics.

A. Henry Nelker, owing to continued ill health, has withdrawn from the firm of Penrose, Nelker & Co., flour commission merchants of this city. ORIOLE.

Baltimore, Nov. 14, 1889.

THE J. B. ALFREE CO., of Indianapolis, Ind., are out with a strong letter, maintaining that their roller mill does not infringe any patent. Our limited space prevents its publication herewith.

Nov. 9, after argument in the U. S. Circuit Court at Indianapolis, Ind., Judge Gresham refused to grant a temporary injunction to the Consolidated Roller Mill Co. against the Richmond City Mill Works.

MECHANICS IN THE UNITED STATES AND ENGLAND.

THE *Railway Press*, a well-known English journal, has been making a comparison between English and American mechanics, and the facilities afforded the latter for intellectual development and the cultivation of their abilities. "We in England," says the *Press*, "hold fast to the orthodox methods of working, and do not allow the intellect sufficient development, our workingmen working as mere machines, doing the work set them and nothing more, using the same antiquated tools as used by their forefathers, and with the same methodical precision. This is not always the fault of the workmen, but is, in a great measure due to those in authority over them. Instances have come to our personal knowledge where men of intelligence have suggested improved appliances or methods of working. These have been treated with contempt, with the result that for all time these men content themselves to work as they are told, and many an ingenious suggestion is smothered and lost to this country. In an English railway shop the same old-fashioned tools and appliances, with a few exceptions, are used at the present day as were used thirty years ago. A body-maker's chest of tools at the present time weighs 200-weight or more. The American carbuilder's tools consist of a small chest weighing not more than a quarter the weight of an Englishman's, but each tool is so constructed as to be of the utmost service to him, and with this small chest he is able to perform the most intricate work with which he may be brought in contact, with greater precision and dispatch. Another cause why Americans surpass us in ingenuity, is that information is not withheld from them. Papers of every description are circulated and contributed to by employers and employes on an equal footing. This circulation of technical papers is greatly appreciated, and each issue is looked forward to with eagerness. Workmen, too, receive encouragement, and any suggestions made by them to their superiors, as to the most economical ways of working, are attentively listened to; if proved to be as represented, the system is tried, and the man receives the thanks of his employer, and often pecuniary remuneration as well. This system of general encouragement is one of the chief reasons why the American manufacturer is able to pay greater wages and still send his commodities to the English markets cheaper than we can produce them at home. More encouragement should be given to the mechanic in England, and any suggestion made by him should have careful consideration, and if found to be a benefit he should be rewarded accordingly. This course would stimulate the intellectual workman, and the result would be that the employer, although rewarding the man for his ingenuity would greatly benefit by it. It is a well known fact that there is plenty of ingenuity and shrewd intelligence amongst our English workmen; this has been proved beyond a doubt from time to time, and many of the so-called "Yankee" inventions are the brain work of Englishmen. And why is this so? Simply because the intelligent workman gets no encouragement from his employers here, and is driven to a country where his ability is appreciated and rewarded accordingly. Having been successful in one instance, he is encouraged to renew his efforts, the result being that the employer and the country at large are benefited thereby. With the foregoing illustrations, we think we have proved in a measure, why the Americans surpass us in ingenuity."

THE average amount of feed water required for a good economical engine is 30 pounds per indicated horse-power per hour; engines of high economy will use less than this amount, and those more wasteful will use more. A high piston speed together with a high rotative speed, is very desirable, as great power may thus be obtained from moderate sized engines, and also the evil of internal condensation is corrected to a great extent.

THE young man who learns to do a piece of work carefully will never have the trouble, as he grows older, that the one does who continually "botches" his piece, and merely works to put in the time. Take good care of your machine and it will take care of you and save you many a "cussin'." A little rub with a bunch of waste at the proper time will save many a rub with a scraper or file at some future day. See that the oil gets to the bearing intended, and the man with the sledge and chunk of brass will not bother you much. New machines, especially must be watched carefully, at first, until it finds its bearings, just the same as a new man going to work in a shop.

IF you are about to build write to the UNITED STATES MILLER for a copy of "Practical Low Cost Houses," and enclose fifty cents in stamps. It will help you.

PRINZ'S PATENT IMPROVED COCKLE MACHINE

FOUR SIZES FROM 20 TO 110 BUSHELS PER HOUR CAPACITY.

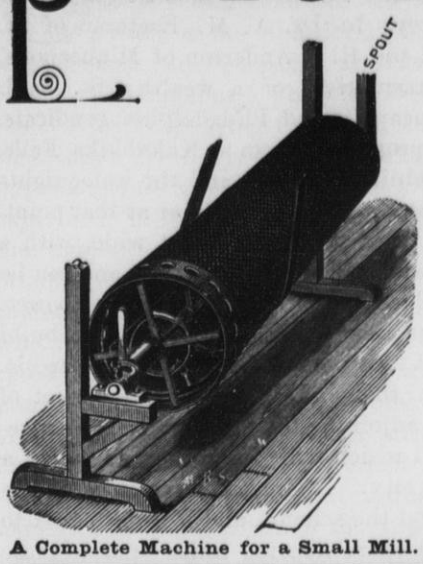
WE GUARANTEE IT WILL TAKE OUT ALL COCKLE, GARLIC AND SIMILAR SEEDS WITHOUT WASTING WHEAT. ONLY MACHINE IN THE WORLD WHICH HAS AN

INDENTED STEEL CYLINDER.

NO COMPARING WITH ZINC CYLINDERS.
ONLY TWO BEARINGS TO OIL.
SLOW MOTION, LITTLE POWER, SMALL SPACE.

We send you One on Trial. You will SAVE 30 to 50 per cent. of Purchase Money by BUYING this MACHINE.

HANG IT ON THE CEILING, AGAINST THE WALL, OR SET IT ON THE FLOOR—IT WORKS EQUALLY WELL EVERYWHERE.



A Complete Machine for a Small Mill.

WATERTOWN, WIS., Oct. 7, '89.
The Prinz & Rau Mfg. Co.:
Gentlemen—The Cockle Machine works O. K. We are well pleased with it.
Yours truly,
THE GLOBE MILLING CO.

CHOCTON, N. Y., June 22, '89.
The Prinz & Rau Mfg. Co.:
Gentlemen—The Cockle Machine which we purchased of you some time ago, is working to our entire satisfaction, and we can recommend your machine to anyone in want of a Cockle Separator. Yours, etc.,
MODEL ROLLER MILLS.

MULBERRY, TENN., Aug. 29, '89.
The Prinz & Rau Mfg. Co.:
Dear Sirs—I have tried the Cockle Machine to my satisfaction, and herewith enclose check for same.
Yours truly,
J. B. THOMISON.

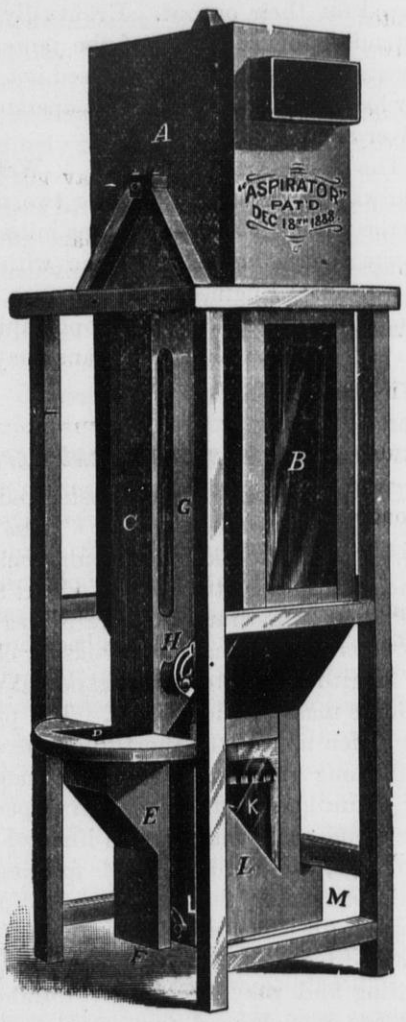
Address, **THE PRINZ & RAU MFG. CO.,** 659–663 East Water St. MILWAUKEE, WIS.

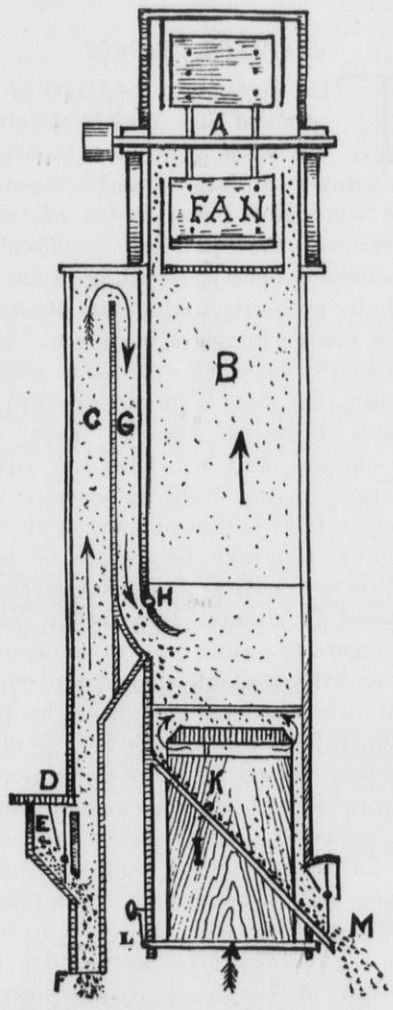
THE BEYNON ASPIRATOR.

This Aspirator makes three separations of the material. It removes all Branny and Fluffy material.

It removes the Crease Dirt from the material of the first-break Roll better than any Double Scalper or other machine ever produced. For dusting the break-material as it leaves each Scalper it has no equal, and works to perfection on the different reductions of Germ Stock.

Being upright, it requires very little space, and is the lightest running machine in the market.





The material enters at Hopper D, having an Automatic Valve E to prevent the air entering over the material into Flue C, the clean material discharges at F and the air current carries the lighter material over the Return Flue G and entering the Chamber B, which is provided with a Hopper Bottom, and passes into the Supplementary Flue I, while a draft of air from Flue K carries the lighter material up through the Fan A, while the heavier material discharges through the Automatic Valve M, thus making three separations of the material: one at F, one at M, and one through the Fan A.

The Automatic Valve E distributes the feed evenly its entire width, excluding the air from going over the material into the Flue C, consequently securing a fine draft of air its entire length. Valve H is to regulate the draft in Flue C and G. The bottom of Flue K is provided with a Valve L to regulate draft in Flue I.

The Automatic Valve M excludes air from entering the Supplementary Flue I, and is so sensitive as to discharge the smallest quantity of material.

Give capacity of your Mill, and enquire for prices and particulars.

BEYNON & MURPHY, Watertown, Wis.

— ALSO MANUFACTURERS OF THE —

BEYNON ROLLER MILL ADJUSTER

A most perfect device that may be applied to any of the Rollers now in use.

THE BEYNON ELECTRIC RELIEF AND ALARM

An effective preventive for choking Elevators, Conveyors, Spouts, etc.

THE PEERLESS HOLIDAY NUMBER OF

THE NORTHWESTERN MILLER

FOR 1889

will be the finest trade paper ever printed without exception.

Superbly Illustrated. Embossed Covers. Printed on Enameled Paper.

AMONG ITS PROMINENT FEATURES WILL BE

PORTRAITS of the Officers of the Corn and Flour Trade Associations of London, Glasgow and Liverpool.
FROM MILL TO MARKET, consisting of 30 pages of opinions of prominent Mill Furnishers, Mill Owners, Head Millers and Foreign and Domestic Flour Sellers on the present state of the trade.
An illustrated article on MILLING ARCHITECTURE, with original plans, elevations, etc., by Louis H. Gibson.
SHORT SYSTEM MILLING, by W. F. Putnam, of The Cleveland Milling Co.

AMONG THE CONTRIBUTORS TO THIS NUMBER WILL BE

Edward Everett Hale, Edward Atkinson, Joel Benton, Howard Pyle, James Whitcomb Riley, Charles Barnard, James Lane Allen, Robert J. Burdette, Bill Nye, H. Jay Green.

WILL BE OUT DECEMBER 20.

Address for Advertising Rates, **The Northwestern Miller,** Minneapolis, Minn.

1890. Harper's Magazine. ILLUSTRATED.

A new Shakespeare—the Shakespeare of EDWIN A. ABBEY—will be presented in HARPER'S MAGAZINE for 1890, with comments by ANDREW LANG. HARPER'S MAGAZINE has also made special arrangements with ALPHONSE DAUDET, the greatest of living French novelists, for the exclusive publication, in serial form, of a humorous story, to be entitled "The Colonists of Tarascon: the Last Adventures of the Famous Tartarin." The story will be translated by HENRY JAMES, and illustrated by ROSSI and MYRBACH.

W. D. HOWELLS will contribute a novelette in three parts, and LAFCADIO HEARN a novelette in two parts, entitled "Youma," handsomely illustrated.

In illustrated papers, touching subjects of current interest, and in its short stories, poems, and timely articles, the MAGAZINE will maintain its well-known standard.

HARPER'S PERIODICALS.

Per Year:

HARPER'S MAGAZINE	$4 00
HARPER'S WEEKLY	4 00
HARPER'S BAZAR	4 00
HARPER'S YOUNG PEOPLE	2 00

Postage Free to all subscribers in the United States, Canada, or Mexico.

The Volumes of the MAGAZINE begin with the Numbers for June and December of each year. When no time is specified, subscriptions will begin with the Number current at time of receipt of order.

Bound Volumes of HARPER'S MAGAZINE for three years back, in neat cloth binding, will be sent by mail, post-paid, on receipt of $3.00 per volume. Cloth Cases, for binding, 50 cents each—by mail, post-paid.

Index to HARPER'S MAGAZINE, Alphabetical, Analytical, and Classified, for Volumes 1 to 70, inclusive, from June, 1850, to June, 1885, one vol., 8vo, Cloth, $4.00.

Remittances should be made by Post-office Money Order or Draft, to avoid chance of loss.

Newspapers are not to copy this advertisement without the express order of HARPER & BROTHERS.

Address: HARPER & BROTHERS, New York.

1890. Harper's Young People AN ILLUSTRATED WEEKLY.

The Eleventh Volume of HARPER'S YOUNG PEOPLE, which begins with the Number for November 5, 1889, presents an attractive programme. It will offer to its readers at least four serials of the usual length, and others in two or three parts, namely, "The Red Mustang," by WILLIAM O. STODDARD; "Phil and the Baby," by LUCY C. LILLIE; "Prince Tommy," by JOHN RUSSELL CORYELL; and "Mother's Way," by MARGARET E. SANGSTER; two short serials by HJALMAR HJORTH BOYESEN. Two series of Fairy Tales will attract the attention of lovers of the wonder-world, namely, the quaint tales told by HOWARD PYLE, and so admirably illustrated by him, and another series in a different vein by FRANK M. BICKNELL. There will be short stories by W. D. HOWELLS, THOMAS NELSON PAGE, MARY E. WILKINS, NORA PERRY, HARRIET PRESCOTT SPOFFORD, DAVID KER, HEZEKIAH BUTTERWORTH, SOPHIE SWETT, RICHARD MALCOLM JOHNSTON, etc.

A subscription to HARPER'S YOUNG PEOPLE secure a juvenile library. There is useful knowledge, also plenty of amusement.—*Boston Advertiser.*

TERMS: Postage Prepaid, $2.00 Per Year.

Vol. XI. begins November 5, 1889.

Specimen Copy sent on receipt of a two-cent stamp.

SINGLE NUMBERS, Five Cents each.

Remittances should be made by Post-office Money Order or Draft, to avoid chance of loss.

Newspapers are not to copy this advertisement without the express order of HARPER & BROTHERS.

Address: HARPER & BROTHERS, New York.

1890. Harper's Weekly. ILLUSTRATED.

HARPER'S WEEKLY has a well-established place as the leading illustrated newspaper in America. The fairness of its editorial comments on current politics has earned for it the respect and confidence of all impartial readers, and the variety and excellence of its literary contents, which include serial and short stories by the best and most popular writers, fit it for the persual of people of the widest range of tastes and pursuits. The WEEKLY supplements are of remarkable variety, interest, and value. No expense is spared to bring the highest order of artistic ability to bear upon the illustration of the changeful phases of home and foreign history. A Mexican romance, from the pen of THOMAS A. JANVIER, will appear in the WEEKLY in 1890.

HARPER'S PERIODICALS.

Per Year:

HARPER'S WEEKLY	$4 00
HARPER'S MAGAZINE	4 00
HARPER'S BAZAR	4 00
HARPER'S YOUNG PEOPLE	2 00

Postage Free to all subscribers in the United States, Canada, or Mexico.

The Volumes of the WEEKLY begin with the first Number for January of each year. When no time is mentioned, subscriptions will begin with the Number current at time of receipt of order.

Bound Volumes of HARPER'S WEEKLY for three years back, in neat cloth binding, will be sent by mail, postage paid, or by express, free of expense (povided the freight does not exceed one dollars per volume), for $7.00 per volume.

Cloth Cases for each volume, suitable for binding, will be sent by mail, post-paid, on receipt of $1.00 each.

Remittances should be made by Post-office Money Order or Draft, to avoid chance of loss.

Newspapers are not to copy this advertisement without the express order of HARPER & BROTHERS.

Address: HARPER & BROTHERS, New York.

1890. Harper's Bazar. ILLUSTRATED.

HARPER'S BAZAR is a journal for the home. Giving the latest information with regard to the Fashions, its numerous illustrations, fashion-plates, and pattern-sheet supplements are indispensable alike to the home dress-maker and the professional modiste. No expense is spared in making its artistic attractiveness of the highest order. Its clever short stories, parlor plays and thoughtful essays satisfy all tastes, and its last page is famous as a budget of wit and humor. In its weekly issues everything is included which is of interest to women. During 1890 OLIVE THORNE MILLER, CHRISTINE TERHUNE HERRICK, and MARY LOWE DICKINSON will respectively furnish a series of papers on "The Daughter at Home," "Three Meals a Day," and "The Woman of the Period." The serial novels will be written by WALTER BESANT and F. W. ROBINSON.

HARPER'S PERIODICALS.

Per Year:

HARPER'S BAZAR	$4 00
HARPER'S MAGAZINE	4 00
HARPER'S WEEKLY	4 00
HARPER'S YOUNG PEOPLE	2 00

Postage Free to all subscribers in the United States, Canada, or Mexico.

The Volumes of the BAZAR begin with the first Number for January of each year. When no time is mentioned, subscriptions will begin with the Number current at time of receipt of order.

Bound Volumes of HARPER'S BAZAR for three years back, in neat cloth binding, will be sent by mail, postage paid, or by express, free of expense (provided the freight does not exceed one dollar per volume), for $7.00 per volume.

Cloth Cases for each volume, suitable for binding, will be sent by mail, post-paid, on receipt of $1.00 each.

Remittance should be made by Post-office Money Order or Draft, to avoid chance of loss.

Newspapers are not to copy this advertisement without the express order of HARPER & BROTHERS.

Address: HARPER & BROTHERS, New York.

MILWAUKEE REVIEW.

CHANGE is still the order of the day among mills, and Milwaukee millers are not slow to see the advantages in improved machinery. Old style mills have become a nightmare to their possessors, the relentless mare making great inroads upon the spare meal bags, and the peace of mind and good name of the unfortunate miller. Change indeed, why, it is not more than fifteen years since Milwaukee was one of the greatest flour markets of the west. Every little country mill sent its product to this market and found ready sale for all grades. Now the receipts from interior points is *nil*. Why is this? Every mill in the country—that is now running—has been changed once and some two or three times, and yet they cannot compete with the improved mill. The milling engineers of this country are largely accountable for this state of affairs. They have been mixing their brains with their work, and the progressive miller is doing likewise.

Not long since, the writer in conversa- with a prominent and successful mill manager here referred to the prosperity of the English millers, remarking that they were fast adopting American improvements. Yes, said he, but there is no danger of our losing the English market. Why? Because, although the English millers are following us, they will never overtake us. By the time they arrive at our present point of success we will have something much better, and so on indefinitely.

It cannot now be successfully denied that the radical miller is the most successful miller and the man who adopts what was a success two years ago, finds alas, too late, that he has adopted a discarded machine; other changes have come and still others are in progress.

Such, for instance as the change of taste, and judgment of mill products. Within the past few years we have heard men say, "I don't like the bread from this patent flour, I wish I could get some such as my mother used; I'd gladly give $10.00 per bbl." But where that article is produced and offered it falls flat, and has to be closed out at about $1.50 per bbl. less than the patent.

The great demand that has existed for low grades the past few years is doubtless due to this idea, but it is surely dawning on the foreign mind as on the American, that low grades have commanded relatively too high a price, and now they are becoming a feed product and it is doubtful whether they will ever again command a price much above feed.

We would not claim that the Milwaukee millers are the most radical of their class or the most successful, but they have all been making improvements. Notably the Jupiter which has been completely rebuilt with new and improved machinery. It has just started up and the proprietors express themselves well pleased with the quality of the product. They are running on orders up to capacity. The Phœnix has been thoroughly overhauled and improved. Their capacity still remains at 1500. They are running full time, and sell all they can make. Their products are mostly for export.

The Eagle Mills report a good demand but a little quieter than the past two months. They enjoy a very large local trade, which with an eastern domestic trade gives them no rest nor reason to complain. Their mill is kept well up in improvements.

The Gem with capacity of 350 bbls. has such a regular export trade that their time and capacity is crowded.

Reliance Mills run full time and capacity on export orders, 600 bbls. daily. The only complaint they have to make is of the extreme low price of feed, bran, middlings etc. This complaint however is not confined to them but is universal.

Duluth Roller Mill, report changes consisting of new boilers additional rolls and new machinery, to increase their capacity from 1350 to 1500. They have orders in hand for two months ahead, about one-half of which is for export.

Daisy Roller Mill is running full time and capacity 1500, about half of which is taken for export. This is the model mill of the Edward P. Allis & Co., mill builders and furnishers; is always kept equipped with the best and newest in milling appliances.

Excessive high through freights have operated to limit the export trade. Millers all along the line complain, for the rates are from 75 per cent. to 100 per cent. above former years.

The condition of the wheat market and the movement of that cereal which is so important a factor in the calculations of the miller, is this year a very singular one. While the receipts at the primaries have been nearly double that of former years, the consumption has so nearly kept pace with it that the increase in the visible supply is below the average for the season. Either our millers have an abounding faith in the future and are buying and laying by for future use or the consumption of bread in this country is increasing at a tremendous rate probably both propositions have some foundation in fact.

The great receipts of wheat show one or both of two other conditions. Either our wheat growers are hard pressed for money, otherwise our crop is more than an average. DON'T.

MILWAUKEE people, will be glad to learn that the "Monon Line" with which our former fellow citizen James Barker has allied himself is making some great advances. Of course we do not know just how its done, but we think we can recognize the "fine artistic hand" of James Barker in bringing about some of the matters mentioned in the following clipping from the Chicago *Tribune*.

The Louisville, New Albany & Chicago (Monon) has just made some valuable acquisitions and connections in the south. Its lease of the Lexington extension of the Louisville Southern, the bonds of which it guarantees, gives it connection at Lexington with the Chesapeake & Ohio, thus making a route from Chicago to the seaboard. At Bengin they connect with the Cincinnati Southern, giving a through line from Chicago to Chattanooga and all southern points. They have leased by a guarantee of its bonds the Richmond & Beattyville railroad, which road, shortly to be opened, extends one hundred miles southeast from Versailles to Beattyville, at which point extensive cannel, coking and bituminous coal and iron interests are located. From Beattyville the road will shortly be extended to and through the Cumberland mountains into Virginia. The Kentucky extensions of the New Albany road add 225 miles to its present mileage of 540 miles, giving 765 miles as the total mileage of the entire system.

NEWS.—At Quincy, Ill., Nov. 2, a small custom flouring mill on Tenth street, owned and operated by Berrian Brothers, was burned. Loss, $2,500; partly insured.

THE Vortex Dust Collector Co., of Milwaukee, report an excellent trade in dust collectors.

PALLANCH & SCHAUBEL'S flouring mill, Holding's Ford, Minn., burned; loss, $9,200; no insurance.

AT Teeswater, Ont., Nov. 5, the steam flouring mill owned by the Teeswater Milling & Manufacturing Co., was burned. Loss, $25,000.

THE flour mill owned by the St. Paul Roller Mill Co. in St. Paul, Minn., burned on the night of Nov. 8th. Loss, $150,000. Insurance, $105,000. A new mill will undoubtedly be built as quickly as possible for the company has a large and well established business both domestic and foreign.

AT Fremont, O., Oct. 29, the large stone flouring mill of A. Shell was destroyed by fire. Loss, $20,000. Insured as follows: Germania, New York, $3,500; Phœnix of London, $1,000; Hamburg-Bremen, $1,500; Westchester, New York, $2,000; Home, New York, $1,500; American, New York, $1,500. Total, $11,000.

THE Cockle Separator Mfg. Co. of Milwaukee, have recently shipped cockle separators to the following parties: Nordyke & Marmon Co., Indianapolis, Ind.; Frank Bean, Calvary, Wis.; O. L. Helmer & Co., Fond du Lac, Wis.; Jas. Pye, Minneapolis, Minn., (2 orders); Toledo Grain & Milling Co., Toledo, O.; Wm. Pfennig, Randolph, Wis.; David Oliver, Joliet, Ill.; John T. Noye Mfg. Co., Buffalo, N. Y.; A. Reaves & Son, Atlas, Va.

THE Superlative Purifier Mfg. Co., of Milwaukee, report recent sales of New Era Scalpers to the following parties: Geo. T. Chester, Lockport, N. Y.; Moseley & Motley Mill Co., Rochester, N. Y., (4 machines); Williams & Groat, Portland, Ore.; Maxwell, Hecker & Pomerene, Millersburg, O.; John F. Blake, Canton, O.; Todds & Stanley Mill Fur. Co., St. Louis, Mo., (2 orders); H. B. Eggers & Co., St. Louis, Mo., (3d. order); Winona Mill Co., Winona, Minn., (3 two sieve and one single scalper); C. T. Hanna, Pittsburgh, Pa., (2 orders); M. Martens, Iowa City, Ia.; A. J. Klinger, Greenville, O.; Toledo Grain & Milling Co., Toledo, O.; Nordyke & Marmon Co., Indianapolis, Ind., (5 machines); Dunham & Engel, Hector, Minn., (two sieve machines); Miller, Jones & Co., Prospect, O.; Robbins & Baltzell, Madison, Wis., (three sieve machines).

ELEVATOR CHARGES.

THE decision of the Court of Appeals of New York in the elevator cases continues to attract considerable attention and comment, some complaint being heard of what is termed the practical confiscation of private property, resulting from the fixing by authority of the State of a maximum charge for elevating grain. It is claimed by those who take this view of the case, that there is no monopoly in the elevator business, because any one who chooses, and who has the necessary capital, can build an elevator and engage in the business of running it. At first blush this may be seen to be true, but it is not really true, because an elevator must be situated in a certain place with regard to public lines of transportation, and the available space upon which elevators can be built and serve the purpose for which they are erected is often quite limited, and the few elevators occupying it are able to place such burdens upon the transportation of grain as seems best for their interests, without fear of competition. The authority of the State to regulate their charges seems to rest upon the fact that by and under the authority of the State they occupy a special location, giving them special privileges and enabling them to combine for the fixing of prices for what is an essential part of the operation of tran-portation of transferring grain from one part of the country ta another. It is now generally admitted that the business of common carriers is subject to regulation by the State, and it is difficult to see by what principle these elevators, which are really an essential part of the carrying system, can be exempt from that authority. Of course we see the importance of caution in such legislation, and would regret to see injuztice done; but it is to be remembered that if the laws are to represent the will of the people, monopolies of all kinds are to be more and more interfered with, for the people do not like them.

In this connection the words of Judge Andrews in rendering the decision are significant. He says: "There is a remedy at the polls and it is an efficient remedy, if at the bottom the legislation under it is oppressive and unjust. The remedy, by taking away the power of the Legislature to act at all, would be radical and complete."—*American Machinist* (Nov. 7.)

A GREAT MILLING SCHEME IN ONTARIO, CANADA.

An Important Waterpower to Be Improved.

A letter from St. Paul states that a business transaction has just been completed which involves a gigantic scheme to utilize the waterpower of the great Kakabkika Falls, situated a few miles from Port Arthur, Ont. Deeds have been recorded by which Thomas Marks of Port Arthur conveys to Dr. A. M. Eastman of St. Paul and R. J. Anderson of Minneapolis, representatives of a wealthy St. Paul, Minneapolis and Philadelphia syndicate, the property known as Kakabkika Falls, containing 480 acres and the water rights to the Kaministiquia River at that point. The river there is 350 feet wide, with a perpendicular fall of 100 feet, and can be developed to furnish 200,000 horse power.

The new proprietors propose to build up at that point a Canadian Minneapolis. With this end in view, a large tract of land adjoining the property has been secured which will give ample space for a large city. A large amount of capital is behind the scheme, and it is proposed to build there flouring mills equal to those of Minneapolis for grinding Manitoba wheat, pulp and paper mills for utilizing the poplar forest adjoining, reduction works for turning the silver ores of the neighboring mines into bullion, blast furnaces, sawmills, and factories of all descriptions for which a market can be found for their output. Eventually it is intended to use a part of the power for generating electricity, to be used not only for local purposes, but also to operate the silver mines.

The Port Arthur, Duluth & Western Railway is extending its line two miles to the falls. A branch of three miles will connect the Canadian Pacific with the new city. Engineers are now on the ground to make a complete topographical survey in order that the plans may be made as perfect as possible.

CORN HUSKS FOR CLOTH AND PAPER.

One of the best utilized waste products in Austria are corn husks. These are boiled with an alkali in tubular boilers. The glutinous matter is pressed out from the fiber by hydraulic apparatus, leaving the fibers in the shape of a mass or chain of longitudinal threads, interspersed with a dense mass of short fibers. The paper for which mostly the short fibers are used—the long fibers constituting the material for spinning—is stronger than papers of the same weight made from linen or cotton rags, its hardness and firmness of grain exceeding that of the best-dipped English drawing papers, being especially adapted for pencil drawing, stenographic writing and water colors; its durability exceeds, it is claimed, that of paper made from any other material, and the corn husk parchment is not at exposed points destroyed by insects. If the gluten is left in the pulp the paper can be made extremely transparent. Again, the fiber is easily worked, either alone or in combination with rags, into the finest writing or printing papers; it also readily takes any tint or color, and can be worked almost to as much advantage into stout wrapping papers of superior quality as into fine note and envelope papers.—*St. Paul (Minn.) Globe.*

CALIFORNIA & MEXICAN TOURS,

Via the Queen & Crescent Route, have been appreciated by hundreds who have been carried across the continent with comfort to the Pacific Coast or to balmy Mexico via Lookout Mountain, New Orleans and the Sunny South, without breaks or detention, escaping the rigorous winters and the discomforts of snow blockades of the more northerly Routes. This line, appreciating the generous patronage it has received, has still further improved its train service, and are now running a through Tourist Sleeping Car from Central Union Depot, Cincinnati, to Los Angeles and San Francisco *without change*. These Tourist Sleepers are furnished with pillows, sheets, comforters and every thing necessary to the comfort of the traveler at a very small cost. The run is made through to the Pacific in 5 days. These Tourist Sleepers leave on the following dates at 8 p. m.: Nov. 6th and 20th; December 4th and 18th; January 8th and 22d; February 5th and 19th; March 5th and 19th; April 2d and 16th; May 7th and 21st. Two Express Trains leave daily via this line, making close connections at Shreveport and New Orleans for Texas, Mexico, California and the Far West. Ask your Ticket Agent for tickets via Queen and Crescent Route. Geographically correct County maps of Kentucky, Tennessee, Alabama, Mississippi and Louisiana mailed free to any address on application to D. G. Edwards, G.P. &T.A., Cincinnati, O.

VIBRATION IN BUILDINGS.

ONE of the most perplexing problems that confronts the engineer, is the vibration in buildings caused by running machinery. Messrs. Westinghouse, Church, Kerr & Co. of New York, being frequently called on to locate Westinghouse Engines on the upper floors of building, have had a wide experience in this line, and have given the subject much thought. In determining these questions they say the character of the building, the ground on which it rests, the weight, power and speed of engines are all factors which must be considered, some of which are very indefinite, or at least, their effect is hard to pre-determine, combined with which is the very important influence, namely, the relation which the speed of the engine bears to the natural time of vibration of the floor beams. It is evident that if the slight motion which every engine has is exactly in time with the natural vibration of the floor beam, each pulsation of the engine will increase the scope of the vibration of the floor, resulting in a most disastrous shaking, while if the pulsations of the engine are in discord with the floor, comparative quiet will exist. As floor beams are usually long, and their time of vibration correspondingly long, it is usually found that a fast running engine will give less of its vibration to the floor beams than a slow running one. It is also worthy of note that the vibration of a fast running engine are more numerous and less forcible, hence easier resisted by the mass of the floor.

An interesting example of preventing vibration by discord was shown in the case of a Westinghouse 10 H. P. engine which on an upper story of a silver ware manufactory created such a commotion as to rattle the silver ware on the shelves a hundred feet distant. A change of 25 revolutions in the speed, which change was in the direction of increasing of the speed, entirely stopped the vibrations.

A most interesting work of this nature, also, is in the great coffee house of Arbuckle Brothers in Brooklyn, where two Westinghouse engines of 125 H. P. each and one of 45 H. P. are located on the fifth floor. These engines were erected on the heavy floor timbers, the floor boards being cut away and extra timbers being inserted between the joists. Across said timbers were placed oak stringers, which latter have been seasoning since the war in some unfinished vessels in the Brooklyn Navy Yard. On these the engines were mounted with plain fly wheels, and experiments were conducted to determine the speed at which it would be best to run. It was found that at 204 revolutions the vibration was at the minimum and was very slight, being as little as that caused by any of the ordinary driven machinery. The speed was therefore fixed at this point, and the wheels then made to give the proper belt speed.

The erection of engines as large as this on upper floors is somewhat novel, and should only be undertaken with full consideration of the surrounding conditions and with engines which are completely balanced.

NO FLOUR TRUST.

Secretary of State A. Lesseur, in an interview, attributed the downfall of several trusts to the new law now in force concerning trusts. Among those he enumerated as being done away with was the flour trust. Our worthy Secretary of State is entirely in the wrong In the first place there was no flour trust in existence, consequently the law has no terrors for the millers or flour dealers. There are Millers' Associations and its members are working to correct some evils, such as the giving of unlimited "trust" to customers, the extortion of agents, the greed of railroads in transportation charges, and lastly to meet annually or semi-annually, transact business and have a grand time generally. If this is a trust then they must be quite common. The Secretary of State is an official who should exercise some little care in his statements, for many people imagine that those he makes are accurate in every respect.—*Merchant, Miller and Manufacturer*, (St. Louis.)

ORGANIZATION OF MILLERS IN THE UNITED STATES.

THE MILLERS' NATIONAL ASSOCIATION.

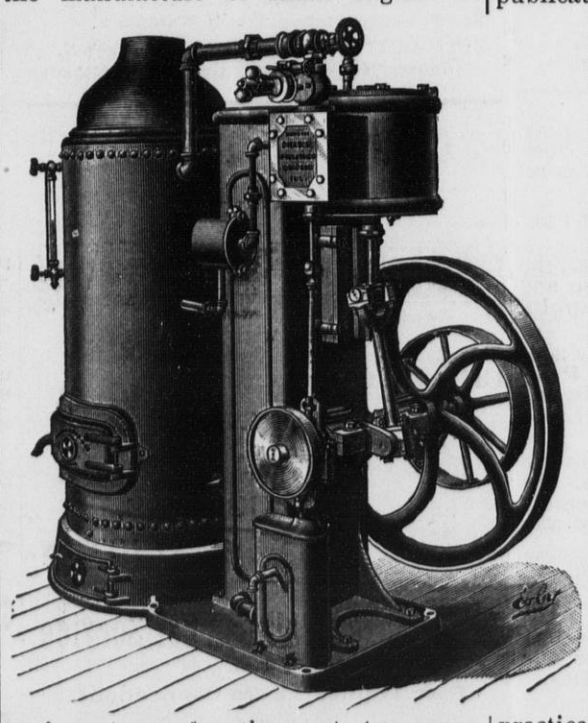
President—F. L. GREENLEAF, - - Minneapolis, Minn.
1st Vice-Pres't—A. R. JAMES, - - - - - - Buffalo. N. Y.
2d Vice-Pres't—WM. SANDERSON, - - - - - Milwaukee, Wis.
3d Vice-Pres't - GEO. H. PLANT, - - - - St. Louis, Mo.
Treasurer—S. H. SEAMANS, - - - - - - Milwaukee, Wis.
Secretary—FRANK BARRY, - - - - Milwaukee, Wis.

EXECUTIVE COMMITTEE.	STATE.	OFFICERS OF STATE ASSOCIATIONS.
*C. B. Cole, Chester	ILLINOIS	President, E. C. Kreider, Jacksonville. Secretary, C. H. Seybt, Highland.
M. S. Blish, Seymour	INDIANA	President, S. B. Boyer, Logansport. Secretary, D. H. Ranck, Indianapolis.
J. J. Snouffer, Cedar Rapids	IOWA	Pres dent, C. A. Consigney, Red Oak. Secretary, James Sharp, Des Moines.
	KANSAS	President, W W. Clark, Harper. Secretary, C. B. Hoffman, Enterprise.
P. H. Macgill, Baltimore	MARYLAND	President, P. H. Macgill, Baltimore. Secretary, J. O. Norris, Baltimore.
F. W Stock, Hillsdale	MICHIGAN	President, D. B. Merrill, Kalamazoo.
*A. C. Loring, Minneapolis	MINNESOTA	President, F. L. Greenleaf, Minneapolis. Secretary, W. C. Edgar, Minneapolis.
Geo. H. Plant, St. Louis	MISSOURI	President, S. M. Carter, Hannibal. Secretary, H. C. Craft, St. Louis.
	NEBRASKA	President, C. C. White, Crete. Secretary, D. H. Harris, Bennett.
*A. R. James, (Chairman) Buffalo	NEW YORK	President, A. R. James, Buffalo. Secretary, H. F. Shuttleworth, Buffalo.
Jno. M. Turner, Mandan	NORTH DAKOTA	President, J. S. Hillyer, Bismarck. Secretary, J. M. Turner, Mandan.
*Homer Baldwin, Youngstown	OHIO	President, F. Schumacher, Akron. Secretary, M. H. Davis, Shelby.
	PENNSYLVANIA	President B. F. Isenberg, Huntingdon. Secretary, L. Levan, Lancaster.
	SOUTH DAKOTA	President, W. H. Stokes, Watertown. Secretary, C. A. Lum, Aberdeen.
J. J. McCann, Nashville	TENNESSEE	
*S. H. Seamans, Milwaukee	WISCONSIN	Vice-Pres't, E. J. Lachman, Neenah. Secretary, S. H. Seamans, Milwaukee.

* Members of Sub Executive Committee of National Association.

WILLARD CONDENSING ENGINE.

THE extensive sale of gas engines and hot air engines, notwithstanding the high cost of the engines, and of gas, reveals the very general demand for an engine of small power, say 2 to 4 H. P., for the use of small industries, which shall be *perfectly safe*, and the manufacturers of the Willard Condensing Engine (of which we give an illustration) who have been engaged in the manufacture of small engines of various types for the past ten years, believe that, in this new engine, which they have now put upon the market for the first time, they offer a motor which possesses all the advantages of other motors of this class, and is free from the structural faults that exist in some of the other machines. The manufacturers claim that the cost of fuel will not exceed one cent per horse-power per hour; that it requires no watching; does not increase the rate of insurance. can be safely managed by a person having no knowledge of engines, and that it is absolutely safe under every and all circumstances, and cannot be exploded because there can be no steam pressure whatever.



The manufacturers, in putting this engine upon the market, desire to impress upon the public the fact, that it is not a hot air engine or a kerosene oil engine or a gas engine, but is a condensing engine using a small quantity of steam at less than one pound pressure, burning wood or coal, and is perfectly simple and reliable; making no noise or objectionable smell.

A full descriptive circular with illustrations and prices can be obtained by addressing Chas. P. Willard & Co., 236 Randolph St., Chicago.

SECRETARY RUSK has submitted to the President the first annual report made by the Secretary of Agriculture as a Cabinet officer. The Secretary speaks of the necessity of organizing the Department on a liberal basis, and lays special stress upon the value of plain, brief publications of the results of experimental work, and their dissemination through the press. With the object of accomplishing this last purpose, the Secretary says the plan adopted, and, as results so far show, with gratifying success, has been to prepare advance sheets of every bulletin or other publication about to be issued; such advance sheets comprising a brief synopsis of the work recorded in the bulletin and giving the conclusions arrived at, which may serve as practical suggestions to the farmers. These advance sheets are furnished to the press associations, to all agricultural and many other weelky papers, to agricultural writers, and any journalists and editors applying for them. In this way, during the fifteen weeks ending October 31, no less than eighteen such synopsis or resumes were distributed as above. The agricultural papers generally and the press as a whole have shown a commendable disposition to co-operate with the Department in its efforts to keep the farmers informed as all to that may be of practical service to them. In some cases a careful note kept of the newspapers publishing such advance sheets, apart from those covered by the Press Associations, indicate an aggregate circulation of over one million copies.

IF the floor of a room is swept ever so clean with a hair broom, yet if it is then washed, the water in the pail reveals that much dirt was left; if wheat is ever so well cleaned with the dry process and then washed in a good wheat washing machine, the water reveals the dirt still remaining. *Frank Ashby.*

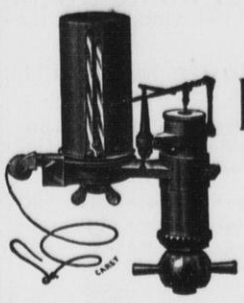
A simple method of cleaning the surface of brass goods: Lay the soiled article for a few minutes in essence of vinegar containing a pinch of salt; then take it out and rub it in the hands, dipping them occasionally in vinegar. When clean, wipe dry with a cloth. In cleaning tinted goods, omit the salt, or dip in vinegar and brush with red chalk.

American Steam Gauge Co,.

—SOLE MANUFACTURERS—

Bourdon Steam Gauges,

WITH LANE'S IMPROVEMENT.



THOMPSON'S

Improved Indicator

Over 2,500 in Use.

American Pop Safety Valves,

For Locomotive, Stationary and Portable Boilers, and Instruments Incidental to the use of Steam. Send for Price List I.

36 Chardon St., BOSTON, MASS.

Send for Catalogue K.

MILLWRIGHTS WANTED. A head millwright, competent to take charge of large work; also millwrights to work under leader. Long job to satisfactory parties.
Address, THE ROSEMALT WORKS,
oct3t Waukegan, Ill.

AN AUTHENTIC BUYERS' GUIDE.

MILL AND ELEVATOR BUILDERS, MILL FURNISHERS, MANUFACTURERS OF AND DEALERS IN MILL AND ELEVATOR MACHINERY AND SUPPLIES.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year, cash with order. Additional lines, $1.00 each, per year.

Edw. P. Allis & Co., Milwaukee, Wis., builders of complete Flour Mills, manufacturers of Flour Mill Machinery, and dealers in Supplies of every description. [Mr.89.]

O. C. Ritter, Sta. A., Springfield. Mo., Patentee and Designer, Ritter's One Reduction Milling System. Full Roller Plants for small mills. [Aug. 10]

John C. Higgins & Son, 165 West Kinzie Street, Chicago, Ills., mfrs. of and dressers of Mill Picks. [Mr.89.]

Robert Poole & Son Co., Baltimore, Md., manufacturers of Steam Engines, Water Wheels, Flour, Corn, Paper, Saw and Cotton Mill Machinery.

B. H. & J. Sanford, Phoenix Iron Works. Sheboygan, Falls, Wis., manufacturers of the "IMPROVED WALSH DOUBLE TURBINE WATER WHEEL." [Mr.89.]

John C. Kilner, York Foundry and Engine Works, York, Neb. Mill and Elevator machinery of all kinds, Engines, Boilers, Pulleys, Shafting, etc. [Mr.89.]

The Gutta Percha and Rubber Mfg. Co., 159-161 Lake st., Chicago Ill., Belting and Rubber Goods. [Mr 89.]

Richmond Mfg. Co., Lockport, N. Y., manufacturers of Grain Cleaning Machinery, Bran Dusters etc. [89.Mr.]

N. Y. Belting and Packing Co., N. Y. Leather Belting Co., W. D. Allen & Co., Agents, 151 Lake Street, Chicago. [Apr.89.]

W. G. Avery M'f'g Co., 10 Vincent st., Cleveland, O., Specialties: Avery Lever Belt Punches, Avery Seamless Elevator Buckets, Belting, Elevator Bolts, &c. [May'89.]

The H. J. Deal Specialty Co., Bucyrus, Ohio. Headquarters for Flour and Grain Testing Appliances, and Specialties for the Milling, Flour and Grain trades. [May 89]

A. B. Bowman, 823 Second St., St. Louis, Mo., manufacturers of Wheat Heaters.

Sprague Electric Railway & Motor Co., 16 and 18 Broad St., New York. Electric Motors. Electric Transmission of Power.

Stilwell & Bierce Mfg. Co., Dayton Ohio. Mill Builders, Manufacturers of and dealers in Water Wheels, Feed Water Heaters and Flour Mill Machinery and Supplies.

Milwaukee Bag Co., No. 236 East Water St., Milwaukee, Wis., manufacturers of plain and printed Flour and Grain Sacks of all kinds.

B. F. Ryer, 66 S. Canal St., Chicago. Mill Furnisher. Bolting Cloths made to order.

Jas. Leffel & Co., Springfield, Ohio. Water Wheels.

Vacuum Oil Co., Rochester, N. Y. Oils.

CAWKER'S AMERICAN

FLOUR MILL

—AND—

GRAIN ELEVATOR

DIRECTORY

Published once in two years.

Gives nearly 23,000 Addresses, P. O., County and State, Capacity, Power, System, etc.; also lists of Millwrights, Miscellaneous Mills, Millbuilders and Furnishers, Flour and Grain Dealers, Foreign Flour and Grain Importers, etc., etc.

1888-9 Edition, Issued March, 1888.

PRICE, $10 PER COPY,
post paid and registered to any part of the world. Address,

E. HARRISON CAWKER, Milwaukee, Wis.

THE CHICAGO MILWAUKEE AND ST. PAUL RAILWAY CO.

Fast Mail Line with Vestibuled Trains between Chicago, Milwaukee, St. Paul and Minneapolis.

Trans-Continental Route between Chicago, Council Bluffs, Omaha and the Pacific Coast.

Great National Route between Chicago, Kansas City and St. Joseph, Mo.

5700 Miles of Road reaching all principal points in Illinois, Wisconsin, Minnesota, Iowa, Missouri and Dakota.

For maps, time tables, rates of passage and freight, etc., apply to the nearest station agent of the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY, or to any Railroad Agent anywhere in the World.

ROSWELL MILLER, General Manager. A. V. H. CARPENTER, Gen'l Pass. and Tkt. Agt.

☞ For in ormation in reference to Lands and Towns owned by the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY COMPANY, write to H. G. HAUGEN, Land Commissioner, Milwaukee, Wisconsin.

RECENT PUBLICATIONS.

WIDE AWAKE for November is brim full of illustrations, stories, poems etc., interesting to young and old. It is always instructive as well as amusing, and those young people who receive it regularly, are fortunate indeed. It is published by D. Lothrop Company, Boston Mass., at $2.40 per year.

SOME time ago *The Detroit Free Press* offered $3,000 in prizes for the three best serial stories sent in before July 1st. The result of this competition has been that Major Joseph Kirkland, of Chicago, Ill., has taken the first prize of $1,600. His story is entitled, "The Captain of Company K." Mr. Kirkland is the author of "Zury, the Meanest Man in Spring County." "The McVeys," and other stories. The The second prize goes to Omaha, Neb., and is taken by Mrs. Eliza W. Peattie. Her story is entitled "The Judge." The third prize of $500 was awarded to Elbridge S. Brooks, of Boston, Mass. The title of his story is, "The Son of Issichar."

SEVEN writers—clergymen, college professors and public men, some of them specialists of acknowledged standing—have associated themselves to discuss special questions of social interest and import, and to prepare papers to be afterwards given to the public from time to time in the pages of *The Century*. The writers include the Rev. Professor Shields of Princeton, Bishop Potter of New York, the Rev. Dr. T. T. Munger of New Haven, the Hon. Seth Low of Brooklyn, and Professor Ely of the Johns Hopkins University. For each paper the author will be responsible, but he will have had the benefit of the criticism of the other members of the group before giving it final form. The opening paper will be printed in the November *Century*.

EDWARD BELLAMY, author of "Looking Backward," contributes a short story to Harper's Magazine, entitled "With the Eyes Shut." Other stories in the number are "Butterneggs," by Annie Trumble Slosson, "Aunt Dorothy's Funeral," by Margaret J. Preston, and "Capt. Brooke's Prejudice," by Lucy C. Lille. Prof. Chas. Eliot Norton presents a paper upon "The Building of the Church of St. Denis," and W. W. Keen, M. D., gives a comprehensive account of "Recent Progress in Surgery," in which Dr. Senn, of Milwaukee, is named, among other eminent surgeons T. de Thulstrup furnished many illustrations emphasizing Theodore Child's description of the "The Fair of Nijnii-Novgorod." Prof. W. G. Blaikie, D.D., conceals under the title "A Corner of Scotland Worth Knowing," the name of a charming spot on the southern shore of the Frith of Forth. Two authors are their own artists: Howard Pyle describing with pen and pencil, "A Peculiar People," a German Baptist sect—the Dunkers of Pennsylvania; and Tristriam Ellis what he saw on a visit to "Hierapolis and its White Terrace." Edwin A. Abbey illustrates with nine drawings "The Noble Patron," by Austin Dobson; and Alfred Parsons embellishes in like manner Wordsworth's sonnet "Hail Twilight." Howard Hall contributes a poem entitled "All's Well at the Earth," and Lucy Larcom another entitled "Discovery," which looks to the hero of 1492. George William Curtis and William Dean Howells this month both speak of recent publications and also certain subjects bearing upon our country. Charles Dudley Warner continues his story of American social life, "A Little Journey in the World," and contributes to the "Editor's drawer" a humorous essay upon a mysterious subject.

ASHLAND M.L.S.&W.R'Y ROUTE

THE MILWAUKEE, LAKE SHORE & WESTERN R'Y

IS THE DIRECT AND MOST POPULAR LINE AND Through Sleeping and Parlor Car Route FROM CHICAGO and MILWAUKEE TO SHEBOYGAN, MANITOWOC, APPLETON, NEW LONDON AND WAUSAU, TO ALL THE IMPORTANT TOWNS IN THE Gogebic, Penokee and Montreal Iron Ranges, HURLEY, BESSEMER, IRONWOOD, WAKEFIELD AND GOGEBIC, TO ASHLAND, SUPERIOR and DULUTH, To all Fox River Manufacturing Cities AND The Lumbering Districts of Northern Wisconsin and Michigan.

SPORTSMEN The best Fishing and Hunting in the NORTHWEST reached by the ASHLAND ROUTE. Send to the General Passenger and Ticket Agent for Descriptive and Illustrated Publications, Maps, Folders, Time Cards and General Information.

Milwaukee Office, 95 Wisconsin St.

H. G. FLEITH, Com. Freight Agt. F. P. REGAN, City Pass. & Tkt. Agt.

H. F. WHITCOMB, General Manager. ERNEST VLIET, Gen'l Pass. & Tkt. Agt.

MILWAUKEE.

THE CHICAGO AND NORTH-WESTERN RAILWAY.

OVER 7,000 MILES

Of steel track in Illinois, Iowa, Wisconsin, Michigan, Minnesota, Nebraska, Dakota and Wyoming, penetrates the Agricultural, Mining and Commercial Centres of the

WEST AND NORTHWEST.

The Unrivaled Equipment of the Line embraces Sumptuous Dining Cars, New Wagner and Pullman Sleepers, Superb day Coaches and

FAST VESTIBULED TRAINS

Running direct between Chicago, St. Paul and Minneapolis, Council Bluffs and Omaha, connecting for Portland, Denver, San Francisco and all Pacific Coast Points.

ONLY LINE TO THE BLACK HILLS

For Tickets, Rates, Maps, Time Tables and full information, apply to any Ticket Agent or address the Gen'l Passenger Agent, Chicago, Ill.

J. M. WHITMAN, General Manager. H. C. WICKER, Traffic Manager. E. P. WILSON, Gen'l Pass. Agt.

NOTES from the diary of tourists, commercial travelers, business men and others has revealed:

That the **Wisconsin Central** has the unqualified endorsement of all:

That the **Wisconsin Central** has to-day the most popular line between **Chicago** and **Milwaukee**, and **St. Paul, Minneapolis** and the **Northwest**;

That the **Wisconsin Central** is daily adding to its admirers as the recognized **Pullman** line between **Chicago** and **Milwaukee** and **Ashland, Duluth** and **Lake Superior**;

That the **Wisconsin Central** touches the most prominent points in Wisconsin, and that it has more important business centers on its through line than any other railway to and from the **Northwest**;

That the **Wisconsin Central** has made an enviable reputation with its peerless **Dining Car Service**;

That the **Wisconsin Central** runs fast trains on which all classes of passengers are carried with commodious and distinct accomodation for all:

That the **Wisconsin Central** has representatives distributed throughout the country, who will cheerfully give any information that may be desired and that its terminal Agents are specially instructed to look after the comfort of passengers who may be routed via its line.

For detailed information, apply to your nearest Ticket Agent; or to representatives of the Wisconsin Central Company.

S. R. AINSLIE, General Manager. H. C. BARLOW, Gen'l Traffic Manager.

LOUIS ECKSTEIN, Asst, Genl. Passr. & Tkt. Agt.

MILWAUKEE, WIS.

ALL persons desiring to reach the entire milling and grain trade of America, by circular or otherwise, should obtain a copy of CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888-89.

WE shall be pleased to receive from any of our readers, short, crisp, sensible letters on subjects of interest to the flour and grain trade for publication.

EXPORTING millers should write to the E. Harrison Cawker, Milwaukee, Wis., for the best Flour Cable Code ever published. There are more copies of this Code in use than of ALL other flour codes published. It is simple and accurate.

CH&D CINCINNATI, HAMILTON & DAYTON R.R.

THE THROUGH CAR LINE —FROM AND TO— CINCINNATI

WITH THROUGH CAR SERVICE BETWEEN

CINCINNATI and INDIANAPOLIS,
CINCINNATI and TOLEDO and DETROIT,
CINCINNATI and CHICAGO,
CINCINNATI and ST. LOUIS,
CINCINNATI and DAYTON and RICHMOND,
CINCINNATI and FT. WAYNE and GRAND RAPIDS,
CINCINNATI and GREENVILLE and VAN WERT.

With THROUGH RECLINING CHAIR CAR between

CINCINNATI, DECATUR and SPRINGFIELD, ILLS. and KEOKUK, IOWA, (daily)

PARLOR CHAIR CARS ON DAY, and SLEEPERS ON NIGHT TRAINS, "YEAR 'ROUND."

Ask for Tickets via C. H. & D. R. R.

For full information, Tickets, Sleeping Car Space, &c., Inquire of or Address,

W. H Fisher, Gen'l Agt., Indianapolis, Ind. W. H. Whittlesey, Central Pass'r Agt., Dayton, O.
John Bastable, District Pass'r Agt, Toledo, O. D. B. Tracy, Northern Pass'r Agt., Detroit, Mich.
Wm. A. Wiggins, Southern Passenger Agent, Chattanooga, Tenn.
J. G. Mason, City Passenger Agent, Cincinnati, O.

Or General Passenger Agent's Office, - No. 200 W. Fourth St., Cincinnati, O.

C. C. WAITE, Vice-Pres't & Gen'l Manager. CHAS. H. ROCKWELL, Gen'l Pass'r & Ticket Agent.

Milwaukee & Northern R. R.

SHORT LINE

—TO—

Marquette, Negaunee, Ishpeming, Hancock, Houghton, Champion, Republic. Iron Mountain, Menominee, Mich.

Marinette, Green Bay, Depere, Neenah, Menasha, Appleton, Wis.

THE TABLE OF EXPRESS TRAINS.

STATIONS.	DEPART.	ARRIVE.
Champion, Republic,	*2:00 A. M.	*3:25 A. M.
Iron Mountain, Menominee, Marinette, Green Bay, Depere,	*2:00 A. M. 3:10 P. M.	*3:25 A. M. 3:55 P. M.
Green Bay, Depere, Appleton, Menasha, Neenah,	2:00 A. M. 7:55 A. M. 3:10 P. M.	3:55 P. M. 10:10 A. M.

*Daily. All other trains daily except Sunday.

Pullman Sleeping Cars are run on all night trains, and are ready for occupancy at 9:00 P. M.

New Passenger Station, Fourth Ward Park.

C. F. DUTTON, General Manager. W. B. SHEARDOWN, General Ticket Agent.

CHOICE OF 3 TRAINS

—VIA—

MONON ROUTE

—BETWEEN—

CHICAGO and INDIANAPOLIS, CINCINNATI, LOUISVILLE, LEXINGTON.

Unsurpassed Pullman Car Service.

Fast Trains. Sure Connections.

Short Route to Florida.

☞ Be sure your tickets read via Monon Route (L. N. A. & C. R'y), and your comfort is guaranteed.

For Maps, Guides, etc., address

JAMES BARKER, Gen'l Pass'r Agent, CHICAGO.

Adams Express Building.

DO YOU INTEND TO BUILD?

PRACTICAL LOW-COST HOUSES. HOW TO BUILD THEM.

A Large Atlas, containing drawings and floor plans of 40 Modern Houses with Correct Estimates of cost of building. All kinds of buildings ranging from a $400 cottage to a $10,000 residence. The latest, most complete, and only practical book published. It is false economy to attempt to build without these plans. Price by mail, post-paid, 50 cts. Stamps taken.

Address, UNITED STATES MILLER, Milwaukee, Wis.

Queen & Crescent ROUTE

94 MILES THE SHORTEST, 8 HOURS THE QUICKEST,

CINCINNATI TO NEW ORLEANS

Time, 27 Hours.

Entire Trains, Baggage Car, Day Coaches and Sleepers run through without change.

110 MILES THE SHORTEST, 7 HOURS THE QUICKEST,

CINCINNATI to JACKSONVILLE, Fla.

Time, 28 Hours.

Through Sleepers without change. The Short Line between Cincinnati and

Lexington,	Ky.,	Time,	2½ Hours.
Knoxville,	Tenn.,	"	12 "
Asheville,	N. C.,	"	17 "
Chattanooga,	Tenn.,	"	11 "
Atlanta,	Ga.,	"	15 "
Birmingham,	Ala.,	"	16 "

Direct Connections at New Orleans, and Shreveport, for Texas, Mexico and California.

Trains leave Central Union Depot, Cincinnati, crossing the Famous High Bridge of Kentucky, and rounding the base of Lookout Mountain.

Over One Million Acres of Land in Alabama, the Future Great State of the South, subject to pre-emption. Unsurpassed Climate.

For Rates, Maps, etc., address,

C. S. HENRY, Traveling Passenger Agent, 193 Clark St., Chicago, Ill.

J. C. GAULT, Gen'l Mgr. CINCINNATI, OHIO. D. G. EDWARDS, G. P. & T. A.

—THE—

Cleveland, Cincinnati, Chicago & St. Louis RAILWAY.

BIG · FOUR · ROUTE

Consists of the lines formerly operated under the names of Cincinnati, Indianapolis, St. Louis & Chicago R'y ("Kankakee Line"), the Cleveland, Columbus, Cincinnati & Indianapolis, and Indianapolis & St. Louis R'y ("Bee Line Route"), and with its connections now form direct routes of travel between ALL POINTS in the

North, East, South and West

With schedules arranged to accommodate the traveling public in each direction, and the finest equipment of Day Coaches and Parlor Cars, Reclining-chair Cars and Palace Sleeping and Drawing-room Cars in Americ , the management of the consolidated system confidently expect a continuance of the popularity enjoyed by the individual lines.

☞ Rates to and from all points reached by the "Big Four Route" will always be as low as via any other first-class line.

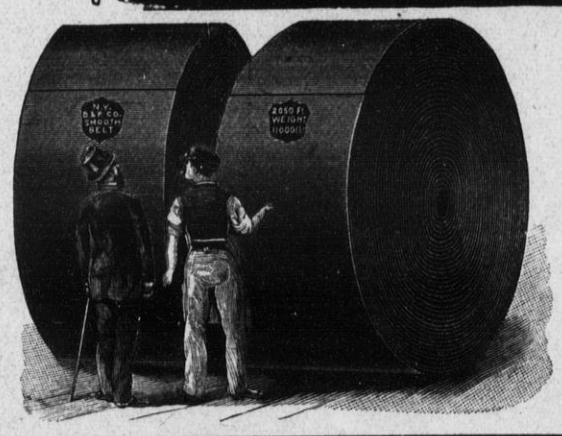
For further information call on ticket agents throughout the country.

O. G. MURRAY, Traffic Manager. D. B. MARTIN, Gen'l Pass'r Agent.

CINCINNATI, O.

OUR readers will confer a favor by writing to us giving us any item of news such as new mills, elevators, etc., or improvements in the same, or giving information of a practical nature of general interest to the trade.

NEW YORK BELTING & PACKING CO



JOHN H. CHEEVER, Treasurer. 15 PARK ROW, NEW YORK.

Oldest and Largest Manufacturers in the U. S. A. of

Vulcanized Rubber Fabrics for Mechanical Purposes

MILLERS' HOSE A SPECIALTY.

Also a Good STEAM HOSE.

RUBBER MATS, RUBBER MATTING, and STAIR TREADS.

RUBBER BELTING, PACKING AND HOSE.

SALESROOMS: PHILADELPHIA, 308 Chestnut St.; BOSTON, 52 Summer St.; CHICAGO, 151 Lake St.; ST. LOUIS, 907-911 N. Main St.; DENVER, 1601-1611 17th St.; CHARLESTON, 160 Meeting St.; MINNEAPOLIS, 28 South 2d St.; CINCINNATI, 161-165 W. Pearl St.; ATLANTA, 16 Decatur St.; DETROIT, 16-24 Woodward Ave.; BALTIMORE, 12 N. Charles St.; BUFFALO, 124-128 Washington St.; NEW ORLEANS, 8-12 N Peters St.; KANSAS CITY, 1311-1313 W. 12th St.; RICHMOND, 1206 East Main St.; European Branch, HAMBURG, GER., Pickhuben 5, (Freihafengebiet).

WESTINGHOUSE ENGINES

The Westinghouse Machine Co. PITTSBURGH, PA. U.S.A.

COMPOUND Condensing or Non-Condensing.
16 SIZES, 5 to 500 H. P.
Not yet equaled by any form of Engine for *HIGH FUEL DUTY AND SIMPLICITY.*

STANDARD 13 Sizes in Stock. 5 to 250 H. P.
3000 in use in all parts of the Civilized World.

JUNIOR 6 Sizes in Stock, 5 to 50 H. P.
An Automatic Engine cheaper than a Slide Valve.
WELL BUILT. ECONOMICAL. RELIABLE.
Over 300 Sold the First Year.

All the above built strictly to Gauge with INTERCHANGEABLE PARTS.
REPAIRS CARRIED IN STOCK.
SEND FOR ILLUSTRATED CATALOGUES.

SELLING DEPARTMENT IN THE UNITED STATES.

New York, Boston, Pittsburgh, Chicago,	17 Cortlandt St. Hathaway Building, Westinghouse Build'g, 156, 158 Lake St.	Westinghouse, Church, Kerr & Co.
Philadelphia,	608 Chestnut St. M. R. Muckle, Jr. & Co.	
St. Louis, Kansas City, Denver,	302, 304 Washington Av. 312 Union Avenue, 1330 Seventeenth St.	Fairbanks & Co.
Omaha,	1619 Capitol Avenue, F. C. Ayer.	
Pine Bluffs, Ark.	Geo. M. Dilley & Sons.	
Salt Lake City, Butte, Mont.	259 S. Main St. 4. Granite St.	Utah & Montana Machinery Co.
San Francisco, Portland, Or.	21, 23 Fremont Street, Parke & Lacy Co. 33, 35 N. Front St. Parke & Lacy Mch. Co.	
Charlotte, N. C. Atlanta, Ga.	36 College St. 45 S. Prior St.	The D. A. Tompkins Co.
Dallas, Tex.		Keating Imp. & Machine Co.
Chattanooga, Tenn.,		C. E. James & Co.

Condemnation · of · Competitors

IS THE MEASURE OF SUCCESS.

I CHALLENGE the wheat heater concern advertising their heater as "replacing the Welch" to publish the terms on which the Welch Wheat Heaters are replaced. I could replace any other make of heater by allowing a big price for it and selling mine low, which is equal to paying a bonus.

The "Welch" is fully guaranteed, sold on its merits and used more than any heater on the market.

823 SECOND ST, ST. LOUIS, MISSOURI

A. B. BOWMAN.

ESTABLISHED 1846.

J. B. A. KERN & SON,

Merchant Millers,

Capacity 2,000 Barrels Per Day. MILWAUKEE, WIS.

Manufacturers of Choice Minnesota and Dakota Hard Wheat Flour.

RYE FLOUR

By most approved roller process, guaranteed the best and purest rye flour manufactured

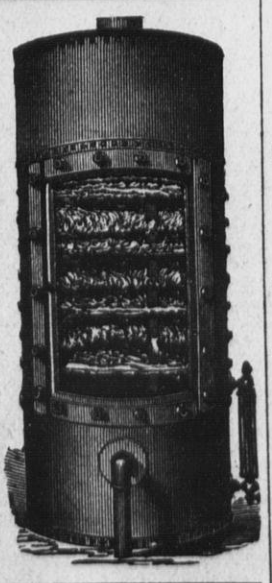
WE INVITE CORRESPONDENCE FROM CASH BUYERS.

Stilwell's Pat.

Lime Extracting

HEATER —AND— *FILTER*

COMBINED.



Is the only Lime Extracting Heater that will

Prevent Scale in Steam Boilers

Removing all Impurities from the water before it enters the boiler.

Thoroughly tested. Over 3,000 of them in daily use.

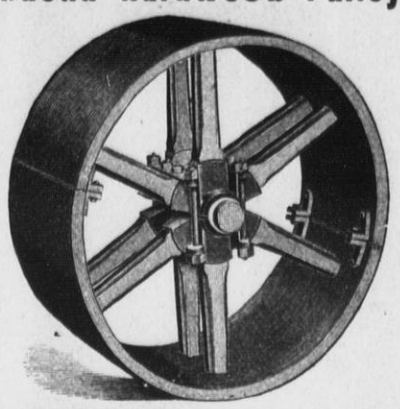
This cut is a facsimile of the appearance of a No. 5 Heater at work on ordinary lime water when the door was removed after the Heater had been running two weeks.

Illustrated Catalogues.

STILWELL & BIERCE MFG. CO.
DAYTON, OHIO.

For All Kinds IRON & STEEL **ROOFING**
CEILING, SIDING, IRON DOORS, SHUTTERS.
ADDRESS SCOTT & CO. CINCINNATI, OHIO.

Menasha Hardwood Pulleys.

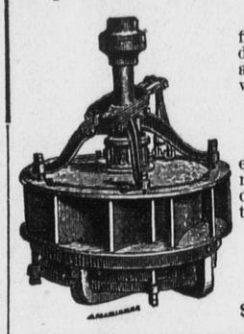


We are sole makers of hardwood bent rim, oak spoke arm, iron hub pulleys; gripped to shaft with bolts and using patent paper bushings. They can be put on shaft without taking it down or cutting key seats. No glue or nails used in their construction.

Also sole makers of only small split pulley 1 inch to 8 inches in diameter in the market. They are light, handsome and reliable. Best machine pulley made, and can be taken off or put on in five minutes. See above cut of them. No glue or nails in them. No key seats to cut. Also makers of only split loose pulley in the market. Send for circulars and discounts of Menasha Pulleys.

MENASHA SPLIT PULLEY WORKS,
MENASHA, WIS.

Improved Walsh Double Turbine

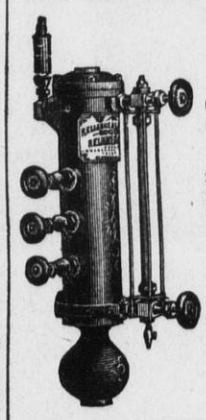


This wheel has a perfect fitting cylinder gate and draft tube combined, and allows no water to escape when closed.

POWER GUARANTEED

equal to any wheel on the market using equal amount of water. Address for particulars,

B. H. & I. SANFORD,
Phœnix Iron Works,
Sheboygan Falls, Wis.



Before shutting down for repairs or putting in any boilers, investigate the merits of the

RELIANCE

Safety Water Columns

Many large corporations have found it profitable to discard the common appliances, and adopt these safeguards. Of course, you need not do so unless you wish to, but it is worth your time to investigate. There is always economy in safety, and any safety appliance is worth the time it takes to examine it.

Send for Illustrated Price List.

RELIANCE GAUGE CO.,
863 Sheriff St.,
CLEVELAND, OHIO.

JOHN C. HIGGINS & SON.

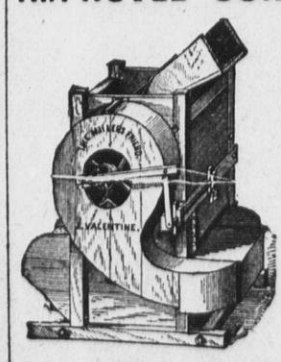
Manufacturers and Dressers of

MILL PICKS

167 W. Kinzie St.,
CHICAGO, ILL.

Picks will be sent on 30 or 60 days' trial, to any responsible miller in the United States or Canadas, and if not superior in every respect to any other pick made in this or any other country there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is *manufactured expressly for me* at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct Importation. References furnished from every State and Territory in the U. S. and Canadas. Send for Circular and Price List.

IMPROVED CORN SHELLER,



IT IS THE
BEST CORN SHELLER
MADE FOR MILL USE.

IT IS
Simple in Construction
Almost Noiseless,
—AND—
Requires Little Power

HUNDREDS ARE IN USE.

For descriptive circular, price list, etc., Address

JACOB VALENTINE,
Gorham, Ontario Co., N. Y.

CHAS. A. PRAHL

MANUFACTURER OF

Artificial Limbs and Apparatus

Elevated Feet for Shortened Limbs, Braces for Weak Ankles and Spinal Curvatures, Elastic Stockings & Trusses.

300 GRAND AVENUE, MILWAUKEE, WIS.

The INK used on this paper is from the factory of

CHAS. ENEU JOHNSON & CO.,
PHILADELPHIA, PA.
Western Branch House: 40 La Salle St., CHICAGO

G. M. MANN. F. P. MANN

MILWAUKEE BAG COMPANY,

MANUFACTURERS OF

COTTON, PAPER AND JUTE

FLOUR SACKS

DEALERS IN

Grain Bags, Twines, Centals, Etc.

TELEPHONE NO. 427.

No. 236 East Water Street, MILWAUKEE, WISCONSIN.

SCHIEREN'S

OAK-TANNED

LEATHER BELTING

Cotton Belting and Hose

GOODYEAR RUBBER CO.

"Gold Seal" Rubber Belting.

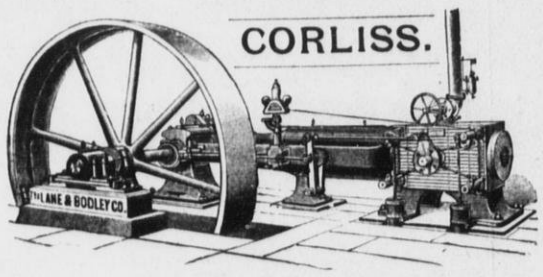
PRICE LIST SENT ON APPLICATION.

372 & 374 EAST WATER STREET
MILWAUKEE.

131 EAST THIRD STREET
ST. PAUL.

201 NICOLLET AVENUE
MINNEAPOLIS.

THE LANE & BODLEY CO.,



MANUFACTURERS OF

AUTOMATIC CUT-OFF

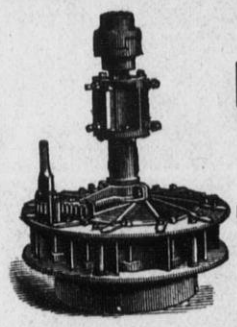
ENGINES

From Heavy Patterns and of Unexcelled Workmanship.

Steel Boilers, Feed Water Heaters Shafting, Pulleys and Gearing.

THE LANE & BODLEY CO., Cor. John & Water Sts., CINCINNATI, O.

ROBERT POOLE & SON CO.,



Leffel Turbine Water Wheel

Made of best material and in best style of workmanship.

Machine Molded Mill Gearing

From 1 to 20 feet diameter, of any desired face or pitch, molded by our own SPECIAL MACHINERY. Shafting, Pulleys, and Hangers, of the latest and most improved designs.

Mixers and General Outfit for Fertilizer Works.

☞ Shipping Facilities the Best in all Directions.

ROBERT POOLE & SON CO., BALTIMORE, Md.

N. B.—Special attention given to Heavy Gearing for Pulp and Paper Mills.

[Mention this paper when you write to us.]

"TRIUMPH" CORN SHELLER

CAPACITY
2000 BUSHELS PER DAY.
Shells wet or dry corn.
CHEAPEST AND BEST SHELLER.

PAIGE MFG. CO.,
No. 12 Fourth St., Painesville, O.

GANZ & CO.

Budapest, Austria-Hungary.

We are the first introducers of the Chilled Iron Rollers for milling purposes, and hold Letters Patent for the United States of America. For full particulars address as above.

[Mention this paper when you write to us.]

WM. PLANKINTON, President.
FREDERICK D. DAY, Treasurer.

CAPITAL STOCK, $100,000.

GEO. N. SCEETS, V. Pres't & Mgr.
J. G. THOMPSON, Secretary.

Milwaukee Brass and Copper Works

MILWAUKEE, WIS.

BABBITT METALS,

(Standard and Special Mixtures),

Brass and Bronze Castings. Ingot Metals.

Our "Badger State Metal" is the best anti-friction Metal on the market.
We make a specialty of furnishing special mixtures to large consumers, putting on buyer's brand when desired.

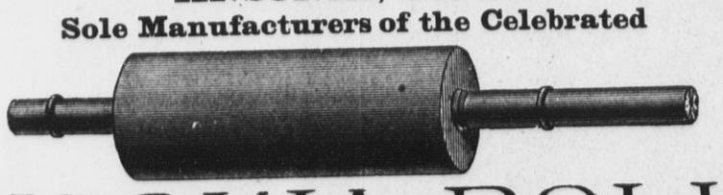
MILWAUKEE BRASS AND COPPER WORKS, MILWAUKEE, WIS.

☞ Send for Circular and Price Lists. Mention this Paper.

Farrel Foundry & Machine Company,

ANSONIA, CONN.,

Sole Manufacturers of the Celebrated



ANSONIA ROLLS

FOR USE IN ROLLER MILLS.

The general experience of American Millers unites in pronouncing these rolls the very best for Flouring Mill use.

These Rolls are now used in all Leading Flouring Mills

Chilled Rolls for Paper Mills a Specialty.

☞ Mention this paper when you write to us.

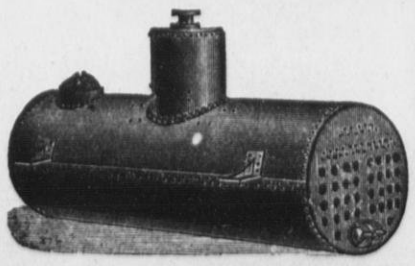
THE JOHN H. McGOWAN CO.

BRANCH HOUSE, 1425 EAST MAIN ST., RICHMOND, VA.

BASS FOUNDRY AND MACHINE WORKS,

Fort Wayne, Indiana.

—MANUFACTURERS OF—



First Class Steam Boilers,

INCLUDING

Locomotive, Upright, Flued and Tubular

—AND—

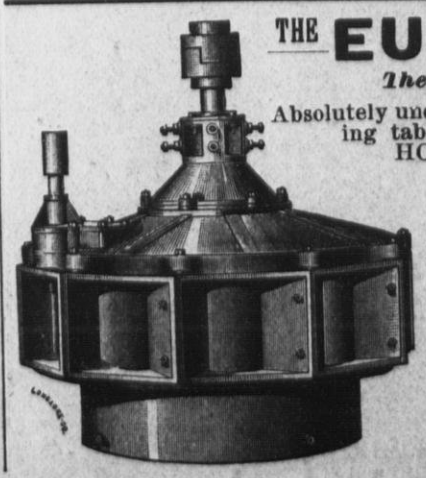
Portable Boilers of all Sizes and Styles.

TWO SHEET BOILERS A SPECIALTY.

Contracts taken for Complete Power Plants. *Prices furnished on Application.*

THE EUREKA TURBINE.

The Best Part-Gate Wheel Ever Built.



Absolutely unequalled in efficiency, is shown by the accompanying table from the records of actual tests at the HOLYOKE, MASS., TESTING FLUME.

PERCENTAGE OF EFFICIENCY.

	Full Gate.	⅞ Water.	¾ Water.	½ Water.
24" Wheel	.8436	.8416	.8202	.8002
24" Wheel	.8206	.7910	.7700	.7003
24" Wheel	.8078	.7578	.7275	.6796
34" Wheel	.8000	.8011	.7814	.6850

No other turbine ever approached the above figures at part-gate.

We publish our part-gate figures. Others significantly omit them.

For Catalogue and information, address

The Allentown Foundry & Machine Co.,

ALLENTOWN, PA., U. S. A.

1876. 1889.

The United States MILLER

AND THE MILLING ENGINEER.

Fourteenth Year.—No. 12. MILWAUKEE, DECEMBER, 1889. Subscription Price, $1.00 Per Year.

STILWELL & BIERCE MFG. CO.

DAYTON, OHIO, U. S. A.

MILLING · ENGINEERS

Manufacturers of the Celebrated ODELL ROLLER MILLS and a full line of

Flour and Corn Mill Machinery.

MILLS BUILT ON THE

ODELL SYSTEM.

Contracts taken for mills of any size, large or small, and results GUARANTEED.

CAWKER'S AMERICAN FLOUR MILL AND GRAIN ELEVATOR DIRECTORY

FOR 1890-'91

(Copyrighted.)

Will be issued about March 1, 1890. Price Ten Dollars. It will be the most complete of any we have yet published, and will possess many new and valuable features. Send in your orders now to be placed on file. No payment required until delivery of the work. Send for descriptive circular.

OUR PROMINENCE with PROGRESSIVE MILLERS

Is Due Entirely to the Excellence of the

GRAIN CLEANING MACHINERY

AND

BRAN · DUSTERS

Which We Have Provided.

DO NOT BE CAJOLED into Buying Inferior Machinery, because the

"Price is within the Reach of All." It is Expensive at Any Price.

TRUE MERIT is Embodied in the

RICHMOND

Grain Cleaning Machinery

AND

BRAN DUSTERS

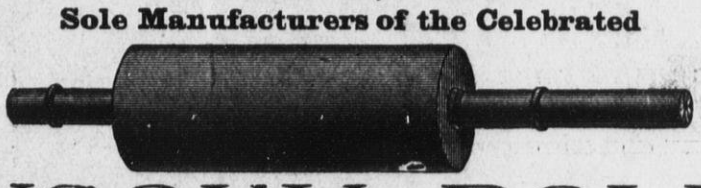
RICHMOND MANUFACTURING CO.

LOCKPORT, N. Y., U. S. A.

Farrel Foundry & Machine Company,

ANSONIA, CONN.,

Sole Manufacturers of the Celebrated



ANSONIA ROLLS

FOR USE IN ROLLER MILLS.

The general experience of American Millers unites in pronouncing these rolls the very best for Flouring Mill use.

These Rolls are now used in all Leading Flouring Mills

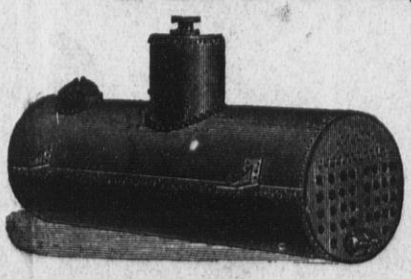
Chilled Rolls for Paper Mills a Specialty.

Mention this paper when you write to us.

BASS FOUNDRY AND MACHINE WORKS,

Fort Wayne, Indiana.

—MANUFACTURERS OF—



First Class Steam Boilers,

INCLUDING

Locomotive, Upright, Flued and Tubular

—AND—

Portable Boilers of all Sizes and Styles.

TWO SHEET BOILERS A SPECIALTY.

Contracts taken for Complete Power Plants. *Prices furnished on Application.*

ESTABLISHED 1846.

J. B. A. KERN & SON,

Merchant Millers,

Capacity 2,000 Barrels Per Day. MILWAUKEE, WIS.

Manufacturers of Choice Minnesota and Dakota Hard Wheat Flour.

RYE FLOUR

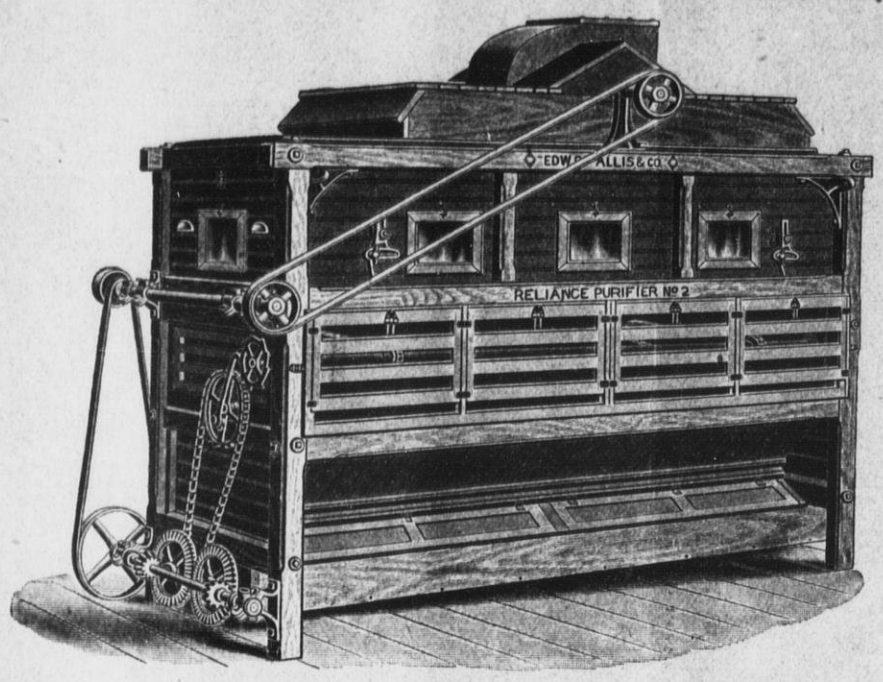
By most approved roller process, guaranteed the best and purest rye flour manufactured

WE INVITE CORRESPONDENCE FROM CASH BUYERS.

EDW. P. ALLIS & CO.

Mill Builders and Mill Furnishers,

RELIANCE WORKS, - - MILWAUKEE, WIS.



SOLE MANUFACTURERS OF

. . . THE . . .

Reliance Purifier.

IMPORTANT NOTICE.

The Principal Features of the RELIANCE PURIFIERS are covered by our own patents, but to afford the fullest protection to our customers we have made arrangements by which it is now Licensed under all the patents of the

CONSOLIDATED MIDDLINGS PURIFIER CO.

This puts it out of the power of Anybody to trouble its purchasers, and backed by the acknowledged excellence of the machine itself, makes it to the interest of every Miller who wants The Best to purchase the RELIANCE.

THE RELIANCE PURIFIER Has been on the market but a short time, but has become a recognized necessity in the best mills, and is used by the Staten Island Mill, New York City, 1,500 bbls ; the Imperial Mill, Duluth Minn., 2,000 bbls.; the Listman Mill Co., La Crosse, Wis., 1,000 bbls.; the C. C. Washburn Flouring Mills, Minneapolis, and hundreds of others.

INDISPUTABLE EVIDENCE.

Office of LISTMAN MILL COMPANY.

E. P. ALLIS & CO., Milwaukee. LA CROSSE, WIS., Nov. 20, 1889.

Gentlemen: We are pleased to state in accepting our mill built by you, after taking ample time to test the same and judging from reports we have had from our flour, we are convinced you have built us as good a mill as there is in America.

Your Gray Roller Mills, Flour Dressers, Centrifugal Reels, Scalpers and Reliance Purifiers give the best of satisfaction, and after ten years of experience in using this class of machinery we are free to say there is no better made.

Wishing you continued success, we remain Yours truly,

Capacity 1000 Barrels. LISTMAN MILL CO.,
Wm. Listman, Manager.

MESSRS. E. P. ALLIS & CO. Milwaukee, Wis. OMAHA, NEB., June 7, 1889.

Gentlemen: We have been running the Purifiers long enough to justify us in saying that the Reliance Purifiers are the most economical and perfect Purifiers on the market. The absence of inside oil boxes is especially worthy of millers' notice in buying Purifiers. There seems to be every adjustment necessary on the Reliance for the perfect purification of middlings, and all adjustments are simple, durable and easy of access. All of our millers say that the Reliance Purifiers are far superior to any Purifiers that they have run.

OMAHA MILLING CO.,
G. E. Russell, Manager.

EDW. P. ALLIS & CO.

Mill Builders and Mill Furnishers,

RELIANCE WORKS, - - MILWAUKEE, WIS.

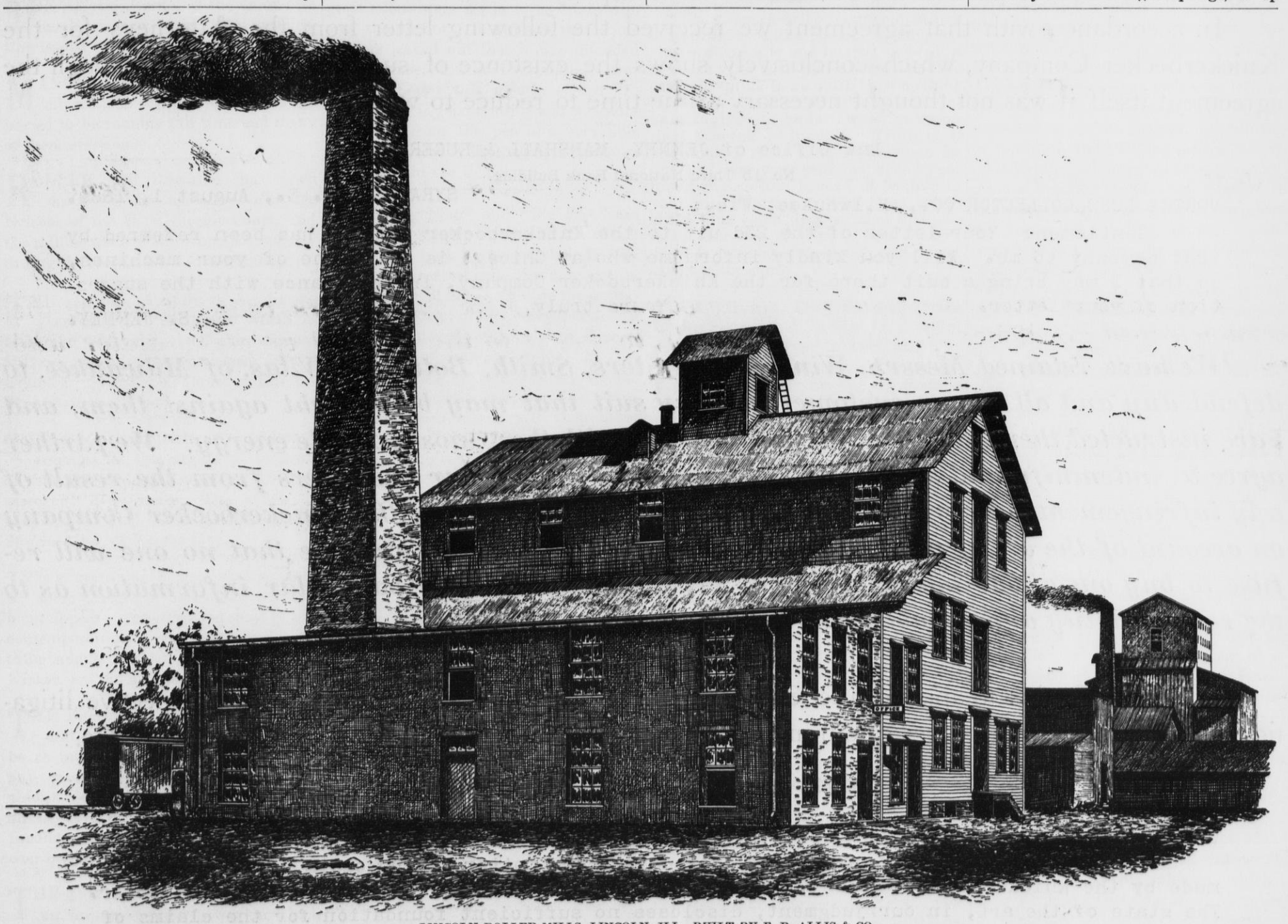
The United States MILLER AND THE MILLING ENGINEER.

Fourteenth Year.—No. 12. MILWAUKEE, DECEMBER, 1889. Subscription Price, $1.00 Per Year.

THE LINCOLN ROLLER MILLS.

THE engraving below represents what is now without doubt one of the best mills in Illinois. The mill was first erected three or four years ago as a 150 bbl. mill by one of the leading mill furnishers, whose expert miller, Mr. M. J. Gordon, resigned his position and became the manager of the new mill. Finding in 1888 that in order to keep up with the times and give them more capacity additional machinery was necessary, the owners placed the mill in the hands of Edw. P. Allis & Co., with instructions to make it a first-class mill of 300 bbls. capacity. Persuant to these instructions a new outfit of 150 bbls. capacity was put in beside of the old one, and the whole was connected together as a 300 bbl. mill, arranged upon the Allis system. The new part contains a complete line of Allis & Co.'s latest machines, including Gray's Roller Mills, Flour Dressers, Centrifugal Reels and Reliance Purifiers. The mill has an established trade to take its products and having a superior equipment, efficient management and abundant capital, its success would seem to be assured. What the owners think of this mill is expressed in the following extract from a letter to Messrs. Allis & Co.:

"The mill you have just remodeled for us is now running and giving entire satisfaction, and we willingly accept the same. The grades of flour and clean-up are all that we could ask. The break rolls have to be seen to be appreciated. We heartily recommend any and all parties wishing to remodel or to build new mills to use your system and line of machines.



LINCOLN ROLLER MILLS, LINCOLN, ILL., BUILT BY E. P. ALLIS & CO.

MIXING FLOURS.

Some Practical Hints on the Subject.

VERY rarely does a flour come just right in to the hands of a baker, it is either better than it need be or it is inferior. To use a flour that is already mixed for the baker allows no leeway in the matter of benefits of competition. Some milling sections afford peculiar facilities for making given styles of flour, but the miller who affords the *perfect* blend of flour that shall suit the peculiar idea of the individual baker, is not yet known; besides, a baker's flour mixture is governed, or should be governed, entirely by the quality of product made by his competitors, which varies from time to time. It is proved in many large bakeries that the ordinary help cannot be trusted at all times to mix and blend various flours by hand. It is much easier and far more natural to the ordinary help to half perform this task. When the design is to use a variety of flour mixtures with a view of manufacturing a variety of products, a machine mixer is a recognized necessity in any well-regulated bakery; for it follows that unless the mixing is systematically carried out, no distinction can be maintained as to variety, and to the perfect uniformity of the bread product from day to day. To turn out something short of what is actually attainable from any given flour mixture is equivalent to sheer waste. Thoroughly sifted flour absorbs and assimilates water the more readily, rendering the product better because of this, besides being more profitable. It is imperatively necessary that the thorough mixing of the flour be done before it is any wise moistened, as no dough mixing can fully accomplish it so well. The assurance that the flour is well and thoroughly mixed to certain and known requirements, permits of better and closer gauging in the rising of the sponges. The importance of this last cannot be over-estimated. Oftentimes a certain kind of flour can be purchased at a comparatively low price, and, to be profitable, it needs to be certainly and well mixed with a flour of another kind, and which other kind may be likewise profitably cheap; but unless one can count on the purchase being well mixed, the advantage possible in such opportunities cannot be utilised. No thoughtful considerate baker will ignore flour mixing, and especially now that competition in the baking business is most rife. To be well fortified with proper equipments that shall be of a practical and an economic benefit, is one of the necessities of the times.—*British Confectioner, (London.)*

THE standard mill shaft in Lancashire, England has enlarged ends for the couplings, these ends being so large that the keyways are not cut so deep as to reach the body of the shaft. The ends are got out, roughed and welded to the ends of a length of shafting, which is afterwards turned up. The enlarged ends demand the use of split pulleys, which is probably a good thing. But these ends multiply the cost of the shafting. If split pulleys were used, thereby avoiding the necessity for removing couplings, it appears as if they could be put on shafts without enlarged ends, so that there would be no danger of a failure to hold.

This is only an outside view of the matter; if Lancashire mill owners prefer to pay the cost of enlarged ends, it is their own business.—*Am. Machinist.*

"As regards home-made bread, there is no stronger reason why people should not make it at home than that they should not make their own dresses, their coats, their boots and shoes, and sundry other things at home; but experience has taught the generality of mankind that those who devote their whole time to a special industry become experts; therefore we have tradesmen, including the baker."

Vortex Dust Collector Co.

To Our Customers and the Public!

In response to the comments and statements made by the Knickerbocker Co., of Jackson, Mich., we are compelled in self-defense to make this reply:

It is true that at a meeting in Chicago between our Mr. Ferdinand Schlesinger, president of the Vortex Dust Collector Co., and Mr. Knickerbocker, the president of the Knickerbocker Co., it was agreed that an amicable suit should be conducted for the purpose of determining the validity of the Knickerbocker Company's claim; and that we should permit a customer of ours to be sued in the Northern District of Illinois for the purpose of determining that question. It was further agreed that until the determination of that suit, our customers and our trade should not be annoyed by any threats or other action on the part of the Knickerbocker Company.

In accordance with that agreement we received the following letter from the Attorneys for the Knickerbocker Company, which conclusively shows the existence of such an agreement, although the agreement itself it was not thought necessary at the time to reduce to writing:

Law Office of JENNEY, MARSHALL & RUGER,
No. 15 Third National Bank Building.

VORTEX DUST COLLECTOR CO., Milwaukee, Wis.: SYRACUSE, N. Y., August 1, 1889.

Gentlemen: Your letter of the 23d ult to the Knickerbocker Company has been referred by that company to me. Will you kindly inform me who at Chicago is using one of your machines, so that I may bring a suit there for the Knickerbocker Company, in accordance with the suggestion of your letter. Yours truly,

E. S. JENNEY.

We have retained Messrs. Winkler, Flanders, Smith, Bottum & Vilas, of Milwaukee, to defend any and all of our customers in any suit that may be brought against them, and have instructed them to defend all such actions with the utmost possible energy. We further agree to indemnify and save and keep harmless any of our customers from the result of any infringement suit, or any other suit whatever, brought by the Knickerbocker Company on account of the use of any machine made or sold by us, and we hope that no one will refuse to buy one of our machines before writing us and getting particular information as to the responsibility and reliability of such guaranty.

We desire further to append a letter received from our attorneys in regard to the prospective litigation, and we consider ourselves safe from any ultimate loss at the hands of the Knickerbocker Co.:

F. C. WINKLER,
J. G. FLANDERS,
A. A. L. SMITH,
E. H. BOTTUM,
E. P. VILAS.

WINKLER, FLANDERS, SMITH, BOTTUM & VILAS,
Counselors at Law.

VORTEX DUST COLLECTOR CO., City.

Gentlemen: We have at your request looked into the matter of the claim of infringement made by the Knickerbocker Company, based upon the manufacture of your Vortex Dust Collector. The state of the art, in our judgment, discloses no sufficient foundation for the claims of the Knickerbocker Company.

We believe that an absolutely impregnable defense can be made in any action for infringement, based upon the manufacture or use of the Vortex Dust Collector, as made by you.

We acknowledge your instructions to appear and defend any and all of your customers in any action brought against them, and will cheerfully act in accordance with your wishes under your retainer. (Dictated.) Yours very respectfully,

WINKLER, FLANDERS, SMITH, BOTTUM & VILAS.

Vortex Dust Collector Co., Milwaukee, Wis.

UNITED STATES MILLER
AND THE MILLING ENGINEER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.

OFFICE, NO. 124 GRAND AVENUE, MILWAUKEE.

SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.

To American subscribers, postage prepaid..... $1.00
To Canadian subscribers, postage prepaid..... 1.00
Foreign subscriptions..... 5s.

All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.

Bills for advertising will be sent monthly, unless otherwise agreed upon.

For estimates for advertising, address the UNITED STATES MILLER AND THE MILLING ENGINEER.

[Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE, DECEMBER, 1889.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER AND THE MILLING ENGINEER. You will thereby oblige not only this paper, but the advertisers.

WE send out a number of SAMPLE COPIES of this issue. We solicit a critical examination of our Journal and invite you to subscribe. The price is one dollar per year. No premiums—no discount. Our January number will contain matters of *special interest* to millers which you will not find elsewhere.

WE wish all our readers a Merry Christmas and a Happy New Year.

THE *Alliance Journal* is the name of a handsome new agricultural publication issued at Montgomery, Ala.

MANUFACTURING establishments in all sections of the country are reported to be running full time and many of them overtime.

ROLLER mill litigation has been occupying the attention of Judge Nelson, of the U. S. Circuit Court, and the milling trade of Minneapolis generally during the second week in December.

THE republic of Chili, S. A., in one year imported $2,219,000 worth of tools and machinery. Of this amount $211,000 worth was purchased in the United States and the balance in Europe. This ought not to be so.

THE *Star*, Kansas City, Mo., of Dec. 5 contains an able argument in favor of that city as a good location for large merchant flour mills. The article is from the pen of C F. Hall, editor of the *Modern Miller*, of Kansas City.

IT is is gratifying to note that a handsome margin of peace and contentment appears to reign among most of our contemporaries. None have said anything about Ananias or "The Arizona Kicker, Jr." for at least a month.

THE Fifty-first Congress has convened and the prospects are that there will be as much legislation attempted as at any previous session. Bills covering almost everything imaginable have already been introduced, but it is safe to predict that not one of a hundred will ever become laws.

THE good people of Bartley Neb., have an improved water-power on which they have expended about $12,000 and they now want some one to build a good flour mill there. The opening is said to be first class. Any one desiring further information should address Bank of Bartley, Bartley, Neb.

IF its members punch up the Millers' National Association, and the Association punches up American Boards of Trade and if they unitedly punch up Congress and Congress punches up the British Parliament, the millers will probably in due course of time get a satisfactory international bill of lading. Gentlemen prepare to punch—PUNCH.

THE Kansas Farmer's Alliance has notified farmers that at present prices corn is cheaper for fuel than coal and have advised them to burn corn. We remember that some years ago Kansas farmers did burn corn extensively for fuel, but before a year was past they wished they had not, for corn advanced to about 70 cents per bushel, while coal was worth but 25. It is dead wrong to burn food anyhow, no matter how prices run.

THE U. S. MILLER has recently been favored with calls from Hon. Alex. Parker, Spokane Falls, Wash.; H. E. Morgan of the *Baltimore Journal of Commerce;* F. W. Howell, Buffalo, N. Y.; P. H. Litchfield of the *North-western Miller;* R. L. Downton of St. Louis; J. H. Russell of Maryland, and a number of others connected with the trade.

THE Richmond Manufacturing Co., of Lockport, N. Y., manufacturers of grain cleaning machinery, recently received a medal and diploma for their exhibit at the Adelaide (Australia) Jubilee International Exhibition. This is an honor not only to the Richmond Mfg. Co., but to American manufacturers. We congratulate the company on their deserved good fortune.

THE London Letter in our November number was, we are informed, quite extensively discussed in Mark Lane and great efforts were made to ascertain who was the author. It appears that some matters leaked out that it was intended should have been kept very quiet. Our London Letter this month, signed "L. Maygrove," is good reading and we desire to say is from the pen of a very able gentlemen, who is thoroughly acquainted with trade in the U. K.

THE "Big Four" and "Big Five" are quietly jogging along with their legal battles and both sides and their friends express themselves as feeling sure to win, The courts will have to decide the matter however, instead of the newspapers. Justice will no doubt prevail and be done in the course of human events. In the mean time the millers who are in the National Association will grind on peacefully and await results with their usual serenity for either way the case goes, they are amply protected.

THE Iowa Railroad Commissioners report that they find it difficult to get desired statistics from railroads operating in that state. As Iowa legislation has in the past few years been everything but encouraging to railroads, it is scarcely to be expected that the railroads would go to much expense to satisfy demands of the Commissioners. It is quite evident that a modification of Iowa railroad laws would benefit the people of Iowa as well as the railroads and there is no class of the community that better appreciates this fact than Iowa millers and grain dealers.

A LARGE amount of stock of The Pillsbury-Washburn Flour Mills Co. Limited, still remains on the London market unsubscribed for. For some reason it appears that British investors were not as anxious to subscribe for a flour-mill enterprise as for some other investments. It is reported that one million dollars have been paid to the mill-owners on account.

Prof. Ciprico has favored Milwaukee for some weeks with a good deal of syndicate talk, and has given the reporters of our dailies lots of inforrmation (?) with which to astound our fellow-citizens. It is said with probably a grain of truth that the syndicate of which Prof. Ciprico is the unsmotherable mouth-piece has secured options upon some Milwaukee mills. Whether the syndicate and the millers will positively make a deal is a question which time alone will tell. No matter what the result is we will still have the mills; and if our millers sell they will have plenty of capital to build more, of the newest pattern, if they see fit to do so.

AS we go to press the announcement is received that the Pennsylvania Millers' Association has voted to ally itself to the Millers' National Association. The Pennsylvania millers are certainly to be congratulated upon the step they have taken. Their Association has never been connected with the National organization until now. Secretary Barry however has succeeded in showing to them the substantial benefits of membership in the National Association in such a light that they have decided to join in the good work. A member will probably be elected at the next session of the State Association's executive committee to represent them in the executive committee of the National Association. We congratulate Secretary Barry on the success of his efforts to create a closer union between state and national organizations. He appears to be devoting his earnest efforts to this end. Only recently the alliance of the North Dakota Association was announced, followed now by that of the Northern Indiana and Pennsylvania Associations. We trust that the good work will go on in this manner until the millers of the entire country work together in harmony.

WE clip the following sensible observation from the editorial columns of the *St. Louis Miller:*

"Always speak well of your competitors or else don't mention them. Nothing excites our curiosity and interest in a fellow so much as to hear him abused—and we generally think there must be something in him or else it would be to no one's interest to give him the devil when he wasn't there to speak for himself. Truth is, if you want to make a fellow's fortune for him and lose your own, just spend your time lying on him instead of tending to your own knitting. While you gossip about him you'll drop stitches that will make your own stocking a poor concern when it is finished, and one that won't keep out the storm."

GEO. WILSON, ESQ., the well-known Rochester, N. Y. miller in a recent interview is reported to have said:

"I think it will be a long time before the Englishmen buy the mills of Rochester. The good mills are not for sale at any price they would care to pay; although every one could doubtless be bought if money enough was offered. The poor mills, they do not want at any price. No, it will be a long time before the mills of Rochester pass into the hands of English owners. "You will notice," continued Mr. Wilson, "wherever the Englishmen have bought American properties they have showed a good deal of shrewdness. They select good paying plants. Then they stipulate that the parties they purchase from shall retain a certain interest, and without exception some of the principal men are retained in the management of the business, At present this talk about English syndicates purchasing Rochester mills is all flour dust."

Bradstreet's (Dec. 7), after summing up the stocks of Wheat at 1000 points east of the Rocky mountains and its returns from west of the Rocky mountoins, concludes by saying:

"So that the total stocks of wheat in the United States, both coasts, on November 30 last were 4,703,882 bushels larger than on a like date one year ago. One month ago the like total was 56,317,796 bushels, as compared with 50,255,007 bushels on November 1, 1888.

Stocks of wheat flour on November 30 last aggregated 1,606,024 barrels, or 60,114 barrels less than on November 2, 1889, but 304,501 barrels less than on December 1, 1888.

Indian corn stocks on November 1 are shown to be 50 per cent. larger than the official report admits, oats stocks 44 per cent. larger, barley stocks 33 per cent. larger, and stocks of rye 25 per cent. larger. Stocks of corn decreased 1,575,406 bushels during November, or 14 per cent., and stocks of oats 3,291,688 bushels, or 26 per cent. Stocks of barley increased 1,395,117 bushels, or 52 per cent., and rye 7,003 bushels, or less than one-half of 1 per cent."

Exports of wheat (and flour as wheat), both coasts, for the current week equal 2,327,342 bushels, as compared with 1,708,732 bushels last week and 1,637,455 bushels for the first week in December, 1888. From July 1 to date total exports (wheat and flour as wheat) have been 44,851,855 bushels, against 47,000,000 bushels in a like portion of 1888 and 68,000,000 bushels in 1887.

THE MILLERS' NATIONAL ASSOCIATION.

WITH a persistence which in a more truthful and innocent cause would be admirable, the milling journal that stands nearest to Secretary Barry is brandishing over the heads of the millers that ancient argument about joining the so called Millers' National Association in order to escape liability to infringement suits. Esteemed contemporary, the whip will neither cut nor crack. Millers cannot be stampded into joining for protection's sake an association which has in its treasury barely enough money to pay one second rate retainer.—*The Roller Mill.*

We suppose the above clipping from our contemporary refers to this journal. The *Roller Mill* errs. We have no desire whatever to *drive* any miller into the Association, even if we could. An unwilling member would be more of a drawback than a benefit.

We believe it to be advantageous for millers to join the Association voluntarily for their business interests. Patent matters are only one feature, but in that they can defend or compromise infringement suits on the co-operative plan at a trifling expense to each member. A committee at little cost can look after transportation matters and generally secure concessions that will benefit the whole trade. Another committee can look after legislative matters in Congress or State legislatures and secure the passage, amendment or repeal of laws affecting the trade, that no individual miller could secure, no matter how great his prominence. Matters of vital importance to exporting millers, such as a proper bill of lading, can only be attended to and secured by representatives of an organized body such as the Millers' National Association. The same may be said of other matters affecting our export trade to be brought before the Government departments or before foreign commercial bodies. Annual conventions, devoted partly to business and partly to social intercourse are beneficial for one reason if no other. Millers from different sections of the country become acquainted and quietly talk over any matters which interest them.

We believe that every miller in this country for his own good ought to become a member of the Association—(it costs but little) and we believe if our contemporary would take the trouble to visit or write to Secretary Barry, that he would learn that the Association is by no means as weak in numbers or representative capacity as he evidently thinks it is, and that it will compare favorably with similar organizations in other industries. As a matter of *fact*, to-day the aggregate capacity of the mills holding membership in the National Association is *larger than at any time since its organization.* As an evidence of the healthy growth of the Association, it is a fact that more than thirty per cent. of the members to-day have joined during the years 1888—89. This statement, which is strictly true, may not be entirely consoling to certain milling journals that have spared no pains to "down" the Association and its officers.

As we understand it the Association is the friend and not the foe of the patentees. Its members are anxious to secure the best machinery possible at bottom prices. The Association, we believe, is in as thorough working order to-day as it ever was at any time in the past, and according to the last report of its treasurer there was more money on hand than there was present use for and sufficient for any reasonable contingencies, and it has not been necessary to levy an assessment for seven years. We take more pleasure in seeing good things built up than we do in attempting to destroy them, and for that reason have added our efforts to those of others to perpetuate the Millers' National Association.

NEW SCALPING AND DRESSING MACHINE.

KRIESS' PATENT COUNTERDRESSING OR SCALPING MACHINE.

MR. EUGENE KREISS, of Hamburg, Germany, has recently patented an improved dressing machine, which he calls the "Gegenflachen Sichter," or counterface dresser, and of which we give sectional illustrations.

As may be seen from the accompanying cuts, the machine consists of a strong wooden frame *a*, with two chests, containing the vertical sieve frames and surfaces *b*. These chests make the same, or counter movements swinging to and from the center of the machine; they move either against the middle or in the opposite direction, thus preventing any vibration. The chests are guided in iron rails, and move very quickly by means of an eccentric shaft and bars. The shaft has, of course, four eccentrics, two for each chest, and four bars, and has two swinging wheels, one of which is at the same time the driving pulley (of two diameters) for different speeds. The material is fed to the machine by means of a distributing sieve, above the vertical sieves in each chest, and is thrown from one surface to the other while descending, in a zig-zag fashion. The shaft runs at 800 to 900 revolutions per minute, or less. The good heavy particles of flour are thrown against the silk, while the light impurities remain suspended in the air. The quality of the work is, therefore, enhanced, and experience shows that the flour is of a very superior quality. The vertical sieve frames, within which the fine flour falls down, are divided by three inclined bottoms into three compartments *c*, and the flour flows through the openings *d*, in the side walls of the chests and sieve frames, into the lengthwise channels *e*, and finally on to the end of the chests, and is discharged; while the tailings fall out from the inclined bottom (*f*) of the chests. The feeding and traveling of the material is hence effected by the shaking motion of the inclined channels.

There are, of course, three outside channels on each side of the chests, one above the other, and hence each chest gives on each side three grades, and a fourth as tailings; therefore, in all, eight grades per chest from the one material. The three, or six, outside channels communicate into two vertical tubes, so that, at will, the three or six grades can be mixed together, or drawn off separately.

The fore sieve, when used for "breaks," has three horizontal sieve frames in each chest, which give two grades each, viz., the next break and coarse middlings. Each chest, therefore, gives, as required, up to ten separations, and the whole machine twenty separations: the machine can also be used for two different products, as well as each chest for two products, by a division placed lengthwise. The sifting effect can be regulated by using a distributing sieve, of suitable perforation, and using more or less of the whole silk surface, by placing a simple wall or division above the distributing sieve, or by using different eccentrics. The normal eccentric, of throw, is 30 millimetres, equal to about 1 inch.

The dressing increases the faster the machine runs, and as the material falls down in a zig-zag fashion, only one surface is sifting, the counterface creating a suction wave of air, which is still increased by the pressing air wave of the sifting surface. The dressing is thus effected *against* air currents, or air pulsations—wind waves—which retain the bran and impure particles. Each chest has six sieve frames, each of which has about one-and-half square metres free silk surface. The whole machine (both chests), therefore contains 18 square metres of silk surface; the whole length is 4¼ ft., the width 2¾ ft., and the height about 5 ft.

The machine is driven by a 2-in. belt, and requires less than 1-10th h. p.; the capacity per hour is about 50cwt., and even much more, according to the nature of the material and the requirements.

The use of this new machine in the milling process is shown in the following table which refers to fig. 3.

This table shows the use for a high grinding process, and it is self-explanatory. Fewer separations can be obtained by uniting the different channels as mentioned before, so that the machine is suitable for every kind of milling method, from the highest to the lowest style of grinding.

FEED MATERIAL.

	Reference Letters in Fig. 3.	Break Reductions. Products.	Finished Grinding. Products.	Grading Middlings. Products.	Grading Dunst Products.	Flour Dressing. Products.
	a	Feeding spout				
	b	Next break				
	c	Coarse middlings		Coarse middlings.		
Flour	*d*	Flour				
Flour	*d1*	Middlings	Flour	Midd ings 6 grades	1.	Flour.
Flour	*e*	Flour				
Flour	*e1*	Middlings			2.	
Dunst	*f*	Dunst	Dunst			
Dunst	*f1*	Middlings			3.	
Tailings	*g*	Tailings / Middlings				
Tailings	*g1*	Tailings	Tailings	Tailings	Tailings	Tailings.

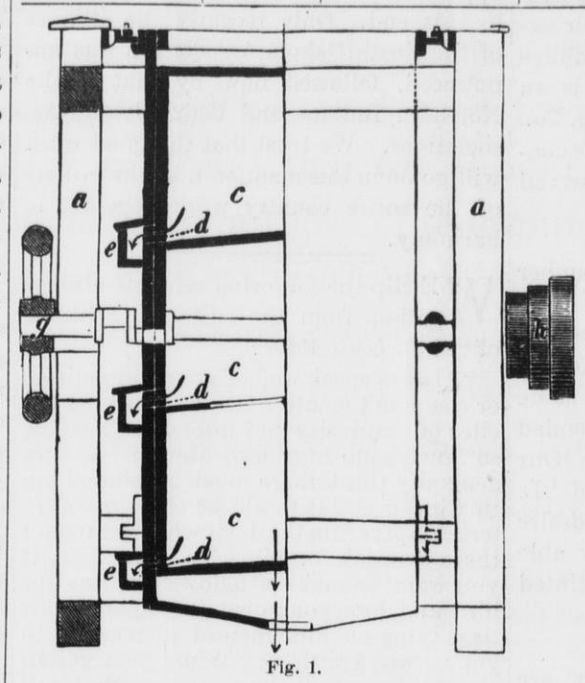


Fig. 1.

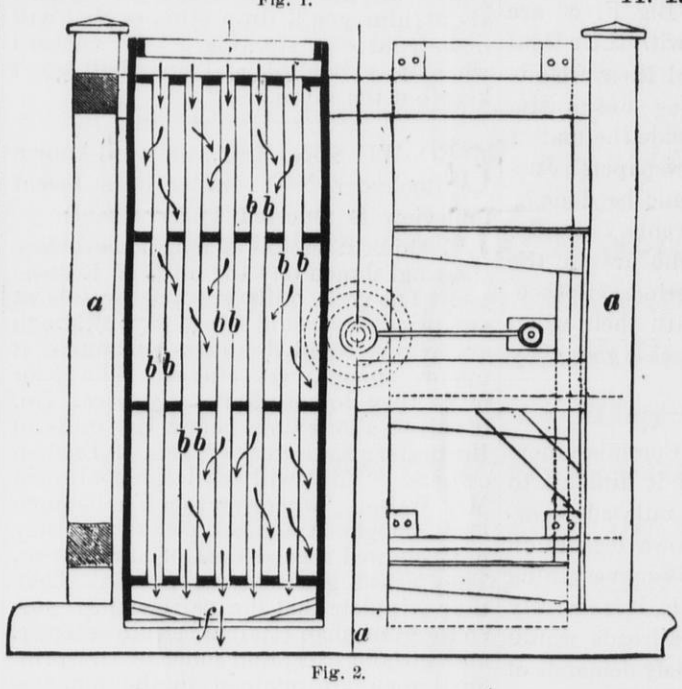


Fig. 2.

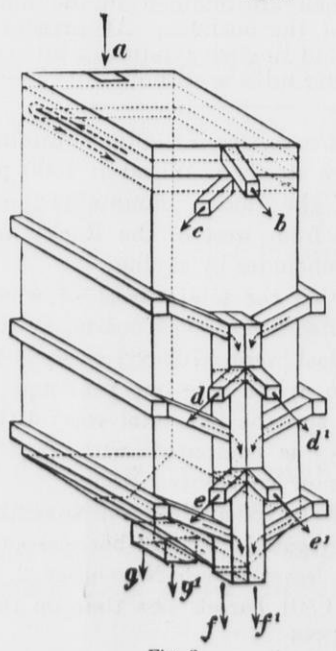


Fig. 3.

KREISS'S PATENT COUNTERDRESSING OR SCALPING MACHINE.

The inventor, to whom we are indebted for the above particulars, claims for his machine the following advantages:

1. Largest capacity, because (*a*) largest sieve service in smallest space, and (*b*) the whole surface utilized; (*c*) the capacity proportional to speed, (*d*) which is much higher than in horizontal sieves, and (*e*) the material is very finely distributed, mixed with air, so that all of it in the best manner touches the silk as frequently as possible.

2. Superior quality, as it is bolting on a perfect principle, retaining the impurities, purifying the flour by air pulsations, and giving sharp flour, as coarse particles are thrown through the meshes, and do not slide upon the silk.

3. As a flour dresser or flour purifier the machine is quite a new thing.

4. Absolutely clean tailings, which is a very important point.

5. A much larger percentage of fine flour.

6. No clogging of cloth; the only machine which has overcome this evil.

7. No material wear of the silk, which is not charged by the material, but the latter is suspended in the air. The silk will last for years.

8. Very gentle action upon the material.

9. The power to drive is almost *nil*, as it is hardly one-tenth h. p. per machine. The power saving is therefore about 95 per cent. against most other machines.

10. Can be applied to any material with equal results.

11. Replaces a complete system of scalpers, graders, flour dressers, centrifugals etc.

12. Utmost simplicity of construction and operation of the machines. Easy changing of sieve frames.

13. Enormous saving of space, 75 per cent. or more.

14. No dust, no loss by dusting.

15. No wear, no cost of repairs.

16. No cost of erection, as the machine is complete and ready to work.

17. Saves in shafting, etc., as the power to drive is very little, and the machine is very small, so that shafting can be shorter; also saves in belts, lubricating, etc.

18. Less danger of fire or dust explosions which often pass through reels and centrifugals.

19. The milling process can be shortened.

20. The low price compared with the capacity and advantages.

21. Great saving in first plant cost and general expenses.

22. No vibration; the machine stands like a centrifugal, and is quieter in working than a purifier.

This machine has been tested continuously since January, and has been improved so that it is now offered to millers as effecting a perfect revolution in milling.

The machine is patented in the following countries: Germany, Austria-Hungary, Russia, Poland, France, Belgium, Italy, Sweden, Denmark, Norway, Switzerland, Luxemburg, Spain, Great Britain, United States of America and Canada.

TRADE NOTES.

THE VORTEX DUST COLLECTOR CO., of this city report a good steady trade on Dust Collectors, both from millers and millfurnishers.

THE UNION IRON WORKS, Decatur, Ill., are driven to full capacity in endeavoring to supply the country with their Western Mill Cornsheller, Cleaners, Separators and elevator machinery.

E. P. ALLIS & Co., have just received from F. Wildermuth & Bros., a cable order for a complete outfit for a 40 bbl. mill which is to be erected as an exhibit at the Buenos Ayres Exposition, which opens next Spring.

THE MENASHA WOOD SPLIT PULLEY CO., has increased its capital stock from $30,000 to $50,000. This company has met with wonderful success from the very beginning due, of conrse to the value and adaptbility of the articles they manufacture.

THE H. J. Deal Specialty Co., Bucyrus, Ohio, have furnished the Imperial Roller Mill Co., Duluth Minn, their celebrated Clipper baking test for flour. They are having quite a successful trade on this, and in fact have it in use in the leading and best mills throughout the United States and Canada, as well as foreign countries.

THE COCKLE SEPARATOR MFG. CO., of Milwaukee, Wis., report recent orders from the following parties: Stokes Bros., Watertown, Dak.; Foote Bros. & Co., Oshkosh, Wis.; C Holch, Wilton, Wis. (Cockle Separator, Morgan Scourer, Pulleys, Bolting, Etc.); Weisel & Vilter Mfg. Co,, Milwaukee, (large Morgan Scourer); A. J. Gove, San Francisco, Cal.; Chas Kaester & Co., Chicago, Ill., (large Morgan Scourer); S. T. & R. Coman, Fox Lake, Wis.

THE SUPERLATIVE PURIFIER MFG. CO., of Milwaukee, report recent orders for New Era Scalpers from the following parties: L. G. Green, Hudson, Wis.; Dr. C. G. R. Moutoux, Kasson, Ind.; C. A. Pillsbury & Co., Minneapolis, Minn., 4 machines (for Palisade Mills, making 25 in use in that mill); Minneapolis Flour Mfg. Co., 3 machines (Standard Mills, making 10 in use in this mill); Rosemalt Works, Waukegan, Ill., (20 machines); Geo. Fox, Lockland, O.; Asa Knott, Walkerton, Ind.; Kehlor Bros., St. Louis, Mo.; Newton House, Elwood, Ind.; Walton & Whisler, Atlanta, Ind.; Kansas City Mill Co., Kansas City, Mo., (two sieve machines.)

CATARRH,

CATARRHAL DEAFNESS—HAY FEVER.

A New Home Treatment.

Sufferers are not generally aware that these diseases are contageous, or that they are due to the presence of living parasites in the lining membrane of the nose and eustachian tubes. Microscopic research, however, has proved this to be a fact, and the result of this discovery is that a simple remedy has been formulated whereby catarrh, catarrhal deafness and hay fever are permanently cured in from one to three simple applications made at home by the patient once in two weeks.

N. B.—This treatment is not a snuff or an ointment; both have been discarded by reputable physicians as injurious. A pamphlet explaining this new treatment is sent free on receipt of stamp to pay postage, by A. H. Dixon & Son, 337 and 339 West King street, Toronto, Canada.—*Christian Advocate.*

Sufferers from Catarrhal troubles should carefully read the above.

CALIFORNIA & MEXICAN TOURS,

Via the Queen & Crescent Route, have been appreciated by hundreds who have been carried across the continent with comfort to the Pacific Coast or to balmy Mexico via Lookout Mountain, New Orleans and the Sunny South, without breaks or detention, escaping the rigorous winters and the discomforts of snow blockades of the more northerly Routes. This line, appreciating the generous patronage it has received, has still further improved its train service, and are now running a through Tourist Sleeping Car from Central Union Depot, Cincinnati, to Los Angeles and San Francisco *without change.* These Tourist Sleepers are furnished with pillows, sheets, comforters and every thing necessary to the comfort of the traveler at a very small cost. The run is made through to the Pacific in 5 days. These Tourist Sleepers leave on the following dates at 8 p. m.: Nov. 6th and 20th; December 4th and 18th; January 8th and 22d; February 5th and 19th; March 5th and 19th; April 2d and 16th; May 7th and 21st. Two Express Trains leave daily via this line, making close connections at Shreveport and New Orleans for Texas, Mexico, California and the Far West. Ask your Ticket Agent for tickets via Queen and Crescent Route. Geograpically correct County maps of Kentucky, Tennessee, Alabama, Mississippi and Louisiana mailed free to any address on application to D. G. Edwards, G.P. &T.A., Cincinnati, O.

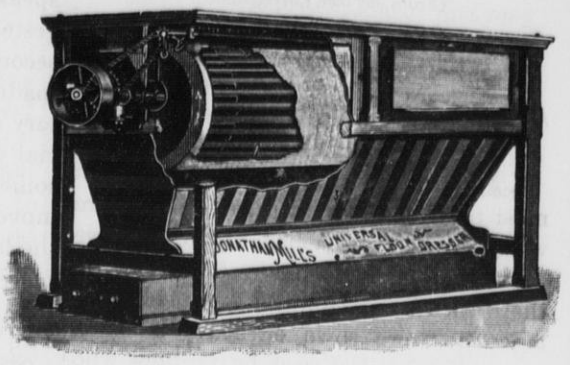
MILLERS

OF THE UNITED STATES AND CANADA.

Write us for our new pamphlet and revised price list of our Jonathan Mills UNIVERSAL FLOUR DRESSER. The best machine on the market. Giving satisfaction everywhere in the best mills in the country. Thousands in use. We carry a full line of Crown Silk Anchor Bolting Cloths and Grit Gauzes.

THE JONATHAN MILLS MFG. CO.,

COLUMBUS, OHIO, U. S. A.



WE SOLICIT YOUR TRADE.

READ THE RESULTS OF USING

THE·NEW·ERA·SCALPER

RESULTS GUARANTEED.

TRIAL ALLOWED.

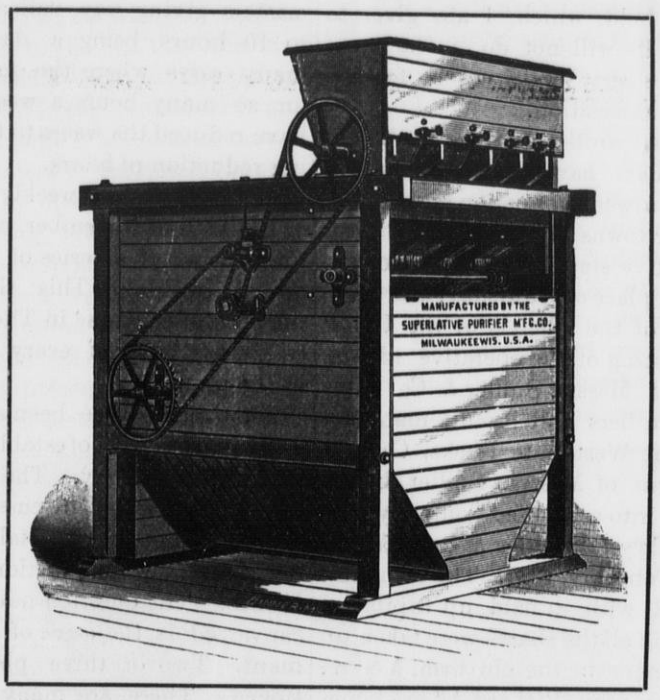
Office of CEDAR FALLS MILL CO.,
CEDAR FALLS, IA., Nov. 29, 1889.

SUPERLATIVE PURIFIER MFG. CO., Milwaukee, Wis.:

GENTLEMEN—We have been using your New Era Scalper on our breaks now for over one month, and we are very much pleased with them. They are a great saving of power; are very simple; require no more attention than the reels we took out. The capacity is astonishing; the action on the stock is very gentle, causing no scouring or pulverizing of stock, as was the case with the old reels. Consequently an improvement in the color of the Bakers, and a large percentage of Patent, and less Low Grade. Therefore, we consider them a great success.

W. A. DUGANE, Superindendent.
WM. EMERSON, Head Miller.

One machine will handle four breaks in a 75 bbl. mill, or one break in a 500 bbl. mill.



Does not scour the bran, giving higher percentage of Patent flour. Occupies but small space and requires little power.

Office of H. W. STONE & CO.,
MORRIS, MINN., Nov. 23, 1889.

SUPERLATIVE PURIFIER MFG. CO., Milwaukee, Wis.:

GENTLEMEN—We enclose.....to balance account. As regards the Scalper, we are well pleased with it. We are now making 80 per cent. of patent, 5 per cent. of which is to the credit of your machine.

Yours truly, H. W. STONE & CO.

Works equally well on winter or spring wheat in long or short system mills. Also works well on break chop.

FOR CIRCULARS, ETC., ADDRESS

SUPERLATIVE PURIFIER MFG. CO., - MILWAUKEE, WIS.

Condemnation · of · Competitors

IS THE MEASURE OF SUCCESS.

I CHALLENGE the wheat heater concern advertising their heater as "replacing the Welch" to publish the terms on which the Welch Wheat Heaters are replaced. I could replace any other make of heater by allowing a big price for it and selling mine low, which is equal to paying a bonus.

The "Welch" is fully guaranteed, sold on its merits and used more than any heater on the market.

823 SECOND ST.,
ST. LOUIS, MISSOURI. A. B. BOWMAN.

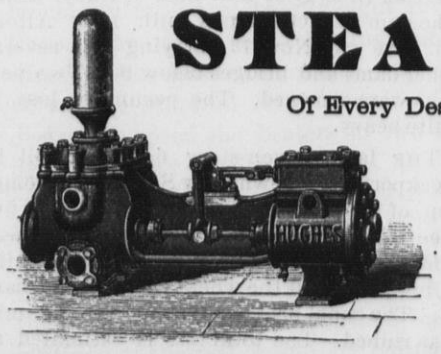
Hughes Bros. Steam Pump Co.,

CLEVELAND, OHIO.

Builders of Single and Duplex

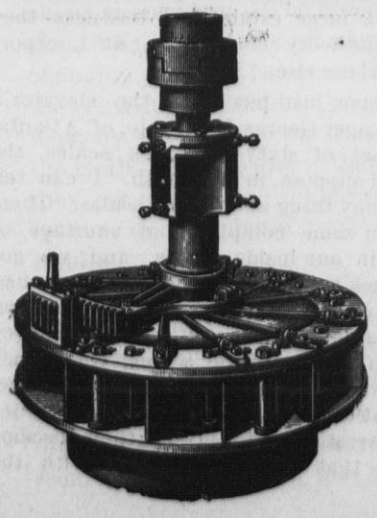
STEAM * PUMPS

Of Every Description for all kinds of Work.



Satisfaction Guaranteed

Send for 1889 Catalogue.



Leffel Water Wheel

Made by JAMES LEFFEL & CO.

The "OLD RELIABLE" with Important Improvements, making it the

Most Perfect Turbine now in Use.

Comprising the LARGEST and the SMALLEST Wheels, under both the HIGHEST and LOWEST Head in this country. Our New Illustrated Book sent free to those owning water power.

Write us for NEW PRICES before buying elsewhere. New shops and New Machinery are provided for making this Wheel. Address,

JAMES LEFFEL & CO.,

Springfield, Ohio, or 110 Liberty St., New York.

* THE *

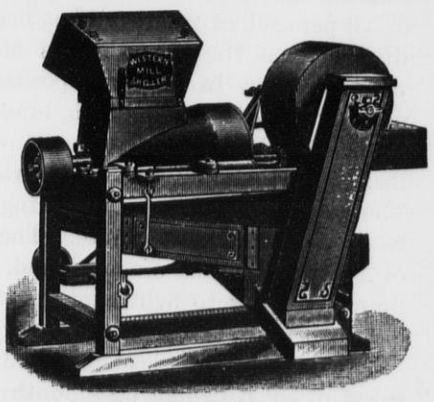
"WESTERN"

MILL SHELLER.

The most Compact, Durable, Best Sheller and Best Cleaner.

Takes up but little room, runs at low rate of speed, requires no attention. It is in every respect the

Best Sheller ever offered to the Public.



Please mention this paper. Write for full particulars to

UNION IRON WORKS, - DECATUR, ILL.

Mfrs. of "Western" Shellers, Cleaners, Separators, and all kinds of Elevator Machinery.

FOR SALE AND TO RENT.

[*Short ads. inserted in this column for $1 per insertion.*]

FOR SALE OR LEASE. Mill site and improved water power for sale or lease on good terms, or will turn the property in and take partnership in flour milling business with a practical man who can furnish additional capital required. Address,
F. P. BLAKE, Canon City, Colo.

FOR SALE. GRAY'S HARBOR. Having come into possession of a flour mill, and being wholly unacquainted with the business, I desire to sell either a part or the whole of the property. It is the only flour mill in this, Gray's Harbor, region, and has a good custom and merchant business, which is rapidly increasing. It requires a man who understands handling a merchant and custom mill. There are fifty-one acres of excellent bottom land included in the property. First-class water power.
Address REV. HIRAM F. WHITE,
Elma, Chehalis Co., Wash. Ter.

PARTNER WANTED. A practical miller, owns a first-class water-power in Dunn County, Wis. It has rock bottom and rock banks. It is worthy of careful inspection. No mill within 20 miles. Would be plenty of custom trade. The owner has not sufficient means to build a mill and wants a partner with from $4,000 to $6,000 to take an interest with him. If you mean straight business, write or come and see A. BELLACH,
Red Cedar Falls, Dunn Co., Wis.

MILLWRIGHTS WANTED. A head millwright, competent to take charge of large work; also millwrights to work under leader. Long job to satisfactory parties.
Address, THE ROSEMALT WORKS,
oct3t Waukegan, Ill.

READ
THE
NEW YORK
Daily Commercial Bulletin

Its reputation as the most reliable commercial paper is conceded by all.

Sample Copies Free.

Its markets Reports are the most complete and trustworthy of any published and cover all trades.

Save Your Money

by subscribing to the "Daily Commercial Bulletin" and read its reports of the New York Markets.

PRICE:

	Per Year.	Six Mos.
Daily.	$12 00	$6 50
Tri-Weekly.	6 75	3 50
Semi-Weekly.	5 00	2 75

ADDRESS:

New York Daily Bulletin Association,

No. 32 Broadway, - NEW YORK CITY.

IF you are about to build write to the UNITED STATES MILLER for a copy of "Practical Low Cost Houses," and enclose fifty cents in stamps. It will help you.

(*From our own Correspondent.*)

OUR ENGLISH LETTER.

LONDON, Nov. 30, 1889.

THE rain, snow and severe frosts of the last few days, have interrupted the work on the land in most parts of the country, and the severe weather may have come too soon for those farmers who have not yet put up all their wheat. However, considerable breadths were sown on heavy lands in many districts last week by farmers who were unable to work the land in October on account of its wet condition. A further period of dry weather would have been welcomed by some farmers, although it was not to be expected after three weeks of settled dry weather.

Sowing began very late this year in most parts of the country, and may have been prematurely brought to an end in some cases, so that the probability is that the area of wheat for next harvest is smaller than ever, as the inducement to sow that grain is not strong enough to prevail against any considerable difficulties. Many a field which would have been planted with wheat if the work could have been done well in good time will be left for barley or oats. It is always so in the late seed-time, even when the price of wheat is much more tempting than it is now.

During the past three weeks there has been a healthier tone in the wheat trade, and values generally show a decided improvement, with more doing. English wheat is being sold at 28| to 30| red, 30| to 32| white, but fine lots sell at 34| red, 36| to 37| white. Flat maize is 19|9 ex. ship, round 21|6 ex. quay. English malting barley lower, fine foreign, firm and higher for Algerian. Feeding sorts tend upward. Foreign wheat has been neglected by buyers who do not wish accounts to fall due during the Christmas holidays. New Australian wheat is being offered at 35| to 35|3 c. i. f. Although the top price flour has gone down to 33| per sack of 280 lbs. it has made no difference to the other brands of flour which are now in a strong position, especially English. The best brands of Hungarian have advanced to 40| per 280 lbs., and I should not be surprised at The top price millers advancing next week if this frost continues. The price of American is not much altered, as the flour has now to fight hard to get to its old position of two years ago.

The imports of wheat and flour into the United Kingdom last month (October) were only about two-thirds of the quantity received in October 1880. For the two months of the cereal year, ending with October, the quantities of grain and flour imported was as follows—two months import of grain and flour:

		1887.	1888.	1889.
Wheat,	qrs.	1,932,931	2,941,283	2,343,777
Flour as Wheat,	"	968,982	927,660	735,902
Total as Wheat,	"	2,901,913	3,868,943	3,079,679
Barley,	"	723,011	906,393	1 128,252
Oats,	"	952,376	1,206,246	1,008,587
Maize,	"	906,997	1,084,214	1,272,053

Next year, it is to be hoped, we shall hear the rights of the case—the Indian wheat question—from Voelcker, chemist to the Royal Agricultural Society, who has obtained leave of absence for a year, and is leaving England immediately in order to undertake, on behalf of the Government of India, an inquiry into the scientific methods by which Indian agriculture may be improved.

On November 13th a council meeting of the National Association of British and Irish Millers took place at their office, 61 Mark Lane, London, E. C., and from what I can learn from one of the west of England members who attended, it was the largest gathering at the council meeting that he had known. A large amount of business was got through and at the close of the session a motion was brought forward by one of the ex-presidents. "that the services of their present Secretary should cease, after the expiration of the present year. This motion was seconded and supported by two more speakers, when an amendment was suggested and adopted by the mover and seconder of the motion, which was then made to read, "that the present secretary's services should end with the financial year, namely, April 30th next. After some discussions an amendment was moved and seconded that "on account of the lateness of the hour this matter be placed first on the program for consideration at the next meeting of the council." The mover of the resolution not being willing to give way, the amendment was put to the meeting, when it was found that seven councilmen voted for it. The motion was then put and seven councilmen voted for it also. The chairman was then called upon to give his casting vote, which he did for the amendment, so that at the next council meeting the matter will be fully debated upon, unless the Secretary resigns before the next meeting is held, which, I am given to understand, he will not do, as he is of the opinion that it would not be for the good of the association.

Since I last wrote, meetings of the operative millers have been held two or three times a week in London and several of the larger towns in the north and west. The first active steps on the part of the Union, took place on Thursday, last week, when one of the officials of the Union called a meeting of the operative millers, employed at Messrs. Spiller & Co. Limited, flour millers and biscuit manufacturers of the West Bate Docks, Cardiff. The old firm of Messrs. Spiller & Co. was formed into a Limited Company, under the style of "Spiller & Co., Cardiff Limited," February, 1887. The company was formed with a paid up capital of £415,000, and all the shares were taken up by the partners in the old firm, Messrs. Charles Thompson, Richard Allen, James P. Thompson H. N. Thompson a few of and their relatives and clerks. The firm has done remarkably well since its formation and have been producing in their three mills, abutting on the West Docks, as much as 8,000 sacks of flour per week. Between 400 and 500 persons are employed at the mills. They have become dissatisfied with their wages, although they are even higher than other mills on the west coast, and have come out on a strike. The climax was reached last Thursday week, when a deputation waited on the members of the firm, who, however, would not see the men. The same afternoon, after a consideration, the members of the firm posted up in their mills an offer of a bonus of £1,200, to be divided between the men employed in the mills next May, but if any went out on strike they would forfeit the right to their share. The men, however, came out on strike a day or two ago and from a conversation I had with some of them on Wednesday last they seemed determined to abide by the demands they have made for a reduction of the hours of labor from 60 to 54 hours per week and a slight increase of wages. The men are receiving a great amount of public sympathy and the feeling in their favor is accentuated by the fact that Messrs. Spiller & Co. are said to have made a profit last year of something like £135,000. The masters have expressed their determination not to employ any unionists, and are already advertising for hands to take the place of those on strike. However, no laborers have yet been found to discharge ships laden with grain consigned to Messers. Spiller & Co., and with the exception of one mill, which is kept going by over men and others who do not belong to the Union, the immense works are at a standstill. Last Wednesday an advertisement appeared in a Birmingham paper from Messrs, Spiller & Co. for millers, laborers, etc., and on it becoming known to the strikers they promptly telegraphed another advertisement to the paper, warning working men elsewhere to keep away from Cardiff while the strike was pending. The strike is causing dislocation of trade in Cardiff. Three grain vessels were left partially discharged by the dock laborers, who have resolved to make common cause with the men of Messrs. Spiller & Co. On Wednesday another vessel arrived for the same firm, but no one has attempted to unload it. Fifteen trucks of English wheat are on the Great Western Railway siding, but they cannot be moved as there is no room on the mill siding. This is the first great step taken by the millers to obtain an amelioration of the condition under which they work and the result is being watched with great interest throughout the country. Large demonstrations of the men have been held every day since Wednesday, when the principal streets were paraded with flags, banners and music. The strike of the bakers in London, which occurred a week ago, is practically at an end, the masters giving way "all along the line" to 10 hours being a day's work. In many cases where the men were paid for so many hours a week, the masters have reduced the wages to the corresponding reduction of hours.

The Miller, in its weekly market issue of the 18th of November, commenced the publication of a series of special articles on oil milling. This the proprietors purpose to continue in The Miller Weekly Market Issue of every third Monday in the month.

A movement has been started in London with the object of establishing a Jewish agricultural colony. The Anglo Jewish Association, which discussed the matter at its last meeting, has taken the scheme in hand in conjunction with Baron Hirsch. The question now being eagerly canvassed is the *locale* of the new settlement. Two or three places are mentioned. There are many ardent spirits that look with longing eyes to Palestine. While the claims of the latter are not overlooked, the London correspondent of the Manchester Guardian is told that if the object is really carried to a successful issue—and there is every possibility that it will be—British North America will probably be selected. The project is by no means restricted to England. It will, indeed, be international in its scope. Details are not yet decided upon, but the Jews here are endeavoring to secure the co-operation of their co-religionists in every part of the world. Of the fund that will be required, it is stated that Baron Hirsch and Lord Rothschild have provided a substantial nucleus. An interesting account of the agriculture of the Chinese Province of Kiangsi is given by Acting Consul Hurst. It is well watered by the Kaw and other rivers. The province is generally fertile. Tea, wheat and rice are the principal products, the first two being Spring crops, the last a Winter crop. Other Spring crops are barley, beans and peas, and among the Summer and Autumn crops are millet, maize, cotton, hemp, sesamum, indigo, sweet potatoes and yams. Wheat is reaped in the latter part of May. It is first threshed with bamboo flails, and afterwards dressed roughly and ground between millstones, revolved by the labor of men or bullocks. After the wheat has been harvested the land is at once broken up by plows and harrows, drawn by oxen or buffalos, for rice. Usually a quantity of lime is scattered over the ground, which has been first irrigated, and the land is then manured and harrowed well, after which the rice is sown. A fair crop of rice is a ton and a quarter per acre. The rice grown in the province is barely sufficient for the wants of the population. The farms vary in size from one acre to eight acres, and are in all cases tilled by the owners and their families. The people are generally poor, living from hand to mouth; for, although the land is fertile and taxation light, they show no enterprise and do not organize for mutual advantage. Each family is almost self-supporting, growing its own fruit and making its own clothing. Beyond these necessaries the people have few wants and they do not exert themselves to improve their condition.

The Board of Agriculture have published some extracts from valuable French agricultural statistics, prepared by the Minister of Agriculture, in connection with the Paris Exhibition. Among the most interesting details are those showing the gradual advance of wheat production in France during the last hundred years. In 1789 it is stated there were 10,000,000 acres of wheat, producing 85,250,000 bushels. The decennial averages since that year show a constant increase, up to a production of 300,995,000 bushels from 17,395,500 acres, attained as the annual average for the decade ending 1888. To complete the century I will take the figures for the present year from the latest official estimate of the crops of 1889, namely, 315,000,000 bushels from 17,978,595 acres.

L. MAYGROVE.

NEWS.—The Chicago and Northwest Graineries Co., Limited, is the name of the new company that has purchased the Munger Wheeler Elevators in Chicago and it is stated that an opposition elevator combine will be organized.

S. L. HOBART, miller at Carthage, Ill. is dead.

BURNED, Dec. 15, the Exchange elevator, Buffalo, N.Y., with 250,000 bushels of barley.

AT New Concord, Ohio, Nov. 24, H. O. Wylie's grist, mill was burned. Loss, $7,000.

BURNED—Stevens & Van Dusens corn and feed mill at Lockport, N. Y. burned recently. Slightly insured.

THE Northwest Milling & Elevator Co. is the name of a company that will build a mill at Regina Man.

KEHLOR BROS. large flour mill and elevator at Edwardsville, Ill. burned Nov. 26. The loss is estimated at not far from $250.000. It was insured for about half the value. The firm own another mill so their business will not be interrupted.

AT Safe Harbor, Pa., Nov. 26, a large flour mill owned by G. A. Taylor was destroyed by fire. The building was of stone and frame and the improved roller process was but recently put into it. One thousand bushels of oats and a great quantity of other grain, flour and feed were burned. The loss will be about $12,000 and there is an insurance of $9,700. The fire is believed to have been of incendiary origin.

RICHARD ROBILLARD, engineer at the Pillsbury "A" flouring mill in Minneapolis, has invented a machine which he claims is a solution of the problem of perpetual motion. It requires no fuel, a little oil being all that is necessary to keep it in motion. The inventor is engaged on a larger machine, which will be carefully constructed. He has already taken steps to have his machine patented, and thinks he has made the discovery of the century.

THE Loomis Mill Co, Loomis, Neb. has started up its 75 bbl. mill—Burned Oct. 29. A. Shell's mill at Fremont, O.—The Seyk mill at Kewaunee, Wis. was recently damaged slightly by fire. Insured.—Burned, Berrien Bros. grist mill near Quincy, Ill.—The dam at McClellands mill, near Alton, Ill. gave way Nov. 13 carrying out several other dams and bridges below it. Two persons were drowned. The pecuniary loss is quite heavy.

THE large seven-story flouring mill in Lockport, N. Y. owned by Saxton & Thompson, of Troy, N. Y. was destroyed by fire Dec. 8th. There were 35,000 bushels of wheat and about 7,000 barrels of flour in the mill. A big portion of the wheat ran into the canal. The canal bridge adjacent to the mill was ruined. The total loss is estimated at $250,000, insurance about $100,000. As this firm has a large established business they will undoubtedly rebuild either at Lockport or somewhere else.

"WE have just put in at the elevator," said Manager George E. Hoppie, of Atlanta, Ga., "a set of sixty-ton track scales, the largest, I suppose, in the south. I can tell you a funny thing about those scales. There has been some complaint of shortage of weights in our inside scales, and we got these track scales as a check. After we had put in these new scales, some of our men were cleaning out the shutes which convey the grain to those inside scales, when they found two big fat 'possums. I wouldn't believe that they had come from the shutes until I investigated for myself; then I became satisfied that the fault wasn't with the scales."

[Written for the United States Miller and Milling Engineer.]

MILLING THOUGHTS.

BY J. F. MUELLER.

IS it possible for persons to dispossess themselves of all prejudices, and habitualize themselves to the customs of others—that is, to sever themselves from their own hobbies and adopt those of others? It occurs in the majority of cases when a contract is to be let for the equipment of a mill, that each mill furnisher presents his own peculiar system, among which the man who is to act as operating miller may not find a single one that carries out *his* idea of a combination to produce certain results. But from a sense of duty he remains silent, because the mill furnisher who is favored with the contract is required to guarantee results. He therefore swears off allegiance to his pet theories and hobbies and agrees to accept the new condition of things as being carried out by the mill furnisher, providing of course that the guarantee is fulfilled. The mill when all connections have been made complete, to conform with the ideas of the mill furnisher is put to a test to determine the result that may be produced. After the preliminary adjustments have been made and the mill is beginning to show for itself, the miller is careful to watch for the weak points, if there are any, as they begin to show up. He may be partly or entirely converted to the new method of which he is to stand at the helm, or he is likely to remain, in the inmost recesses of his heart, an alien.

Millers in general, however, since the advent of the roller system are becoming more lenient than they were formerly, and are willing to investigate and consider new theories that may be advocated. Some millers bade farewell to their burrs reluctantly, even after seeing the advantages of the reformed system staring them in the face. Those who lingered a little too long were superceded by new comers. The majority of them, however, no longer revered the steel points in their hands and were ready to accept what the new system had in store for them. It was probably left largely for the millers to solve the problem themselves, to suit their own individual cases, after becoming familiar with the general characteristics of the roller system. Thus new and varying notions and ideas began to prevail. It is always a surprise to find a miller still clinging to the burr system. They are beginning to get very scarce, however, particularly where milling for profits is the ruling spirit.

* * *

The speed of a centrifugal is often changed by increasing or diminishing the speed of the shaft carrying the beaters without altering the connection between the beater shaft and the reel, in order to retain the normal speed of the latter. The speed of a thirty-two-inch reel for instance is usually tabled at twenty-eight revolutions. Say we have a centrifugal of this diameter the beaters in which are to revolve two hundred revolutions. If it is desired to speed the beaters to two hundred and fifty revolutions and the reel connection is left unchanged, it will cause the reel to revolve thirty-five revolutions. Or if the beaters are originally run two hundred and fifty and we desire to speed them down to two hundred, then the revolutions of the reel would be reduced to about twenty-two. The speed of the reel should be kept at its normal speed, when changing speed of beaters. The speed of the centrifugal should be governed somewhat by the distance the beaters are from the cloth. It is evident, that the nearer they are to the cloth the slower they can be run, and no doubt produce the same results.

The slower a centrifugal can be run the less power will be required to hold it to its work. The power required to drive a centrifugal as compared with the power to drive the ordinary round reel or flour-dresser has often been discussed. It would seem apparent however that the centrifugal would require the most power, owing to the fact that in addition to the reel itself, which is usually speeded the same number of revolutions as the ordinary, we also have to transmit power to the beaters.

It would be an easy matter to give this a test by applying a belt to a centrifugal to drive the reel without giving motion to the beaters—the belt to be no larger than is necessary to drive the reel without slipping. Then make the connection with beaters and put on a belt of sufficient width over the same pulleys (supposing the pulleys to be of sufficient face). In this case we have the reel transmitting power to the beaters, however the actual power consumed by the centrifugal remains about the same whether we have the connection made in this way or in the usual way. Would it not be reasonable to believe that the beaters running eight times faster than the reel would add considerable to the power consumed? Some will argue that the centrifugal requires less power owing to the fact that the material is more evenly distributed than in the ordinary round reel. But does it not require a considerable amount of power to exert the beaters to distribute the material? As for distributing the stock the slow-revolving, inter-elevator reel or flour dresser accomplishes the work, and there certainly is a saving of power compared with the power consumed by the ordinary hexagon reel or centrifugal. The centrifugal is at present used principally on low grade or soft stock. While it is no longer generally used on any other stock, it has proven to be a valuable machine, inasmuch as it has paved the way toward the round reel system.

* * *

There is but little danger of cleaning wheat too much. Apply every possible means to remove every particle of dirt. Give it several powerful suctions aside from the suction applied in cleaners. The worst dirt that is taken out before the wheat reaches the first break could not be separated afterward. A great deal of the dirt and fuzz that is removed by a good scourer would go through the finest bolting cloth. The last cleaning machine through which the wheat passes while in its course of cleaning, should be located immediately above the stock hopper. It is a great mistake to use a conveyor to carry wheat after it leaves the last cleaner. No matter how complete the line of cleaning machines may be there is always more or less brown material scraped off by further handling, and unless there is a machine or at least a strong suction fan following the abrupt operation of the conveyor to carry away the scourings, they are sure to find their way into the bolting reels where they are liable to be bolted through with the finished flour.

Much waste is caused in the choking down of smutters caused by slipping belts. This is often the fault of the builder, who in order to make his machine appear light running puts on driving pulley of small diameter and narrow face. A great fault with some cleaners is that the wheat in the discharge trunk is held from getting out freely without interruption, thereby making the machine liable to choke up.

Time spent in making the mill tidy and in removing every thing calculated to vitiate the air is time well spent and money earned. The mill that runs smoothly, and does its work silently is almost invariably a clean mill; where cleanliness predominates in a mill you will generally find a competent miller. The mill that pounds and groans as it does its work is nearly always dirty—in fact filthy—is expensive, a nuisance and is usually to be found in charge of a person whose chief concern is quitting time and the weekly envelope.

FIRES IN GRAIN ELEVATORS.

IT is a well established fact that the most prolific source of fires in grain elevators is from friction in the heads of elevators, occasioned by the clogging and consequent stopping of the carrying belt, causing it to slip on the head pulley, which continues to revolve; thus rapidly generating friction between the pulley and belt, and often originating a smoldering fire in the dust or punk-like deposits in the corners of the head and on the strut-board under the head pulley, and such fires are not likely to be discovered until beyond control.

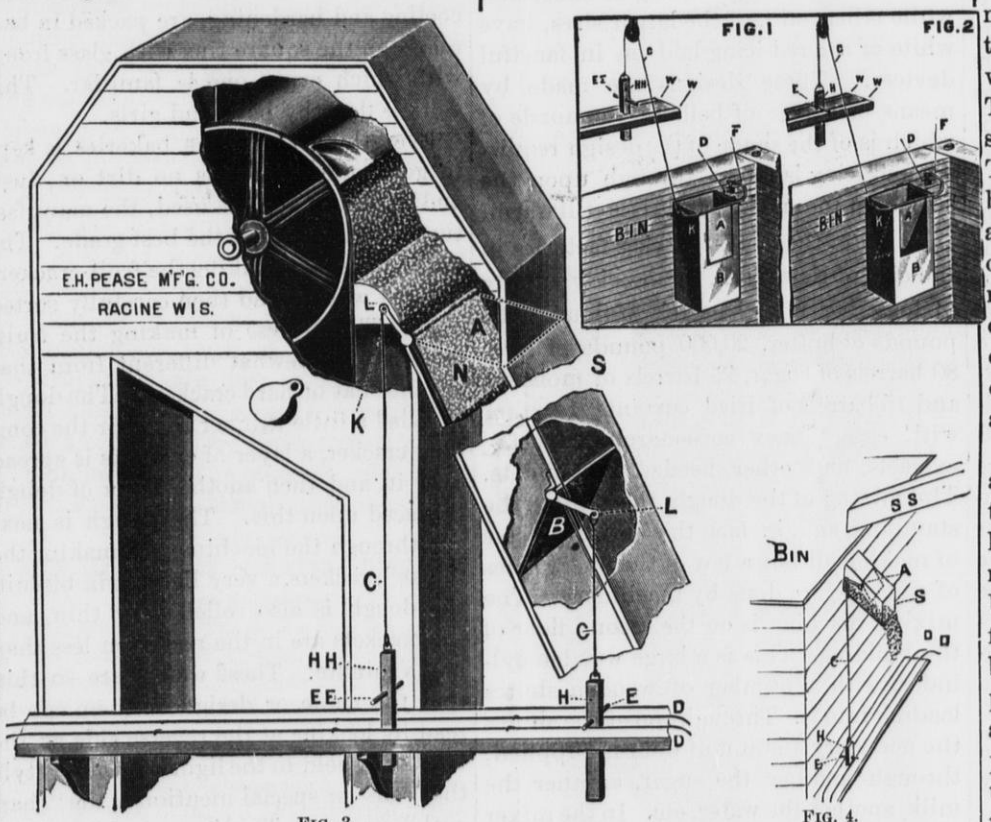


FIG. 3.

FIG. 4.

THE E. H. PEASE MANUFACTURING CO. of Racine, Wis., have perfected a very simple device to guard against contingencies of this kind, known as the "Adams Electric Spout Alarm," which gives instant notice if elevating belts or conveyors are stopped from any cause whatever.

By referring to the accompanying illustrations (See Fig. 3,) it will be seen this device consists of an apron or flap "A. B." so adjusted in the spout of the elevator that the flow of the grain as discharged from the buckets will raise or lower it, as the case may be. This apron is provided with a short bell crank "L" to which is attached a small wire "C" with a light wire or steel bar at the lower end "E", arranged so that when, from any cause whatever, the grain ceases to flow, this bar drops upon an open circuit of wires "D D"—attached to an electric bell, thus closing the circuit and sounding an alarm.

In cases where the discharge spout of elevator is long enough to admit of it, the apron is suspended as at "B", but when, as is often the case, the elevator discharges into a turn-head, the apron is placed as indicated at "A N", and so weighted as to close automatically the instant the grain ceases to flow.

It will be readily seen that this device not only indicates a stoppage of the carrying belt, but also indicates when the supply of grain is exhausted from the pit. It is also designed to indicate when a bin is filled to its full capacity; and may be used as indicated in "Figure 4", or so arranged that the grain will flow into a pocket on the inside of the bin at the top, as in "Figs. 1 and 2", and close the circuit, thus sounding the alarm when the grain reaches the desired point in the bin.

Space will not permit us to describe fully the many ways in which this simple invention may be applied to grain elevators and mills. We are confident, however, that it will at once commend itself to all our readers, as the most simple and practical device ever placed upon the market, for accomplishing the purpose for which it is intended; and will prove to be what has long been needed by elevator and mill owners; and also that it it will be heartily indorsed by all insurance companies. It is so simple that it may be attached to any elevator head by any one who can read the directions, and is so inexpensive as to be within the reach of all owners of mills and elevators.

Correspondence in relation to this Alarm addressed to the E. H. Pease Mfg. Co., Racine, Wis., will receive their prompt attention.

COMPOUND INTEREST ON A QUARTER.

ABOUT thirty-five years ago a little boy was given a quarter of a dollar for spending money. As he walked down the street, happy, he met with an older boy and showed him the money, saying as he did so, "See what my good papa gave me to spend." The older boy knocked it out of his hand, snatched it up and ran away with it. The little boy was almost heartbroken, but when he went home crying and told about it his mother gave him another quarter. This mollified him, but he never forgave the older boy. The war came on and the older boy was given a commission in the army, while the little one, who was too small to enlist, remained at home.

After the war the younger boy became a clerk in the War Department. Within the last fifteen years the older boy, who had become a lawyer and an orator, announced himself as a candidate for the United States Senate, and he had a large following. It looked as though he might be elected. But one morning the newspapers in many portions of the country and especially those of his own State published a statement to the effect that the candidate had been dismissed from the army for cowardice and other questionable conduct. The lawyer denied the charge, and extracts from the records of the War Department were published, showing that the charge was true. He was not elected. After his defeat was accomplished, he received a letter postmarked Washington, D. C., of which the following is an exact copy: "Do you remember the day you outraged a little fellow's feelings and almost broke his heart by stealing a quarter from him? That deed cost you a seat in the Senate." *Washington Capital.*

RECENT PUBLICATIONS.

The Art Amateur winds up the year in a royal fashion, giving as one of its two colored supplement plates a superb picture of pears, over a foot high, and two and half feet wide. It is a perfect fac-simile of the original oil painting, and framed, it would deceive any one. It is really marvellous how such a picture, which would cost many dollars at any art store, can be given away with a magazine for thirty-five cents, together with all the other supplements and scores of illustrations with the letterpress, treating of every kind of practical art work. No more suitable Christmas or New Year present could be found than a subscription to *The Art Amateur*, which is really invaluable to all having homes to furnish or decorate, or wishing to learn oil, water-color or china painting, wood-carving, brass-hammering, book and magazine illustrating, and art needle-work. Price $4.00 a year. MONTAGUE MARKS, Publisher, 23 Union Square, New York.

MANUFACTURE OF CRACKERS.

THE business of manufacturing crackers—not firecrackers, but the kind that are furnished at every lunch table and picnic party—has grown to be a great industry in this country, and in the city of New York alone, probably from 3,500 to 4,000 men, women and children are employed in this work. It is only within the last fifteen years that the business has grown to such prominence. Before 1870 the only crackers made in this country were the old-style or standard soda, milk, butter, lemon, and oyster-crackers, ginger-snaps and pilot-biscuit. The only kind of fancy cracker made at that time was a dry, slightly sweetened biscuit made up in peculiar forms; but these crackers bore about as much resemblance to the fancy crackers with which picnic parties of the present day can regale themselves as the old oblong box-cars which were run over the first railroad d oto the magnificently equipped drawing-room cars now in use on all the principal railroad lines.

This rapid growth of the cracker-baking industry can be ascribed to the brisk demand that followed the introduction of the fancy crackers or English biscuits first brought into this country in 1868. These biscuits were imported by a well-known grocery house of N. York. Although their cost to the consumer was more than double the price asked for the homely domestic cracker of the day, there was at once so great a demand for them that the importers were not able to keep their customers supplied. The first of these crackers brought to this country were known as "Cornhill" biscuit. They were of various shapes, were toothsome and novel, and seemed to fill a void in the American picnic bill of fare. The ready sale which these crackers met with induced the firms engaged in supplying the American market to forward a large consignment of "Albert" biscuit. The youngest child in the land who knows anything about crackers has make the acquaintance of this variety, but twenty years ago his parents had no idea of what the term meant. These biscuits found as ready a sale as the "Cornhill" crackers did, and about a year later the first "fruit" crackers were put on sale in the American market. For two or three years all the crackers of these three varieties used here were imported from England and were sold at prices ranging from twenty-five to 40 cents a pound.

The first "Cornhill" biscuit made in this country were manufactured in 1869 by John Holmes, who is still engaged in the industry. The machines in which the crackers were made and dies for cutting them out were imported from England, and it is even reported that Mr. Holmes employed men from the other side of the ocean to mix the dough and make the crackers. This, however, was before the days of the law prohibiting the importation of laborers under contract. In 1870 the first "Albert" biscuits were made in this country. These were also made in English machines. and cut out by dies imported from that country, but these were the only machines brought to this country. All others were made here, and the many improvements in the machines and dies have apparently brought cracker manufacture to a state as near perfection as possible. American ingenuity and mechanism have, moreover, advanced the industry much more rapidly in this country than it has advanced in England, and while about fifteen years ago there were probably not more than a dozen varieties of fancy crackers, most of which were brought from England, to-day there are more than two hundred varieties manufactured. Moreover, there are more crackers shipped from the United States to England in one year than were imported into this country in the three years previous to the date when the manufacture was begun here. Not only this, but the United States are also carrying on a very heavy trade with Brazil, Mexico and other South American countries, and with Cuba and other islands in the West Indies.

There are in New York City sixteen cracker bakeries, two or three in Brooklyn, and factories in Boston, Philadelphia, Chicago, Buffalo, and every other large city. The total number of firms engaged in this business cannot be definitely learned, but a well-known manufacturer said that it would not be an exaggeration to place the number at 400, with a producing capacity ranging from 100 to 600 barrels of crackers per day each. There is apparently no end of making new designs for crackers. Some of these "take" well, and meet with a steady sale. The demand for others lasts a little while and then falls off, while others still are a total failure. "Alphabets and "dominoes," both of which have names sufficiently descriptive, have about had their run, the demand for these varieties being now very light. Medallions made to represent the faces of Gen. Grant, Peter Cooper, Gen. Butler, and other well-known persons, found a ready sale for a short time. In the campaign of 1884 "campaign" crackers, made to represent the faces of Cleveland and Blaine, were put on the market by one firm. The smallest cracker made is the "imperial dot," and the purchaser who buys a pound package of this variety can, if he has fourteen children, give 100 crackers to each of them. These crackers are very popular. Other favorites are the "Oswego," "snow-flakes" and "macaroons." Many of the finer varieties have a coating of icing or chocolate, while others still, of the larger sizes, have white or colored icing laid on in fanciful devices. These designs are made by means of a pair of bellows, the nozzle of which is of the shape of the design required, and icing is forced through upon the surface of the cracker while it is still warm.

In one of the largest cracker factories in the city of New York, the weekly supply of materials is 600 barrels of flour, 3,000 pounds of butter, 20,000 pounds of lard, 80 barrels of sugar, 25 barrels of molasses and 15 barrels of dried currants, together with eggs, honey corn-starch, flavoring extracts, and other needed ingredients. The mixing of the dough, the rolling, the stamping, and, in fact the entire process of making all but a few of the finer grades of crackers, are done by machinery. The mixing machine is on the second floor of the building. This is a large wooden cylinder, with a number of wooden shutes leading into it. Through one of the shutes the necessary amount of flour is supplied, through another the sugar, another the milk, another the water, etc. In the mixer are three bars or spoons revolving alternately after the style of the ice-cream freezer, which thoroughly mix the dough. When mixed the dough is taken to the third floor where a number of bins are placed in which it is set to "rise." When ready for baking it is again taken to the floor below, where it is placed on a tray and kneaded by the bakers. As they knead it, portions are sliced off, which are put in the rolling machines, and are run under the rollers four or five times, until the paste is thin enough, it is then placed on the cracker-machine in the form of a continuous belt of dough.

This first passes under another roller, with knives at each end, which cut off superfluous dough at the edge of the belt and trim it to a proper shape. It then passes to the cutting or die machine. This is a large drum which cuts the dough into the form which the crackers are to have, and at the same time stamps the name of the cracker or manufacturer, or any design that is desired. As the crackers pass out from under the cutting machine, they are pushed on to trays, which are taken at once to the ovens. These are reel or cylinder ovens, which are about twenty feet in diameter and have fires at the bottom. Above the fire is a large wheel or cylinder. On the outer frame of this are ten swinging wire trays. On these trays the crackers as they are turned out from the stamping machines are placed, and the wheel revolves slowly, lowering the next tray into position. Thus the wheel is kept in constant motion, the trays stoping over the fires just long enough properly to bake the crackers, which are removed from the trays after making one circuit of the oven. In stamping or cutting soda and other square crackers there is little waste, but in cutting out others of more fanciful forms fully one-half of the dough that passes under the die is unused. This is not wasted, as it is again passed under the rollers. The surplus material is separated from the perfectly formed crackers by an ingenious contrivance, consisting of an iron bar with a toothed edge.

The soft crackers, such as "lady-fingers," "butter-scotch," "honey-cakes," etc., are baked in square ovens resembling the ordinary house oven. Some of these cakes are made by hand, but most of them by machine. The dough which is soft, is placed in hoppers with perforations in the bottom. Through these holes the dough is dropped upon the pans in the form which the cracker is to have. The process of making cocoa-nut cakes, for instance, is this: The dough is dropped upon the pans, six or eight cakes on each. Then, as it adheres to the pan, a baker turns it upside down, just touching the cakes into a vat of pulverized cocoa-nut. The tray is next put into the oven, and in two or three minutes the crackers are baked. Then the crackers are taken to the upper floor of the building, and after cooling and hardening, are packed in barrels or in the square tins with glass fronts with which every one is familiar. This work is done by boys and girls.

Everything about the bakeries is kept in good order, there is no dirt or dust, and all the materials used, the manufacturers declare, are of the best grade. The currants used in making the fruit-crackers are first washed and then carefully sorted over. The process of making the fruit-cracker is somewhat different from that of other flat or hard crackers. The dough is rolled a little thinner than for the common cracker, a layer of currants is spread over it, and then another layer of dough is placed upon this. The dough is next run through the machine. In making the "flake" crackers, a very light soda biscuit, the dough is also rolled very thin, and the crackers are in the reel oven less than half a minute. These wafers are so thin that the name or design on them can be read by looking at the reverse side as the cracker is held to the light. Another style that calls for special mention is the "charcoal" cracker. This is made by mixing finely pulverized charcoal with the dough, and the variety is held in high esteem by dyspeptics.

CAWKER'S AMERICAN FLOUR-MILL AND GRAIN ELEVATOR DIRECTORY FOR 1890-'91.

THE above standard work will be ready for delivery in March, 1890. This will be the seventh directory of the flour and grain trade, issued by the publisher, and all who have used them, testify to their increasing accuracy and utility to the trade. Briefly outlined, the principal features will be as follows:

1. List of Flour Mill owners of the United States and Dominion of Canada, Post Office address, County and State, and where information is obtained capacity in barrels of flour per day of 24 hours, kind of power used (steam or water), roller or stone system. 2. Lists of Corn, Oatmeal, Rice, Rye Mills, etc. 3. List of Grain Elevators and Warehouses. 4. List of Millwrights. 5. List of prominent American Flour and Grain Brokers. 6. List of Foreign Flour and Grain Importers. 7. List of Mill Furnishers, etc. 8. Statistics valuable to the trade.

Communications from millers in all parts of the United States and Canada on any of the above mentioned points, will be thankfully received by the publisher. Further, any suggestions that will tend to add to the value of the work will be fairly considered. All letters concerning this matter should be addressed to E. H. Cawker, Miwaukee, Wis.

ITEMS FROM BEYOND SEAS.

THE manufacture of artificial coffee beans from burnt flour or meal is being carried on in Germany. They are made in specially devised machines so skilfully as to closely resemble the genuine beans. They can, however, readily be distinguished by their property of sinking when immersed in ether, as the genuine bean floats on the surface of the liquid.

MESSRS. P. MILLER & SOHNE, Mannheim, Germany, are making an article of food which they call "cocoa-nut butter" from cocoa-nuts imported from the tropics. It is used as a substitute for butter and is sold for about 13 cents a pound. There is a very large profit to the manufacturer and U. S. Consul Monaghan suggests that it would doubtless prove a good business in the United States.

MANY tales are told of the readiness and good humor of Bishop Selwin's wife. While at Pitcairn Island, being weary of pork and yams, Mrs. Selwyn determined to bake a batch of bread. Some flour had just arrived in an American whaler, but there was no yeast. She took, therefore, some froth off a glass of stout, added brown sugar and a few slices of potato, and corked it all into a bottle, which she placed in the blazing sunshine. In an hour or two a welcome "Pop" startled har whole workclass to their feet. "Ah! there's my yeast." And, throwing work to the winds, all rushed to secure the welcome heaven-sent leaven. It was from this sacred primeval mess (as fire from the srcred hearth, in ancient classic story) that Pitcairn land, for many a long day, drew successive growths of yeast, and baked successive batches of good wholesome domestic bread.

ELECTRIC LIGHTING AS A SCIENCE.

To the Chicago, Milwaukee & St. Paul R'y Co. belongs the credit of being the first in the country to undertake systematic experimenting in the direction of steam-heating of railway trains. The perfection of the system they have elaborated is well-known to the traveling public, its elements of safety, automatic regulation of temperature and perfect ventilation leaving nothing to be desired.

The energies of the company have now been directed towards progress in lighting, and to-day attention is called to what are unquestionably the most perfectly appointed trains in this respect in the world. They have by costly experiment and careful study, reduced the matter of electric lighting of trains to scientific perfection, and the introduction of several unique features has made possible the attainment of a degree of comfort unheard of heretofore.

The apparatus for heating and lighting is of perfect and elaborate character, being, in fact, a complete central station plant in miniature on each train and under the constant supervision of a special attendant, whose duty it is to see that at all times the amount of heat and light supplied, is regulated according to the requirements. No accident to the engine or dynamo machine can cause an interruption to the light, as a reserve plant of batteries is carried for such an emergency.

Leading from the dynamo room and regulators the main wires pass out and over the roofs of the cars to flexible connections between them, thence to switch boards and safety devices in each car, and finally through branch wires to the lamps. These have been lavishly introduced in both cars and vestibules, producing a briliant illumination without the attendant annoyance of heat, odor, or other disagreeable features inseparable from the use of oil.

One of the novel features introduced in the sleeping cars is a patent electric Reading Lamp in each section. With this luxurious provision reading at night, before or after retiring, becomes as comfortable as by day, and when retiring the toilet may be made in comfort and seclusion.

It is a fact well known to travelers that, although a car may appear brilliantly illumated on entering, a few moments' reading will severely try the eye-sight, and show that it is in reality far from perfectly lighted. The Berth Reading Lamp introduces the exact conditions of the study lamp at home, casting an agreeable and brilliant light directly upon the work.

In construction it consists of an elegantly designed metal case containing an electric lamp so hidden that the light is thrown only in the direction wished, and its use does not interfere with the comfort of others. When no longer needed a shutter may be drawn and the light obscured. This feature, found alone upon the vestibule trains of the Chicago, Milwaukee & St. Paul Railway, needs only a trial to be appreciated.

"Let your light so shine before men that they may see your good works."

PRODUCTION OF COTTONSEED OIL IN THE UNITED STATES.

COTTONSEED oil is obtained from the seeds of the *Gossypium herbaceum*, and the percentage of oil varies in the seed from 10 to 30. From a report recently issued by the United States government, it appears that from September 1, 1883, to September 1, 1886, there were exported from New York 88 871 barrels, and from New Orleans 186,720 barrels, making a total of 275,591 barrels from the two ports. The following is the method adopted in its preparation: The seed, when landed at the mill, is first examined. If too damp or wet it is dried by spreading it over a floor with free access of air, exposing it on frames to the sunlight in warm weather, or by kiln drying. Drying is the exception rather than the rule in the United States. Cotton ginning is so carefully done that the seeds have little or no opportunity to become wet. Besides this the seed is generally held at the gins for some time before it is sold to the oil manufacturer. The first process in preparing the dry seed for the mill is to free it from dust. This is effected by shaking it in a screen, or in drums lined with a fine metallic net, and containing a strong magnet, to which any iron nails will adhere, these articles being frequently present. From the drums the seeds drop into a gutter, leading to a machine which removes the lint left by the gin. This is done by a gin constructed for the purpose, with saws closer together than the ordinary cotton gin. An average of 22 pounds of short lint is taken from a ton of the seed. This product called 'linters,' is used in the manufacture of cotton batting. The clean seeds are then transferred to the sheller, which consists of a revolving cylinder, containing twenty-four cylindrical knives and four back knives. The sheller revolves at great speed, and as the seed is forced between the knives the pericarp or hull is broken and forced from the kernel. The mixed shells and kernels are separated in a winnowing machine by a strong blast of air. This removal of the husk makes a considerable difference in the meal cake, a desiccated or decorticated cake being, it is said, five times more nutritious and wholesome than an undecorticated cake. Being thus cleaned, shelled and separated, the kernels are carried by a system of elevators to the upper story, and then pass down into the crusher rolls to be ground to flour. Cold pressure produces a very good salad oil, and this is the method generally pursued in Marseilles and other European cities for the first pressure, after which the residue is subjected to a warm pressure. In the United States, however, warm pressure is generally preferred. The meal is heated in a meal-heater for fifteen or twenty minutes to 204° to 215° Fahrenheit. The heated meal is placed in woolen bags, each holding sufficient seed for a cake. The bags are then placed between horse-hair mats backed with leather, having a fluted surface inside, to facilitate the escape of the oil under the hydraulic pressure, amounting to 169 tons. With the most improved presses the hair mats are now, however, done away with. The bags remain in the press seventeen minutes, the solid oilcake of commerce remaining behind. The cake forms a superior food for cattle, horses, sheep and swine, and is nutritious, easily digested and fattening. The crude oil, as obtained from the press, is pumped into the oil-room, and either put into barrels for shipment or refined. There are four qualities of the oil. Crude oil is a thicky fluid, and of a dirty yellow to reddish color; on standing, it deposits a slimy sediment. The second quality has a pale orange color and is obtained by refining the crude oil, which is done as follows: After weighing, the oil is pumped into refining kettles. These are of various sizes, the largest being 20 to 25 feet deep and 15 feet in diameter. These tanks are furnished with steam coils for the purpose of heating the oil, and with appropriate machinery for keeping it in motion. A solution of caustic soda is used for refining; this solution is made from 10° to 28° Beaumé in strength, and varying quantities are used, according to the nature of the oil operated upon. After the addition of the caustic soda, the mixture is stirred up for forty-five minutes, and kept at a temperature of 100° to 110° Fahrenheit. The contents of the tank are then allowed to stand from six to thirty-five hours, when the solid matters—soap and substances precipitated by the caustic alkali—gather on the bottom. This mixture is called 'foots,' and is used for making soap. The yellow oil resulting by this process is further purified by being heated and allowed to settle again, or by filtration, and is called summer yellow oil. Winter yellow oil is made from the above material by chilling it until it partially crystallizes, and separating the stearine formed. about 25 per cent., in presses similar to those used for lard. This cotton-oil stearine is used for making butterine and soap. The yellow oil obtained as above is treated with from 2 to 3 per cent. of fullers' earth in a tank furnished with apparatus for keeping the mixture in motion. When the fullers' earth has been thus thoroughly mixed with the oil, the whole is sent to the filter press. The fullers' earth has the property of absorbing or holding back the yellow coloring matter, so that the oil which issues from the press is almost white. The coloring matter, termed gossypin, is collected in a filter, carefully washed to remove any trace of acid, and dried slowly at a low temperature. It is then ready for use as a dye, and gives fast colors on both silk and wool. It is claimed that the quantity of coloring matter in a ton of crude oil is fifteen pounds, although this proportion must vary considerably. Its properties are insolubility in acids, slight solubility in water, free solubility in alcohol or alkalis. In its dry state it is a light powder of a pungent odor, of a brown color, and strongly tinctorial.

A NEW METHOD OF TREATING DISEASE.

Hospital Remedies.

What are they? There is a new departure in the treatment of disease. It consists in the collection of the specifics used by noted specialists of Europe and America, and bringing them within the reach of all. For instance the treatment pursued by special physicians who treat indigestion, stomach and liver troubles only, was obtained and prepared. The treatment of other physicians celebrated for curing catarrh was procured, and so on till these incomparable cures now include disease of the lungs, kidneys, female weakness, rheumatism and nervous debility.

This new method of "one remedy for one disease" must appeal to the common sense of all sufferers, many of whom have experienced the ill effects, and thoroughly realize the absurdity of the claims of Patent Medicines which are guarantied to cure every ill out of a single bottle, and the use of which, as statistics prove, *has ruined more stomachs than alcohol*. A circular describing these new remedies is sent free on receipt of stamp to pay postage by Hospital Remedy Company, Toronto, Canada, sole proprietors.

TO FLORIDA

Commencing December 8th, the Queen & Crescent Route will have double daily Sleepers, Cincinnati to Jacksonville, with Pullman Palace and Mann Boudoir Sleepers. This line is 110 miles the Shortest and 3 hours the Quickest, and the only line running Compartment Sleepers (in which a section is practically a state room.)

Train leaving Cincinnati 8.10 am. has Through Sleeper via W. & A. Route, arriving Jacksonville 11.30 next morning. This is the fastest time ever made—(27 hours and 20 minutes.

The Florida Special leaving Cincinnati 7.00 pm. with Baggage Car, Day Coaches, and Pullman Palace and Boudoir Sleepers, runs through solid via E. T. V. & G. Route—no change for any class of passengers or baggage—arrives Jacksonville 11.45 next evening.

Train leaving Cincinnati 7.00 pm has Pullman Palace and Boudoir Sleepers Cincinnati to Jacksonville via W. & A. Route, arriving Jacksonville 7.55 second morning.

Deal's Improved Grain Tester

FOR TESTING

Wheat, Barley, Malt, Oats, etc.,

Is an Indispensable Article to all Dealers in Grain.

THOUSANDS OF THEM IN USE. ✲ GRAIN SAMPLERS OR TRIERS.

They Are Standard.

Write for Illustrated Folder of Flour and Grain Testing Appliances and SPECIAL PRICES.

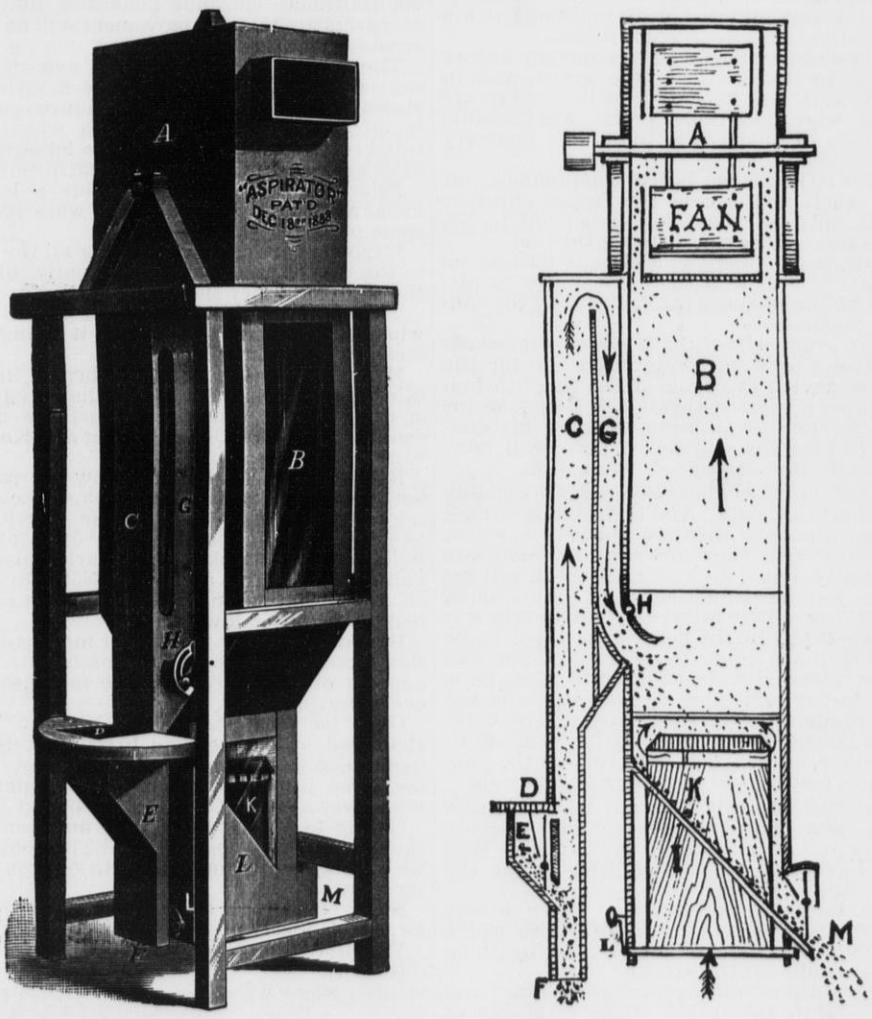
H. J. DEAL SPECIALTY CO.,

BUCYRUS, OHIO.

THE BEYNON ASPIRATOR.

This Aspirator makes three separations of the material. It removes all Branny and Fluffy material. It removes the Crease Dirt from the material of the first-break Roll better than any Double Scalper or other machine ever produced. For dusting the break-material as it leaves each Scalper it has no equal, and works to perfection on the different reductions of Germ Stock.

Being upright, it requires very little space, and is the lightest running machine in the market.



The material enters at Hopper D, having an Automatic Valve E to prevent the air entering over the material into Flue C, the clean material discharges at F and the air current carries the lighter material over the Return Flue G and entering the Chamber B, which is provided with a Hopper Bottom, and passes into the Supplementary Flue I, while a draft of air from Flue K carries the lighter material up through the Fan A, while the heavier material discharges through the Automatic Valve M, thus making three separations of the material: one at F, one at M, and one through the Fan A.

The Automatic Valve E distributes the feed evenly its entire width, excluding the air from going over the material into the Flue C, consequently securing a fine draft of air its entire length. Valve H is to regulate the draft in Flue C and G. The bottom of Flue K is provided with a Valve L to regulate draft in Flue I.

The Automatic Valve M excludes air from entering the Supplementary Flue I, and is so sensitive as to discharge the smallest quantity of material.

Give capacity of your Mill, and enquire for prices and particulars.

BEYNON & MURPHY, Watertown, Wis.

— ALSO MANUFACTURERS OF THE —

BEYNON ROLLER MILL ADJUSTER

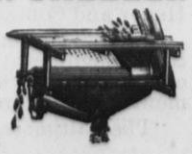
A most perfect device that may be applied to any of the Rollers now in use.

THE BEYNON ELECTRIC RELIEF AND ALARM

An effective preventive for choking Elevators, Conveyors, Spouts, etc.

"TRIUMPH" CORN SHELLER

CAPACITY
2000 BUSHELS PER DAY.
Shells wet or dry corn.
CHEAPEST AND BEST SHELLER.



PAIGE MFG. CO.,
No. 12 Fourth St., Painesville, O.

GANZ & CO.

Budapest, Austria-Hungary.

We are the first introducers of the Chilled Iron Rollers for milling purposes, and hold Letters Patent for the United States of America. For full particulars address as above.

[Mention this paper when you write to us.]

[From our own Correspondent.]

OUR BALTIMORE LETTER.

"Oriole" Reads the Millers a Lecture—He talks of the Tricks Practiced by some of Them—Condition of the Baltimore Flour Trade—Business and Personal local notes—A very Interesting Letter.

WE remarked in our last letter that we did not recognize all the purity and morality in the world, on the side of the miller, and we beg leave to reiterate that statement again with emphasis.

That there are shysters in the milling trade too, goes without saying, and to them and their practices we now briefly invite attention.

Millers, as a rule, are a very peculiar set.

They imagine all the time that mankind generally has conspired to take advantage of them.

They get up in their conventions and abuse in loud language, brokers, commission merchants, customers, railroads and steamship lines alike, when in reality they themselves are largely to blame for the very evils complained of.

Millers in our opinion, deserve to be swindled where they employ unscrupulous agents at starvation rates. They must expect to be slaughtered when they flood markets with consignments that are required to be sold promptly upon arrival without limit; they merit loss of patronage where they become flippant, dilatory and careless; they receive just reward where they calmly submit to imposition from carriers on both land and water. If they would probe to the root of the matter, and remove the cause, the effect would be so different in every instance. But no, they go ahead and do the same thing over and over again, and then wonder why their lots are so hard.

And then again the average miller has an idea that he is the pink of perfection, in whom their is no guile neither shadow of wickedness.

It is true that his dusty coat often reminds us of the driven snow, but experience teaches us that he himself comes far short of being the real emblem of purity.

"All is not gold that glitters," neither are all spotless that wear white robes.

It is a sad commentary on human nature that from the cradle to the grave, and in every walk and avocation of life, there are those who invariably prefer disreputable methods in business to those of a contrary character.

Why it is so, we fail to comprehend, but that such is the case the casual observer needs only to reflect for a moment to become thoroughly convinced of the fact.

Now, take millers as a class, who lose no opportunity to vent their grievances in private and public, and mark how they too conduct business.

Here is one who without warning forwards an invoice by some circuitous route for the sake of saving five cents on the freight when he knows positively that by so doing he incurs an additional expense upon his customer in the shape of delay, decline in markets and extra drayage at destination.

Here is another whose shipments invariably fall short in weight. And then another whose grades fluctuate with the market, if prices are advancing they are sure to depreciate in quality, but if declining, then you will get what you bargained for, and in instances something a little better even. This fellow is the worst pill in the box. You never know what you are going to receive, for you can never place any dependence in him; he is here to-day and gone to-morrow, he is not wise though, for the wise miller above everything, keeps his flour strictly uniform on all occasions, and in that way retains the confidence, respect and patronage of the trade.

And then there is the man who sells one thing and delivers another, and when you complain he deliberately informs you that you have not allowed sufficiently for the bleaching of sample.

And then there are cases too where millers accept orders direct from customers which agents have made without ever giving them proper credit for the same.

This is a most outrageous proceeding, and one equal to any in the whole catalogue of crimes.

Happily for all concerned, however, this does not occur often.

The habit also of packing advertising cards in shipments destined for parties who use their own private stencils, is another specimen of the trickery indulged in by certain millers, and illustrates to what extremes they will go to carry their point; of course their object is to reach the consumer and trace their product right into his belly, but in doing so they transgress all rules of propriety, and unsurp the privileges and prerogatives of the very men upon whom they are dependent, and from whom they draw their sustenance. If the miller wishes to cater for the trade of the consumer then let him cut loose from the dealer or middle man at once and do it, but not persist in doing so at the expense of his own customer.

Millers are conscious that they do wrong in this matter, else they would not so carefully hide their cards from view. Why don't they burn their brands at once on the inside of the heads or staves to insure recognition if they be not ashamed of the practice.

If there is any glory or profit to be derived from a brand the dealer proposes to reap it for himself and not another. These are a few of the vices indulged in by our immaculate millers; we could name many more, but space forbids, so when they meet together again to howl over their grievances let them remember that we have scores to settle with them too.

It is just as easy to deal fairly and squarely with your fellow men as otherwise, and it certainly pays far better in the long run too.

We don't believe in the doctrine that all's fair in love and war. Right is right and wrong is wrong, and you cannot make anything else out of it, no matter how you twist and turn it.

A miserly greed for the almighty dollar has taken possession of most everybody and caused a demoralizing tendency to prevail generally. Such a condition warps conscience, dwarfs judgment and destroys confidence.

"It is not all of life to live,
Nor all of death to die."

Let's get on a higher level and do business by a broader gauge, and life for us will then be sweeter, brighter and happier in every way.

* * * * * *

The Baltimore flour market has been dull, depressed and lower again this month. Mills throughout the west and north-west have flooded us with consignments, and the result is that we have a stock here exclusive of that held by city mills of nearly 80,000 barrels.

This flour is now pressing on the market and going in a limited way at ruinously low figures.

These vast spot offerings can be bought at prices fully 25 and 35 cents under those current for the same brands at the mills.

While this continues agents will have no show whatever to sell goods to arrive. Minneapolis patents are now quoted at $5.00, while other makes range from $4.75 to $4.90. Spring baker's have received some attention at figures ranging from $3.40 to $3.65.

Winter patents, straights and clears on the spot and to arrive range respectively as follows: $4.50@$4.90; $4.00@435; $3.75@$4.00.

City mills have had a dull month of it too, but have managed to book orders for considerable Rio extra notwithstanding, at figures all the way from $4.37½ to $4.60. Dealers here are looking for an early decline in list prices, and when it comes we are in hopes that trade will revive again.

While stocks are heavy in first hands, they are comparatively light otherwise, and with any improvement in wheat, jobbers are likely to appear on the scenes and buy ravenously.

There seems to be no desire to see values any lower. All that is wanted is a demand to make things lively. The South will not draw supplies from here as heavily as formerly for the reason that the cotton and other crops are failures, and our merchants under the circumstances do not care to increase credits in that section until another season rolls a round.

The enormous through shipments of flour via Baltimore continue unabated, and the prospects are that the movement will be even greater after the holidays.

The wheat market here has experienced considerable activity during the month, but closes tame to-day at about the figures quoted in our last letter. While cash wheat has ruled relatively firm the options have lost a little ground, but only a fractional difference.

Prices here are about 19 cents a bushel lower at this writing than they were for the same period a year ago.

Exporters are doing something all the time in the way of parcel lots, principally, but in the aggregate they show up splendidly.

There is very little contract or milling wheat in our stock, the bulk of it being the steamer grade and "No. 3."

Millers experience great difficulty in obtaining selections suitable for their requirements, and are consequently using a great deal of No. 1 hard Duluth spring and Kansas winter

Receipts are small, and show up poorly both as to quality and condition. The falling off of the movement in the Northwest has given more confidence to some of our bulls who now look for an early boom in values. Speculators are pretty evenly divided on the situation, but all admit that prices look exceedingly low.

Baltimore has contracted for more corn on this crop than all her rivals combined. Her exports of the cereal will be far ahead of every previous year.

Over 100 steamships have already been chartered and more than 10,000,000 bushels have been sold to go abroad. Germany has been the principal buyer. The shipments will cover a period from now until next June.

Owing to a scarcity of cars and tonnage the demand has subsided for the present, but we have already enough to do to keep us busy for months to come.

Stock of wheat in elevators, 1,171,817 bushels; stock of corn in elevators, 732,632 bushels.

We quote the range of the flour market as follows:

Western Winter Wheat	Super	$2.25	@$2.75
" " "	Extra	2.75	@ 3.50
" " "	Family	3.75	@ 4.35
Winter Wheat Patent		4 50	@ 4.90
Spring " "		4.60	@ 5.00
" "	Straight	4.00	@ 4.50
" "	Bakers	3 40	@ 3.65
Baltimore Best Patent		5.60	@ ——
" Choice		5.45	@ ——
" High Grade Family		5.35	@ ——
" Choice " Extra		5.10	@ ——
Maryland, Virginia and Penna.	Super	2.25	@ 2.75
" " "	Extra	2.75	@ 3.50
" " "	Family	3.75	@ 4.35
City Mills Super		2.20	@ 2.25
" (Rio Brands Extra)		4.37	@ 4.50

ITEMS OF INTEREST TO THE TRADE.

D. L. Cockley, prest. of The Shelby Mill Co., of Shelby, Ohio, was in Baltimore this week calling upon his old customers, in company with his local agent. Mr. Cockley, left for New York on Thursday night.

Henry C. Corner, 2nd V. Prest. of the C. A. Gambrill M'f'g Co., met with a painful accident a few days ago while leaving a B. & O. train at Camden Station. The brass knob connecting the bell rope on the cars parted and struck his eye-glasses, demolishing them completely and filling his eye with broken glass. While Mr. Corner is still suffering a great deal of pain his doctor pronounces the wound as nothing dangerous.

P. H. Hill, of Washington, D. C., who has been quite ill with typhoid fever, is now out and able to attend to business again.

E. Thomas Rinehart, of Rinehart Childs & Co., has returned from Ashville, N. C., much benefited in health.

Conrad Ruhl, Sr., after an illness of thirteen weeks with poison oak poisoning, is now at the helm of affairs again with his boys, Henry and Conrad, Jr.

Wm. M. Powell & Co., are justly proud of their magnificent new six-story warehouse on South St. It is the finest flour establishment in Baltimore.

"The Baltimore Journal of Commerce" will issue a handsome "Annual" sometime in January.

Those who are prominently spoken of as available candidates for the presidency of the Corn and Flour Exchange for the ensuing year are Lauis Mueller the present incumbent, Henry A. Parr, Hiram G. Dudley, Blanchard Randall and T. B. Hull.

Baltimore is soon to have rapid transit both surface and underground.

James D. Mason, the leading cracker man of Baltimore, is in New York this week on business.

ORIOLE.

Baltimore, Dec. 14, 1889.

MILWAUKEE REVIEW.

SINCE our last communication, Nov. 15th, there has been much talk about a certain Prof. Ciprico, the professed agent of a European company, and his operations in getting options on the mill and elevator property of this city.

It was stated as a fact that five of the seven mills changed hands, and that the money consideration would be forth-coming. The agent declared his work done, and returned to his home in Minneapolis. A good deal of doubt was entertained by some of our people, and some comments made on the trustworthiness of his offers and operations.

This professed agent assumed an offended air at the way some of the papers talked as they reflected the opinions of some at least of the owners of this kind of property.

Whether the criticism was just or not, the fact remains that the mills are running under the old management, and probably will continue so.

No other changes have taken place during the month, and none will be made till after the holiday round-up.

The output has fallen off somewhat, owing to slack domestic markets. At this time of the year it is to be expected that the demand will be slack, as all dealers as well as millers reduce their holdings for the annual stock taking.

Some however, report a very good export demand, and are working it for all there is in it.

Prices of flour and feed are about as last reported. Flour in order to move freely would probably have to make slight concessions. Bran is in fair demand at about $8.00 to $8.25 per ton sacked. Fine middlings $9.75 to $10.25 per ton sacked.

Sample wheat has been dull and easier, and prices on options have given way 2 to 3c. ₩ bush.

Receipts of wheat continue large at the primaries, and yet the visible supply does not increase very rapidly. It is estimated the increase on Monday will show about 500,000 to 750,000 bushels. There is undoubtedly enough to furnish all with bread that is good and cheap.

On the whole millers have had a fair fall run, and dealers have not lost anything on this crop.

Inasmuch then as the new year promises greater activity and improved conditions, we will wish you a Merry Christmas.

Now resolve that you will put more energy and enterprise into the business of the coming year. Do not forget your hard-worked wife and anxious children on the near approaching Holidays. Take them something good and nice. Don't plead poverty.

DON'T.

THE Milwaukee millers met on 'Change at noon to-day (Dec. 17) and passed a resolution requesting the Millers' National Association to immediately take steps to secure the removal of the duty on jute.

NORTHERN INDIANA MILLERS' ASSOCIATION.

THIS Association met at the Exchange, Dec. 3, President F. E. C. Hawks, of Goshen, in the chair, and J. B. Monning of Fort Wayne, Secretary. Mayor Harding made a speech of welcome and extended the hospitalities of the city to the millers and their friends. A vote of thanks was given the Mayor for his courtesy.

Pres't Hawks made an interesting opening address.

Mr. Frank Barry, Secretary of The Millers' National Association, upon invitation, made a short address, from which we have only space to make the following brief extract:

"To give an idea of recent growth I will say that over 30 per cent. of the members which we have to-day, *have joined in the past two years.* I should not make this claim if it could not be substantiated. So much for the work of our enemies."

After his remarks were concluded, Mr. J. M. Servoss introduced the following resolution, which was unanimously adopted:

WHEREAS, The benefits derived by the millers throughout the country through the efforts and services of the Millers' National Association and its officers being appreciated by this Association, it is therefore

Resolved, That the Millers' Association of Northern Indiana does endorse the Millers' National Association, and recommends the members present to become members of the national body.

Mr. J. M. Servoss read an able paper on "Modern Milling and Machinery," which came to hand so late that we are unable to publish it this month.

Other interesting papers were read and addresses made, after which the meeting adjourned to meet again in February 1890.

The meeting was well attended and harmonious in every respect.

E. B. WILBER was recently on trial on a charge of grand larceny before the Superior Court in Buffalo, the indictments charging him with appropriating 1000 bus. wheat and 1000 bus. oats, the property of Sandrock, Dodge and others. The defendant was acquitted by the jury. This is one of the grain cases that has occasioned much talk during the past few weeks.

Judge Beckwith, in his charge said that the conviction must be for grand larceny, if for anything. He explained the uses of bills of lading and the reasons why they were negotiable, saying that in the eyes of the law the person who held a bill of lading was the owner of the property described in it. Mr. Sandrock has become, in this case, the owner of the wheat by holding the bill of lading for it. Therefore, the question was, was he feloniously deprived, as the indictment said, of this property? The evidence showed that an arrangement had grown up between Mr. Wilber and the agent of the Grand Trunk, by which Mr. Wilber had been able to get grain without producing bills of lading. The evidence tended to show that Mr. Sandrock was deprived of his property. It remains to be decided whether he was feloniously deprived of it.

MILLING AND MECHANICAL NOTES.

OFTEN we hear of fires in mills; the newspapers will say there seems to be no possible cause for the fire, and as a rule set it down as incendiary, but some suspected culprit gets the benefit of suspicion for setting the fire and may be is arrested, proves an alibi and goes free. The shaft was perhaps going through some out-of-the-way place, and when the mill shut down, the elements of a fire were there, which in due time waked up and the mill went up in smoke, only leaving a pile of blackened timbers. The box in the out-of-the-way place was not watched out for.

THERE is no good reason why our large manufacturing establishments should not introduce triple expansion engines instead of compound when they discover, as some of them have already done, that a single cylinder engine is not the more economical form for large powers. There is no practical difficulty in getting stationary boilers to carry pressure at which an expansion ratio of twelve to sixteen times, may be worked to advantage instead of the one-fourth or one-fifth cut-off which gives the best result in a single cylinder.

THE LARGEST ROLLS EVER MADE. The Phœnix Roll Works Pittsburg, Pa., have just turned out a pair of the largest rolls ever manufactured. They weigh 92,000 pounds, are 142 inches in length and measure 48 inches in diameter. The moulds in which the rolls were cast had to be specially made, and were 160 inches in length and 60 inches in width. The firm possesses facilities for such heavy work, and, by means of the powerful 80-ton cranes, were enabled to handle the huge mass at will. The rolls were made to the order of the Cambria Iron Works.

AN OPEN LETTER FROM THE J. B. ALLFREE CO.

A CASE before the courts, not yet completly adjudicated, appears to us to bean improper subject for journalistic controversy. We have, therefore, refrained from saying anything publicly as to the pretended claims of the Consolidated Roller Mill Company, but as that company has made unwarranted use of the situation, misrepresenting the true state of the case and trying to intimidate every miller who is not usiug their roller mills and as our customers have repeatedly solicited our views in relation to these claims, we now feel at liberty to defend ourselves and to express our views, which shall be done as briefly as possible.

We have been silent, also, because we have been unwilling to think that a concern composed of gentlemen, who should hold business integrity too sacred to be tampered with, could willingly stoop to the deceitful and "bulldozing" methods which their company appears to have adopted.

As the patent cases of the Consolidated Roller Mill Company have been pretty fully ventilated in the milling journals, we shall confine ourselves to the consideration of the facts and situation pertaining to the "Keystone Roller Mill," manufactured by our company under patents of which we have entire control.

Our attention has been called to circulars and letters purporting to come from the Consolidated Roller Mill Company, representing that their patent has been sustained by the supreme court, whereas the only case in which either of their patents have been carried to the supreme court was disposed of adversely to them, the patent being held invalid below, and that action being confirmed by the dismissal of the appeal taken in behalf of the complainant.

Our attention has also been called to circulars and letters, purporting to come from the same source, representing that the suits of the Consolidated Roller Mill Company had been uniformly decided in their favor, whereas the fact is that nearly every patent on which they have brought suit, and upon which their case has been heard, has been determined invalid; the only instance in which either of their patents has been sustained by any court being one in Detroit; that the same patent has been held invalid in another court of same jurisdiction, and this finding has been acquiesced in upon appeal to the supreme court and a final decree entered adverse to the patent; and that in a later case before the court in Detroit this patent has been held limited to specific constructions, which are not contained in the "Keystone" roller mill.

The fact is that no suit has been brought against our company, and not a word of evidence ever taken charging the Keystone roller mill with infringing of any patent owned by the Consolidated Roller Mill Company or any other company.

This fully shows their malicious disregard for truth and honest methods. It is evident, moreover, that their simply saying the Keystone roller mill infringes their patents, does not make it so, and does not constitute an infringement by any means. Infringements must be proven before a court of jurisdiction, and the court must render a decision to the effect that an infringement exists before that point is settled. Yet, without such decision to warrant it, they make false statements and couple with them a demand for money.

Their reckless claims seem to be made with the hope of their being able to dupe a sufficient number of honest millers and through their fears of a lawsuit, obtain a sufficient sum, if not to fill their coffers, to at least offset the expenses of their malicious onslaught against innocent manufacturers.

We have observed that for the most part the wording of their circulars has been carefully and cunningly devised. For instance, they say that "Nothing now remains for users of infringing roller mills to do but to settle with us for their past use, and obtain our license for future use, provided they desire to continue to use them," thus leaving with the miller a strong impression that his roll does infringe; but in case they were brought to account for a such claim, they would quietly crawl out through a neatly devised hole that they had prepared for themselves, by simply saying: "We did not say that your roller mill infringed." Occasionally, however, doubtless due to their crafty desire for monopoly, they break through their gauzy pretenses, and make broad assertions, such as are contained in their circulars and letters referred to, which we presume is due to the fact "the shoe pinches," and "the loudest wail comes from the greatest sufferer."

The construction of the Keystone roller mill is different from that of any other. It does not come within the limitation of any roller mill patent taken out prior to the Allfree patents; and even if the Gray patents were to be treated as valid, it would take a wild flight of imagination and a gross disregard of the limitations of that patent to make it bear even a semblance to the Keystone roller mill, much less reach it. Therefore, the validity or the invalidity of the Gray patent is a matter of utter indifference to us.

The purpose of these attacks, publicly and privately made against the Keystone roller mill, are apparent. We think the Consolidated company will not find the upright and intelligent millers of the nineteenth century so utterly devoid of good sense and keen business perception as to permit themselves to be deceived by any such tactics as we have exposed, but on the contrary, they will scornfully reject their unjust demands and visit upon the offenders the retributive justice their dishonest methods deserve. Where such unscrupulous falsehoods will ultimately end we leave for honest men and time to decide. Yours respectfully,

THE J. B. ALLFREE CO.

P. S.—Just as we were in the act of mailing this letter to the press, our attention was called to the *Indianapolis News* bearing date November 9, 1889, publishing the following decision:

DENIES THE INJUCTION.

JUDGE GRESHAM DECIDES IN FAVOR OF THE RICHMOND CITY MILL WORKS.

Judge Gresham is winding up the legal business before him here to-day, and this evening will leave for Milwaukee, where he will hold court next week. He rendered an opinion of some general interest this morning in the suit of the Consolidated Roller Mill Company, of Illinois, against the Richmond City Mill Works of this state. The complainants brought suit on four patents, upon which, it was alleged, the defendants were infringing. In his opinion Judge Gresham states that the Richmond Company operates one of the most extensive establishments in the country, has large capital involved in the manufacture of roller mills, and that to grant an injunction against it, as asked by the complainants, might prove ruinous to its business. He also says that the Richmond Company has evidently carried on its business in good faith, and that there is no evidence to show that it has knowingly infringed upon the patents of the Illinois corporation. The motion for a provisional injunction is therefore denied.

This needs no comment. THE J. B. ALLFREE CO.

AT a large meeting of millers and farmers held at Brampton, Canada, last week a resolution to insist on an increase of the duty on flour to $1 per barrel was adopted. The duty on flour is 50 cents per barrel. It was stated that so far this year over 300,000 barrels of American flour had been imported into Canada, displacing over 1,500,000 bushels of Canadian farmer's wheat.

ORGANIZATION OF MILLERS IN THE UNITED STATES.

THE MILLERS' NATIONAL ASSOCIATION.

President—F. L. GREENLEAF, - - - Minneapolis, Minn.
1st Vice-Pres't—A. R. JAMES, - - - - - - Buffalo, N. Y.
2d Vice-Pres't—WM. SANDERSON, - - - - - - Milwaukee, Wis.
3d Vice-Pres't—GEO. H. PLANT, - - - - - St. Louis, Mo.
Treasurer—S. H. SEAMANS, - - - - - - Milwaukee, Wis.
Secretary—FRANK BARRY, - - - - - Milwaukee, Wis.

EXECUTIVE COMMITTEE.	STATE.	OFFICERS OF STATE ASSOCIATIONS.
*C. B. Cole, Chester	ILLINOIS	President, E. C. Kreider, Jacksonville. Secretary, C. H. Seybt, Highland.
M. S. Blish, Seymour	INDIANA	President, S. B. Boyer, Logansport. Secretary, D. H. Ranck, Indianapolis.
J. J. Snouffer, Cedar Rapids	IOWA	Pres dent, C. A. Consigney, Red Oak. Secretary, James Sharp, Des Moines.
	KANSAS	President, W W. Clark, Harper. Secretary, C. B. Hoffman, Enterprise.
P. H. Macgill, Baltimore	MARYLAND	President, P. H. Macgill, Baltimore. Secretary, J. O. Norris, Baltimore.
F. W. Stock, Hillsdale	MICHIGAN	President, D. B. Merrill, Kalamazoo.
*A. C. Loring, Minneapolis	MINNESOTA	President, F. L. Greenleaf, Minneapolis. Secretary, W. C. Edgar, Minneapolis.
Geo. H. Plant, St. Louis	MISSOURI	President, S. M. Carter, Hannibal. Secretary, H. C. Craft, St. Louis.
	NEBRASKA	President, C. C. White, Crete. Secretary, D. H. Harris, Bennett.
*A. R. James, (Chairman) Buffalo	NEW YORK	President, A. R. James, Buffalo. Secretary, H. F. Shuttleworth, Buffalo.
Jno. M. Turner, Mandan	NORTH DAKOTA	President, J. S. Hillyer, Bismarck. Secretary, J. M. Turner, Mandan.
*Homer Baldwin, Youngstown	OHIO	President, F. Schumacher, Akron. Secretary, M. H. Davis, Shelby.
	PENNSYLVANIA	President, B. F. Isenberg, Huntingdon. Secretary, L. Levan, Lancaster.
	SOUTH DAKOTA	President, W. H. Stokes, Watertown. Secretary, C. A. Lum, Aberdeen.
J. J. McCann, Nashville	TENNESSEE	
*S. H. Seamans, Milwaukee	WISCONSIN	Vice-Pres't, E. J. Lachman, Neenah. Secretary, S. H. Seamans, Milwaukee

* Members of Sub Executive Committee of National Association.

WIDE AWAKE A Good Year **1890** A Merry Year

The brightest of the children's magazines.—Springfield Republican,

FIVE GREAT SERIALS.

THAT BOY GID. By **William O. Stoddard.** Young and old will follow Gideon's adventures and his sister's on their father's acres with laughter and breathless interest.

THE NEW SENIOR AT ANDOVER. By **Herbert D. Ward.** A serial of school-life in famous Andover—our Rugby. The boys, the professors, the lodgings, the fun.

"THE SONS OF THE VIKINGS." By **Hjalmar Hjorth Boyesen.** A right down jolly story of modern Norse boys.

BOSY AND BAN, one of the best of the **Mary Hartwell Catherwood** serials.

SEALED ORDERS. By **Charles Remington Talbot.** An amusing adventure story of "wet sheets and a flowing sea."

CONFESSIONS OP AN AMATEUR PHOTOGRAPHER. By **Alexander Black.** Six practical and amusing articles.

LUCY PERVEAR. First of a series of graphic North Carolina character sketches by **Margaret Sidney.**

TALES OF OLD ACADIE. Twelve powerful true stories by **Grace Dean McLeod,** a Canadian author.

THE WILL AND THE WAY STORIES. By **Jes-Benton Fremont.** About men and women who did great things n the face of seeming impossibilities.

THE PUK-WUDJIES. By **L. J. Bridgman.** The funny Indian Fairy Folk.

BUSINESS OPENINGS FOR GIRLS AND YOUNG WOMEN. A dozen really helpful papers by **Sallie Joy White.**

Twelve more **DAISY-PATTY LETTERS.** By **Mrs Ex-Governor Claflin.**

TWELVE SCHOOL & PLAY-GROUND TALES. The first will be **"LAMBKIN; Was He a Hero or a Prig?** by **Howard Pyle,** the artist.

Postal-card Votes and Cash Prizes.

SHORT STORIES sifted from thousands:

Santa Claus on a Vegetable Cart. Charlotte M. Vail. **Rijane.** William Preston Otis. **How Tom Jumped a Mine.** Mrs. H. F. Stickney. **The Run of Snow-shoe Thompson.** Lieut. F. P. Fremont. **Polly at the Book-kitchen.** Delia W. Lyman. **Trailing Arbutus,** Hezekiah Butterworth. **Golden Margaret.** James C. Purdy. **Peggy's Bullet.** Kate Upson Clark. **How Simeon and Sancho Panza Helped the Revolution.** Miss Risley Seward. **The Difficulties of a Darling.** L. B. Walford. **"One Good Turn."** Harriet Prescott Spofford.

ILLUSTRATED ARTICLES, novelties:

Dolls of Noted Women. Miss Risley Seward. **How to Build a Military Snow Fort.** An Old West Pointer. **How the Cossacks Play Polo.** Madame de Meissner. **All Around a Frontier Fort.** Lieut. F. P. Fremont. **Home of Ramona.** Charles F. Lummis. **A Rabbit Round Up.** Joaquin Miller. **Japanese Fighting Kites.** J. B. Bernadon, U. S. N. **Indian Base-Ball Players.** F. L. Sloane of "The Hampton Indian Nine." **A Party in a Chinese Palace.** E. R. Scidmore.

The **Poems, Pictures** and **Departments** will be more interesting than ever.

The Christmas Number enlarged 16 pages to admit a great serial of adventure, by **Grant Allen,** entitled: **WEDNESDAY THE TENTH; A Tale of the South Pacific.**

Wide Awake is $2.40 a year. New Vol begins Dec.

D. LOTHROP COMPMNY, BOSTON.

LIPPINCOTT'S MAGAZINE, with its varied and excellent contents, is a library in itself.

It was indeed a happy thought to print an entire novel in each number.

Not a short novelette, but a long story such as you are used to get in book form and pay from one dollar to one dollar and a half for.

Not only that, but with each number you get an abundance of other contributions, which gives you a good magazine besides the novel.

The ringing blows which have been struck on the gateway of popular favor, have resounded throughout the entire land, and to-day Lippincott's Magazine stands in the front rank of monthly publications, and is the most widely-read-and-talked-of publication of its kind in the world. For full descriptive circulars, address

LIPPINCOTT'S MAGAZINE, Philadelphia

$3.00 per year. 25 cts. single number.

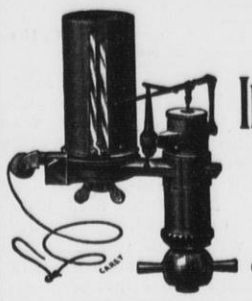
The publisher of this paper will receive your subscription.

American Steam Gauge Co.,

—SOLE MANUFACTURERS—

Bourdon Steam Gauges,

WITH LANE'S IMPROVEMENT.



THOMPSON'S **Improved Indicator**

Over 2,500 in Use.

American Pop Safety Valves,

For Locomotive, Stationary and Portable Boilers, and Instruments Incidental to the use of Steam. Send for Price List I.

36 Chardon St., BOSTON, MASS.

Send for Catalogue K.

AN AUTHENTIC BUYERS' GUIDE.

MILL AND ELEVATOR BUILDERS, MILL FURNISHERS, MANUFACTURERS OF AND DEALERS IN MILL AND ELEVATOR MACHINERY AND SUPPLIES.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year, cash with order. Additional lines, $1.00 each, per year.

Edw. P. Allis & Co., Milwaukee, Wis., builders of complete Flour Mills, manufacturers of Flour Mill Machinery, and dealers in Supplies of every description. [Mr.89.]

O. C. Ritter, Sta. A., Springfield. Mo., Patentee and Designer, Ritter's One Reduction Milling System. Full Roller Plants for small mills. [Aug. 10]

John C. Higgins & Son, 165 West Kinzie Street, Chicago, Ills., mfrs. of and dressers of Mill Picks. [Mr.89.]

Robert Poole & Son Co., Baltimore, Md., manufacturers of Steam Engines, Water Wheels, Flour, Corn, Paper, Saw and Cotton Mill Machinery.

B. H. & J. Sanford, Phoenix Iron Works, Sheboygan, Falls, Wis., manufacturers of the "IMPROVED WALSH DOUBLE TURBINE WATER WHEEL." [Mr.89.]

John C. Kilner, York Foundry and Engine Works, York, Neb. Mill and Elevator machinery of all kinds, Engines, Boilers, Pulleys, Shafting, etc. [Mr.89.]

The Gutta Percha and Rubber Mfg. Co., 159-161 Lake st., Chicago. Ill., Belting and Rubber Goods. [Mr.89.]

Richmond Mfg. Co., Lockport, N. Y., manufacturers of Grain Cleaning Machinery, Bran Dusters etc. [89.Mr.]

N. Y. Belting and Packing Co., N. Y. Leather Belting Co., W. D. Allen & Co., Agents, 151 Lake Street, Chicago. [Apr.89.]

W. G. Avery M'f'g Co., 10 Vincent st., Cleveland, O., Specialties: Avery Lever Belt Punches, Avery Seamless Elevator Buckets, Belting, Elevator Bolts, &c. [May'89.]

The H. J. Deal Specialty Co., Bucyrus, Ohio. Headquarters for Flour and Grain Testing Appliances, and Specialties for the Milling, Flour and Grain trades. [May 89]

A. B. Bowman, 823 Second St., St. Louis, Mo., manufacturers of Wheat Heaters.

Sprague Electric Railway & Motor Co., 16 and 18 Broad St., New York. Electric Motors. Electric Transmission of Power.

Stilwell & Bierce Mfg. Co., Dayton Ohio. Mill Builders, Manufacturers of and dealers in Water Wheels, Feed Water Heaters and Flour Mill Machinery and Supplies.

Milwaukee Bag Co., No. 236 East Water St., Milwaukee, Wis., manufacturers of plain and printed Flour and Grain Sacks of all kinds.

B. F. Ryer, 66 S. Canal St., Chicago. Mill Furnisher. Bolting Cloths made to order.

Jas. Leffel & Co., Springfield, Ohio. Water Wheels.

Vacuum Oil Co., Rochester, N. Y. Oils.

Steam Launches

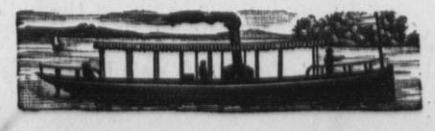
STEAM YACHTS, TUG BOATS,

Marine Engines and Boilers, Propeller Wheels and Boat Machinery.

Send for free Illustrated Catalogue.

CHAS. P. WILLARD & CO.,

236 Randolph St., Chicago, Ill.



ST. NICHOLAS.

The Century Co.'s Magazine for Young Folks. Enlarged and Printed in New Type.

SINCE 1873, when, under the editorial management of Mrs. Mary Mapes Dodge, the publication of *St. Nicholas for Young Folks*, was begun, it has led all the magazines for girls and boys. Nothing like it was known before, and to-day, as the Chicago *Inter-Ocean* has recently said, "It is the model and ideal juvenile magazine of the world." Through its pages the greatest writers of our time are speaking to the youth of America and England, and the best artists and engravers are training the eyes of the boys and girls to appreciate the highest in art. Nobody knows how many readers *St. Nicholas* has. In the third largest public library in America—that in Indianapolis,—more than 3000 people read each month's number.

Since the first issue Mrs. Dodge has remained as editor. Early in its history other young people's magazines, "Our Young Folks," "The Little Corporal," "Riverside," etc., were consolidated with it, and its history has been one of growth from the first. Tennyson, Bryant, Longfellow, Whittier, Miss Alcott, Mrs. Burnett, Charles Dudley Warner, W. D. Howells, and almost every well-known writer of our time have contributed to its pages. There is only one way in which its conductors can make it better, and that is by making more of it, and so they announce that with the beginning of the seventeenth volume (November, 1889,) *St. Nicholas* will be enlarged by the addition of eight, and sometimes sixteen, extra pages in each number. This enlargement is absolutely required to make room for the rich store of new material which has been secured for the benefit of its readers. The use of new and clearer type will be begun in the November number.

During the coming year there are to be four important serial stories by four well-known American authors. Athletics and outdoor sports will be a special feature (contributed by Walter Camp, of Yale, and others,) and there will be stories of character and adventure, sketches of information and travel, outdoor papers, articles of special literary interest, suggestive talks on natural history, other scientific subjects and the march of events. Both the December and January numbers are to be holiday issues.

The price will be the same as heretofore, $3.00 a year, 25 cents a number, and all dealers and the publishers (The Century Co., New York) take subscriptions. New subscribers should begin with November.

JOSEPH JEFFERSON.

"The Century Magazine" in 1890—Joseph Jefferson's Autobiography—Novels by Frank R. Stockton, Amelia E. Barr, and others—A Capital Programme.

DURING the year 1890 *The Century* Magazine (whose recent successes have included the famous "War Papers," the Lincoln History and George Kennan's series on "Siberia and the Exile System,") will publish the long looked-for autobiography of Joseph Jefferson, whose "Rip Van Winkle" has made his name a household word. No more interesting record of a life upon the stage could be laid before the public. Mr. Jefferson is the fourth in a generation of actors, and with his children and grandchildren, there are six generations of actors among the Jeffersons. His story of the early days of the American stage, when as a boy, traveling in his father's company, they would settle down for a season in a Western town playing in their own extemporized theater,—the particulars of the creation of his famous "Rip van Winkle," how he acted "Ticket-of-Leave Man" before an audience of that class in Australia, etc.,—all this, enriched with illustrations and portraits of contemporary actors and actresses, and with anecdotes, will form one of the most delightful serials *The Century* ever printed.

Amelia E. Barr, Frank R. Stockton, Mark Twain, H. H. Boyesen, and many other well-known writers will furnish the fiction for the new volume, which is to be unusually strong, including several novels, illustrated novelettes, and short stories. "The Women of the French Salons" are to be described in a brilliant series of illustrated papers. The important discoveries made with the great Lick Telescope at San Francisco (the largest telescope in the world) and the latest explorations relating to pre-historic America (including the famous Serpent Mound, of Ohio) are to be chronicled in *The Century*.

Prof. Geo. P. Fisher, of Yale University is to write a series on "The Nature and Method of Revelation," which will attract every Bible student. Bishop Potter of New York will be one of several prominent writers who are to contribute a series of "Present-day papers" on living topics, and there will be art papers, timely articles, etc., etc., and the choicest pictures that the greatest artists and engravers can produce.

Every bookseller, postmaster, and subscription agent takes subscriptions to *The Century* ($4.00 a year) or remittance may be made directly to the publishers, THE CENTURY CO., of New York. Begin new subscriptions with November, (the first issue of the volume) and get Mark Twain's story, "A Connecticut Yankee in King Arthur's Court," in that number.

EXPORTING millers should write to the E. Harrison Cawker, Milwaukee, Wis., for the best Flour Cable Code ever published. There are more copies of this Code in use than of ALL other flour codes published. It is simple and accurate.

ALL persons desiring to reach the entire milling and grain trade of America, by circular or otherwise, should obtain a copy of CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888-89.

THE CHICAGO AND

NORTH-WESTERN RAILWAY.

OVER 7,000 MILES

Of steel track in Illinois, Iowa, Wisconsin, Michigan, Minnesota, Nebraska, Dakota and Wyoming, penetrates the Agricultural, Mining and Commercial Centres of the

WEST AND NORTHWEST.

The Unrivaled Equipment of the Line embraces Sumptuous Dining Cars, New Wagner and Pullman Sleepers, Superb day Coaches and

FAST VESTIBULED TRAINS

Running direct between Chicago, St. Paul and Minneapolis, Council Bluffs and Omaha, connecting for Portland, Denver, San Francisco and all Pacific Coast Points.

ONLY LINE TO THE BLACK HILLS

For Tickets, Rates, Maps, Time Tables and full information, apply to any Ticket Agent or address the Gen'l Passenger Agent, Chicago, Ill.

J. M. WHITMAN, General Manager. H. C. WICKER, Traffic Manager. E. P. WILSON, Gen'l Pass. Agt.

THE

Cleveland, Cincinnati, Chicago & St. Louis RAILWAY.

BIG · FOUR · ROUTE

BETWEEN

CHICAGO,

INDIANAPOLIS

and CINCINNATI.

The Only Line running the Popular Buffet Sleeping Cars between

CHICAGO and CINCINNATI

The Only Line from Chicago running Solid Vestibule Trains into Central Union Depot, Cincinnati, where connection is made with Through Car Lines for Florida, avoiding all disagreeable transfers.

☞ Through Tickets via the Big Four Route can be procured at all Ticket Offices in the Northwest.

O. G. MURRAY, Traffic Manager. D. B. MARTIN, Gen'l Pass'r Agent.

CINCINNATI, O.

Milwaukee & Northern R. R.

SHORT LINE

—TO—

Marquette, Negaunee, Ishpeming, Hancock, Houghton, Champion, Republic, Iron Mountain, Menominee, Mich.

Marinette, Green Bay, Depere, Neenah, Menasha, Appleton, Wis.

THE TABLE OF EXPRESS TRAINS.

STATIONS.	DEPART.	ARRIVE.
Champion, Republic,	*2:00 A. M.	*3:25 A. M.
Iron Mountain, Menominee, Marinette, Green Bay, Depere,	*2:00 A. M. 3:10 P. M.	*3:25 A. M. 3:55 P. M.
Green Bay, Depere, Appleton, Menasha, Neenah,	2:00 A. M. 7:55 A. M. 3:10 P. M.	3:55 P. M. 10:10 A. M.

*Daily. All other trains daily except Sunday.

Pullman Sleeping Cars are run on all night trains, and are ready for occupancy at 9:00 P. M.

New Passenger Station, Fourth Ward Park.

C. F. DUTTON, General Manager. W. B. SHEARDOWN, General Ticket Agent.

THE CHICAGO MILWAUKEE AND ST. PAUL RAILWAY CO.

Fast Mail Line with Vestibuled Trains between Chicago, Milwaukee, St. Paul and Minneapolis.

Trans-Continental Route between Chicago, Council Bluffs, Omaha and the Pacific Coast.

Great National Route between Chicago, Kansas City and St. Joseph, Mo.

5700 Miles of Road reaching all principal points in Illinois, Wisconsin, Minnesota, Iowa, Missouri and Dakota.

For maps, time tables, rates of passage and freight, etc., apply to the nearest station agent of the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY, or to any Railroad Agent anywhere in the World.

ROSWELL MILLER, General Manager. A. V. H. CARPENTER, Gen'l Pass. and Tkt. Agt.

☞ For information in reference to Lands and Towns owned by the CHICAGO, MILWAUKEE & ST PAUL RAILWAY COMPANY, write to H. G. HAUGEN, Land Commissioner, Milwaukee, Wisconsin.

NOTES

from the diary of tourists, commercial travelers, business men and others has revealed:

That the **Wisconsin Central** has the unqualified endorsement of all:

That the **Wisconsin Central** has to-day the most popular line between **Chicago** and **Milwaukee**, and **St. Paul, Minneapolis** and the **Northwest**;

That the **Wisconsin Central** is daily adding to its admirers as the recognized **Pullman** line between **Chicago** and **Milwaukee** and **Ashland, Duluth** and **Lake Superior**;

That the **Wisconsin Central** touches the most prominent points in Wisconsin, and that it has more important business centers on its through line than any other railway to and from the **Northwest**;

That the **Wisconsin Central** has made an enviable reputation with its peerless **Dining Car Service**;

That the **Wisconsin Central** runs fast trains on which all classes of passengers are carried with commodious and distinct accomodation for all:

That the **Wisconsin Central** has representatives distributed throughout the country, who will cheerfully give any information that may be desired and that its terminal Agents are specially instructed to look after the comfort of passengers who may be routed via its line.

For detailed information, apply to your nearest Ticket Agent; or to representatives of the Wisconsin Central Company.

S. R. AINSLIE, General Manager. H. C. BARLOW, Gen'l Traffic Manager.

LOUIS ECKSTEIN, Asst. Genl. Passr. & Tkt. Agt.

MILWAUKEE, WIS.

C H & D

CINCINNATI, HAMILTON & DAYTON R.R.

THE FINEST ON EARTH

The Only Pullman Perfected Safety

Vestibuled Train Service

with DINING CAR between

CHICAGO, INDIANAPOLIS AND CINCINNATI.

The Favorite and Only Line with Through Dining Car

St. Louis to Cincinnati

The Only Through Car Line between

PEORIA, KEOKUK, SPRINGFIELD, DECATUR and CINCINNATI.

Pullman Sleepers on Night Trains and Parlor and Chair Cars on Day Trains between Cincinnati and Points enumerated the Year Round.

Direct Connections without Transfer

IN CINCINNATI FOR

Points in Kentucky, Tennessee, Florida and the Southeast, Washington, Baltimore, Philadelphia, New York and Points East.

See that your tickets read via C. H. & D. between Indianapolis and Cincinnati. On sale everywhere.

M. D. WOODFORD, Vice President. E. O. McCORMICK, Gen'l Pass'r Agent.

ASHLAND M.L.S.&W.RY. ROUTE

THE MILWAUKEE, LAKE SHORE & WESTERN R'Y

IS THE DIRECT AND MOST POPULAR LINE AND

Through Sleeping and Parlor Car Route

FROM

CHICAGO and MILWAUKEE

TO

SHEBOYGAN, MANITOWOC, APPLETON, NEW LONDON AND WAUSAU,

TO ALL THE IMPORTANT TOWNS IN THE

Gogebic, Penokee and Montreal Iron Ranges,

HURLEY, BESSEMER, IRONWOOD, WAKEFIELD AND GOGEBIC,

TO

ASHLAND, SUPERIOR and DULUTH,

To all Fox River Manufacturing Cities AND The Lumbering Districts of Northern Wisconsin and Michigan.

SPORTSMEN The best Fishing and Hunting in the NORTHWEST reached by the ASHLAND ROUTE. Send to the General Passenger and Ticket Agent for Descriptive and Illustrated Publications, Maps, Folders, Time Cards and General Information.

Milwaukee Office, 95 Wisconsin St.

H. G. FLEITH, Com. Freight Agt. F. P. REGAN, City Pass. & Tkt. Agt.

H. F. WHITCOMB, General Manager. ERNEST VLIET, Gen'l Pass. & Tkt. Agt.

MILWAUKEE.

CHOICE OF 3 TRAINS

—VIA—

MONON ROUTE

—BETWEEN—

CHICAGO and INDIANAPOLIS, CINCINNATI, LOUISVILLE, LEXINGTON.

Unsurpassed Pullman Car Service.

Fast Trains. Sure Connections.

Short Route to Florida.

☞ Be sure your tickets read via Monon Route (L. N. A. & C. R'y), and your comfort is guaranteed.

For Maps, Guides, etc., address

JAMES BARKER, Gen'l Pass'r Agent, CHICAGO.

Adams Express Building.

---

94 MILES THE SHORTEST, 8 HOURS THE QUICKEST,

CINCINNATI TO NEW ORLEANS

Time, 27 Hours.

Entire Trains, Baggage Car, Day Coaches and Sleepers run through without change.

110 MILES THE SHORTEST, 7 HOURS THE QUICKEST,

CINCINNATI to JACKSONVILLE, Fla.

Time, 28 Hours.

Through Sleepers without change. **The Short Line between Cincinnati and**

Lexington,	Ky., Time,	2½	Hours.
Knoxville,	Tenn., "	12	"
Asheville,	N. C., "	17	"
Chattanooga,	Tenn., "	11	"
Atlanta,	Ga., "	15	"
Birmingham,	Ala., "	16	"

Direct Connections at New Orleans, and Shreveport, for Texas, Mexico and California.

Trains leave Central Union Depot, Cincinnati, crossing the Famous High Bridge of Kentucky, and rounding the base of Lookout Mountain.

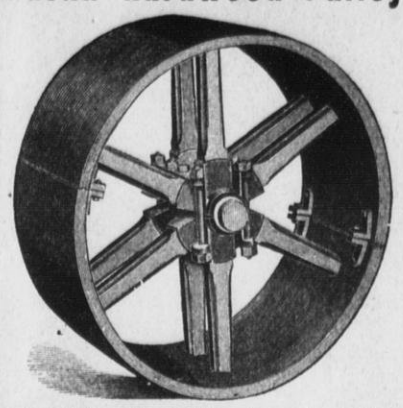
Over One Million Acres of Land in Alabama, the Future Great State of the South, subject to pre-emption. Unsurpassed Climate.

For Rates, Maps, etc., address,

C. S. HENRY, Traveling Passenger Agent, 193 Clark St., Chicago, Ill.

J. C. GAULT, Gen'l Mgr. CINCINNATI, OHIO. D. G. EDWARDS, G. P. & T. A.

Menasha Hardwood Pulleys.

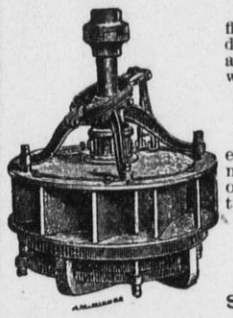


We are sole makers of hardwood bent rim, oak spoke arm, iron hub pulleys; gripped to shaft with bolts and using patent paper bushings. They can be put on shaft without taking it down or cutting key seats. No glue or nails used in their construction.

Also sole makers of only small split pulley 1 inch to 8 inches in diameter in the market. They are light, handsome and reliable. Best machine pulley made, and can be taken off or put on in five minutes. See above cut of them. No glue or nails in them. No key seats to cut. Also makers of only split loose pulley in the market. Send for circulars and discounts of Menasha Pulleys.

MENASHA SPLIT PULLEY WORKS,
MENASHA, WIS.

Improved ✣ Walsh ✣ Double ✣ Turbine



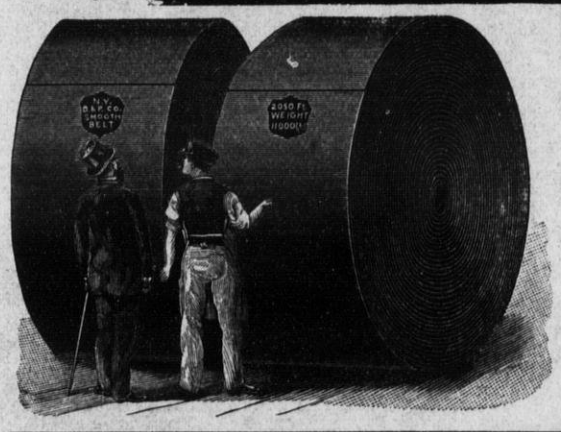
This wheel has a perfect fitting cylinder gate and draft tube combined, and allows no water to escape when closed.

POWER GUARANTEED

equal to any wheel on the market using equal amount of water. Address for particulars,

B. H. & J. SANFORD,
Phœnix Iron Works,
Sheboygan Falls, Wis.

NEW YORK BELTING & PACKING CO



JOHN H. CHEEVER, Treasurer. **15 PARK ROW, NEW YORK.**

Oldest and Largest Manufacturers in the U. S. A. of

Vulcanized Rubber Fabrics for Mechanical Purposes

MILLERS' HOSE A SPECIALTY.

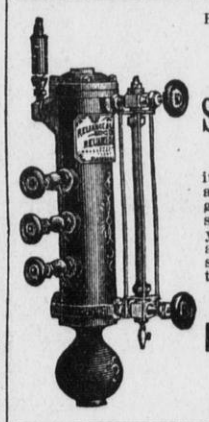
Also a Good **STEAM HOSE.**

RUBBER MATS, RUBBER MATTING, and STAIR TREADS.

RUBBER BELTING, PACKING AND HOSE.

SALESROOMS: PHILADELPHIA, 308 Chestnut St.; BOSTON, 52 Summer St.; CHICAGO, 151 Lake St.; ST. LOUIS, 907-911 N. Main St.; DENVER, 1601-1611 17th St.; CHARLESTON, 160 Meeting St.; MINNEAPOLIS, 28 South 2d St.; CINCINNATI, 161-165 W. Pearl St.; ATLANTA, 16 Decatur St.; DETROIT, 16-24 Woodward Ave.; BALTIMORE, 12 N. Charles St.; BUFFALO, 124-128 Washington St.; NEW ORLEANS, 8-12 N. Peters St.; KANSAS CITY, 1311-1313 W. 12th St.; RICHMOND, 1206 East Main St.; European Branch, HAMBURG, GER., Pickhuben 5, (Freihafengebiet).

Before shutting down for repairs or putting in any boilers, investigate the merits of the



RELIANCE

Safety Water Columns

Many large corporations have found it profitable to discard the common appliances, and adopt these safeguards. Of course, you need not do so unless you wish to, but it is worth your time to investigate. There is always economy in safety, and any safety appliance is worth the time it takes to examine it.

Send for Illustrated Price List.

RELIANCE GAUGE CO.,
863 Sheriff St.,
CLEVELAND, OHIO.

COMPOUND Condensing or Non-Condensing.
16 SIZES, 5 to 500 H. P.
Not yet equaled by any form of Engine for
HIGH FUEL DUTY AND SIMPLICITY.

STANDARD 13 Sizes in Stock. 5 to 250 H. P.
3000 in use in all parts of the Civilized World.

JUNIOR 6 Sizes in Stock, 5 to 50 H. P.
An Automatic Engine cheaper than a Slide Valve.
WELL BUILT. ECONOMICAL. RELIABLE.
Over 300 Sold the First Year.

All the above built strictly to Gauge with INTERCHANGEABLE PARTS.
REPAIRS CARRIED IN STOCK.
SEND FOR ILLUSTRATED CATALOGUES.

WESTINGHOUSE ENGINES

theWestinghouseMachineCo. PITTSBURGH, PA. U.S.A.

SELLING DEPARTMENT IN THE UNITED STATES.

New York, Boston, Pittsburgh, Chicago,	17 Cortlandt St. Hathaway Building, Westinghouse Build'g, 156, 158 Lake St.	Westinghouse, Church, Kerr & Co.
Philadelphia,	608 Chestnut St.	M. R. Muckle, Jr. & Co.
St. Louis, Kansas City, Denver,	302, 304 Washington Av. 312 Union Avenue, 1330 Seventeenth St.	Fairbanks & Co.
Omaha,	1619 Capitol Avenue,	F. C. Ayer.
Pine Bluffs, Ark.		Geo. M. Dilley & Sons.
Salt Lake City, Butte, Mont.	259 S. Main St. 4 Granite St.	Utah & Montana Machinery Co.
San Francisco, Portland, Or.	21, 23 Fremont Street, 33, 35 N. Front St.	Parke & Lacy Co. Parke & Lacy Mch. Co.
Charlotte, N. C. Atlanta, Ga.	36 College St. 45 S. Prior St.	The D. A. Tompkins Co.
Dallas, Tex.		Keating Imp. & Machine Co.
Chattanooga, Tenn.,		C. E. James & Co.

JOHN C. HIGGINS & SON.

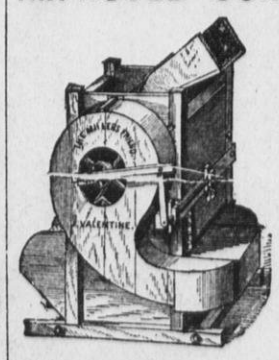
Manufacturers and Dressers of

MILL PICKS

167 W. Kinzie St.,
CHICAGO, ILL.

Picks will be sent on 30 or 60 days' trial, to any responsible miller in the United States or Canadas, and if not superior in every respect to any other pick made in this or any other country there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is *manufactured expressly for me* at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct Importation. References furnished from every State and Territory in the U. S. and Canadas. Send for Circular and Price List.

IMPROVED CORN SHELLER,



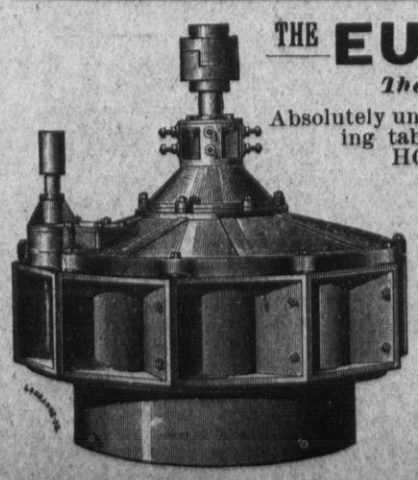
IT IS THE
BEST CORN SHELLER
MADE FOR MILL USE.

IT IS
Simple in Construction
Almost Noiseless,
—AND—
Requires Little Power

HUNDREDS ARE IN USE.

For descriptive circular, price list, etc., Address

JACOB VALENTINE,
Gorham, Ontario Co., N. Y.



THE **EUREKA TURBINE.**

The Best Part-Gate Wheel Ever Built.

Absolutely unequalled in efficiency, is shown by the accompanying table from the records of actual tests at the HOLYOKE, MASS., TESTING FLUME.

PERCENTAGE OF EFFICIENCY.

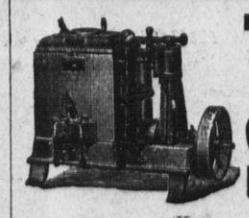
	Full Gate.	⅞ Water.	¾ Water.	½ Water.
24" Wheel	.8436	.8416	.8202	.8002
24" Wheel	.8206	.7910	.7700	.7003
24" Wheel	.8078	.7578	.7275	.6796
34" Wheel	.8000	.8011	.7814	.6850

No other turbine ever approached the above figures at part-gate.

We publish our part-gate figures. Others significantly omit them.

For Catalogue and information, address

The Allentown Foundry & Machine Co.,
ALLENTOWN, PA., U. S. A.



THE SHIPMAN AUTOMATIC Steam Engine

(Kerosene for fuel.)

ONE TO EIGHT HORSE POWER.

The most convenient, economical and desirable power in the world, for use in Grain Elevators, operating feed cutters, etc.

The Saint Lawrence Elevator Company of Saint Lawrence, South Dakota, have used the Shipman over a year, and voluntarily write, regarding a four horse power recently shipped to them, as follows:

"The Engine is very satisfactory so far, and gives us ample power; in fact we can run everything with one burner. We run two elevators—cups full—42 feet, a large wheat cleaner and a 42 foot conveyor (run by chain belt with wood floats) all at same time with sixty pounds of steam. I hope to build more elevators next fall, and "The Shipman" will go in all of them."

For further particulars and illustrated catalogue address

POPE MANUFACTURING CO.
291 Wabash Ave., CHICAGO.

BRANCH HOUSE, 1425 EAST MAIN ST., RICHMOND, VA.

CHAS. A. PRAHL

MANUFACTURER OF

Artificial Limbs and Apparatus

Elevated Feet for Shortened Limbs, Braces for Weak Ankles and Spinal Curvatures, Elastic Stockings and Trusses.

300 GRAND AVENUE, MILWAUKEE, WIS.

The INK used on this paper is from the factory of

CHAS. ENEU JOHNSON & CO.,
PHILADELPHIA, PA.
Western Branch House: 40 La Salle St., CHICAGO

G. M. MANN. F. P. MANN

MILWAUKEE BAG COMPANY,

MANUFACTURERS OF

COTTON, PAPER AND JUTE

FLOUR SACKS

DEALERS IN

Grain Bags, Twines, Centals, Etc.

TELEPHONE NO. 427.

No. 236 East Water Street, MILWAUKEE, WISCONSIN.

SCHIEREN'S

OAK-TANNED

LEATHER BELTING

Cotton Belting and Hose

GOODYEAR RUBBER CO.

"Gold Seal" Rubber Belting.

PRICE LIST SENT ON APPLICATION.

372 & 374 EAST WATER STREET
MILWAUKEE.

131 EAST THIRD STREET
ST. PAUL.

201 NICOLLET AVENUE
MINNEAPOLIS.

PRINZ'S PATENT IMPROVED COCKLE MACHINE

FOUR SIZES FROM 20 TO 110 BUSHELS PER HOUR CAPACITY.

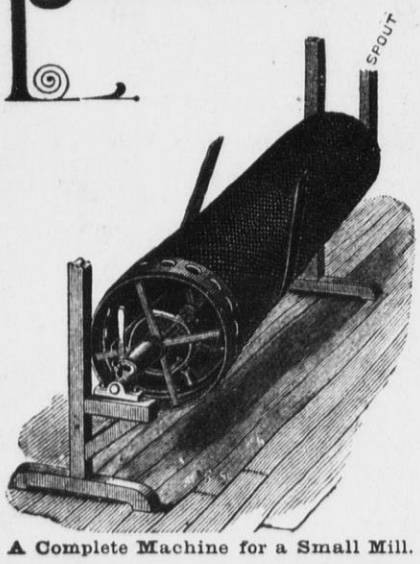
WE GUARANTEE IT WILL TAKE OUT ALL COCKLE, GARLIC AND SIMILAR SEEDS WITHOUT WASTING WHEAT. ONLY MACHINE IN THE WORLD WHICH HAS AN

INDENTED STEEL CYLINDER.

NO COMPARING WITH ZINC CYLINDERS.
ONLY TWO BEARINGS TO OIL.
SLOW MOTION, LITTLE POWER, SMALL SPACE.

Will send you One on Trial. You will SAVE 30 to 50 per cent. of Purchase Money by BUYING this MACHINE.

HANG IT ON THE CEILING, AGAINST THE WALL, OR SET IT ON THE FLOOR—IT WORKS EQUALLY WELL EVERYWHERE.



A Complete Machine for a Small Mill.

WATERTOWN, WIS., Oct. 7, '89.
The Prinz & Rau Mfg. Co.:
Gentlemen—The Cockle Machine works O. K. We are well pleased with it.
Yours truly,
THE GLOBE MILLING CO.

COHOCTON, N. Y., June 22, '89.
The Prinz & Rau Mfg. Co.:
Gentlemen—The Cockle Machine which we purchased of you some time ago, is working to our entire satisfaction, and we can recommend your machine to anyone in want of a Cockle Separator. Yours, etc.,
MODEL ROLLER MILLS.

MULBERRY, TENN., Aug. 29, '89.
The Prinz & Rau Mfg. Co.:
Dear Sirs—I have tried the Cockle Machine to my satisfaction, and herewith enclose check for same.
Yours truly,
J. B. THOMISON.

Address, THE PRINZ & RAU MFG. CO., 659–663 East Water St. MILWAUKEE, WIS.

The Link-Belt Machinery Co.

SHAFTING · PULLEYS HANGERS GEARS ·

Are Prepared to Furnish Machinery and Appliances for

Transmission of Power

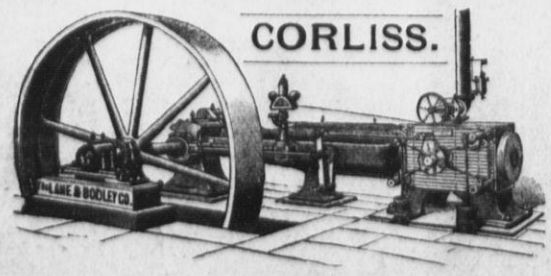
After the most approved Plans, by use of

MANILLA ROPE.

For Particulars and Estimates apply to them at

CHICAGO: 11 to 23 S. Jefferson St. **MINNEAPOLIS:** 200 to 202 Washington Ave. S.

THE LANE & BODLEY CO.,



MANUFACTURERS OF

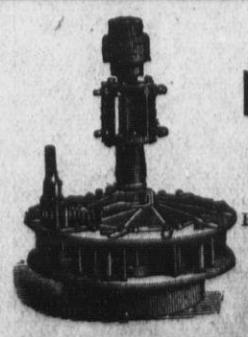
AUTOMATIC CUT-OFF

ENGINES

From Heavy Patterns and of Unexcelled Workmanship.

Steel Boilers, Feed Water Heaters Shafting, Pulleys and Gearing.

THE LANE & BODLEY CO., Cor. John & Water Sts., CINCINNATI, O.



ROBERT POOLE & SON CO.,

Leffel Turbine Water Wheel

Made of best material and in best style of workmanship.

Machine Molded Mill Gearing

From 1 to 20 feet diameter, of any desired face or pitch, molded by our own SPECIAL MACHINERY. Shafting, Pulleys and Hangers, of the latest and most improved designs.

Mixers and General Outfit for Fertilizer Works.

☞ Shipping Facilities the Best in all Directions.

ROBERT POOLE & SON CO., BALTIMORE, Md.

N. B.—Special attention given to Heavy Gearing for Pulp and Paper Mills.

[Mention this paper when you write to us.]