

The United States miller. Vol. 13 1882

Milwaukee, Wisconsin: [s.n.], 1882

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E. HARRISON CAWKER. \ VOI. 13, NO. 1.}

MILWAUKEE, MAY, 1882.

Terms: \$1.00 a Year in Advance. Single Copies, 10 Cents.

Remove all Germs without Breaking or Crushing them, and Hull the Black Cockle and Remove the Hulls, Clean Bran thoroughly, and make a Higher Grade of Flour than any other Mill known.

2000 PA RS NOW IN

Having Secured the BEST BELT MOVEMENT ever offered

We are prepared to furnish mills to be run entirely by belt, obtaining the nearest approach to a Positive Motion Without Gears. We also manufacture the

Celebrated

Which is the Most Compact and Convenient Arrangement of Break Rolls and Separators.

READ THE FOLLOWING LETTER FROM A WELL-KNOWN FIRM:

Brooklyn, New York, February 20, 1882.

Gentlemen: We take pleasure in addressing you in regard to the introduction of the "Cosgrove Roller System" in our Mills at Brooklyn. By removing four pairs of our Millstones and putting in their place the two sets of the Cosgrove System, purchased from you, we find that with our former bolting and purifying arrangements, we can turn out flour, all roller ground, in quality from 50 to 75 cents per barrel superior to that made from the same wheat by Millstones. We are now grinding no wheat with stones. In making the change, our Mill was shut down but 4½ days to make connections with Elevators, Conveyors, etc. We drive the Cosgrove Machines from the same shaft that we formerly drove the Millstones. The work of the change was done by our own Millwrights, everything being so favorably located. The advantages that we find are principally, viz.: Saving from ½ to ½ power required to make the same amount of flour by stones; uniformity of work of the Rolls, and the ease with which they are managed, one man being fully able to give proper attention to two or more sets if we had them; the separations made by the cylinders are perfect; any miller can quickly adjust them exactly to suit the wheat he wishes to grind and the work required; the capacity of our machines we find fully 50 per cent. above the amount you guaranteed (200 barrels). In conclusion, we will say, that the result generally of the system is entirely satisfactory to us for the best of reasons, our customers are thoroughly pleased and satisfied with our flour.

Yours truly,

F. E. SMITH & CO. Messrs. John T. Noye & Sons, Buffalo, New York-Brooklyn, New York, February 20, 1882.

Among Recent Orders We Name the Following from Prominent Millers:

Lexington Mill Co., Lexington, O., 12 pairs, Pollock & Co., Vincennes, Ind., 12 pairs,

James Norris, St. Catherines, Ont., 28 pairs,

E. O. Stanard & Co., St. Louis, Mo., 28 pairs,
Penfield, Lyon & Co.. Oswego, N. Y., 2 Cosgroves.,
Ont., 28 pairs,
McNeil & Baldwin, Akron, O., Cosgrove and 10 pairs.

Jno. T. Noye Manufacturing Company, Buffalo, N. Y.

[Please mention the United States Miller when you write to us.]

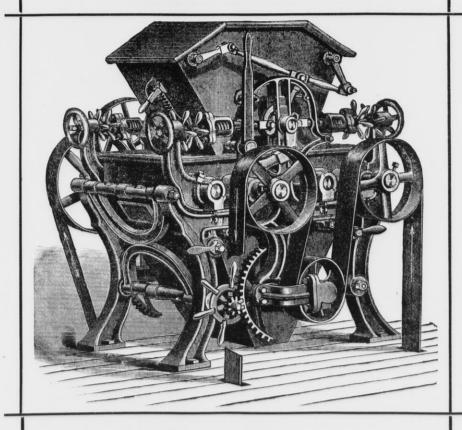
DELL'S

We invite particular attention to the following

POINTS OF SUPERIORITY,

possessed by the Odell Roller Mill over all competitors, all of which are covered by Letters Patent, and cannot be used on any other machine.

- 1. It is driven entirely with belts, which are so arranged as to be equivalent to giving each of the four rolls a separate driving belt from the power-shaft, thus obtaining a positive differential motion, which can not be had with short belts.
- 2. It is the only Roller Mill in market which can be instantly stopped without throwing off the driving belt, or that has adequate tightener devices for taking up the stretch of the driving-belts.



- 3. It is the only Roller Mill in which one movement of a hand-lever spreads the rolls apart and shuts off the feed at the same time. The reverse movement of this lever brings the rolls back again exactly into working position and at the same time turns on the feed.
- 4. It is the only Roller Mill in which the movable roll-bearings may be adjusted to and from the stationary roll-bearings without disturbing the tension-spring.
- 5. Our corrugation is a decided advance over all others. It produces a more even granulation, more middlings of uniform shape and size, and cleans the bran better.

WE USE NONE BUT THE BEST

References and letters of introduction to parties using Odell Rolls will be furnished on application, to all who desire to investigate the actual work of these splendid machines. Among recent orders we mention the following:

Geo. Priest & Co., Decatur, Ills., M. M. Wright, Danville, Ills., C. Seeley, Crete, Neb.,

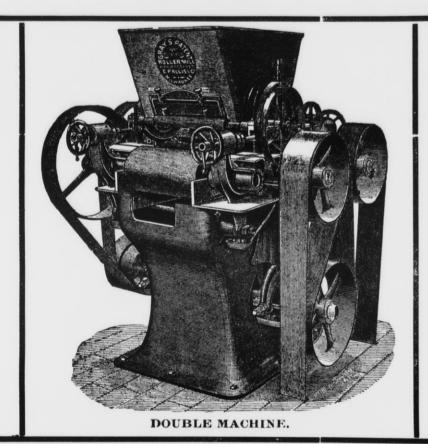
36 Pairs

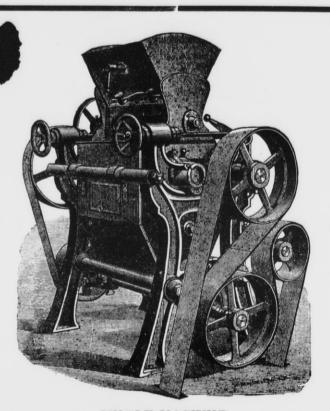
M. S. Rexford, Norman, Dak., Warder & Barnett, Springfield, O., 22 Barrett & Son, Spring Valley, O., 10 J. Mathers & Son, Greenville, Pa. 12 Pairs L. Payne, Franklin, Ind., - 10 Brown & Watkins, Crawfordsville, Ind. 8 Franklin Mills Co., Appleton, Wis. 11

Circular and Prices on Application to Sole Manufacturer,

STILWELL & BIERCE MANUFACTURING CO., DAYTON, OHIO, U.S.A.

GRAY'S PATENT NOISELESS ROLLER!





SINGLE MACHINE.

WITH

CORRUGATED CHILLED IRON ROLLS.

CORRUGATIONS CUT OF ALL DESCRIPTIONS.



OVER 5,000 IN USE.



First Premium Awarded at Millers' International Exhibition.

These Machines require little power, are perfectly noiseless, being driven entirely by belt; are simple in construction; strong and durable; perfect in every adjustment; adapted to both soft and hard wheats.

We refer to the following prominent millers who are each using from 50 to 150 of these machines:

Winona Mill Co., Winona, Minn.
C. A. Pillsbury & Co., Minneapolis, Minn
C. C. Washburn.

Washburn, Crosby & Co.,

W. D. Washburn & Co.,

Sidle, Fletcher, Holmes & Co.,

E. V. White & Co.,

John Glenn, Glasgow, Scotland.

Jones & Co., New York City.

Geo. V. Hecker, New York City.

Becker & Underwood, Dixon, Ill.

Schurmeier & Smith, St. Paul, Minn.

E. T. Archibald & Co., Dundas, Minn.

Jesse Ames' Sons, Northfield, Minn.
J. B. A. Kern, Milwaukee, Wis
Edw. Sanderson " "
Daisy Roller Mill " "
C. E. Manegold & Sons, Milwaukee, Wis.
Commins & Allen, Akron, Ohio.
L. H. Gibson & Co., Indianapolis, Ind.
L. H. Lanier & Co., Nashville, Tenn.
LaGrange Mill Co., Red Wing, Minn.
Waggoner & Gates, Independence, Mo.
Horace Davis & Co., San Francisco, Cal.
And Hundreds of others.

To all parties purchasing our Rolls we give full information regarding the system of Roller Milling.

ADDRESS:

EDW. P. ALLIS & CO.,

[Mention this Paper when you write us.]

MILWAUKEE, WIS., U.S.A.

[Written for the UNITED STATES MILLER.]

Published by RRISON CAWKER. \ Vol. 13, No. 1.

MILWAUKEE, MAY, 1882.

Terms: \$1.00 a Year in Advance Single Copies, 10 Cents.

Plain Talks About Milling.

BY R. BIRKHOLZ, M. E.

"Percentage" is the hobby of the manubuilders of our times. A nervous pursuit of methods economizing the use of raw material, and simplifying the process of manufacture process cuts into the profits by competitionalso the search after still better methods, cause energetic business managers and owners many sleepless nights. Besides this, the mechanical experts as well as the practical sketches, in feverish haste, to secure new and then be guided by his own judgment and not patentable devices having a saving tendency with. Having, (in their mind) struck something, they manage to find some manufacturer whom they are able to cause to think there is something in it and then trials are madegenerally at the expense of the manufacturer. Should the results prove good, then the patentee holds up his hat for a large share of the profits-if bad-why then the patentee regrets, and expresses himself extremely sorry that the clever manufacturer had spent so much money.

As far as flour-milling is concerned-it appears that every miller and milling expert has roller-milling on the brain. They do say that the United States Patent Office will have to be closed for the next six months and the entire force of all the departments will in the meantime be put to work investigating the applications for patents for roller-mills and dust catchers, which have already been placed best kind. on file. Shocking!

Mill-men everywhere are going around "half-cocked" full of grand ideas and all that bothers them is to pick out the best ones for the market. The quality, not the quantity of ideas insure the most profits, the trade demanding a different rule from that of the Hebrew dealer in clothing who stoutly claimed "It is the quantity that fetches the trade."

A droll story is told here, about a mill-man that was "full af ideas"-a man with a decidedly inventive turn of mind. He was visiting a friend and made himself noticeable during the whole afternoon by his extreme taciturnity. Everybody could readily see by his abstracted appearance that he was brooding over some new machinery. While seated at the supper table he suddenly laid down his knife and fork, placed his napkin by the side of his plate—glanced at the ceiling with a a grave tone of voice "A piece of paper, please," He shoved back his chair, shut himself up like a jackknife and again said "a piece of paper." He jumped up from the table, drew his pencil from his pocket hastily and started through the kitchen door, and meeting the "hired girl," asked hurriedly for a piece of paper. Bridget blushed and uttered an exclamation of surprise, but she was equal to the occasion, and quickly placing a piece of old newspaper in his hand, opened the back door and pointed to that little house, the like of which may generally be found in our back yards, pushed him gently out, and shut the door. He did not come back, but bolted directly for down town. Doubtless world.

Many millers go wandering about with eyes and ears wide open, taking in stories unscrupulously told by interested or disinterested, informed or uninformed parties. They hear frequently here and there about "96 per cent. Patent-no low grade"-"bran so large and light for by even those practical workers, they that it will float in the air and must be gath- asked with great interest if the work was to

ered with butterfly nets barrel of flour from 4 bushels of wh and sharp corrugations," etc., etc imaginations are excited, their used and their heads feel as if they co a thousand double back geared roller mills. Those milfacturers of milling machinery and the mill lers may believe that there is but one good system to be followed, and every miller having recently changed his mill to "new process" have got it. Amongst the multitude of is eagerly sustained by managers of our differ- points of information, many in direct conflict ent manufacturing business branches. The with each other, many millers are liable to ambition to anticipate others in the use of a become thoroughly confounded and it is only new economical process, thereby augmenting by throwing off all trust from their crowds of the profits, before imitations of such improved advisers and using their own good judgment alone in selecting the system which they will adopt that they can save themselves from drifting on to the ragged edge of ruin.

The miller must examine carefully the merits of the different processes submitted to workmen pencil or chalk out thousands of him and understand them thoroughly, and by assertions in advertisements, or arguments which they can bless (?) the manufacturers from the mouths of agents. The cheapest work is seldom the best, and "guarantees" to fit up mills at a slight expense that will turn out flour in quantity and quality better than the largest and most costly mills in the world, are little to be relied upon. The "forfeiture contracts" are often drawn, (like some insurance policies,) with so many "ifs," "ands" and "buts" that they do not eventually amount to anything and can never be collected. They are good baits, however, and should the dissatisfied miller who has entered into one of these contracts begin suit against the wealthy manufacturer, the chances are against him. The largest mill builders in this country build mills without giving guarantees of results. They believe in a common sense acknowledgement of their efforts to build substancially and economically and their reputation as mill builders is in itself a guarantee of the

> The most reliable aid for manufacturers intending to make a change of their machinery, or the adaptation of a new process, is the study of a book which is known to be written by an uninfluenced and disinterested critic; one who honorably puts on paper the truth only, according to his best knowledge; one who records the tests and trials without modification in favor of any body; one who relates practical results of the different methods in use for a series of years, with pedantic integrity.

Each branch of manufacturing has its universally acknowledged authorities, their critical authors having become thoroughly informed by careful and persevering devotion to their profession for a score or more of years. The Germans are indisputably great Literati, and as soon as a new device is invented, its merits or demerits are carefully considered, logically described and then praised or condemned painful expression upon his face and said in according to their value to the trade at large. The records of these investigations soon appear in print ready for the inspection of the discriminating public, who will place greater or lesser reliance thereon according to the reputation of the critic.

When I was employed as civil engineer for a certain iron rolling-mill, several years ago, I wondered why the roll-turners drew such fine salaries in comparison with the machinists working with them. I learned that they kept their modus operandi very secret. I learned time enough, that it is a trade requiring great skill, accuracy and deliberation. I wrote to our leading book dealers, East, about printed information in regard to roll-turning, but could obtain nothing. I then wrote to another great invention has been lost to the Germany and procured a book just published at the time, entitled "The Science of Turning Rolls and for rolling all shapes of bar iron. On showing it to some of my Welsh friends (ironworkers) they asserted that they did not believe it amounted to anything, but when I translated some paragraphs apparently sought

be obtained in the English language. A year later the work was translated and published in the English language and purchased eagerly by the roll turners mentioned, who unhesimany things from it of real value to them.

Now the books that I wanted to mention as being indespensable to millers who desire to without calling for the assistance of the Coryphees of Modern Milling, or of the mill build-Bierce, Downton, Chisholm, etc., etc., are 'Pappenheim's Modern Milling" and "Prof-Kick's Flour Manufacture," both of which are published in Germany, and are at present, unfortunately, only published in the German language, but I am creditably informed that the work of translation of both these books German American, and American millers who now have these books in their libraries,* and occasionally read chapters therein, or get them read and translated to them by some German friend.

Both these authors speak highly of, and recommend the "Ganz sharp, saw-tooth corrugations" for the reduction of wheat, asserting that they produce the maximum quantity of coarse middlings even from the softest wheat, and the minimum quantity of break flour. They both advocate the re-sharpening of the corrugations when they begin to be too dull and make too much flour, which disadvantage they have been put to work, according to the severity of the labor with which they have been taxed. I will not dwell any longer upon merely to state to the millers of the United States, that here only is a discussion now kept up on the merits of sharp and dull corrugations. The millers on the continent of Europe discussed this question, tried and disthe matter is now well-nigh forgotten there.

with a description of the many ways of making percentage of saving.

I have often found millers who seemed to regard their prime movers with almost absolute disregard. They were content to bother that required an immense quantity of fuel to keep it in motion. Millers often spend thoua view of saving fuel and raw material, or, when buying a new machine, they make careful inquiries as to the amount of power required to drive it and give preference to the amount of power their prime movers (waterngines) waste, they do not stop to construction, that the fuel consumed beneath them does not develop anywhere near the scale as to greatly hinder the penetration of the heat to the water. A thickness of a sixteenth of an inch of scale necessitates 15 per cent.more fuel and the heating of the iron 15 per cent hotter, and when the scale is from \$ to inch thick, the shell iron exposed to the flame is endangered by getting red hot and the boilers will bulge in lucky, or will explode in unlucky

And the engines! How many of them drag along a miserable existence, running like fury to give the power, overworked by steam pressure, rattling and jiggling in every joint, threatening to run away whenever a run of having a tendency to destroy or corrode the

*These books can be furnished, if desired, by the editor of the United States Miller

engines are generally of the old slide-valve type, working non-expansively but expensively indeed. The coal pile is the tell-tale. But the miller will improve his mill, he will tatingly admitted that they had learned employ light-running machinery and his steam engine may still rattle on. He wants percentage in his mill but does not care about bothering with saving "percentage" in his amplify their mental and mechanical horizon engine-room, and yet any Corliss engine will save at least 1 of the fuel and run as steady as a clock whether all the machinery in the ing establishments of Allis, Noye, Stillwell & mill is being driven or none at all with the throttle-valve wide open. The Reynolds-Corliss engine (built by Edw. P. Allis & Co., Milwaukee, Wis.) will save up to 50 per cent. of fuel over a slide valve engine. Mr. John Schuette of Manitowoc, Wis., a well-known miller told me at the time, that he made a contract with E. P. Allis & Co. to the effect is now being accomplished. I know of many that he was to only stop his mill ten days during which time they were to take out his old engine and replace it with a Reynolds-Corliss engine and start it up and for the new engine they were to have the old one and the value of the fuel saved in one year by the change. After the new engine had been run for two months he came to Milwaukee and squared up for the new engine paying a handsome bonus not desiring any longer time. He had a good slide-valve engine equipped with a patent "cut-off governor." The steam was indeed cut off but not at the right placein the steampipe and not just before entering the cylinder. It is said that Schuette saved must be looked for in from 3 to 10 years after about 45 per cent. of fuel which in his case was equivalent to \$3000 per year. A common slide-valve engine is cheaper in the first cost than a Corliss, but cheap machinery of this subject of dispute at present, excepting any kind, is generally dear in the long run. Americans are skeptical and cannot be easily cheated. Dealers in machinery have to gain and maintain a reputation; they have to work themselves into confidence with buyers and as Americans publish, print and read more carded the dull corrugations long ago, and than any other nation, the mistakes of manufacturers must be expected to be related and My aim in this article is to entertain millers | criticised publicly in some of the many technical papers circulated so extensively through the country.

Dealers will sell cheaply such machinery as they can produce at slight expense of time, material and labor, but that which requires along with a waterwheel, drawing an enor- a large outlay of skill, labor and material mous quantity of water or with an engine must always be in the first instance, clear. I earnestly advise buyers to purchase the best that can be obtained or not to buy at all. sands of dollars in improving their mills with The half-way method of doing things has ruined more men than is generally acknowl-

The percentage of saving under the boiler as well as of the boiler itself is directly proeasiest running machine, but upon what portionate to the regularity of firing and the cleanliness of the inside. Boilers must be cleaned frequently and the scale nicked and estimate. There are water-wheels employed scraped off. No oil should be allowed to in some mills which yield only 60 per cent. of accumulate within the boiler. More or less the full power of the head, and a good wheel of the cylinder unguent is evaporated and ought to yield 80, giving thus one-third more carried along with the exhaust steam into the power. Boilers are sometimes used, of such condenser or into such feed-water heaters in which the exhaust steam is brought into direct contact with sprayed feed-water. The power that it should. They are often allowed oil vapors liquefied by condensation will float by careless-boiler tenders to amass so much on the overflow water in case of using a directcontact heater. Both of the appurtenances are generally so constructed that fatty particles pass off without getting to the suction of the boiler feedpump but owing to the turbulency of the overflow and the rapid use of the feed-water from a contact heater of too small a size, some oil bubbles will not have a chance to rise to the top of the water and they will get within reach of the boiler feedpump and thus into the boiler.

Experiments have shown conclusively that organic, i. e. animal or vegetable oils will easily form a film of fat-acids in the boiler, stone, a roll or a smutter is stopped. These iron. Mineral oils will not get rancid and acrid so easily and as they are specifically lighter and more limpid than organic oils they will be more readily carried off on the sur- to the well-known "Hafner spring," which, face of the overflow etc.

The percentage in saving of steam itself depends upon the perfection of the jacketing of the boiler, steampipes and cylinder. These parts ought to be well surrounded by nonheat-conducting substances. The Corliss cylinder is furnished by manufacturers with jacketing consisting of felt, dead-air, and a wooden encasement.

The percentage of saving in engine is proportionate to the care spent in keeping it in complete order. No thumping or "pounding" must be allowed and mineral oils must be used to preserve the inside of the cylinder. I suppose the secret of saving with the Corliss engine is too well known to need extended comment, but I will barely mention the three cardinal reasons; First, the cutting off of the steam in the early part of the stroke and letting the balance of the work be done by expansion of the steam on the Piston, the results of valve gear. Second, the full initial boiler pressure on the piston on and after its beginning a stroke, imparting a great amount of power on the crank-pin immediately after having passed one of the dead-centres, also result of valve gear. Third, the possible minimum of waste room in steam-ways, the valve ports and cylinder ports coincident results of construction. The Corliss type of engine will give a greater regularity of speed in a mill friction and guard the bearings from heat and than any other. They have been extensively introduced in sawmills which are the most difficult of any in which to preserve regularity animal oils-good winter-strained unadulteraof motion for, for a few seconds they demand | ted lard oil or tallow. perhaps the entire power of the engine and then none at all. They can readily dispose of their spare fuel, sawdust, slabs, etc. to other manufacturing concerns.

Slag coal, or small bituminous coal is used in some localities for firing. It is cheap fuel but the observer has noticed that its price has advanced. The proper difference between nipple and touches the shaft. It is pressed the price of lump and slag coal has not yet reached its level but it will sooner or later. Even slag coal saved, means money earned, therefore it is advisable even where fuel is cheap to use the Corliss type of engine.

Put in a feed-water heater to save fuel and choose such a heater for this purpose that will heat the feed water most and one by which the boiler can be kept free from greasy substances. Where the water is available put in a condenser; it will save at least one-fifth This is, undoubtedly, a good invention. of the fuel or about 7200 pounds of coal per horsepower per year at a running time of 24 hours per day. It will pay for itself in ten months if you use an engine having 75 horsepower capacity. The Reynold condenser is the only one manufactured in Milwaukee. You can drive them by belt from engine or any other shaft. These condensers are rigged with a feed pump which throws a portion of the condensed steam and injection water back into the boiler. Three of the largest flouring mills in Milwaukee are driven by Reynolds-Corliss compound condensing engines with feed-water heaters connected. These mills use less than one ton of coal per 110 barrels of flour produced and the engineers are constantly on the watch to make a saving in fuel.

Steam engines will give the most economical results when running at high steampressure and with from 500 to 600 feet pistonspeed per minute. It is safest not to run with more than 100 fb pressure and when engines are of short stroke the piston-speed must the most economical and coolest boxes not be so great for the re-iterated jerking on are obtained, for nothing but pure oil reaches crank-pin and other parts becomes very destructive at the necessary high number of The oil mixed with the worn babbit metal revolution required. Corliss engines are gradually works to the bearing ends, where, built with long stroke and therefore better adapted for great piston-speed.

I desire to mention here, that many object to the taking off the power from the engine by a belt over the fly-wheel. They think that the working of the wheel as an equalizer is thereby impaired. They prefer to either put on an extra pulley on the engine shaft from which the power is transmitted by a belt, or to take the power by the shaft direct and by gearing. If the fly-wheel is of the proper weight it will do its work whether the power is taken from the rim or from engine shaft as its accumulated inertia accelerates or retards the motion of the engine caused by the favorable or unfavorable positions of the crank by the keys holding it fast to the shaft. If the power is taken off this shaft it is held back by the belt and pulley or the gear on it and the flywheel has to accelerate or retard directly the shaft, and indirectly the machinery attached to it, by its keys. It will accelerate or retard the machinery directly when the power is taken off by a belt over its rim. A belt is preferable to gear for transmitting the power of the engine. The belt serves to a certain extent, as an equalizer, having a similar effect

in case of transmitting the power by gears, is driven by the engine shaft, itself driving

The percentage of saving in machinery depends much upon the skill and care of the millwright when putting up the shafting and gearing. If the shafts are not laid straight and in line, much power is wasted in the bending of the same. If gear-posts and bridge-trees are badly secured, of too light construction, the gears not set in mesh on pitch-line, power is lost in unnecessary friction in the cogs. The constant bending of the shafts thereby straining all its fibres with every revolution, soon crystalizes the iron and then breakage must be expected. The constant jarring in the teeth of wheels held in mesh by weak bridge tree-work will soon wear away the strongest teeth.

A new mill should be watched with great care during the first year, for the settling of the building will misplace the bearings of shafts, etc. Good millwrights will save the millowners much expense in first cost and in fuel subsequently, by planning the mill with as few short shafts as possible.

Another saving enjoyed by thoughtful mechanics is caused by the use of good lubricants for their machinery. Good lubricants should possess lasting qualities, reduce the wear. For slow-running and heavy shafts, or for shafts running under heavy pressure, use

A very nice, economical and reliable oiler has been patented lately by W. J. Faul, of New York City. It consists of a tin cup with a nipple which fits, and is entered into a hole drilled through the box cap. Within this cup, which is 12 inches in diameter, is placed a tallow candle, which penetrates through the against the shaft by a small cast-iron "acorn" fitting over the upper end of the candle. A cap slipped over the cup closes up the lubricator. These tallow candles are specially prepared of different degrees of hardness, and selected for use according to the necessities of the case. They are about 3 of an inch thick and 3 to four inches long. I have known some of them to last 3 weeks on a 21 inch shaft running 80 revolutions per minute.

Light fast running shafts need lighter oils, snch as cotton-seed oil, or lard oil mixed with, or made limpid by mineral oil. There are some mineral oils prepared from crude petroleum oils which are well adapted for oiling fast running shafts. In case oil cups are used provided with feeders, the cap ought to be placed so that the nipple ends are visible, they ought to be supported by small tripods or perforated tubes, so that the feeding can be inspected drop by drop. The common oilcup with a small outlet is not economical, as the oil escapes too rapidly, and is therefore wasted. Common boxes with oil reservoirs on caps can be most economically oiled if cotton waste is put into reservoir, part of which must be pushed through the oil-holes until it touches the shaft. The best oiling is effected, however, when the oil reservoir is placed below the bearing and round wicks stand in the oil and pass up through babbit on to the shaft. Thus the shaft from the cup by capillary attraction. flour mills, the City Mills in Milwaukee are on account of the construction of the box, it millers desiring such will do well to read works back into the reservoir, thickening the advertisement on another page. oil, but the dust cannot get up to the bearing again. These boxes must be occasionally cleaned out and a screw plug is provided for being removed, leaves an opening for emptying and cleaning.

(To be continued.)

Visitors.

During the past month the UNITED STATES MILLER has been favored with calls from the following gentlemen connected with the trade.

A. B. Crowders, St. Louis, Mo. William Cordes, St. Louis, Mo.

J. E. Lcomis, St. Louis, Mo. W. C. Edgar, business manager of The Northwestern Miller, Minneapolis, Minn.

G. M. Marshall, Esq., Kilbourn City, Wis. J. Schleissinger, of the Cockle Separator Mfg. Co., Milwaukee, Wis.

Secretary S. H. Seamans, Milwaukee. Harmon F. Notbohm, Esq., Janesville,

B. Delaurius, Montreal, Canada.

UNITED STATES MILLER.

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ANNOUNCEMENT:

WM. DUNHAM, Editor of "The Miller," 69 Mark Lane, and HENRY F. GILLIG & Co., 449 Strand, London, England are authorized to receive subscriptions for the UNITED STATES MILLER.

MILWAUKEE, MAY, 1882.

We send out monthly a large number of sample copies of the UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. Send us One Dollar in money or stamps, and w d THE UNITED STATES MILLER to year.

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The United States Consuls in various parts of the world who receive this paper, will please oblige the publishers and manufacturers advertising therein, by placing it in their offices where it can be seen by those parties seeking such information as it may contain. We shall be highly gratified to receive communications for publication from Consuls or Consular Agents everywhere, and we believe that such letters will be read with interest, and will be highly appreciated.

IMMIGRATION from Europe, Dominion of Canada and from the Eastern States is crowding into the Northwestern States, Territories and Provinces at a great rate and business consequently is lively.

ONE of the oldest and best established offered for sale on account of the death of the owner; this is a valuable property and

With this number we commence the publication of a valuable article, entitled "Plain that purpose at one end of the reservoir which Talks About Milling." written by Richard Birkholz, milling engineer. Our readers will obtain much valuable information by reading this article carefully. It is written in very plain language and is not made useless to many by the employment of an array of mathematical figures and formulas. We are pleased to say that Mr. Birkholz will continue to be a regular contributor to our columns.

> WE are gratified to inform our readers that F. B. Golley, M. D., a well known physician, resident in Milwaukee, will contribute a series of articles to the columns of the UNITED STATES MILLER, treating on the diseases with which those employed about flouring mills are liable to be afflicted, and also their remedies. The articles will be written in plain language, perfectly intelligent to all classes of readers. The first of these articles will appear in our June

WE have devoted considerable space in this number of the United States Miller to the subject of grain speculation. The question of the legality of these trades, and of notes and mortgages given in payment, or to secure payment of margins is now in a fair way to final settlement before the United States Supreme Court to which the case of Smith & Lightner, brokers and members of the Chicago Board of Trade against J. H. Rountree, of Platteville, Wis., has been appealed for final ajuddication. The decision will be awaited with interest.

Market Review.

Prepared expressly for the "United States Miller." by Messrs. E. P. Bacon & Co., of Milwaukee, Wis.

APRIL 29, 1882.—The Wheat Market during the past month has been under the control of a combination, both here and at Chicago, and a large short interest has existed at the latter market for this month's delivery, which has kept prices of the speculative grade from five to eight cents higher there than here. An active milling demand for local use and for shipment into the interior prevailed here during the first half of the month, which has abated, however, during the latter part, under a general feeling of weakness in the market. The cash Wheat here has been held wholly by the "Clique," who have steadily advanced prices on it from \$1.30 to \$1.35 free of storage, and have held it firm at the latter figure for the past ten days, nothwithstanding the decline in the general market, at which price moderate quantities have been taken from day to day for milling.

The market for May delivery as well as more distant futures, has tended steadily downward since 20th inst., when May reached \$1.34, and during the past two or three days has declined sharply under a prevailing apprehension that the "Clique" would deliver out the Cash Wheat on 1st May, it being the supposition that it has been sold for May delivery, and the price receded to \$1.29 yesterday, rallying at the close, however to \$1.30. To-day the market is somewhat irregular, but a stronger feeling prevails, closing on noon Change at \$1.30 for May, \$1.31 June, \$1.30\frac{1}{2} July, \$1.20\frac{1}{4} August.

The "visible supply" of Wheat in this country, comprising stocks in store at Lake and Sea-board ports and in transit, shows a reduction during the past four weeks of 1,752,000 bushels and is nine million bushels less than at the corresponding date last year. The reduction in the stock in store at this market during the past four weeks is 486,000 bushels; the present stock being 1,180,000 bushels.

Reports of the growing Winter Wheat are generally very favorably, but our recent advices from St. Louis state that the chinch bugs are making their appearance to an alarming extent in portions of Missouri, Kansas, and Illinois. The first new wheat arrived in St. Louis to-day from Southern Arkansas, of fair quality, and sold at \$4.50 per bushel, being bought no doubt for advertising purposes.

Closing quotations: \$1.30 for May; \$1.311 for June; \$1.30% for July; \$1.20% for August.

Recent Milling Patents.

APRIL 4, 1882.

Grain weighing and measuring machine, William H. Allen, New York City.

Grain-separator, Barnard and Leas Mfg Co., Moline, Ill. Grinding-mill, John J. and B. Clark, Elgin,

III. Cooling mechanism for grinding mills, John Fitzgerald, Brooklyn, N. Y.

Roller mills, Noah W. Holt, assignor to John T. Noye Manufacturing Company., Buffalo, N. Y.

Millstone, Rufus Moody, North Monmouth,

Grain disintegrating machine and process for manufacturing flour, Francis Taggart, Brooklyn, N. Y., assignor to C. R. Knickerbocker, Jackson, Mich.

APRIL 11, 1882.

Oatmeal machine, William Eberhard and R. Turner, Akron, O.

Grain-transporting device-Thomas F. Hoea, Cleveland, O.

Machine for cutting grooves in rolls—John R. Reynolds, assignor to Pratt & Whitney Co., Hartford, Ct.

Grain-elevator, Elias Roberts, E. Bauman and W. H. Lotz, Chicago, Ill.

APRIL 18, 1882.

Roller Mill, Richard Birkholz, Milwaukee,

Cockle separator, William E. Gorton, Eau Claire, Wis. Millstone driver, Joab H. Wooster, Strykersville, N. Y.

he Various Processes of Grinding.

FROM EMERICH PEKAR'S REPORT TO THE HUNGAR-IAN GOVERNMENT.

(Translated from the Ungarische Muehlen Zeitung of Vienna, Austria, for The Miller, (London.)

In order to fully understand on its merits he competition of other countries, now opposed to the largest and most important industry of Budapest and Hungary, I consider it necessary to examine briefly the systems in use in the different countries of the world for the production of flour, the chief factor in our food supply. This notice of the Hungar ian, as well as the Austrian, Bohemian, German, Swiss, French, English and Scotch processes is based on personal experience obtained on the spot, while the further data respecting the flour industry of the United States are given from various sources and direct communications.

The words-of both ancient and modern date-fine, sifted, royal, or white flour express essentially, although unconsciously, an idea which can perhaps be best conveyed in the term "relatively branless flour." In the production of flour free from bran seven of the component parts of the wheat berry are removed, viz, the exterior skin, the outer and inner coating of the berry, and the perisperm and germ, for notwithstanding their nourishing properties, a quality absent only in the germ, they are unsuitable for the nutriment of the human body, because the stomach and intestines are not capable of dissolving them and therefore cannot assimilate them. Although it has only been in modern times, with the help of physiology and chemistry, that the value of these parts and their appointed role, for food purposes have been established (concerning which many perverted views exist even now), still the production of flour free from bran has, since the most ancient times, been an object towards which man unconsciously strove. The custom practiced at the present day, of the domestic sifting or dressing wheat passed once through stones in low grinding serves as an illustration of this statement. The group of six coatings, together with the germ, being tougher and more elastic than the albumen, the real flourproducing material, they remain, in flat grinding, in larger pieces than the mass forming the white flour, and consequently they can be separated according to size. But the cutting and crushing and pounding action of the stones, while tearing the bran into such large pieces, detaches from its surface such minute particles of bran that they are of no larger bulk than the flour particles and pass through with them in the dressing. Flat ground flour dressed twice is comparatively free from bran and fine middlings, still, although it appears outwardly whiter and more regular than ordinary meal, it contains in reality an extraordinary number of bran particles.

We can say of the two chief varieties of material in the manufacture of flour, the triticum sativum vel vulgare and the triticum turgidum, that the soil, according to the climate, exerts various influences on the berry, observable in two essentially different forms. Under the influence of a damp and sunless climate, or one damp and tempered by surrounding seas, the wheat berry assumes a nice appearance, being large, thick, and plump. Its color is usually brighter, the outpowdery break, and easy to grind. The percentage of gluten it contains is small in proportion to its nutritive properties. The same variety of wheat will develop totally different properties, and be of different formation, if grown in a climate where it is exposed to a hot and intense sunshine, and dryness at the period of ripening, the more so if sown in a strong or even virgin soil. The outer coatings are then dry, friable, and brittle, the endosperm is homogeneous, with the so-called steely break, shiny on the surface where cut, and seldom showing any dark-coloured fine spots. Its percentage of gluten, and consequently its nutritive value, is greater than the first-named variety of wheat.

According as a district possesses one or the other variety of wheat, it develops the corresponding system of grinding. We know from history how man adopted whatever by its nature gave him the least difficulty to overcome and produce the best results with the least expenditure of labor, this leading to grrdual improvement. In grinding the soft wheats already referred to, the stone rubbed less off the bran, which fell off in large flakes, consequently there was less bran in the flour next one that for the middle classes, and the breakings, following one

and although it slill contained some bran, the simple process of grinding gave the best we grind hard steely wheat in this manner, a large portion of the bran is rubbed to powder, making the flour five to six numbers darker, according to our mode of reckoning, although stronger and more nutritious than that made from soft wheats. After the introduction of this process for the grinding of soft wheats, which was based on the elasticity of the bran, it followed that when a stronger sunshine prevailed and ripened the berry harder, such wheat had to be damped to produce a whiter flour, in the first place to toughen the bran and thus make it less friable. This process was then adopted where hard wheats exclusively had to be ground; they were damped or sometimes even regularly soaked, so as to be able to grind them in one operation without injuring the bran. Wheat treated in this manner is produced in a large part of Germany and France, in all England, Scotland and Ireland, where fifteen or twenty years ago low grinding prevailed in all the mills, with the exception of a few hundred, the wheat being reduced in one operation; at the ing. present time flour, as a rule, is made there in this manner.

As we have seen, this mode of grinding is based on the physical property of the wheat, and is extremely simple; the presence of these properties is not arbitrary, but is given by nature to the wheat. Low grinding, the over the whole world. The damped wheat was mostly ground at once between sandstones to flour, and, as is often still to be seen in the country districts, was sifted or dressed well or badly through a bolter. This continued so until the second half of last century, when the American War of Independence and the French Revolution destroyed the power of the guilds, then crippling all progress, and Watt's steam engine, the mightiest promotor of unfettered trade, provided the whole industry, and therefore also the flour trade, with unlimited power, which, unlike water-power, could be produced where re-

Although the art of grinding, based on physical properties of soft wheat or wheat softened by damping, did not materially alter, altered, in which respect extraordinary changes took place since the end of last America were the first in the path of progress. The astonishing contrast by which the home industry of the Union was protected against the foreign trade, while the most unrestricted competition prevailed at home -a contrast that still exists—has borne its fruit. At the end of last century and the beginning of the previous one, there were mills at work in Pennsylvania and even on the Mississippi far surpassing anything then in existence in Europe. The production of one quality of flour as pure as possible, avoiding the making of inferior sorts, was attained by the mode of low grinding called the American employed (Suesswasser quartz, such as form the riches of our Hegyalja and Barser districts), instead of the old bolter, cylindrical used; elevators, worms, and an automatic arfounders of this system, established it in 1742. They were the first to introduce the centralization of the motive power, the waterwheel, and its subsequent distribution. In 1781 the English knew but little of the progress of the Americans, for in the same year Smeaton, by means of an atmospheric engine built on Newcomer's system, raised water into a reservoir, utilizing the fall to drive the overshot wheel of the mill at Deptford. Smeaton did not make any use of the American improvements. But even in England low grinding improved enormously with Watt's steam engine after 1786, under Boulton and Watts, and afterwards under Rennie, Moudslay, Murray, and Fairbairn, whose execution of details was unexceptionable.

In France special attention was paid to milling, still they did not equal the Americans. Their "mouture à la grosse" was a simple low grinding, the meal being sifted at home, and only 16 per cent. to 18 per cent. of the bran extracted from it. The "mouture rustique" was low grinding with various grades of bolting. The bolter with the finest meshes gave the flour for the rich man, the

operations. It originated in the sixteenth century, when a miller named Pigeault, of Senlis, produced by it a whiter flour than usual. The "mouture Lyonnaise" is a similar variation of this process, another branch of which, the "mouture à gruaux blancs" or "mouture ronde," is at present a very important one; in this system a low grade of middlings flour is produced out of the hard wheats in making the semolinas required for maccaroni manufacture. The French, partly on account of the Revolution, and partly on account of their conservative nature, did not adopt until 1818 the improvement brought from America, and then it was with machines imported from England. They did not delay in placing the stones centrally, introducing turbines, preliminary crushing rollers and improved dressing machines, and especially at the time of the building of Surville and Touaillon's mill at St. Maur, as well as the Darblay mills at Corbeil, adopting and prrfecting the most rational system of low grind-

In Germany the improved system of low grinding was introduced about 1825 in a mill in Magdeburg, built by an Englishman named Murray, of Leeds. The towns of Berlin and Guben followed on the American system. Messrs. Ganzel and Wulf, who were sent by the Prussian Government to America to process of reduction in one operation, spread study the process, returned about 1827 and erected several mills on this system with excellent results. In 1828 the Bavarian Government offered a premium of £250 to anyone who would erect for his own use a threepair mill on the American system; and about the same time the Wurtemburg Government erected a model mill on the same system. In 1836 we find in Saxony a mill on the American system at Plauen, near Dresden. In Austria its introduction commenced in Vienna, in 1840, with the building of the 'Schuettel" mill, which is at present the property of a company, Roman, Uhl & Co., Limited. But this system did not satisfy the requirements there, for which reason the mill began, as happened partially in Saxony and Bohemia, to produce on the system then customary in Austria of repeated breaks and yet the process and the results obtained grinding of the middlings, the white extract there was in the room, with one of his shapely or finest flour, which the American system was incapable of producing. At this period century. The liberated States of North Sulzberger appeared with his rollers, as we shall see later on. In Hungary the first steam mill was built at Oedenburg, and in this respect our land bears the palm from Austria. The most brilliant example of a mill on the Anglo-American low grinding system was the one erected in Fiume, Hungary, with 18 pairs of stones, the "Stabilimento Commerciale di Farina," which exists to the present day, but naturally now arranged for middlings milling. In the last century, and up to 1830 or 1840, the countries producing soft wheat made a nicer and whiter flour than both Hungary and South Russia especially, and in general than those three districts system. The wheat was carefully cleaned of Europe which grew hard steely or half before being ground, the hardest and best hard wheats. This was natural, for we have millstones, even as at the present day, were scen that the hard steely varieties of wheat, with their brittle bran coatings, if treated on the system then customary and renowned in the West of Europe, make an extraordinary dressing machines clothed with silk, were dark flour, because not alone are the inner flour-producing portions of the berry reduced, rangement of the machines as far as practi- but also a great portion of the brittle bran, for white flour. Millers have learned how to er coatings are tougher and more elastic, the cable, to save labor, were introduced. Thomas which passes through the sieves with the endosperm is floury, white, with a crumbling, | Ellicott and Oliver Evans, the most celebrated | flour, and cannot afterwards be removed, thus deteriorating the quality. This property of the steely wheat, so rich in gluten and nutritive matter, was known in Western Europe, in so far that the French and English millers pay, even to the present day, higher prices for the good soft wheat, than, for instance, for the valuable Russian sorts, with tough bran, and up to 1850 the English millers would hardly buy steely Russian wheats at all, until a miller in Durham began secretly to clean these hard varieties carefully and to damp them very much. This was done to make the bran coatings like those of the native wheats, and thus to be able to grind them at one operation without injuring the bran. The alteration of the natural property of the wheat was a success, and the miller in question enriched himself, for he could buy Russian wheats without exception at considerably

lower prices than English or American. The adoption of these means could lead to no result in Hungary, and therefore we had to seek some other method of freeing the berry from its coating of bran. In this way from small beginnings, the process of grinding the wheat by gradual upon

last one the flour for the poor man. The other, came into extraordinary favor. Mid-"mouture économique," contains in reality dlings milling, or rather the Hungarian sysresults on this kind of wheat. If, however, the elements of middlings milling in several tem par excellence, consists therein, that the carefully cleaned, uninjured wheat is in the first operation (on the stones) in general broken into two pieces only, from which the flour, the middlings, and the products for further reduction, the half grains, separated according to size, are removed. The core particles are separated according to size and specific gravity by the aid of a current of air, which also removes the particles of bran knocked off and loosened from the inner parts in the first break. The secret of this process consists in the bran separation obtained in the middlings grinding, the berry beingoperated upon five or six times, until not quite reduced to middlings, the operation being continued on these, so that little by little the bran is entirely separated from the middlings made from the inner parts of the wheat berry, so far of course as lies within human power.

The great care and patience required in this process led the French to term it appropriately "mouture en infini," but its results are so splendid that the more ancient system cannot produce nearly so fine flour as that obtained in middlings milling.

In our next we shall give details of this process, of such moment to us, which formerly excited the astonishment of the world, and and gave rise to so many imitations.

(To be continued.)

An Anecdote of Two Judges.

Judge Whiting was Chief Justice of Wisconsin about forty years ago. Judge Woodle was an Associate Justice. Judge Whiting was not considered a very brilliant man, but, though his perceptions were sluggish, his motives were always trustworthy.

Judge Whiting and Judge Woodle were traveling together, hearing appeals from nisi prius terms. They traveled on horseback, and on one occasion occupied a room to-

Judge Whiting had a very shapely foot (a fact which he was suspected of knowing as well as anybody). Judge Woodle had club feet (as to which he was suspected of being very sensitive). On the occasion I speak of, Judge Whiting was lying on the only bed feet extending out of the bed. He looked up and saw Judge Woodle looking at the foot intently.

"What are you looking at?" said Judge Whiting.

"At your foot, Whiting," said Woodle. And, do you know, if I had your feet I would be almost willing to have your head."

The Germ and Seam Impurities.

The first step towards making the "highest grades" of flour is to remove the "sprout germ" from the grain, and the "seam impurities" found between the lobes of the berry, before reducing the wheat to flour and mid-

Every miller has encountered the germ or chit" of the wheat berry, and there are probably few who have not sought to devise some means of keeping it out of the flour. The chit or germ is an essential part of the wheat, for without it the wheat could not reproduce itself; but its career of usefulness ends by the time it reaches the hopper of the mill. The demand of the present day is make a strong flour, and the aim is now to improve the color and still preserve the strength. It is a well known fact that white flour with but ordinary strength and nutritious character sells readily in the markets, and often brings a higher price than stronger and better flour. Now the germ is, in a measure, nutritious. It does not contain much albumen, but is rich in oily matter. Its nutritious character, however, is more than neutralized by the discoloration it causes in the flour, and the great majority of millers would gladly dispense with it, for the reason just cited, that good flour is nutritious enough without the germ, and people want white flour.

There is a "bluish dirt" secreted in the seam or crease of the berry that neither brush machine nor smutter can reach or remove, and millers should not lose sight of the fact that incorporating this dirt in the wheat flour does not do away with its existence. Therefore its removal at the first stage of reduction is an imperative pre-requisite of a high-grade wheat or break flour .- From Chisholm Bros. new catalogue.

THE recent great fire at Lake City, Minn., destroyed J. D. Cumming's mill valued at an- \$12.000. It was partially insured.

THE UNITED STATES MILLER.

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.

OFFICE, No. 118 GRAND AVENUE, MILWAUKEE, WIS SUPSCRIPTION PRICE.—PER YEAR, IN ADVANCE.

wise agreed upon,
For estimates for advertising, address the United States

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

MILWAUKEE, MAY, 1882.

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

Flour Mill Directory.

CAWKER'S AMERICAN FLOUR MILL DIRECTORY for 1882. was completed, ready for delivery February i, 1882

It shows that there are in the United States 21,346 flour mills and in the Dominion of Canada 1,488. The mills in the United States are distributed as follows:

Alabama, 388; Arizona, 17; Arkansas, 234, California 209; Colorado, 52; Connecticut, 309; Dakota, 44; Delaware 96; District of Columbia, 7; Florida, 81; Georgia, 514 Idaho, 18; Illinois, 1258; Indiana, 1163; Indian Territory, 3; Iowa, 872; Kansas, 437; Kentucky, 642; Louisiana, 41; Maine, 220; Maryland, 349; Massachusetts, 363 Michigan, 831; Minnesota, 472; Mississippi, 297; Missouri; 942; Montana, 20; Nebraska, 205; Nevada, 10; New Hampshire, 202; New Jersey, 445; New Mexico, 28; New York, 1942; North Carolina, 556; Ohio, 1462; Oregon, 129; Pennsylvania, 2786; Rhode Island, 47; South Carolina 205; Tennesee, 620; Texas, 548; Utah, 129; Vermont, 231 Virginia, 689; Washington Territory, 45; West Virginia 404; Wisconsin, 780; Wyoming, 3; Total, 21,356.

The directory is printed from new Burgeois type on heavy tinted paper and is substantially bound. It makes a book of 200 large pages. The post offices are alphabetically arranged in each state, territory or province. The name of the mill, the kind of power used and the capacity of barrels of flour per day of 24 hours are given wherever obtained which is in thousands of instances This work is indispensible to all business men desiring to reach the American Milling Trade.

Price Ten Dollars per copy on receipt of which it will be sent post paid to any address. Remit by registered letter, post-office money order or draft on Chicago or New York made payable to the order of E. Harrison Cawker, publisher of THE UNITED STATES MILLER, Milwaukee, Wis.

SAMUEL CARRY of 17 Broadway, New York has just issued a neat catalogue of milling machinery.

THE ST. LOUIS MILLER thinks the best preservative for highways is wide-tired wheels on all heavy wagons.

THE HUNGARIAN MILLER'S JOURNAL SAYS that those millers who discontinue their milling papers generally are heard of in the bankruptcy court, within two years of the perpetration of such a diabolical act. Serves 'em right too, say we.

GEORGE T. SMITH of Smith Middlings Purifier fame, after a long sojourn in Europe, has again returned to the United States to settle down. Mr. Smith has spent much of the past year in traveling. Among other places he visited Pompeii and examined the old time mills unearthed from the ashes of that ill-fated city.

65,234 immigrants arrived in the United States during the month of March. Of this total number of immigrants, there arrived from England and Wales, 4,840; Ireland, 5,221; Scotland, 1,301; Austria, 1,437; Bel-139, Denmark, 1,367; France 541; Germany, 23,251; Hungary, 1,071; Italy, 4.213; Netherlands, 995; Norway, 607; Poland, 660; Russia, 900; Sweden, 2,689; Switzerland, 1,216; Dominion of Canada, 10,797; China, 3,792; and from all other countries, 197.

THE NEW YORK TRIBUNE in an article about employment of the patients in the Ward's Island Insane Hospital says that the engine and boilers, some of the largest in the city are managed entirely by insane patients. The Superintendent does not however think it hardly safe to employ the patients as barbers. It seems to us as if the superintendent was about as "cranky" as any of his patients to permit them to have entire charge of a steam engine and boilers.

AMERICAN COMPETITION IN GERMANY.-In a report to the Society for the Advancement of Trade, Mr. Wyngaert, the President, of the German Miller's Association, remarked that the raising of the duty on flour from 2s. 6d. to 3s. 6d. a sack has been of advantage to German millers, because it caused a diminuRussia and America. Still the American flour | year but this was fully made up by increased pressed heavily on the German trade all foreign demand and on this account our sales last year, on account of the heavy stocks carried forward from 1880 and the cheap water year. The smaller mills are now generally transport up the Rhine. He then proceeds contemplating the making of improvements to state "that the imports of American flour would still further decrease were a practice in America of adulterating it with maize flour our roller mills leads us to believe that the abolished." The Miller. (London.)

We are willing to wager Mr. Van den Wyngaert the price of a Cincinnati telephone that he cannot show a single barrel of American flour in Germany, direct from the American manufacturer that is adulterated with maize flour.

MINNEAPOLIS MILLING. The present actual milling capacity of Minneapolis is placed by a recent writer at 21,100 barrels per day of twenty-four hours. To keep these mills running at their full capacity on full time would branch of business. The report is larger and require about 100,000 bushels of wheat per day or 31,200,000 for a working year of 312 days. The Minneapolis mills alone are therefore capable of grinding a greater crop than Minnesota produced last year, without the help of the other 460 flouring mills in the

WE WELCOME to our exchange table the Turf, Field and Farm published at 39 and 41 Park Row, New York. For sixteen years this paper has been the favorite journal of thousands of gentlemen throughout the country, fond of agricultural, breeding and sporting pursuits. The office of Turf, Field and Farm with its valuable library was destroyed by fire January 31st, but the enterprising managers did not fail to bring their paper out on time. Their new and commodious offices are now occupied and business goes on uninterruptedly. May fire never harm them again.

EARLY ROLLER-MILLS IN EUROPE.—About the first practical attempt made to use rollers for making flour, was made by Herr Helfenberg at Rorschach, Switzerland in the year 1821. The rollers were made of cast iron Experiments were continually made until they were considered successful when Sulzberger erected a roller mill in Zurich in 1834. The first roller mill in Budapest, Hungary was built in 1839 by the "Josef Roller-Mill Stock Company." It met with much ridicule and opposition but was finally successful and its example was followed by many milling firms in Hungary, Austria and Germany. Since that time roller mills have been built in great numbers in every country in Europe.

Fortunate Mill-Builders.

Two gentlemen prominently connected with the mill-building industry were fortunate in the last local political campaign. Mr. James M. Stowell of the Cream City Iron Works was elected Mayor and Mr. Henry Smith of the millwright firm of Birge & Smith (formerly Smith Bros.) Comptroller of the City of Milwaukee. These gentlemen will doubtless merit the high esteem of their fellow-citizens by the creditable manner in which they will perform their respective

Communication from Budapest.

Editor of the United States Miller.

I read in No. 5 of your paper, page 70 that "the celebrated Borsig Mill in Berlin is making very nice rye flour on rolls" and I must pray of you in order "to give honor to whom honor is due," to mention in your valuable paper at an early date that this rye-grinding is done by Ganz roller-mills with their peculiar sharp dressed rolls. Also I beg you to state that the grinding of rye by rolls has only been commenced in Europe during this last year and is done with Ganz' roller-mills, especially constructed to suit the requirements. The Borsig Mill uses 14 fourroller mills No. VIII. and 2 No. XXII.

Respectfully PROF. MAX GRUENBAUM,

Ganz & Company, Budapest, Austria-Hungary.

fTranslated from the Hungarian Milling Journal for the UNITED STATES MILLER.)

March 26. the stockholders of the above named company held their general meeting of which the following is a brief resume.

The prices of our manufactured articles advanced with the price of raw material although not in the same proportion. **

The unfavorable condition of last year's harvest as might be expected had an unfavorable effect on the department of our establishment for manufacturing roller-mills. The orders for mills from Austria-Hungary were

are but a trifle less than during the previous and this is a favorable sign for the coming year. This, and the world-wide reputation of roller mill branch of our business will be profitable for a long time. Our works have been run to their full capacity, and have warranted the employment of 800 additional workmen. The buildings of several departments have also been enlarged.

Recent Publications.

INDIANAPOLIS CHAMBER OF COMMERCE RE-PORT FOR THE YEAR 1881.—This report shows a very gratifying increase in nearly every more complete than any we have yet received from Indianapolis and speaks well for the ability of secretary Henry C. Wilson.

REPORT OF DEPARTMENT OF AGRICULTURE U.S. A. contains valuable papers on Sorghum, Swine Plague, Grasses, Cattle Diseases etc. These reports are of value to the highly educated, "gentleman farmer" but are too utterly technical for service to the ordinary granger. A little less Latin, and more plain terms of easy comprehension to the average American farmer would be elements which would make these reports more desirable. As it now is, too many of these reports soon find their way to the paper-mill.

HARPER'S MAGAZINE for May, 1882. Published by Harper & Brothers, N. Y. Subscription price \$4.00 per year.

THE CENTURY MAGAZINE. The Century Co., New York, Publishers. Subscription\$ 4,00 per year. St. Nicholas for April. Published by the Century Co., New York. Subscription price, \$3.00.

HENDERSON'S DIRECTORY of Manitoba and N. W. Territory for 1882. Published at Winnipeg, Manitoba. Price \$4.00

The above is a very complete directory, much larger that the former one and it will prove of great benefit to all desiring to extend their trade in the rich field north of us. We unhesitatingly can recommend the work to business men in need of such a work.

THE KNOWLES Steam Pump Works of 86 Liberty street, New York, have just issued the handsomest machinery catalogue we have seen for a long time. The paper, presswork and engraving is all of the very best quality. The cover design is excellent. The company report a large and flourishing business.

CHISHOLM BROS. CATALOGUE for 1882, by Chisholm Bros., 64 S. Clinton st., Chicago, Ill. Millers will do well to apply early for a copy of this valuable catalogue, which is a credit to the compilers.

Missouri Millers Association

The regular annual meeting of the Missouri Millers Association took place in St. Louis, April 15th. The attendance owing to short notice was light.

An election for officers resulted as follows: President, J. F. Lawton of Carrollton, Mo.; first vice-president, Frank Hill of Cowgill & Hill, Carthage, Mo.; second vice-president, Gustavus Sessinghaus of St. Louis; treasurer, Geo. J. Plant of Geo. P. Plant & Co., St. Louis; secretary, David B. Kirk of D. B. Kirk & Co., St. Louis.

Alex. H. Smith of the Empire Milling company, St. Louis, was elected a member of the national executive committee.

The following were chosen members of the state executive committee; E. Goddard of Goddard & Sons, St. Louis, chairman; C. L. Krafft of the Camp Spring Mill company, St. Louis; Wm. Waggoner of Waggoner & Gates, Independence, Mo.; Wm. Anderson of Anderson, Henderson & Co., Columbus, Mo., and C. W. Sombart of the Sombart Milling company, Boonville.

The report of the secretary showed the association to be entirely free from debt. The liabilities had been settled some time since, the association had money in bank and was in a more properous condition than ever

Foreign Items.

THE British and Irish Millers Association have concluded not to have any exhibition of milling machinery this year.

THE MILLERS' Mutual Fire Insurance Company, of London has discontinued business. Several heavy losses disheartened some of the stockholders and they concluded to settle up and quit business. Non-mutual companies are rejoicing and saying: "I told you it would be so."

THE STEVENS roller system will be exhibited at the Royal Agricultural Show in Lontion in the imports from Austria-Hungary, considerably less than during the previous don, May next by Mr. Frederick Nell.

MESSRS. GANZ & Co., of Budapest, Austria-Hungary up to the close of the year 1881 had sold 6,340 sets of rolls. During the year 1880 they sold 1,326 sets many of them going to foreign countries.

THE Metropolitan Mills Co. (Limited) has been organized at Shad-Thames, London, with a capital of \$1,000,000.

Another Millers' School has been established in Saxony. The tuition fees are about \$15.00 per year. The cost of comfortable board and lodging is placed at about \$150 per

Flour and Grain Trade Notes.

THE average profits of the leading eight flouring mills at Budapest, Hungary, the greatest milling center in Europe, for the past year was 15 per cent, averaging all the way from 26.5 per cent to 5.3 per cent.

RECENTLY 150,000 bushels of corn were sold in Logan County, Ill., for 76 cents per bushel, to be shipped to Southern States.

THE initiation fee for membership in the St. Louis Merchants Exchange has been raised to \$2500. In Milwaukee it is placed at \$1000, and in Chicago at \$5000.

THE total amount of breadstuffs exported during March, 1882 were of the value of \$12,-404,735 against \$22,301,161 during March 1881. The total for nine months ending March 31, 1882 were of the value of \$147,701,367. against \$204,729,787 during the period ending March 31, 1881.

In his recent valuable work of "The World's progress," Michael G. Mulhall, an eminent English statistician, estimates the wheat lands of the world at 105,000,000 acres, yielding 15 bushels per acre and he states the crop, consumption, surplus and deficit of each country as follows:

	bus.	tion bus.	bus.	Deficit, bus.
United States	400000000		150000000	
France	250000000 160000000			30000000
Germany	150000000			20000000
Italy				5000000
Turkey U. Kingdom	90000000	80000000 200000000		110000000
Austria	90000000	76000000		
Spain & Portugal. Canada	85000000 40000000		10000000	
Australia	30000000		15000000	
Other countries	15000000	10000000	5000000	
other countries	20000000	139000000		119000000
Total	1540000000	1500000000	284000000	284000000

These figures represent the distribution of supply and consumption at the nearest obtainable dates to 1879, and may be regarded as affording a fair approximation to the facts of the case, says the New York Bulletin. It may be necessary, however to make some allowance for the circumstance that, at the period chosen for comparison, the crops of Europe were exceptionally light, while that of the United States was exceptionally large; it may therefore be open to question whether the distribution here exhibited is an entirely normal one. The exceptional conditions alluded to, gave to this country an ascendancy in the trade never before reached; and it is a problem which the future alone must determine how far that relative position can be maintained.

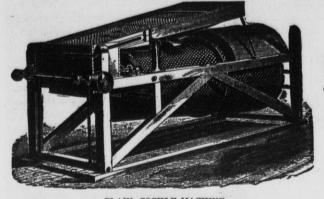
Many of the millers of Great Britain are very skillful in mixing wheats. Wheats from all parts of the world as well as home grown wheat are received at their mills, and the experienced mixer carefully examines each kind and mixes them in the proportion which he thinks will give the best results. American millers, fortunately, are not obliged to mix various foreign wheats, but the mixing of our native wheats is a good subject for them to study.

THE Ohio State Board of Agriculture estimates the coming wheat crop of that State at 35,612,190 bushels as against 37,581,094 for last year,

THE Illinois Department of Agriculture has reports for April on the condition of the wheat crop from 500 points, which give promise of more than an average yield per acre throughout the state, the northern division being 2 per cent. above the usual condi-

THE foreign trade figures of the port of New York, for March, bear testimony to the depressing influence of speculation and "corners." With ocean freights way down, and vessel agents in some cases paying for the privilege of carrying grain as ballast, exports exclusive of specie, were more than \$10,000,-000 behind those of the same month last year. The value of exports (including \$4,339,698 specie) was \$29,928,501, and of imports \$45,-383,384— of which less than half a million was specie. Speculation has put, and holds grain and cotton up to figures at which they cannot be exported, The foreign demand for these staples is supplied from other sources, and the United States is paying for its exports in gold and keeping its abundant products. COCKLE SEPARATOR MANUFACTURING COMPANY, MILWAUKEE.

GENERAL MILL FURNISHERS



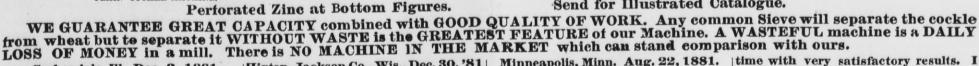
IMPROVED GOCKLE SEPARATORS

Richardson's Dustless Wheat Separators!

Also Sole Manufacturer of BEARDSLEE'S PAT. GRAIN CLEANER.

We will contract to furnish entire Wheat Cleaning Machinery for mills, and guarantee the best results.

Send for Illustrated Catalogue.



BEARDSLEE'S WHEAT CLEANER.

LOSS OF MONEY in a mill. There is NO MACHINE IN THE MARKET which can stand comparison with ours.

Carbondale, Ill., Dec. 2, 1881.

Cockle Separator Mfg. Co., Mitwaukee.
Gentiemen:-Heplying to your late favor, would say that we can cheerfully recommend your Cockle Separator as doing all that you claim for it we would not think of doing without it, having tried it once, and can conscientiously vouch for its good work.

Yours respectfully, Perrysville, Ind., Nov. 24, 1881.

Cockle Separator Mfg. Co., Mitwaukee.
Sirs:-The combined machine I bought of you last claim for it, and is the most perfect Separator with that I have any knowledge of.

Yours respectfully, Co., Mitwaukee.

Without wasting any of the small for it, and is the most perfect Separator of that I have any knowledge of.

Yours respectfully, User of the three is NO MACHINE IN THE MARKET which can stand comparison with ours.

Hixton, Jackson Co., Wis., Dec. 30, '81 Cockle Separator Mfg. Co., Mitwaukee.
Gentier—In answer to your inquiry of the what is the wheat of your last of the 28th inst., I would say that the what when the wheat of your last cleaners, a scourer and finisher, for nearly two years, and are not using then not perfect separator Mfg. Co., Mitwaukee, Wis., Aug. 23, 1881.

Cockle Separator Mfg. Co., Mitwaukee, Wis., Aug. 23, 1881.

Minneapolis, Minn. Aug. 22, 1881.

Cockle Separator Mfg. Co.:

We have been using two of Beards-lee's wheat cleaners, a scourer and finisher, for nearly two years, and are not using one kundred and fifty bushels per hour through them, one third more than rated capacity, and are not using one wheat as well cleaned as any in Minneapolis.

Yours truly,

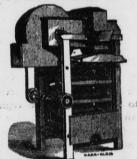
Yours

Pott's Patent Automatic Feeder! The best device for regulating the FEED ON ROLLER MILLS, PURIFIERS, and other machines requiring a regular feed, spread out the full width, Very cheap and simple. Sent on trial upon application. Write for circulars with illustrations. Perforated Zinc of all sizes at low rates. Send for Illustrated Catalogue.

HOWES, BABCOCK & EWELL.

Silver Creek, Chautauqua County, New York, U.S.A. Established 1856.

MANUFACTURERS OF THE WORLD-RENOWNED EUREKA GRAIN CLEANING MACHINERY AND SPECIALTIES HEREWITH ILLUSTRATED



The Eureka Separator occupies but little space, does its work in an effectual manner. Is also built for use in Elevators and Warehouses, with a capacity of from having thorough ventilation. Over 14,000 of these Machines are now in use.

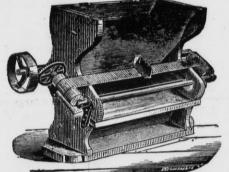
Machine,

Eureka Magnetic Automatic Separator.

Removes all metallic particles from a flowing stream of these Machines are now in use.



The Eureka Smut and Separating Machine,





Eureka Brush Finishing Machine Recognized as the leading one of this class of machines. Universally recommended for finishing the process of cleaning.



Silver Creek Flour Packer. Will pack whole and half barrels, [and half, quarter, eighth and sixteenth barrel sacks. Provided with labor-saying patent creveling steel coil spring regulating the packing to perfection.

GENUINE DUFOUR AND ANCHOR BRAND BOLTING CLOTHS, FULL STOCK ALWAYS ON HAND, MADE UP BY THE AID OF OUR OWN PATENTED ATTACHMENTS, IN A SUPERIOR MANNER.

Gen. Agency for Australian Colonies & New Zealand, THOS. TYSON, MELBOURNE, VICTORIA.

Abernethey's New Book.

PRACTICAL HINTS

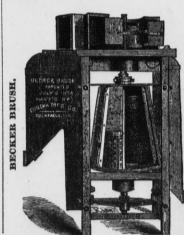
Mill Building.

The Latest, Best and Only Exclusively Flour Mill Work in Print.

Every Miller, Millwright and Millwright's Apprentice should have a copy. THE UNITED STATES MILLER for one year and a copy of this book will be sent for \$4.00, Address,

UNITED STATES MILLER,

Milwaukee, Wis.



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Manufacturers and Sole Proprietors of the

BECKER BRUSH.

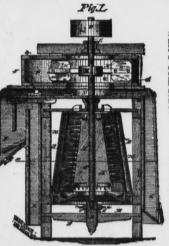
Galt's Combined Smut and Brush Machine. The Only Practical Cone-Shaped Machines in the Market, and for that

Reason the Best. ADJUSTABLE WHILE IN MOTION.

Nearly 1,000 of these Machines in Use.

In the United States and foreign countries, and so far as we know all that use them are pleased. Millers, millwrights, and milling experts claim the Cone Shape Solid Cylinder Brush is the true principle ito properly clean grain. All machines sent on trial, the users to be the judges of the work. For price and terms apply to

EUREKA MANF'G CO., ROCK FALLS, ILL., U. S.



ATLAS-CORLISS ENGINE.

HARRIS-CORLISS ENGINE.

WM. A. HARRIS, Providence, R. I.

Built under their original patents until their expiration. Improvements since added: "STOP MOTION ON REGULATOR," prevents engine from running away; "SELF-PACKING VALVE STEMS" (two patents), dispenses with four stuffing boxes; "RECESSED VALVE SEATS" prevent the wearing of shoulders on seats, and remedying a troublesome defect in other Corliss Engines, "BABBITT & HARRIS' PISTON PACKING" (two patents). "DRIP COLLECTING DEVICES" (one patent). Also in "General Construction" and "Superior Workmanship."

The BEST and MOST WORKMANLIKE form of the Corliss Engine now in the market, substantially built, of the best materials, and in both Coudensing and Non-Condensing forms.

The Condensing Engine will save from 25 to 35 per cent. of fuel, or add a like amount to the power and consume no more fuel. Small parts are made in quantities and inter-changeable, and kept in stock, for the convenience of repairs and to be placed on new work ordered at short notice.

NO OTHER engine builder has authority to state that he can furnish this engine.

The ONLY WORKS where this engine can be obtained are at PROVIDENCE, R. I., no outside parties being licensed.

parties being licensed. WM. A. HARRIS, Proprietor.

[Mention this paper when you write us.)

Replace Ordinary Engines, Gua teeing to Save One-Third Fuel.

Will

ATLAS ENGINE WORKS, INDIANAPOLIS INDIANA, U. S. A. BUILDERS OF ALL CLASSES OF

Engines and Boiler

We Build The Best Farm Engines and Small Engines for warehouses and elevators.

FOR ENGINE PAMPHLET.

The Miller's Daughter.

BY ALFRED TENNYSON.

I see the wealthy miller yet, His double chin, his portly size, And who that knew him could forget The busy wrinkles round his eyes? The slow wise smile that, round about His dusty forehead dryly curl'd, Seem'd half-within and half-without, And full of dealings with the world?

In yonder chair I see him sit, Three fingers round the old silver cup; I see his gray eyes twinkle yet At his own jest-gray eyes lit up With summer lightnings of a soul So full of summer warmth, so glad, So healthy, sound, and clear and whole, His memory scarce can make me sad.

Yet fill my glass: give me one kiss: My own sweet Alice, we must die; There's somewhat in this world amiss Shall be unriddled by and by. There's somewhat flows to us in life, But more is taken quite away. Pray, Alice, pray, my darling wife, That we may die the self-same day.

Have I not found a happy earth? I least should breathe a thought of pain. Would God renew me from my birth I'd almost live my life again. So sweet it seems with thee to walk, And once again to woo thee mine-It seems in after-dinner talk Across the walnuts and the wine-

To be the long and listless boy Late-left an orphan of the squire, Where this old mansion mounted high Looks down upon the village spire: For even here, where I and you Have lived and loved alone so long, Each morn my sleep was broken thro' By some wild skylark's matin song.

And oft I heard the tender dove In firry woodlands making moan; But ere I saw your eyes, my love, I had no motion of my own. For scarce my life with fancy play'd Before I dream'd that pleasant dream Still hither, thither idly sway'd Like those long mosses in the stream.

Or from the bridge I lean'd to hear The milldam rushing down with noise, And see the minnows everywhere In crystal eddies glance and poise, The tall flag-flowers when they sprung Below the range of stepping-stones, Or those three chestnuts near that hung In masses thick with milky cones.

But, Alice, what an hour was that, When after roving in the woods (Twas April then), I came and sat Below the chestnuts, when their buds Were glistening to the breezy blue; And on the slope, an absent fool, I cast me down, nor thought of you, But angled in the higher pool.

A love-song I had somewhere read, An echo from a measured strain, Beat time to nothing in my head From some odd corner of the brain. It haunted me, the morning long, With weary sameness in the rhymes, The phantom of a silent song, That went and came a thousand times.

Then leapt a trout. In lazy mood I watch'd the little circles They past into the level flood, And there a vision caught my eye; The reflex of a beauteous form, A glowing arm, a gleaming neck, As when a sunbeam wavers warm Within the dark and dimpled beck.

For you remember, you had set, That morning, on the casement's edge A long green box of mignonette, And you were leaning from the ledge: And when I raised my eyes, above They met with two so full and bright-Such eyes! I swear to you, my love, That these have never lost their light.

I loved, and love dispell'd the fear That I should die an early death: For love possess'd the atmosphere, And fill'd the breast with purer breath. My mother thought, What ails the boy? For I was altered and began To move about the house with joy, And with the certain step of man.

I loved the brimming wave that swam Taro' quiet meadows round the mill, The sleepy pool above the dam, The pool beneath it never still. The meal-sacks on the whiten'd floor, The dark round of the dripping wheel, The very air about the door Made misty with the floating-meal.

And oft in ramblings on the wold, When April nights began to blow, And April's crescent glimmer'd cold, I saw the village lights below; I knew your taper far away, And full at heart of trembling hope, From off the wold I came, and lay Upon the freshly-flower'd slope.

The deep brook groan'd beneath the mill: And "by that lamp," I thought, "she sits!" The white chalk-quarry from the hill Gleam'd to the flying moon by fits. 'O that I were beside her now! O will she answer if I call? O would she give me vow for vow, Sweet Alice if I told her all?"

Sometimes I saw you sit and spin; And, in the pauses of the wind. Sometimes I heard you sing within; Sometimes your shadow cross'd the blind. At last you rose and moved the light, And the long shadow of the chair Flitted across into the night, And all the casement darken'd there.

But when at last I dared to speak, The lanes, you know, were white with May, Your ripe lips moved not, but your cheek Flush'd like the coming of the day; And so it was-half-sly, half-shy, You would, and would not little one? Although I pleaded tenderly And you and I were all alone.

And slowly was my mother brought To yield consent to my desire: She wish'd me happy, but she thought I might have looked a little higher; And I was young—to young to wed: "Yet must I love her for your sake; Go fetch your Alice here," she said: Her eyelid quiver'd as she spake.

And down I went to fetch my bride: But, Alice, you were ill at ease; This dress and that by turns you tried. Too fearful that you should not please. I loved you better for your fears, I knew you could not look but well; And dews, that would have fall'n in tears, I kiss'd away before they fell.

I watch'd the little flutterings, The doubt my mother would not see; She spoke at large of many things, And at the last she spoke of me; And turning look'd upon your face, As near this door you sat apart, And rose, and with a silent grace Approaching, press'd you heart to heart.

Ah, well-but sing the foolish song I gave you, Alice, on the day When, arm in arm, we went along, A pensive pair, and you were gay With bridal flowers—that I may seem, As in the nights of old, to lie Beside the millwheel in the stream, While those full chestnuts whisper by.

Sixth annual meeting of the Wisconsin Millers Association.

The Wisconsin State Millers Association met Tuesday, April 11, in the Newhall House, Kimberly, Neenah; J. L. Clement, Neenah: E. W. Arndt, De Pere; B. F. Heald, Sheboy-necessary to organize a company under the gan; W. S. Green, Milford; O. Puhlman, Ply-charter obtained by the committee on insurmouth; Wm. Gerlach, Milwaukee; H. B. Sanderson, Milwaukee; S. H. Seamans, Milwaukee; E. Schraudenbach, Oconomowoc; Jas. Norris, Stoughton; S. P. K. Lewis, Beaver Dam; John May, Watertown; Wm. Albrecht & Co., Newburgh; J. Fliegler, Manitowoc; J. R. Davis, Jr., Neenah; Gilbert & Barber, Geneva, the representative of THE UNITED STATES MILLER and others.

President Sanderson, in calling the meeting to order, said that they had assembled together to talk over matters which had come up during the year; to discuss any new questions which might be suggested, and to select a delegate to the National Convention of mil-

Treasurer Seamans then made a statement of the financial condition of the association which showed cash on hand at last report \$701.66. Receipts during the year, \$4,143; total \$4,846.66. Disbursements to the amount of \$3,987.65 had been made, leaving a balance on hand of \$859.01. The finances of the assopaid up.

The secretary's report was then called for and Mr. Seamans presented the following sucthe same time the best course for the organization to pursue for the ensuing year.

SECRETARY'S REPORT. Mr. President :

Since our last meeting one year ago, we have only added one name to our list of membership. 78 firms are fully paid on the 1880 assessment, 76 have made the August payment and 72 the December payment of assessment No. 8 for 1881.

The new rating of capacity adopted at the last meeting of the National Association making 35 barrels of the output equivalent to a run of stone has, in many instances reduced the basis for assessment. Upon the old basis, our present paid up membership would equal 400 runs, while upon the present basis it is 380 runs. From present indications it will not be necessary to levy any assessment this year, and probably not next, and any future assessment will be very light.

In June last the delegates from the various state asso ciations held a national convention in Chicago. The principal business before that convention was discussing and arranging for the settlement of the "Cochrane fraud." As your delegate to that convention, I opposed that settle ment on the ground "that a fraud under no circumstances should be compromised," but the majority favored the settlement on the ground of expediency and economy, thinking no doubt it was the wisest course to pursue with what had been a very costly and vexatious suit. On the 15th of November following, the sub-executive committee of the National association, met in St. Louis, with the representative of the Cochrane case claims, when the case was settled according to the terms agreed upon in convention, for the members of the association who were full

paid. All others must make the best terms they can.
In 1877 this great "fraud" loomed up before us with s demand upon the mill industry of the country-according to their own estimates, for about thirty-six millions dollars, or a settlement on the basis of \$6,000 per run of stone capacity (which was modified, after our organization to \$1000 per run). Backed by a decision of the United States Supreme Court they considered their position impregnable—but combined effort, with determination, and goo legal ability, has enabled us, at a small expense, to each individual miller, to get a decision of the United States supreme court-so far as it affected us-set aside-and claims that were considered very "strong, by some of the highest legal talent in the United States, "melted away like dew before the morning sun." With this experience before us, the necessity for keeping up a strong organiza tion is very apparent.

The Denchfield cases are still on the docket. Although the suits begun in Wisconsin and Minnesota are supposed to be killed by the late decisions of the supreme court, the New York cases will have to be contested, as they do not come under the terms of those decisions: The sub-executive committee of the National Association met with the Denchfield claimants at Chicago for the purpose of effect ing a settlement of those claims, but their demands were so exorbitant that nothing was accomplished. This was before the late decision of the Supreme Court. We think now, they might be willing to modify their demand some what, if they had an opportunity offered for settlement.

With this case off our hands we will be entirely free from litigation, and I trust we may remain so—and the energy and efforts of the association turned into channels that will protect us from other impositions, equally damaging and more costly to the business than patent frauds, Front and foremost among these is the present mania for gambling in grain. The past season has been fruitful of disasters to the milling fraternity in this direction. understand full well, the cry and accepted belief that "nothing can be done to prevent it," "there is no use trying," "it is useless to stir up this matter." Well, perhaps this is all so, but I, for one, believe that with the courts in our favor, with laws behind us, much may be accomplished by united and persistent effort. We were told, "Oh, you can't beat the "Cochrane ring, they have got a decision of the United States Supreme Court behind them," but this did not save their gambling scheme from defeat. A long pull, a strong pull and a pull altogether is what will accomplish the work. In this short report, I have no plan to propose or suggestion to offer, but call your attention to the subject as a fit one for the associa-tion to wrestle with. Much may be accomplished by united effort that could not be done individually. I would also call your attention to the unfinished organization of a fire insurance company. This matter has lain dormant since our meeting in April, 1880.

Last year I issued, under the auspices of the National Association, a monthly crop report, which was sent to all members of the association. I would like to know from the members present their opinion as to the advisability of continuing these reports for the present season.

S. H. SEAMANS, Sec'y, The question of organizing a system of tary stated that nine incorporators were ance from the state legislature. Mr. Schuette, of Manitowoc, chairman of the committee on insurance not being present, no report was received. A resolution was offered and adopted directing the secretary to correspond with Mr. Schuette and find out what had been done by the committee and report to the executive committee of the association, and it was further resolved that they take such action as they may deem advisable to complete the organization of the company.

President Sanderson then called attention to the reference in Mr. Seamans' report to the subject of gambling in grain. He favored action, as a means of protection to millers. He regarded all dealings in options simply gambling. The persons engaged in trading in options might as well introduce faro and other devices for gambling upon the floors of our chamber of commerce, and test their fortunes in that direction. There is no question that a large majority of the dealings at present are by a class of people who do not ciation were well in hand, no licenses having or do not care to hold a bushel of wheat, but

been issued except to members who had fully simply settle differences. Recent decisions of the courts are pretty uniformly against the legality of dealings in options, and he had no doubt that these decisions will soon be cinct and interesting resume of the labors of universally sustained. He thought a resoluthe association for the past year, suggesting at tion asking the National Association to take cognizance of the question should be adopted.

Mr. J. R. Davis, jr., of Neenah, suggested the propriety of securing the passage of a state law to prohibit dealing in options. Mr. Otto Puhlmann, of Plymouth, stated that the trouble was not with the law or the courts, as there had been a decision of the supreme court declaring all option dealing illegal. The trouble was that the Board of Trade, an institution chartered by the state, considered itself above the law. The only way he could see to remedy this state of things was that a new law should be enacted in Wisconsin to bring the Board of Trade within the law, or else declare the same a public gambling

President Sanderson offered a resolution to submit the whole matter to the National Association for them to take action upon. Mr. Seamans opposed any movement tending to shift the responsibility from where it belonged. He said that the National Association wanted the support and backing of the state associations, and it was their duty to bear their share of the responsibility. He did not believe in whipping the devil around the stump-we must take the bull by the horns ourselves, and take prompt action upon that which is of such vital importance to us. Let our voice be heard in this matter. If the Chamber of Commerce is an illegal body let it be abolished.

Mr. Puhlman, of Plymouth, offered the following resolution:

Resolved, That a committee of five be 'appointed, of which the secretary of this association shall be chairman, whose duty it shall be, with such legal assistance as they may require, to draft a bill for presentation at the next meeting of the legislature providing for the suppression of gambling, or dealing, in options of grain.

Mr. Seamans offered the following as a substitute, which was accepted by Mr. Puhlman, and adopted in the following form:

Resolved, That a committee of five be appointed by the resident, who shall take into consideration what course s necessary to be taken looking toward the suppression of gambling or dealing in options in grain; that they consult with such legal talent as they may deem necessary, and that they report to the executive committee the result of such investigation for their action.

Resolved, That the executive committee be instructed to carry out the report of said committee if in their judg-ment deemed advisable.

Mr. Schraudenbach moved that Mr. Seamans be added to the committee and act in the capacity of chairman, which was accepted without a vote. Whereupon the president named the committee as follows: S. H. Seamans, chairman; Otto Puhlman, C. Manegold, J. B. A. Kern, J. L. Clement, A. Syme.

Mr. Kimberly, of Neenah, remarked that we had just got through with one big law suit and the Lord only knows what kind of a law suit this will get us into. Mr. Puhlman further stated that there are men on the Milwaukee board of trade who buy and sell millions of bushels of wheat and cannot pay for a thousand if called upon-being perhaps only able to put up margins sufficient for a thousand bushel deal. Mr. Sanderson stated that he heard a man say on 'change a few days ago, that he had sold half a million bushels of wheat and never owned a single bushel. There is No. 2 wheat in Chicago elevators today which has been there for three years. Mr. Clement, of Neenah, said that the dealer mentioned by Mr. Sanderson was just the sort of man the association should get hold of. Milwaukee, with the following members pres- mutual insurance among millers came before They are within the operation of the penal ent: Edward Sanderson, Milwaukee; J. A. the meeting for consideration. The secre- laws of the state, and should be put through. The next business in order was the nomination and election of officers.

Mr. E. W. Arndt, of De Pere, offered a resolution which was adopted, that a committee of three be appointed by the president to nominate officers for the ensuing year. The president appointed E. W. Arndt, B. F. Heald and Jas. Norris such a committee. The committee reported the following nominations:

President, E. Sanderson, Milwaukee; first vice president, J. L. Clement, Neenah; second vice president, Otto Puhlman, Plymouth; secretary and treasurer, S. H. Seamans. The report was unanimously adopted.

The president nominated as executive committee-J. A. Kimberly, Neenah; W. S. Green, Milford; J. B. A. Kern and Chas. Manegold, Milwaukee. Mr. S. H. Seamans was nominated and unanimously elected to represent the state association in the National convention. Mr. Sanderson requested the views of the members with regard to the secretary continuing the publication of his monthly report of the crops, same as furnished last year. The members were unanimously in favor of continuing the publication. Many thought it the most reliable information they obtained from any source.

The meeting then adjourned sine die.

The Story of Joseph as Applied to Grain Speculators.

Our brilliant and esteemed contemporary, the Cincinnati Commercial comes to the defense of the "bull" speculators in food supplies who are so noted in that city, with a formidable precedent from Old Testament history. Only a constant and ingenious student of the Bible would have thought of the familiar and fascinating story of Joseph as affording an illustration of the most successful and beneficent "bull" speculations in corn on record, or could have transposed that Chicago speculators of to-day, without losing its substantial accuracy and its interest.

That we do not unduly compliment our Cincinnati contemporary we will prove by giving a portion of its Westernized version of one of the most marvelously attractive of Scripture stories, viz:

Foreseeing a series of years of scarcity and famine in Egypt, and, as is claimed for him, illuminated by divine revelation, Joseph proceeded to buy up and store in the King's elevators, anciently called granaries, all the surplus wheat produced on the fat lands of the Nile Valley.

He adhered to this policy during seven years of unusual fruitfulness, and drew at will on the King's treasury for the money with which to control the market. He took all that was offered cheerfully, and ransacked the kingdom for every spare bushel of grain.

Then came the seven years of scarcity and famine. The Egyptians, having exhausted their reserves, became clamorous for food, and Joseph took advantage of their necessities and turned them to his own and the King's best account.

While our esteemed contemporary is entitled to credit for bringing at least one portion of the Bible within the easy comprehension of the Cincinnati speculators, we are sorry to be compelled to say that the Commercial's "improvement" of its Scripture is one of the most palpable non sequiturs on record. For it improvidently observes:

The only difference between the ancient and modern speculators is that now there is not an absolute monopoly of the business. Now the Josephites are numerous, but none illumination as to futures in wheat, hence be unmistakable. their frequent mistakes and the penalties they often pay in shipwreck of fortune. But Mine in Ontonagon County kindly took me when they are railed at and abused, as engaged in disreputable business, and at the cost of the consumer, they can point with pride to the example of the wonderful young man whose adventures on the road to fortune were not surpassed by those of Aladdin with his surprising lamp.

Now we are obliged to remark in regard to the above that when so immoral and false a deduction is drawn from so ably stated a premise, by so influential a journal, it is important to the interests of legitimate trade and business morality, to insist:

1st: That Joseph was not an example of the grain speculators of the present day, in any degree or to any extent. He, like the late Commodore Vanderbilt, paid for what he bought, "took it out of the market" and carried it without the help of any loans.

2d: Joseph did not create an artificial scarthereby "sustained prices" for the Egyptian

rates and doubtless at an enormous advance on the original cost" requires substantiation. but, at all events, he sold the corn that kept an improvident people alive and did not take their farms for the "differences" and keep

4th: There is no part of the Bible which the modern "bull" speculators in food supplies may read to greater moral advantage than that which the Commercial has so kindly adapted to their comprehension. Joseph's immense speculations in corn did not create an artificial scarcity of the necessities of life, but saved a whole people from starvation. It was a bona fide and honest operation. He did not buy imaginary corn, but the real article. If the Chicago and Cincinnati speculators would study and follow his great and good example, it would be infinitely better for the country, and, in the end, for themselves. Perhaps Mr. Halstead, who is a humorist, and who may be unwilling to face New Orleans was inundated. a gang of infuriated speculators in "futures," thought that the moral of the story of Joseph would be irresistable and that his non sequitur lars are given. would be easily discovered to be a fine piece of irony .- New York Mail.

Prehistoric Mining in Michigan.

The Lake Superior mines have the advantage of producing metal free from any alloy of antimony or nickel or arsenic. In many of the mines great masses of native metal are found so large that they must be cut in place with chisels.

All the more important mines are situated on the ancient workings of a prehistoric race. They seem to have been ignorant of the fact that copper could be melted, for they left behind them the fragments too small to use and the masses too heavy to lift. Every day they story into the dialect of the Cincinnati and subjected it to a temperature nearly high enough, without making a discovery which would have lifted them out of the Stone Age into the Bronze Age, and perhaps have enabled them to survive the struggle in which they perished. They must have been very numerous, and have reached the point of development where they were capable of organizing industry.

In Isle Royale, near the Minong Mine, their pits, excavated to a depth of from ten to twenty feet in the solid rock, cover an area of from three to four hundred feet wide and more than a mile and a half in length. The labor expended here cannot have been much short of that involved in building a Pyramid. Isle Royale is ten miles from the nearest land, and is incapable of producing food, so that all supplies except fish must have been brought from some distant point. Their excavations could of course never go below the point at which water would accumulate. Their hammers, frequently to the number of several thousand, are found in heaps where they were evidently placed at the end of the season. As no graves or evidences of habitations are found, we can hardly doubt that the ancient miners lived south of the great lakes, and made yearly journeyings with inconceivable how they were constructed. fleets of canoes to the copper mines. The aggregate amount of the metal which they carried off must have been very great, and it has, I believe, been generally thought that the copper implements of the ancient Mexicans came from this source. M. Charnay in a to think that the Mexicans reduced copper from its ores. A chemical analysis of their hatchets would solve the question, for Lake of them have the advantage of a supernatural Superior copper is so free from alloys as to

The superintendent of the old Caledonia

to the top of a cliff where three Cornish "tri- the arts, sciences and literature, had engineers buters "-miners working not for wages but for a share of the product-had cleared out one of the ancient pits in the outcrop of the vein. They had brought out a quantity of copper, and had just uncovered a large mass which would weigh certainly not less than seven tons. Many battered stone hammers lay around the mouth of the pit. The active have thoroughly mastered the conditions little Englishmen, belonging to a race of required for the inception of the work. hereditary miners perhaps as old as the Mound-builders themselves, had come around the world from the east to finish the work of the departed Asiatic race who reached here from the west at a time to which no date can be assigned. Not far away another party had cut down a dead cedar to make props for their tunnel. As they were putting the log in position, from its center dropped a small but perfectly formed stone hammer which city of corn, but bought the surplus only, and had never been used. It was made from a stone found, I believe, only on the north shore of the lake. This tree was not far from 3d: The statement that when the famine two hundred and fifty years old; but as cedar came he "sold his supplies at the highest is almost indestructible in this climate, it may have been dead several hundred years The axeman said that he had found several hammers in the centre of cedars. It would seem barely possible that this hammer had been placed in a cleft of the three, when it was a sapling, that the wood might grow around the groove and serve as a handle. At all events, this one, which I have, was certainly placed where it was-about thirty inches from the ground-by human hands, undoubtedly by the ancient miner himself, when the tree was a twig.—F. Johnson, Jr., in Harper's Magazine for May.

Some Mississippi Overflows.

The history of the Mississippi Delta is a history of repeated overflows.

Francois Xavier Martin records an extra-

ordinary rise in 1718 Gayerre states that in 1735 the waters were

so high that many levees were broken and and he was gone. Dave went home and

A great flood is recorded by Gov. Sargent as occurring in 1770, of which few particu-

In 1782 the whole districts of Attakapas and Opelousas were inundated.

Another overflow occured in 1785, another in 1791, others in 1796 and 1799, and 1800, according to Gov. Sargent; the resulting devastation was so great that the people imagined the Northern lakes had broken through a channel to the river.

In 1811 and 1813 the river again broke through the levees, inundating the entire Teche Country, and in 1815 "a very great flood" occurred, in which the Ohio River reached at its mouth the highest point ever

Again in 1816, 1823 and 1824 portions of the ountry was overflowed.

Between 1824 and 1860 seven "great" loods are recorded, respectively in 1828, 1844, 1849, 1850, 1851, 1858 and 1859. All these were marked with great destruction of property, but that of 1850 was by far the worst, the damage occasioned being immense, the St. Francis, Tensas, and Yazoo Bottoms being entirely submerged. The principal breaks in the levee were above the Louisiana line at Bayou Macon, at Point Lookout, at Island No. 102, at New Carthage and Rodney. The waters during this overflow rose steadily until March 15, then declined slowly until early in April, then rose again until the middle of May when they attained their highest point, and then rapidly subsided, resulting in the almost entire destruction of the crops.—St. Louis Miller.

Ancient Engineering.

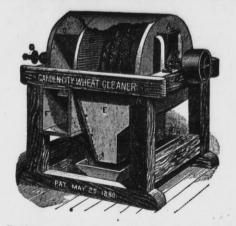
The ancients, when all is said and done that can be, in favor of modern prowess and progress, knew a few things that we moderns have no sort of conception of. In a late celebrated work on architecture, the author says that not only is it impossible to duplicate the great temples of Athens, but it is The same may be said of the temples and the pyramids of Egypt. The Roman roads were superior to any constructed in modern times. Their very remains are stupendous. The ancient canals of India and her immense water reservoirs, including their sites, are recent number of the North American seems incapable of being improved upon. In fact, the very ruins of the ancient are "tremendous." One of the latest discoveries of the wonderful engineering ability of these ancients is the fact that, in preparing to cut a tunnel through the Isthmus of Corinth, it has been brought to light that the Roman Nero, as notorious for his cruelty as for his love of upon the same spot; and more, that the route selected by them has been selected by the engineers now having charge of the modern undertaking. But Nero was preceded by Alexander the Great in the attempt to carry out the colossal undertaking, and in both instances, the engineers showed themselves to

Splendid Joke on His Wife.

Dave Goudy is one of the dryest jokers in the world, and he had just as soon play a joke on a member of his own family as not. Dave's wife is a friend of his, and so she is subject to his jokes. She hates Indians, and always locks the doors when she sees the beggars who camp around Beaver Dam coming toward the house. Dave knew this, so he hired an Indian to go up to the house and get in, with a pass key, and beg a pair of Dave's old pants of the good wife, which she circular. would gladly give to get rid of him, and then offered the Indian 50 cents if he would go right into the parlor and put the pants on. Dave thought it would be a splendid joke on Machine. his wife, and he got a drug store man named Griffis to go with him and watch the fun from a distance. The Indian got into the house, and when he asked for a pair of old pants the good lady saw through the joke and she gave him Dave's Suuday pants, and he went into the parlor and was going to put them on. This was to much for her, and she went to the kitchen and got a dipper of hot water. Nobody knows exactly what occurred, but Dave and Griffis suddenly saw an Indian come out of the front door, with one leg in a pair of black doeskin pants and the other pant leg dangling in the air, and the Indian yelled as though he was in pain, and he pulled out for the camp up the lake about six miles. As he passed the two gentlemen the Indian said: "Squaw heap spunky. Ugh! Hot water," asked what the news was, and found that he was out of a pair of Sunday pants in the pocket of which was \$12 in money, and his wife says when he wants to send his friends up to the nouse for any more pants to do so, by all means. She will be at home. Beaver Dam (Wis.) Argus.

BEST IN THE WORLD."

GARDEN CITY



Gathmann's patent "inclined bristles" prevents all clogging when the brushes are run close together. This is the

ONLY DOUBLE BRUSH

Which can be set up close so that it will

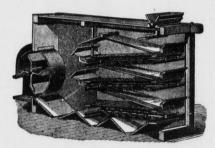
Thoroughly Brush Wheat. Guaranteed to IMPROVE COLOR of the FLOUR.

It don't break or scratch the grain. Removes all the dust. Very light running. Send for circular and prices.

Prices Reduced!

Improved Garden City

Middlings Purifier!



With Travelling Cloth Cleaners

Our improved Purifier has every device requisite to make it perfect, and every one in use is giving the greatest satisfaction to the users. The Cloth Cleaners are guaranteed to clean the cloth better than is done on any other purifier. Send for our new

Over 4000 Garden City Purifiers in use, nearly 500 of which are the Improved

The Best and now the Cheapest. Write for circulars and price list.

We are agents for the

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Which has long been acknowledged as the best made, and which has lately been further improved, making it now beyond competition. We make it up in the best style at short notice. Send for prices and samples.

Garden City Mill Furnishing Company,

CHICAGO, ILL. Mention this paper when you write us.

Legality of Grain Contracts.

REVIEW OF THE DECISION OF THE SUPREME COURT OF THE STATE OF WISCONSIN, UPON GRAIN CONTRACTS, BY GEO. B. GOODWIN, ATTORNEY OF MILWAUKEE CHAMBER OF COMMERCE.

The case of Barnard vs. Backhause, upon the subject of grain contracts, just decided in our Supreme Court, published in The Legal News on the 23d of July, although involving no particular new theory upon that subject, is of much importance to the public, as it involves methods of trade connected with commission men and the Chamber of Commerce. The action was brought upon a prommissory note, given in settlement of a contract for the purchase of wheat and the Supreme Court reversed the decision of the County Court holding that the note was tainted with a gambling debt and was therefore void.

The Court in this opinion says: "There can be no doubt that a contract in writing for the sale and delivery of wheat, at a future day, for a stipulated price, which is made with a bona fide intention on the one hand of delivering the property and on the other of receiving and paying for it, is perfectly valid." Again the court says: "Persons may and do purchase wheat in advance because they believe there will be a rise of price in the markets of the world in consequence of scarcity or some unusual demand; they may and do speculate in regard to future prices, exhibiting great forecast and ability, and, so long as these engagements are entered into with the intention that the subject matter of the contract shall be delivered and received in good faith, courts uphold their agreements." The court approvingly cites Justice Agnew 72, Pa., S. as follows: "It is not too much to require a party, claiming rights under such contract, to make it satisfactorily and affirmatively appear that the contract was made with an actual view to the delivery and receipt of grain."

The result reached seems to be that to make such contracts valid, there must be an intent to receive and an intent to deliver the wheat, and that this intention must be shown by the person seeking to recover, in addition to a written contract; that the onus probandi is on the person seeking a recovery on such contract, and that such contracts become gambling unless the subject matter of the agreement is to be delivered and received in good faith. While the rise in price is the object of the speculation, yet the court treats the subject as if the receipt or delivery of the actual grain were the speculative object. and, in the opinion of the court, the legitimate speculation for profits is rendered unlawful whenever the profits and not the subject that produces the profits is sought. The grain must be intended to be actually delivered and actually received, says the court, in good faith. This good faith is resolved by the court into an intent to receive and an intent to deliver, the intent resting in the mind of each party to the contract. The party who agrees to deliver, may have the intent to do so, but if the party to receive at the end of a bad speculation concludes that this "intent," notwithstanding his written contract, was not to receive, he can thus escape liability.

In a gambling contract, which the statute prohibits, there must be at least two parties to the engagement, but a wheat deal is pronounced unlawful if only one of the parties to the contract had an intent either not to deliver or not to receive, no matter what the written contract is. By the decision, to make a valid contract, both elements must exist; therefore if one of the parties swears and makes corroborative proof, that he never intended to receive the wheat, no matter how strongly the other party avers and proves that his intention was to deliver, the contract must be held illegal, for both parties must intend to deliver and receive respectively. It then comes to this, that a commission man may bind himself in writing to deliver the wheat, and intend to deliver it, yet he cannot recover, but must go a step further and prove that the resisting party intended to receive it. The repudiator may swear to his intention and who can contradict him? If he swear falsely, no indictment for perjury will lie. He is only stating on oath his concealed and undiscoverable mental condition, at the time of the trade. He may show that the other party had no wheat on hand to deliver, and it may be replied that he was ready and willing to deliver, and yet the intent not to receive, in the mind of a repudiator will render a willingness to deliver of no avail. To the vicious evil of repudiation is thus added an inducement to falsehood, and to the taking of unpunishable oaths.

If such is the law it certainly ought not to

This decision also puts the burden of proof, as to the bona fides of the transaction upon the claimant. He must not only show his written contract, containing the terms and conditions of the sale, but he must support it with proof that it was not only his intent to deliver the wheat, but also the intent of the other party to receive it.

The contract has no force, its language is construed into a cover for gambling, and the party must show its hands to be clean, before they are proven to be dirty. How a person seeking to recover on such a contract should show what the repudiating party's intentions were, I cannot see, and certainly a defense interposed would be the anticipation of success to the defendant. Other courts have placed the proof of this defense on the defendant; notably in the Circuit Court for the western district of Wisconsin. Certainly that much should be rigorously required in an unconscionable defense. The written contract should be prima facie lawful, and the defendant at least should be forced to show clearly a gambling agreement, or fail. This, of course is a criticism upon the method of ascertaining a fact, and not upon the fact, yet it is quite material as to who shall take the laboring oar in such an action. The rule laid down by the Supreme Court in this respect, is different from the rule in other cases. The presumption that holds in every other kind of contract is not in wheat deals, allowed, and the contract comes into court worse than a criminal, without a presumption in favor of its legality.

A single illustration will show how easily a person may repudiate by taking advantage of this requirement of the decision by showing his own intentions. A contract for future sale of grain may pass through twenty hands before maturity. When a purchase is made and entered by the commission house, it may do service in setting it off against other outstanding contracts, and large amounts pass from hand to hand in the line of trade before delivery; and again, the owner of the contract anticipating a changing market, may sell the wheat which has been bought for him at a present price, and fill his last contract with his anticipated wheat, and thus save or lessen a loss, even pocket a gain, and although he has fully profited by his speculation, he can make a little more by finally insisting that he was a gambler and never intended to receive the wheat, although he ordered his broker to purchase it for him and agreed to receive it, and has traded freely on the credit of it. And according to this decision, if he can establish his intent, he must, succeed. A legitimate result of this decision, although not intended by our court, will be to give the shield of the law to a dishonest loser, and to open the door to unfortunate ones to come in and offer defences supported by evidence of negative intents.

Why should the intent existing in the mind of one of the parties have any weight as against a written contract? To say the least, why should not the defendant be required to prove that both parties had the gambling intent? And why should not the burden of proof be upon the contestant?

Suppose a purchase of wheat is made for future delivery, upon the expectation on the part of the buyer, that some calamity will unsettle the government and both parties base their calculations of gain or loss upon this expectation, this would be a lawful speculation. The buyer, however, concludes that there will be no such calamity, and like a prudent business man, he gets out of his contract by at once paying the damage or difference, anticipating the same. His written desustain an action under the statute, to recover back the difference.

Suppose again, without anticipation of a calamity, but from a study of markets, territory planted, and conditions of railroads, a person concludes that wheat next September will be worth ten cents per bushel more than now, and he orders a million of bushels. He concludes, before September that conditions are better and that wheat will be two cents less, and he accordingly sells a like amount to some one else, covering his anticipated loss to a certain extent. What does it matter, in morals or in law, whether the wheat is to be actually delivered in September? He has

pleased to let A under obligations to deliver B 100,000 bushels of wheat at \$1.10, actually deliver it to B at \$1.10 and B at once sell it back to A and deliver it at once at \$1.05, thus giving B five cents on a bushel? Why not each keep his own wheat and pay the difference? Why send a car-load or two to B and bring back a car load or two, when a balance and check would settle it? Delivery is no element in the transaction. Any commission house having a responsible purchaser can deliver at any time; but it would be merely putting property down with the left hand and taking it up with the right. If there were no fixed daily market price, the case might be different. Every executory contract is formed on probabilities. Every speculation is the child of hope; and every breach of a contract is measured in damages, by differences in values at law which always satisfy contracts. The difference between a gambling and speculative contract is close but well defined. In a gambling contract, an arbitrary sum, without consideration, is put up as a forfeit on some event. The wage is measured by no value. It is neither increased nor diminished by any natural law. It is the backing of an opinion resting on chance. Such contracts are obviously demoralizing and run against public policy. The loss of the wage is total, without the intervention of wit, risk or credit. A time wheat contract does not have this element. It is based upon the future, but inevitable condition of the wheat market, where the price of wheat is fixed and determined by the laws of trade, supply and demand. The event is not uncertain; the amount to be paid one way or the other is measured by the market, just as the amount of damages for a breach of such contracts is fixed in the law by the

You may bet a million of dollars that it amount that may be bet, and it has no relation to the event. The happening of the event causes the wage to change hands. This is far different from making a contract to sell wheat. In such contracts, margins are a part of the purchase money, the market fixes the amount you must pay if you fail to receive or fail to deliver. Nothing is forfeited, nothing is bet, nothing is left to chance. If you fail to deliver and are sued, the court will give you in damage, the difference between the contract price and the market price on the day of fulfillment. It seems to me that the error is, in considering the wheat delivery, in form and not its equivalent, as all important. Under this decision it is established that the contract is void, even though the broker, pursuant to his written contract, tenders the wheat. Why should not the tender of the wheat to the purchaser make the contract solid? What gambling arrangement can be conceived where a fulfilment of the contract could be made by a tender of anything. It seems to me that the courts confuse margins with wagers or bet money. They are not. They are payments on the centract. They are not wage money any more than the part of the purchase money of a piece of land may be said to be a wager, which may be lost. The purchaser may conclude that the land is too dear, or land may have fallen in the market, and the purchaser may prefer to let it go and loose what he has paid and pay the damages. If the margins are not the wage, then where does the gambling arise? Can it be said that the wage money is the difference in market prices? Clearly not; because that is only the amount hat the court would compel you to pay you did not fulfil your agreement.

A knowledge of the extent of wheat exchange is of benefit in considering the question. Commission houses in Milwaukee cision would be legal, and no court would daily, and almost hourly, receive orders from all parts of the country and from Europe by mail and telegraph for the purchase or sale of wheat, by the thousands of bushels. These dealings continue, until mutual obligations to sell or deliver may be very extensive. Trade, consulting shortest methods as the best, has a sort of exchange, setting off one contract against another, just as banks have their clearing houses. To deprive commission men of this right of exchange would almost stop business. So too, the single purchaser has agreed to buy 10,000 bushels on a fixed date. Instead of receiving 10,000 bushels and selling it immediately and paying or receiving the difference, he exchanges the subtraded in and out on his contract. He has ject matter. Our Supreme court, however, had credit on the strength of it; and some says if it is intended practically and in effect parties have received, and all, I think, should to make this exchange, and pay the differreceive the legitimate results of their forecast. ence when the contract is made, the contract How is it material whether the wheat in bulk would be void. The effect of the decision two months of persons and firms in the millis delivered? Would the law be any better seems then to be, to make wheat trades ing and grain trades.

moral, by making them difficult, or by giving dishonest men a chance to repudiate their written contracts.

In conclusion I call attention to the fact that the Legislature of this state has sanctioned the contracts pronounced by this decision to be illegal. The Chamber of Commerce has authority under its charter to expel a member and deprive him of valuable rights and privileges if he does not fulfil the kind of contracts in this decision pronounced void. The legislature knew the methods of business of this corporation, the courts have recognized its authority and its deciplinary rights. So have the legislatures, in nearly every state, chartered like institutions with like power. The court, however, says that a person may have his property forfeited for repudiating a contract which the court pronounces illegal, and that contracts, the making of which the Legislature has sanctioned by chartering an institution for that kind of business, are illegal and void.

Infant Food.

There are about twenty European preparations styled infant foods, beginning with that of Nestle, and at least twice as many American, all of which profess to furnish a complete nutrition for the infant during the first few months of its existence, while yet the conversion of starch into dextrine and sugar is beyond the capacity of the untrained digestive function. The examination of these with a microscope, assisted by such simple tests as iodine, which turns starch cells blue, and gluten (or albuminous) granules yellow, has engaged the careful attention of Dr. Ephraim Cutter, of Cambridge, and his results will startle most mothers who have relied upon the extravagant pretenses set forth will rain to-morrow. There is no limit to the in the circulars of manufacturers. Eliza Mc-Donough, who preceded Dr. Cutter in this field, has been in a measure discredited.; but it appears that her assertion-that the starch so far from being transformed into dextrine, was not sufficiently altered to render the recognition of its source difficult, whether from wheat, corn, rye or barley-was strictly true, and that these pretentious foods are, without exception, nearly valueless for dietetic purposes. All of them consist of baked flour mainly, either alone or mixed with sugar, milk or salts. In some cases the baking has been very inadequately performed, and the doctor found one that consisted merely of wheat and oats whose starch cells were proximately in their natural condition. The general result of Dr. Cutter's examination may be stated in brief terms as follows: There was scarcely a single one of the so-called infant foods that contained a quantity of gluten as large as that contained in ordinary wheat flour. That is to say, a well compounded wheat gruel is superior to any of them, particularly when broiled with a little milk; and mothers are in error who place the slightest dependance upon them. As respects one very expensive article, professing to possess 270 parts in every 1,000 of phosphatic salts in connection with gluten, Dr Cutter was unable to find any gluten at all. The thing was nearly pure starch sold at an exorbitant price as a nerve and brain food, and a great remedy for rickets. So all through the list. Sometimes a trace of gluten was present; more frequently none at all. In one case there were ninety parts of starch to ten of gluten; but this was exceptional, and the majority were less valuable, ounce for ounce, than ordinary wheat flour. 'Considering the semi-philanthropic pretensions that have been put forth by the manufacturers of these foods, some of them sustained by the certificates of eminent physicians, the report of Dr. Cutter is one of the dreariest comments upon human nature that has recently fallen under the notice of the journalist. But if the revelation he has made of fraud and pretense on the part of manufacturers in this field shall serve to protect mothers from further betrayal, and to rescue infant life from quack articles of nutriment, his work, though giving a tremendous shock to our sensibilities and to our faith in medical certificates, will not have been done in vain.—New York Times.

> A GERMAN correspondent of Die Muehle, published at Liepsig, Germany, thinks that the late great depression in the milling business is caused principally by the increased capacity for production and by grain specu-

> QUITE a number of heavy failures have been announced in Europe during the past

NEWS.

Everybody Reads This.

ITEMS GATHERED FROM CORRESPONDENTS, TEL-EGRAMS AND EXCHANGES.

WATERTOWN, Dak., will soon have a new roller mill.

ADAM BAER, miller at Greensburgh, Pa., is

dead. J. D. Chubb is building a mill at Silver Creek, Minn.

Burned, E. & G. Folton's mill at Acton, On-

M. S. REXFORD is building a mill at Norman,

Dakota BURNED-Gowen Bros'. mill at North Chester,

H. Wolborn has sold his mill at Carey, O., to J. C. Shaler.

EMIL SPIELER, of Creole, Ark., is building a custom mill.

EBENEZER WHEELER has sold his mill at St. Johnsbury, Vt.

A NEW mill is being built at Huntsville, Ala., for Wm. Hussey

J. F. & J. L. Shields have sold their flour mill at Thompson, Ga. J. R. Roberts is building a custom mill at

Georgetown, Tex. S. G. Cook has purchased the mill at Maguire,

Minn., for \$75,000. STEVENS & BARKER, of Chicago, Ill., have dis-

solved partnership. Anthony Benning & Sons are building a mill

at Frankfort, Minn. WHITTINGTON & FRAZEE, of Calhoun, Ill., are

remodeling their mill. Mrs. J. B. McDougal has purchased Craske's

mill at Stirling, Ontario. Burned-Krutz & Washburne's flour mill

at Junction City, Oregon. Perry Hutchinson is building the largest mill

in Kansas, at Marysville.

SHELLENGER & HUFFMAN, at Healdsburgh, Cal., have sold their mill.

THE Pillsbury A mill at Minneapolis is lighted throughout by electricity.

WM. RUDOW, of Osceola, Wis., is changing his Cascade mill to a roller mill.

W. S. GILBERT's mill at Staun'on, Ind., is being enlarged and remodeled. THE Anchor Milling Co., of St. Louis, are put-

ting in 10 pair of Gray Rolls.

JORDAN BROS. mill, at Lower Verde, Arizona, was recently destroyed by fire.

SHEAZLEY & Son, of Osnaburgh, O., have sold out to George Leibtag & Co.

JAMES HARVEY, of the milling firm Mann & Harvey, at Wilber, Neb., is dead. LINN & COOPER are building an 80 barrel steam

flour mill at Humboldt, Nebraska. RECTOR & Son, of Nebraska City, Neb., have

sold their mill to John F. Kennedy. J. J. Melvin & Son, of Comstock, Ky,, have

sold their mill to Francis H. Beard. D. H. Morse succeeded Morse & Hazen in

the milling business at Hartford, Vt. C. H. NUTTER & Co., of Brighton, Ill., have

ordered a full line of the Gray Rolls. The Star City Hominy & Flour Co., is the name of the new firm at Lafayette, Ind.

STRATTON & POWELL succeed J. K. P. Walker in the milling business at Corning, Ark.

G. W. BIRD & Co., succeed Eikerman & Bird, in the milling business at Oswego, Kan.

THORNTON & CHESTER'S new roller mill at Lockport, N. Y., is to be completed by July 1st. lic. The people will vote on the question next J. S. Wright & Co., Blue Rapids, Kan., are succeeded in business by Cyrus Upham, Son &

HORACE DAVIS & Co's new 1000 barrel roller mill in San Francisco, is now running on full

Wilson & Clough, of Chesaning, Mich., are succeeded in the milling business by Chapman

E. J. Sheldon, of Manchester, N. Y., is putting in the Gray Reduction and Separating Ma-

THE Kehlor Milling Co., of St. Louis, have ordered a 28x48 Reynolds Corliss Engine, for their new mill.

THE New Era Mills, of Milwaukee, are largely increasing their capacity and putting in the Gray Rolls.

WARD & Tyson, millers at Limerick, Pa., have dissolved partnership; J. & C. Ward continue the business

Chas. Troupe, of Watseka, Ill., is about commencing the erection of a three run new process flouring mill.

A "Kansas Zephyr" recently badly demoralized the Woodbine Flour Mill and moved it from its foundations.

THE milling firm of Damp & Drayton, at Ashland, O., is dissolved. The business will be continued by John Damp.

THE Indianapolis flouring mills have a capacity of 2000 barrels per day. The product for 1881 was 249,367 barrels. HARRINGTON & MOOREHOUSE, of Jefferson,

Iowa, are improving their mill and putting in the Gray Rolls and System. Styles & Johnson, millers at Monroe, Mich., have dissolved partnership. Each will con-

tinue in the milling business. APRIL 2, Sperry & Co's mill and warehouse at Stockton, Cal., was burned. Loss \$200.000,

with an insurance of \$80.000. A CYCLONE destroyed several business houses at Chase, Kan., April 7th and killed J. E. Reid, the hotel proprietor at that place.

THE high water in Coon River recently undermined Bert & Demeer's mill at Grant City, Ia., and nearly destroyed the mill.

A. H. Sibley's grist mill at Baltimore, was recently destroyed by a boiler explosion. Several persons were killed and many injured.

THE "City Mills," Toronto, Canada, were damaged by fire, March 31, to the extent of about \$4000. The mill was unoccupied.

THE John T. Noye Mfg. Co., of Buffalo, N. Y., have purchased the patent for England covering the Cosgrove Concentrated Roller Mill.

MESSRS. Trow & Co., have completed their new mill at Madison, Ind. It is to be hoped that the fire fiend will now cease pursuing

KIMBALL & BEEDY, millers at Forest City, Minn., have made an assignment to H. Stevens. Liabilities are placed at \$30,000. Secured claims \$15,000.

ALL owners of mill-dams in Kansas have been notified by State Fish Commissioner Long to have fish-ways placed in their dams by May 1st.

Messrs. Geo. Priest & Co., of Decatur, Ill., are putting in 36 pairs of the Odell Roller-mills manufactured by the Stilwell & Bierce Mf'g Co., of Dayton, Ohio.

APRIL 17th the Milwaukee millers purchased of Peter McGeoch, 225,000 bushels of wheat. Mr. McGeoch owns nearly all the wheat in store in Milwaukee.

THE Franklin Mill Co. now building a mill at Appleton, Wis., are putting in 11 Odell rollermills, manufactured by the Stilwell & Bierce Mfg. Co., of Dayton, O.

THE niece of Mr. Andrew Hunter, the Chicago manufacturer of middlings purifiers, was recently married at the British Embassy, in London, to Sir Sidney Waterlow.

PAGE, NORTON & Co., of North Topeka, Kan. are improving their mill by the addition of six pairs of Gray Corrugated Rolls and four pairs of Wegmann's Patent Porcelain Rolls.

SMITH BROS., of Canandaigua, N. Y., are putting in the Gray Rolls; using the new Combined Reduction and Separating Machine. Edw. P. Allis & Co., of Milwaukee, have the contract.

BURNED.-April 20th the flouring mills at Peoria, Ill., owned by Geo. H. Cox. Loss \$40,-000. Insurance \$17,000. The fire originated in the smut room in the upper story of the mill.

THE "Monmouth Merchant Mills," at Monmouth, Ill., have contracted with R. L. Downton, of St. Louis, to change their mill into a roller mill of the highest grade of manufacture.

The flouring mill at Wrightstown, near Neillsville, Wis., was burned recently. The mill was owned by C. Blakeslee, of Neillsville, whose loss is estimated at \$6,000, with an insurance of \$4,000.

If the majority vote in the New York legislature indicate the feeling of the citizens of that state, free canals will soon be open to the pub-November.

THE large Eufaula Mills at Eufaula, which was built in 1877, by Nordyke & Marmon Co., of Indianapolis, Ind., are adding three run of buhrs, which are being furnished by the original builders.

On March 28, the Eclipse Milling Co., of St. Paul Minn., filed articles of incorporation to do a general milling and elevator business, with a capital stock of \$75,000, and privilege of increasing it to \$150,000.

THE King's County Flour Mills of Brooklyn N. Y., Messrs. Tonjes, Moller & Co., Prop's, are changing to the roller system. They have ordered of Edw. P. Allis & Co., 36 pairs of Gray and Wegmann Rolls.

M. L. AYER & Son, of Burlington, Wis., have placed the order for their changing of their mill to the full roller system with Edw. P. Allis & Co., Milwaukee. They will use Gray's Patent Noiseless Roller Mills.

E. M. BEACH & Sons, of Osborne City, Kan.,

sufficient power at all times. During the past two months the owners have bought over 5,000 bushels of wheat. They report that the scarcity of good wheat has not been an obstacle to them full capacity all winter.

THE milling firm of Clement & Stevens, of Neenah, Wis., is dissolved. Jackson L. Clement will continue the milling business. Mr. Stevens' attention is occupied with the Stevens Roller Mills and other milling inventions.

THE Elizabethport Flouring Mills Co., at Elizabethport, N. J., are increasing the capacity of the mill, and adding four run of stones, which with additional fixtures are being furapolis, Ind.

KEELY, of motor fame, has been ordered by secret. He has spent \$150,000 of other people's tired of waiting.

MESSRS. NORDYKE & MARMON Co., of Indian apolis, Ind., are remodeling all the four mills situated within the town of Pendleton, Ind. Potts & Parker and B. F. Aimen's mills are undergoing extensive alterations which will place them on a footing with the best.

Messrs. I. Q. Halteman & Co., of St. Louis, are rebuilding Engelke & Feiner's "Southern Mills," and will furnish them with a ten run of 4 foot buhrs. They are also supplying the Rolla Mill Co., at Rolla, Mo., with a new 30x40 engine, a line of rolls and new bolting chests.

THE Goodlander Mill and Elevator Co., of Fort Scott, Kansas, are increasing their capacity and changing to the full roller system. They will make 350 barrels per day. They will use the Gray Rolls and System, and porcelain rolls on middlings. Edw. P. Allis & Co., of Milwaukee, have contract.

THE "Patapsco B" mill just completed at Baltimore, Md., by the C. A. Gambrill Manufacturing Co., has a capacity of 500 barrels per day and the machinery is driven by a 200 horse power Corliss engine. The mill contains 23 double sets of Dawson Bros'. rolls. The mill has a grain storage capacity of 125,000 bushels.

THE April freshets carried out the dam at is completed, on which work has been commenced. Some of the flour mills will probably put in steam engines.

THE sewer known as the Mile Creek sewer in St. Louis, burst during the recent rains and did a great amount of damage. Among the losses were injuries to the United States Mill owned by E. Goddard & Sons. Considerable of their stock of flour was ruined. The total losses to all property owners along the line of the sewer is placed at about \$200,000.

A GRADUAL reduction roller mill of 100 barrels capacity is being built at Marion, Ill., for Wm. Aikman. The reductions are to be made on Gray rolls. The shafting pulleys and machinery comes from the Nordyke & Marmon Mill Works, at Indianapolis, Ind., while Richards & Butler of same place do the millwright work.

THE new San Francisco Grain Exchange was formally organized on March 14, in the San Francisco Stock Board building. Geo. T. Mayre, Jr., was appointed temporary chairman, and A. F. Coffin was elected temporary secretary. The chairman appointed the following committee on permanent organization and to receive applications for membership: Messrs. Homer S. King J. M. Shotwell, Joseph Marks, H. H. Noble, S. B. Wakefield, S. C. Boswell and J. Greenbaum-

A LEFFEL water wheel of fifteen and a quarter inches diameter is being made by James Leffel & Co., Springfield, O., to give 296 horse power said to be by far the largest power ever obtained from so small a wheel. The same firm are building also one of their Leffel wheels, of forty-four inches diameter, to give 325 horse power; and are building two eighty-seven inch water wheels for a party at Appleton, Wis., for a new mill; besides a wheel for driving the electric light in San Lorenzo, Mexico.

R. L. Downton has contracted for overhauling and remodeling H. Human & Co's Mill at Highland, Ill. This mill is to be of from three to four hundred barrels capacity per day and guaranteed to make as good flour as the Alton Mill of E. O. Stannard & Co., recently built by R. L. Downton, which mill has so clearly shown the advantages of Downton's system of milling over other systems. Downton using the "Cranson-Dawson" Corrugated Rolls for reducing wheat to middlings and the "Downton" Smooth Rolls for reducing middlings to flour.

THE determination of Crocker, Fisk & Co., to go on with the erection of their mill is announced. They will begin operations at once are erecting an addition 30x30 feet to their on the plans prepared by Mr. Pye, with the flouring mill at that place. It is to be used for Pray Mfg. Co.' and hope to have the mill ready storage purposes. This mill is constructed of for operation by the time the fall crop comes in. the white magnesian stone found in that vicin- The mill will be 60x70 feet on the ground and ity, and is both handsome and capacious. Its six stories high. The plans will be but slightly 1,300,000 bushels.

water power is said to be steady and to afford changed from those prepared about two months ago, which were calculated to make the new Minneapolis one of the best mills on the Falls. Work on the foundation of the new Excelsior is in progress, and the walls of the new Zeidand that they have kept their mill running at ler, Zimmermann & Co. mill are up to the first story and raising every day. This completes the list, and next fall will see Minneapolis in the field with a largely increased grinding capacity .- N. W. Miller, Minneapolis.

H. D. CARLISLE, flour inspector at Kansas City, in his report dated April 1st, says: "This being the little end of a short and poor crop of milling wheat, most mills have had to run on half time. Our flour trade has also just begun under a system of inspection, hence, while nished by Nordyke & Marmon Co., of Indian- trade is not what we would have liked to have seen there has been a healthy movement. With a good crop of milling wheat this year a one of the Philadelphia courts to divulge his marked improvement may be looked for in our flour business. Realizing the importance of money to no purpose, except to prove that there this interest and its future promise, a number are fools in the world, and his fools are getting of storehouses have been erected and other facilities provided for the better handling of flour here. Our commission men are taking more interest in the trade and working for its development. The inspections for the quarter ending April 1st were: Whole sacks, 4,064; half sacks, 24,083; barrels, 60.

APRIL 15, : bout three o'clock in the morning, R. W. Stubbs, Mayor of Polk City, Ia., was killed by a burglar. At that hour Mrs. Stubbs was awakened by the flash of a bright light on her face. She called her husband, who was sleeping in another bed, when she heard a voice say, 'Be still," which startled her, and she again called her husband, who quickly arose in bed, and said "Get out of here," whereupon Mr. Stubbs sprang out of bed toward the door, when the light from a dark lantern was thrown on him, and at the same instant he was shot, the ball passing through his heart. He staggered forward, fell at the top of the stairway and rolled down the stairs. The deceased was a deservedly popular man, and without enemies. The supposition is that the object was robbery, as the flouring mill of deceased was entered a few weeks since, and the safe blown open. Friday evening it was entered again, as also were several residences. It was known that Mr. Stubbs usually had in his possession quite large sums of money. The murderer escaped. Janesville, Wis., and all the flouring mills and Suspicion rests upon three or four persons who several other manufacturing establishments have recently been lounging about. The vigiwill be compelled to lie idle until the new dam lantes are out, and if the villain is caught there will be a neck-tie sociable, without judge or jury.—Polk City Paper.

Flour mill fur ishing goods have recently been furnished to the following parties by C. F. Miller, of Mansfield, Ohio: S. D. Talbot, Armstrongs, Ohio, wheat cleaning machines, bolting-cloth, belting, elevator cups, conveyor flights, etc.; Messrs. House & Dawson, Mt. Gilead, Ohio, middlings purifier, bran duster, flour packer, bolting cloth and other materials; Thos. W. Shearer, Plimpton, Ohio, boltingcloth; Heabler Bros., Attica, Ohio, a middlings purifier, mill stones, mill curbs, bolting-cloths and other goods; M. Kiser, Clarks, Ohio, a middlings purifier, bolting-cloth, belting, etc.; Dawson & Wherry, Cardington, Ohio, brush machine, bolting-cloth, etc.; R. B. Kline, Leipsic, O., bolting-cloth; Morris Bros., New Lisbon, Ohio, a middlings purifier, brush, smutter, boltingcloth, belting, elevator cups, conveyor flights, middlings mill, etc., a complete new outfit; Luther Myers, Mitchell's Mills, Pa., a smutter, belting, etc.; Endslow & Heabler, New Washington, Ohio, bolting cloth; Higbee & Co., Bellevue, O., several roller mill machines; John P. Hollar, Carrollton, O., bolting-cloth; Sebold & Voelm, Sandyville, O., corn-sheller, boltingcloth, etc.; D. Boor & Son, Defiance, O., bolt reel shafts, reel arms, reel ribs. mill curbs, Tripod Silent Feeders and other goods; D. H. Rowland, Richwood, O., a middlings purifier and middlings mill; McLaughlin & Granville, O., flour packer, shafting, gearing, proof staff and other materials; R. W. Messmore, Pancoastburg, O., bolting-cloth, belting, elevator-cups, etc.; S. Flickinger, Louisville, O., several reels of bolting-cloth; Messrs. Hall & Cook, Akron, O., middlings mill, middlings purifier, brush finishing machine, boltingcloth, proof staff, paint staff and other goods; Henry Merchantell, Forest, O., wheat cleaning machinery; J. B. Miller & Co., Ashley, Ohio, a large lot of bolting cloth, wheat cleaning machines, middlings purifiers, bolting reels, conveyors, elevator cups, conveyor flights, including millwright work and plans of bolting, etc.; Allen B. Stauffer, Pickering, Pa., smutter and separator; Amstutz & Co., Russell, Ohio, 1 Zig Zag Separator, 1 brush finishing machine; Samuel Beck, Spring Mountain, O., shafting, gearing, pulleys, bolting-c'oth, bolting-reels, conveyors, mill-curbs, tripod feeders, belting, elevator cups, conveyor flights, &c., a new outfit complete including millwright work.

It is said that a 400-barrel roller mill will be built at the Sioux Falls, Dakota, this year.

THE new grain elevator to be built this year at Detroit, Mich., will have a capacity of

Grain Gambling.

A COMMUNICATION FROM S. H. SEAMANS, SECRE-TARY OF THE MILLERS' NATIONAL

ASSOCIATION. What are you going to do about it? is a question more frequently asked, perhaps, than any other, of the committee appointed at the late meeting of the Wisconsin State Millers Association. The resolution under which that committee was appointed, which reads "A committee of five shall be appointed, who shall take into consideration what course is necessary to be taken looking towards the suppression of gambling or dealing in options in grain" etc., partly answers the question. The very general terms of this resolution gives the committee a wide range, and unlimited time for investigation. They have as yet had no formal meeting, but its individual members have not been idle. As one of that tire product, is contracted and sold by parcommittee, I can only speak personally at this time upon the question, and give only my individual ideas, that the committee is in the parties controlling the "deal" are enabled dead earnest, and "mean business." I need only to put a fictitious price upon the food proto refer to the Association of which they are members to substantiate. The action of the meeting has been the means of awakening pub- market in the world is not legitimate, is no lic attention to this growing evil, and the feeling benefit to the producer, is death to the manuis extending that possibly something may be facturer, and very detrimental to the condone to do away with it. I believe a remedy can, and will be found to sup- uniformity of legislation in the enactment of press it in a great measure if not entirely, but it must be by and through laws and influences of a general character, not local; in my own mind there is no question ciations, the whole to work in harmony under that if the matter was a local one the remedy could be quickly found and administered, but to be effectual, as well as beneficial to all, and oppressive to none, but the gamblers, the remedy must be a national one. To this end, the committee will exert themselves. New York legislature is now wrestling with this "barnacle" and at the suggestion of the writer, the Secretary of the New York State Association, visited Albany, Wednesday of this week to urge upon that committee the necessity of devising a remedy and its adoption by the legislature. In the course of my individual investigations I find some of the states have already laws, that only need enforcing to accomplish the result desired. When all the states are thus provided, the National Association can then exert its power. I understand that Tennessee has a law which is very stringent. Under it, a recent case was tried, whereby the plaintiff sought to recover a debt, the result of speculation in option cotton, the defendant plead the law declaring such deals gambling, (where no intent to deliver the property) therefore void. The judge sustained the plea, whereupon the parties were arrested for gambling, a penal offense against the laws, were found guilty and sentenced to the state prison for one year each. When we can achieve such results, may we hope the end is near. I have written for a copy of the law, the trial and the decision, which I trust will give our committee some light upon the legal and legislative aspect of the case. Since the meeting of our association, the subject has caused considerable discussion upon the Milwaukee Chamber and I must admit being greatly surprised, at the large number, even among those doing a large brokerage business in options, who are desirous to have that part of the business done away with. One prominent firm made use of this language: "We have had a large option trade, but for the past six months have been working out of it as much as possible, for the reason that all the losses we have made have been on this part of our business, and the further reason that we are liable to make a loss for our customers, in which case we know if a customer is so disposed, he can bring suit against us, and collect every dollar he may have lost through our house. I believe this to be strictly true, under the present laws of Wisconsin and when the fact becomes generally known, I look to see a large number of suits brought to recover money lost. This fact alone when fully established, will do very much towards suppressing this nefarious business made possible now by the fact that a few responsible houses, carry as it were, on their backs, a host of irresponsible brokers, and firms who never receive or pay for a bushel of wheat or other grain, but deal exclusively on margins for customers, in other words, "they gamble by proxy" and the legitimate receivers give it respectability.

Much rash talk has been indulged in by the wounded "buzzards" on change, to the effect that our object is to interefere with the floor of the Chamber of Commerce, I but is eminently proper and praiseworthy. "time contracts" and speculation; that it is the aim of the association to inter- be produced, with the books to prove it, against the success of legislation in that difere in some way with legitimate prices under oath if necessary. The figures here rection. The experiment has been tried the Reynolds-Corliss Compound Condensing in fact, to "bear" the market on wheat and given are under the amounts given to me, many times. It has never resulted in any Engine in the Daisy Mill.

'bull" it on flour, or try to do some preposterous thing or other that will interfere with the legitimate laws of trade. I trust that rational business men will not attribute to our efforts any such fallacy. Legitimate time contracts, made in good faith with intent of fulfillment are a necessity, and required by all the laws of trade. Some healthy speculation governed by the immutable law of legitimate supply and demand is a necessary requisite to protect the rights of all producers, manu-

facturers and consumers. Higher prices based upon the same law, are absolutely beneficial alike to producer and manufacturer and in no wise detrimental to the consumer. But, high prices, produced by a manipulation of the markets of the world, after the production is gathered and under the control of a few persons, and in addition thereto, three to ten times the enties who have no intention of delivery, but hope to settle by paying differences, whereby ducts of the country, which is unwarranted by the law of supply and demand, in any sumer. What we shall seek to accomplish is such laws as will effectually cover the case and the enforcement of the same, by and through the efforts of the several state assothe auspices of the National Association. While the feasability of the course may be questioned, its ultimate success, if persistently and judiciously managed is beyond a doubt. On the success of this or some similar scheme, depends the welfare of the immense milling interest of the country. The past season was one in which the milling industry of the country should have met with great prosperity. Our crop would have been placed in foreign markets at fair, if not very high prices, profitably alike to the producer, manufacturer and shipper, but the insane mania for speculation and particularly that part of it known as "over-trading" forced prices above a point where our millers could manufacture and dispose of their product in any market in the world. Our natural customers, Great Britain and the European Continent would not and could not pay the prices demanded by our manipulating speculator, consequently looked elsewhere to supply their wants, and worst of all for this country, remodeled their mills and by mixing the various grades of wheat, which they heretofore have been unable to use successfully, succeeded in producing a flour suitable for the trade, at a price with which our own mills could not compete. While our elevators remained gorged with nearly the entire crop and controlled by a few parties, to be used as a basis for illegitimate speculation, and which is operated at times as a power to force down prices, when required, to such an extent that panics were imminent, enabling a combination during excitement to buy not only all the cash wheat of the country, but ten to twenty millions of mythical stuff, that never had an existence. During all these recontres the milling industries of the country must remain idle, discharge their men, and wait patiently "like a bump on a log," for the advent of the 'gambler settlement day" to equalize prices in order that they may start their machinery with any prospect of success. In the meantheir customers have sought other sources to supply their wants, and yet such transactions are allowed to exist and must remain, for we are told "it cannot be prevented." If this is a fact, it is a severe commentary upon this enlightened nineteeth century. One thing is very certain, our committee propose to "wrestle" with it, if earnest, persevering effort on their part will succeed, preventing this nefarious traffic, it will be accomplished.

> Yours truly, S. H. SEAMANS.

GAMBLING IN OPTIONS.

S. H. Seamans Esq., the Secretary of the Millers National Association in a recent letter says; in order that you, Mr. Editor, and the beauties, and the extent to which the gambling in options, (to which the millers, as an make this statement of facts. The party can

but they more than substantiate the remarks uttered in convention by one milling friend from Neenah, who is neither a "wooden head" nor a "wooden shoe man.

The party to whom I have reference put

into the hands of his broker \$20 for margins with which to operate. In the course of trading he bought (?) 360,000 bushels of wheat and sold (?) the same amount, making a deal of 720,000 bushels. He then operated through another broker, putting up with this broker \$30. His purchases (?) and sales (?) were each 650,000 bushels—a deal of 1,300,000 bushels and a total deal of over 2,000,000 bushels of wheat. The total margins did not exceed \$50, estimated commissions to broker \$1,250, profit to operator, "List to the mocking bird! Yet this is a "legitimate business." I hardly believe that for such was our Chamber of Commerce organized. Here is a party dealing in over 2,000,000 bushels on a capital of \$50. Well, how much of this immense amount of wheat do you suppose the party, or his broker, received or delivered, expected to receive or deliver, paid for, or received pay for, or handled in any manner? Not one bushel. Yet a capital of \$50 assisted in making prices on 2,000,-000 bushels of wheat! And this is a "legitimate" business by which the "poor farmer" everybody in this trade is anxiously looking out for the poor farmer, that he doesn't get robbed,) is to be made rich, and the consumer is to eat "cheap bread." For the benefit of the friends of this most legitimate manner of dealing, I would direct attention to the case of the "victim" who came on to the floor of the Chamber but a few years since, the possessor of many broad acres well cultivated and cared for, flocks and herds of great size, houses and lots of much value, money in plenty, a good business established, but becoming infatuated with the mania (that is ruining more men and women too, than all the gambling hells in existence because of its chartered respectability) bought and sold, continued to buy and sell, paying and settling differences until all, or nearly all, his property had vanished. His son told me very recently that over \$200,000 had disappeared to him and his family. He was a rich farmer. It seems "the boys" look out for the rich as well as the poor farmer. To-day he deals in very limited amounts. No wheat receipts pass through his hands, or those of his broker on his account. Yet he is doing a legitimate business? On the approach of a harvest, if prospects are fair, the "gang" howl seller September, October, November, etc., down below any reasonable figure and keep pounding it down-all for the benefit of the 'poor farmer"-until the bulk of the crop is delivered, when the "legitimate" dealers wake up some fine morning and find that capital has stepped in and bought perhaps double the crop that has been grown on hand, or can be delivered. When the 'wrangle' begins ficticious prices rule the crop, until "settlement day," to the detriment of all classes of business either directly or indirectly. The consumer eats his last loaf before buying more bread, knowing full well that corner prices exist, and that business which has many millions of dollars invested, giving employment to many thousand men, must sit idly by without a murmur, and list to the oft-repeated phrase "What are you going to do about it?" question will be sometime answered.

time their business has become demoralized Speculative "Corners" and their Cure

The appointment of a legislative committee to investigate "corners" in grain and provisions has been derided in some quarters as a shere waste of public money. Yet there is scarcely any other subject that better deserves legislative examination. Regarding the expediency of some legislation to regulate speculation in the prime necessaries of life, there is not much difference of opinion, provided any legislation of that character can be made effective without doing more harm than good. The whole country has suffered within the past year, and suffered seriously in all its great interests, because of the excessive speculation in products. Nobody denies the fact, while it is urged that speculation, within its proper limits, has its beneficial uses, there public at large may have a better idea of the are very few who will deny that its excess has done great mischief. The endeavor to ascertain whether it can be wisely and safely association, complain,) may be carried on restrained by law does not deserve contempt,

The presumption, of course, is greatly

public benefit. In no other state has the evil of improper speculation in products been more keenly felt, or its nature more clearly understood, than in Illinois, and it might have been supposed that the legislation of that state would reach the difficulty, if any could, But the Illinois law has only served to cause barren legislation. Generally acts passed have been such that public opinion has not sustained them, and in the face of public opinion their enforcement has been impracticable. In most instances, the law-making power has failed to distinguish between that speculation which is sometimes useful and that which is always and necessarily harmful.

If the committee divests itself of the cant and prejudice of the street, it will find that a 'corner" is always and necessarily the fault of the seller. Any man has a right to buy all the wheat in the country if he can. Because that is always impossible, the attempt is pretty sure to result in disaster, and if made, can do not much harm except to him who makes it. But the instant that somebody sells something that does not belong to him, the situation changes. He is at the mercy of those who owns what he has sold. If agreed, they can make him pay the last cent he has in the world, and it would serve him right. He had no business to be selling the property of other people. But blundering laws and commercial customs and rules framed on purpose to premote gambling, have taken just the opposite view of the matter. They treated the man who had sold the property of others as an innocent victim, and the owners who refuse to part with their property as a band of thieves. Public instinct never sustains laws that are at the bottom unjust. Hence legislation of this sort has never been found effective. It starts on the false assumption that a man has a right to sell what does not belong

The Illinois legislature erred in the opposite direction. It went on the theory that any and all contracts for future delivery were wrong. But there is not the slightest harm to any person on earth to in an agreement by a man who owns property to transfer that property to somebody else at a future time. On the contrary, such contracts have been found of the greatest public utility. The cotton manufacturer can engage the planter to deliver his cotton as the mill may need it, and thus place thousands of operatives beyond the reach of disaster in consequence of fluctuations in the market. The miller can make similar contracts for grain, and the packer for hogs, and the railroad builder for iron or steel rails and locomotives. But the whole case changes when the man who sells does not own the property sold, but takes his chances of getting it from others who do. Such a contract, instead of protecting industry against risk, exposes it to new and extraordinary perils.

The root of the whole matter is in the sale of property by men who do not own it. Persons who want a thing have the right to buy it, either on the spot or deliverable in the future. They have a right to buy all they can get, and, if anybody pleases to sell what he does not own, a "corner" necessarily comes, though the buyers may know nothing of it. Whether they do or not, their right to buy cannot be denied; the question is whether any man has a right to sell what he does not own. It is true the customs of commerce, are such that no deceit or fraud is necessarily involved in such a sale; but the root of the whole matter is the question whether the customs of commerce ought to tolerate a sale by one man of property which belongs to another man. And the question for the legislature is whether, without prejudice to legitimate business, people can be legally prevented from selling what does not belong to them. If that is done, "corners" can never arise, and speculation will be confined within comparatively safe limits; but unless it is practicable and wise to prevent sales of this precise character, it is sheer folly to meddle with the incidental evils of speculation which flow from them. Corners are simply inevitable if people sell what does not belong to them. All the other evils and pernicious consequences of speculation in products are utterly beyond the power of legislation, if the law permits a man to sell what does not belong to him .- From the New York Tribune.

T. W. Killey, of Elgin, Ill., is putting the Gray and porcelain rolls in his new mill.

John W. Hill, of Cincinnati, is in Milwaukee making an exhaustive economy test of

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THE square man mezzures the same each way, and haint got no winny edges nor shaky lumber in him. He iz free from knots and sap, and won't warp. He is klear stuff, and I don't care what yu work him up into he won't swell, and he won't shrink. He is amungst men what good kil dried boards are among carpenters, he won't season-krack. It don't make enny difference which side ov him yu cum up to, he iz the same bigness each way, and the only way to get at him, enny how, iz to face him. He knows he iz square, and never spends enny time trieing to prove it. The square man is one ov the best shaped men the world has ever produced; he iz one of them kind ov chunks that kant alter tew fit a spot, but you must alter the spot tew fit him .- Josh Billings,

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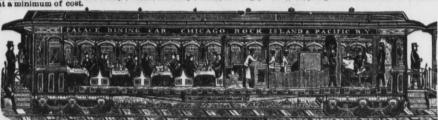
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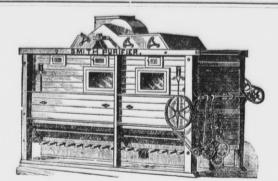
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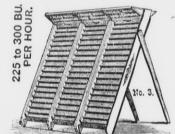
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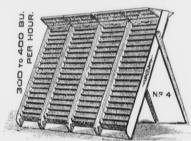
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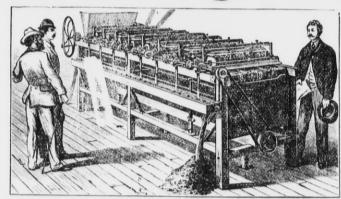
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This Company was Organized at New Haven on the first of March, 1881, with a Capital of

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It Dispenses with the Use of Air Blasts.
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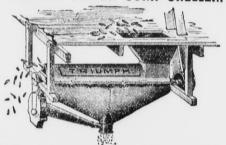
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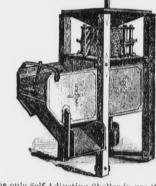


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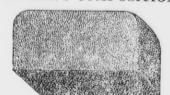
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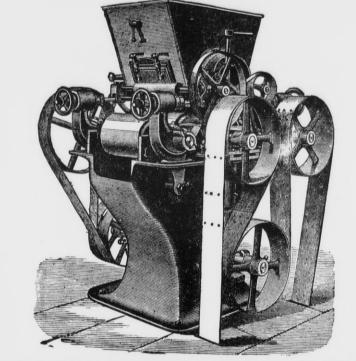
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PORCELAIN does NOT discolor the flour and is entirely indifferent to any and all chemical influences.

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CHILLED IRON can be cut with steel.

PORCELAIN can ONLY be cut by the best black diamonds. CHILLED IRON ROLLS require great power to reduce mid-

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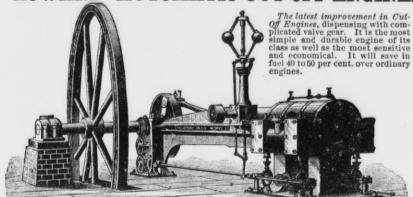
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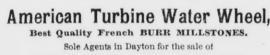
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IN USE. It has tight shutting and easily operated Gate; gives more power for the water used, and will last longer than any other Turbine Large shop with improaed tools for making this wheel and machinery. Illustrated Pamphlet and Catalogue with prices sent free by

BURNHAM BROS. OFFICE YORK PENNA you write us.]

Milling Made Profitable.

We build mills on any system known. We guarantee a saving of 25 per cent. on the cost of construction and room occupied by

BOLTING CHESTS.



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Mill Furnishing, Foundrymen & Machinists. Established 1851. MANUFACTURE MILL STONES. Flouring Mill Contractors.

Send for Pamphlet. Nordyke & Marmon Co Indianapolis, Ind.

[Mention this paper when you write us.]

IMPORTANT NOTICE TO MILLERS.

The RICHMOND MILL WORKS, and RICHMOND MILL FURNISHING WORKS are wholly removed to Indianapolis, Ind., with all the former patterns, tools, and machinery, and those of the firm who formerly built up and established the reputation of this house; therefore, to save delay or miscarriage, all letters intended for this concern should be addressed with care to NORDYKE & MARMON CO.

INDIANAPOLIS. IND.

INDIANAPOLIS, IND.

RICHMOND MANUFACTURING CO.

LOCKPORT, N. Y.,

- Manufacturers of

RICHMOND'S CELEBRATED

Smut Machines.

Brush Machines,

Grain Separators,

and Bran Dusters.

Nearly Two Hundred of these Machines are now in operation in the city of Minneapolis, Minn., alone, and more than sixty in the city of Milwaukee, Wis. They are also extensively used in many other sections, both on Winter and Spring

Adjustable Brush Smut Machine SEND FOR DESCRIPTIVE CATALOGUE. TO

[Mention this paper when you write.]

A PURIFIER

That fills all the demands of modern milling,
That is subject to the most complete control possible.
That gives double the capacity of any other in the same floor space.
That has two Screens, each with its own Feed Bar, and each tails off.
That has the best patented devices ever used on a Purifier.
That has the most thorough control of the blast.
That has the most convenient method of "cut-off."
That has absolutely the best cloth cleaner (patented) in use.
That has the perfection of cloth tighteners used while running.
That is made either single or double, (double principle patented).
That carries 25 to 90 square feet of bolting surface, against 13 to 45 in others.
That has its bearing boxes detached from the wooden frame.
That renders them fire-proof. These are recent and important attachments.
That does its work "not absolutely without waste" BUT WELL.
That has no screw conveyor or gear wheels to absorb power, but
That has many new and important devices, convenient and simple.
That does not infringe any patent, (can convince any one of this).
That is not an experiment, but has been tried and tested by hundreds.
That not one of which has ever been returned by any miller,

These are some of the things we have to say about the Case Purifier, and if one jot or title of them is found to be untrue, we will take the machine back and pay all expenses, including freight both ways. Can fill orders promptly. CASE MANUFACTURING CO., Columbus, Ohio.

[Mention this paper when you write]

CAWKER'S

AMERICAN FLOUR MILL DIRECTORY FOR 1882:

Is Now Ready for Delivery.

It has been compiled with the utmost care, and contains 22,844 Addresses

Of Flour Mill Owners in the UNITED STATES and CANADA.

It give the Capacity and Motive Power of Mills wherever obtained. MILL FURNISHERS, FLOUR BROKERS,

And Every one Desiring to Reach the Trade, WILL FIND THIS WORK SIMPLY INVALUABLE.

PRICE, TEN DOLLARS PER COPY.

THE UNITED STATES MILLER, Milwaukee, Wis. Will be sent to any part of the world by Mail, POST-PAID, on Receipt of Price.

JOHN C. HICCINS,

Manufacturer and Dresser of

No. 169 W. Kinzie Street,



Picks will be sent on 30 or 60 days' trial to any responsible miller in the United States or Canada, 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 Sheffeld, 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 United States and Canada. Send for Circular and Price List.

[Mention this paper when you write us.]

- ILLINOIS.

[Mention this paper when you write us.]

HENRY HERZER. Manufacturer

and Dresser

-OF-MILL PICKS!

NO. 456 ON THE CANAL,

MILWAUKEE, WIS.

I have had twenty-two years experience in the manufacture and dressing of Mill Picks, and can and do make as fine Mill Picks as can be made by anybody anywhere. I use only the best imported Steel for the purpose. My work is known by millers throughout the country, and is pronounced to be first class by the very best judges.

We have hundreds of the most gratifying testimonials from nearly all the States. We solicit your orders and guarantee satisfaction. Address as above.

[Please mention this paper when you write.]

We continue to act as Solicitors for Patents, Caveats, Trade Marks, Copyrights, etc., for the United States, Canada, Cuba, England, France, Germany, etc. We have had thirty-five years' experience.

Patents obtained through us are noticed in the SCIENTIFIC AMERICAN. This large and splendid illustrated weekly paper, \$3.20 a year, shows the Progress of Science, is very interesting, and has an enormous circulation. Address MUNN & CO., Patent Solicitors, Publishers of SCIENTIFIC AMERICAN, 37 Park Row, New York. Hand book about Patents sent free.

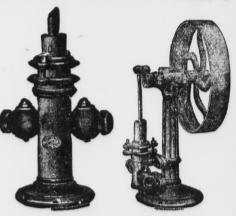
Northwestern Mill Bucket Manufactory

810, 312, and 314 FLORIDA STREET.



Is furnishing Mills and Elevators in all parts of the country with their superior BUCKETS.
They are UNEQUALED for their SHAPE, STRENGTH and CHEAPNESS.
Leather, Rubber, Canvas Belting and Bolts at lowest market rates. We have no traveling agents. Sample Buckets sent on application. Large orders will receive liberal discounts. Send for sample order.
Address all inquiries and orders to
L. J. MUELLER, 197 Reed St., Milwaukee, Wis..
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STEAM BOILER PUMPS



We manufacture over forty different styles and sizes of Steam Boiler Feed Pumps, for hand and power, at prices from \$10 to \$100.

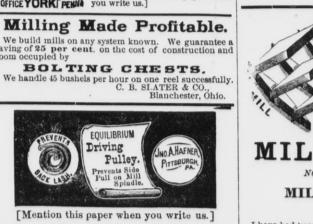
Catalogues furnished on application.

RUMSEY & CO., SENECA FALLS, N. Y.

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 us.]





E. HARRISON CAWKER. \ Vol. 13, No. 2.}

MILWAUKEE. JUNE, 1882.

Terms: \$1.00 a Year in Advance. Single Copies, 10 Cents.

RVENSROLLER

Remove all Germs without Breaking or Crushing them, and Hull the Black Cockle and Remove the Hulls, Clean Bran thoroughly, and make a Higher Grade of Flour than any other Mill known.

VER 2000 PAIRS NOW IN

Having Secured the BEST BELT MOVEMENT ever offered

We are prepared to furnish mills to be run entirely by belt, obtaining the nearest approach to a Positive Motion Without Gears. We also manufacture the

Celebrated osgrove

Which is the Most Compact and Convenient Arrangement of Break Rolls and Separators.

READ THE FOLLOWING LETTER FROM A WELL-KNOWN FIRM:

Messrs. John T. Noye & Sons, Buffalo, New York-Brooklyn, New York, February 20, 1882. Gentlemen: We take pleasure in addressing you in regard to the introduction of the "Cosgrove Roller System" in our Mills at Brooklyn. By removing four pairs of our Millstones and putting in their place the two sets of the Cosgrove System, purchased from you, we find that with our former bolting and purifying arrangements, we can turn out flour, all roller ground, in quality from 50 to 75 cents per barrel superior to that made from the same wheat by Millstones. We are now grinding no wheat with stones. In making the change, our Mill was shut down but 4½ days to make connections with Elevators, Conveyors, etc. We drive the Cosgrove Machines from the same shaft that we formerly drove the Millstones. The work of the change was done by our own Millwrights, everything being so favorably located. The advantages that we find are principally, viz.: Saving from ½ to ½ power required to make the same amount of flour by stones; uniformity of work of the Rolls, and the ease with which they are managed, one man being fully able to give proper attention to two or more sets if we had them; the separations made by the cylinders are perfect; any miller can quickly adjust them exactly to suit the wheat he wishes to grind and the work required; the capacity of our machines we find fully 50 percent perfect; any miller can quickly adjust them exactly to suit the wheat he wishes to grind and the work required; the capacity of our machines we find fully 50 per cent. above the amount you guaranteed (200 barrels). In conclusion, we will say, that the result generally of the system is entirely satisfactory to us for the best of reasons, our customers are thoroughly pleased and satisfied with our flour.

Yours truly,

F. E. SMITH & CO.

Among Recent Orders We Name the Following from Prominent Millers:

Lexington Mill Co., Lexington, O., 12 pairs, Pollock & Co., Vincennes, Ind., 12 pairs, James Norris, St. Catherines, Ont., 28 pairs,

E. O. Stanard & Co., St. Louis, Mo., 28 pairs,
Penfield, Lyon & Co.. Oswego, N. Y., 2 Cosgroves.,
Ont., 28 pairs,

E. T. Archibald & Co., Dundas, Minn., 12 pairs,
Crocker, Fisk & Co., Minneapolis, Minn., 54 pairs.
Ont., 28 pairs,

Jno. T. Noye Manufacturing Company, Buffalo, N. Y.

[Please mention the United States Miller when you write to us.]

E. W. PRIDE, Agent, Neenah, Wis.

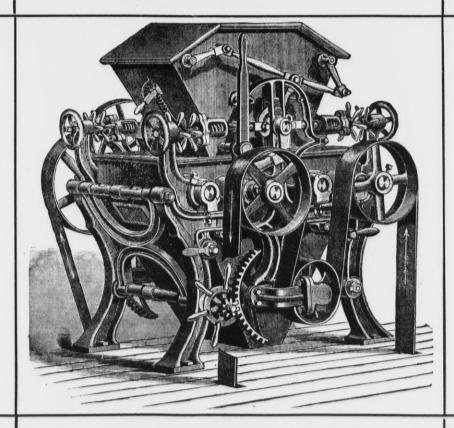
DDELL'S R

We invite particular attention to the following

POINTS OF SUPERIORITY,

possessed by the Odell Roller Mill over all competitors, all of which are covered by Letters Patent, and cannot be used on any other machine.

- 1. It is driven entirely with belts, which are so arranged as to be equivalent to giving each of the four rolls a separate driving belt from the power-shaft, thus obtaining a positive differential motion, which can not be had with short belts.
- 2. It is the only Roller Mill in market which can be instantly stopped without throwing off the driving belt, or that has adequate tightener devices for taking up the stretch of the driving-belts.



- 3. It is the only Roller Mill in which one movement of a hand-lever spreads the rolls apart and shuts off the feed at the same time. The reverse movement of this lever brings the rolls back again exactly into working position and at the same time turns on the feed.
- 4. It is the only Roller Mill in which the movable roll-bearings may be adjusted to and from the stationary roll-bear ings without disturbing the tension-spring.
- 5. Our corrugation is a decided advance over all others. It produces a more even granulation, more middlings of uniform shape and size, and cleans the bran better.

WE USE NONE BUT THE BEST

References and letters of introduction to parties using Odell Rolls will be furnished on application, to all who desire to investigate the actual work of these splendid machines. Among recent orders we mention the following:

Geo. Priest & Co., Decatur, Ills., M. M. Wright, Danville, Ills., -C. Seeley, Crete, Neb.,

36 Pairs

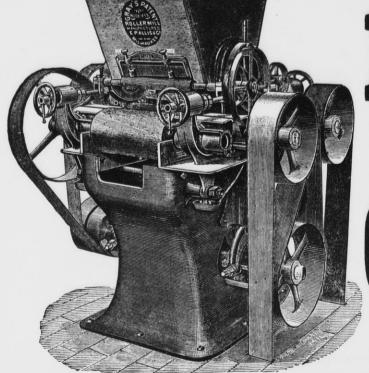
M. S. Rexford, Norman, Dak., Warder & Barnett, Springfield, O., 22 Barrett & Son, Spring Valley, O., 10

J. Mathers & Son, Greenville, Pa. 12 Pairs L. Payne, Franklin, Ind., - 10 Brown&Watkins, Crawfordsville, Ind. 8 Franklin Mills Co., Appleton, Wis. 11

Circular and Prices on Application to Sole Manufacturer,

STILWELL & BIERCE MANUFACTURING CO., DAYTON, OHIO, U.S.A.

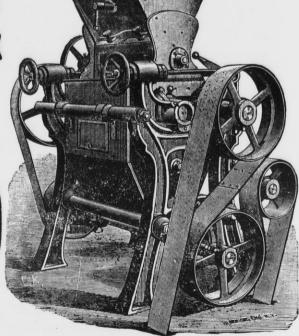
PATENT NOISELESS ROLLER



MILLS

WITH

CORRUGATED



SMOOTH CHILLED IRON ROLLS

And WEGMANN'S PATENT PORCELAIN ROLLS.

MANUFACTURED EXCLUSIVELY BY

EDW. P. ALLIS & CO.

MILWAUKEE, WIS.

TO MILLERS USING NOISELESS ROLLS WITH POSITIVE BELT DRIVE.

We have at great expense obtained valuable Letters Patent known as the Gray Patents, being Nos. 222,895, 228,525, 235,761, 238,677, 251,217, of dates Dec. 23; '79, June 8, '80, Dec. 21, '80, March 8, '81, Dec. 20, '81, and which fully cover and protect our noiseless Belt Drive Roller Mill. We have with no little patience been aware that certain manufacturers have been infringing one or all of these patents, and inducing the Millers to purchase Rollers from them.

Now we are determined to bring suits against all users of such Rollers unless they will acknowledge the validity of our patents and pay us a royalty for using them.

While we may seriously regret to take such a course, yet all can easily understand that in order to protect our rights we must declare and enforce them.

We have instructed our attorney to institute suits against infringers, and before another month we expect that suits will be begun. If any Miller desires to settle before suit we will be liberal with him.

Our desire is to furnish the best Noiseless Roller Mill made, and we claim that we do. Our patents are the foundation patents. A hint to the wise is sufficient.

EDW.P. ALLIS & CO.

[Mention this paper when you write to us.]

E. HARRISON CAWKER. \ Vol. 13, No. 2.}

MILWAUKEE, JUNE, 1882.

Terms: \$1.00 a Year in Advance. Single Copies, 10 Cents.

The Urban Roller Mills, Buffalo, N. Y.

We have the pleasure of presenting to our readers an illustration of the new URBAN ROLLER MILLS, erected by the JOHN T. NOYE MANUFACTURING Co. of Buffalo, N. Y., for Messrs. Urban & Son, the well-known manufacturers, exporters and dealers in flour at Buffalo, N. Y., at a cost of \$75,000.

The mill, which is situated on Ellicott street, near Genesee, is six stories high, including the basement. It is 40x96 feet on the interfering with the adjustment.

On this floor the flour is prepared for the market, marked and shipped.

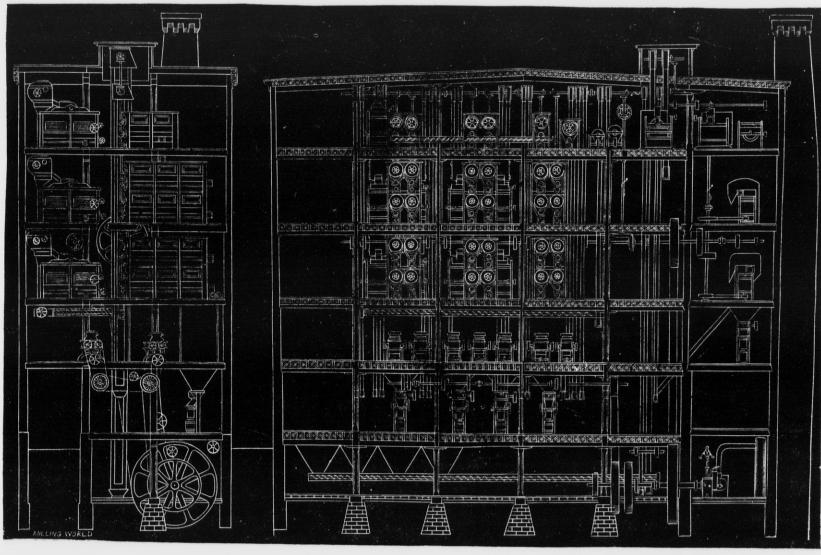
On the second floor are 14 stands of Stevens roller mills, each containing two pairs of rolls, and also the flour-bins.

These roller mills are all driven by belt, being supplied with Holt's Belt Movement, and are also provided with a device for throw-

On the first floor are four Eureka packers, could be easily flooded. There are thousands built by Barnard & Leas, and a hopper scale. of feet of belts and hundreds of pulleys in the mill. There are also about 200 spouts and lubricants. It often takes considerable time the receiving bins and elevated to the receiving separator on the fifth floor. Here it is run to the stock bins, from which it is taken out of order and the steps will heat again. as it is needed. The grain as it leaves the separator is under the control of a man on ing the rolls apart, simultaneously, without the first floor, who by moving a hand on a dial to heat. This step contains a square ground, built of brick, and well lighted and The third and fourth floors are given up to mill is heated with steam throughout, and upper side is faced perfectly straight;

tinue to heat until finally a larger contact surface is ground out, large enough to admit 30 elevators in the mill. Grain is taken from to effect this wearing and millers often lose their patience and swear. Often when the steps get in good running order, a settling of cleaned of the coarser impurities and then the building or a retramming will get them

E. P. Allis & Co. have invented and patented a tram-step, which they warrant never directs it to such bins as he sees fit. The steel button which cannot rotate. Its



CROSS SECTION.

LONGITUDINAN SECTIONAL ELEVATION.

THE URBAN ROLLER MILLS, BUFFALO, N. Y.

ventilated. The main building stands back | the bolting chests and purifiers; each floor | the walls are painted white. From 20 to 25 | its lower side is turned a calotte, like a section some distance from the street, leaving a having three four-reel chests, and five SMITH men are employed. vacant space 40x80 in which teams may stand | purifiers, the latter blowing into Kirk & Fenwithout obstructing the street. In the rear of der's Dust Catchers. the main building is a boiler-house 25x30 feet On the fifth floor there are five scalpingwith an iron roof. This building is separated reels, two bran-dusters, one "Fir" centrifugal from the main building by a fire-proof wall and contains the boilers, coal bunkers, and a lis, and one Smith purifier. In the rear part bath room for the use of the millers. The of the main building and separated from the boilers, which are two in number, were built flouring machinery described, are the grain, by RITER BROS., of Buffalo, N. Y. They are made of steel, and are 14 feet long and 66 inches in diameter. Between the main building and the boiler-room is a fire-proof oilroom. The boiler-room is level with the basement, with which it is connected by an iron and one Howes, Babcock & Ewell magnetic door.

In the basement of the main building are the receiving bins, the engine and the flywheel, the latter weighing 20,000 pounds. The engine is a 200-horse power Reynolds-Corliss, built by E. P. Allis & Co., Milwaukee, Wis. The cylinder has a 22-inch bore, and and power of motion, it is of the highest tainty with which it is governed. In the engine-room is also a Worthington pump and a Berryman heater.

reel, from Messrs. Fiechter & Pruss, Minneapobran and feed bins, and the cleaning machinery. The cleaning machinery consists of one Barnard & Leas receiving-separator, one Richmond milling separator, one Kurth cockleseparator, two Richmond brush-machines,

The building on the grinding floor is connected by a tram-way with a three-story brick building which Messrs Urban & Son are now putting up on Oak Street. This building is 40x90 feet, and will be used as a store. Howard elevators operated by steam will be the stroke is 48 inches. This engine is of the placed in both the main building and the plainest possible character, no attempt at store. A covered drive-way 10 feet wide exornamentation being made, yet in steadiness tends from Ellicott to Oak Street on the north side, allowing flour and grain to be character, working absolutely noiselessly, and easily handled, and coal to be dumped being remarkable for the quickness and cer- directly in front of the boilers. A standing surfaces of the shaft and button, touching pipe runs through the main building from each other at one point are pressed together top to bottom, with connections for hose on

Written for the UNITED STATES MILLER.] Plain Talks About Milling

By RICHARD BIRKHOLZ, M. E.

(Continued from May number.)

The steps for large and heavy, fast running upright shafts are often very troublesome, particularly when new. They are often sources of loss to the miller owing to the stoppages made necessary by their getting out of order and no amount of oil will keep them cool at times. It often puzzles the most skilful practical mechanic to ascertain what causes a sudden heating of the steps.

The difficulty generally arises out of too small bearing surface afforded by the convexity of the touching surfaces of both the steel point of shaft and the button.

This must be resorted to, to get a square bearing in case the step should not stand perfeetly level or in case the building or foundation timber of such steps should begin to settle. When shafts are not heavy and do not run more than 40 revolutions per minute, but little trouble will arise, but when the two convex so tightly that no film of oil intervenes-the each floor, so that in case of fire the mill heating is unavoidable. The steps will con-

of a sphere. The button is placed in the bottom of the pot, laying upon a faced plane; above this square button are placed one or nore round buttons, faced straight on both sides. The bottom face of steel point is also plane. A hole is drilled diagonally through the square button and in the centre a hole is drilled from the top-face down until it meets the diagonal hole. From this hole radially, four grooves are filed in the face with a round file, deepest near the centre and gradually vanishing about half way between the centre and sides of the square. Both round buttons are also provided with center holes and radial furrows on the upper faces. The rotation of the point carries along the buttons -upper one fastest, the motion between frictional surfaces being thus gradually reduced. When the shaft makes less than 100 revolutions per minute, one round button only is laid on. By the rotation of point and buttons the oil is thrown out centrifugally and a new supply is obtained by the suction through the center hole. The whole combination works like a centrifugal pump. It is plain that this step will always keep cool as it is constantly well oiled. It has a large surface and any variation caused by settling of steps is equalized automatically by the rolling of the square button to suit. The point is guarded

(Continued on page 22.)

UNITED STATES MILLER.

PUBLISHED MONTHLY. OFFICE NO. 118 GRAND AVENUE, MILWAUKEE, WIS.

ANNOUNCEMENT:

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MILWAUKEE, JUNE, 1882.

We send out monthly a large number of sample copies of the UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. Send us One Dollar in money or stamps, and we will send THE UNITED STATES MILLER to you for one year.

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The United States Consuls in various parts of the world who receive this paper, will please oblige the publishers and manufacturers advertising therein, by placing it in their offices where it can be seen by those parties seeking such information as it may contain. We shall be highly gratified to receive communications for publication from Consuls or Consular Agents everywhere, and we believe that such letters will be read with interest, and will be highly appreciated.

K. H. STONE, Esq., of The St. Louis Miller, paid our office a brief visit during the month.

M. T. Boult, Esq., of the Riverside Mill Co., of Appleton, Wis., called during the month.

SEVEN MILLION dollars worth of property in the United States was destroyed by fire during the month of April.

THE total shipments of flour from San Francisco to foreign countries during the month of April were 90,4133 barrels, valued at \$460,545.45.

May 2, the steamer Gaelic sailed from San Francisco with 5,203 barrels of flour, invoiced of those present ever made their voices heard. at \$25,204.40, for China, and 1,260 bbls for Japan valued at \$7,634.45.

badly demoralized. This is a direct result of etc., during the sitting of the convention, but Russian persecution of the Jews who con- the moment the convention was adjourned trolled the trade to a great extent.

WE have received O. J. Bollinger's Water Wheel Catalogue for 1881, York, Pa. It is a handsome catalogue, full of information for millers. All users of water wheels should write to him for a copy.

THE Australian wheat crop is very short. Cargoes have been purchased from California for Melbourne and Adelaide, and there seems don't know" he replied, and changed the subto be a robability that there will be a con- ject. Every flour mill owner in each state siderable demand for American wheat in should become an active working member of Australia.

was received and sold in St. Louis, April 29. say something "for the good of the order" The lot consisted of 100 sacks and was sold when those annual meetings were held. for \$4.50 per bushel. It came from Johnson Just think of it, what a grand and influential County, Arkansas, and was consigned to association the state of Wisconsin could have S. W. Cobb & Co.

the Edison Company have consolidated under great or small and the expense of it to each the style of the Gramme Electrical Company. Infiller would be trifling compared to the bene-Now if this electrical company "pools its fits that might be obtained. issues" with the gas companies and the Standard Oil Co., poor folks will have to fall back on the old tallow dip, or go to led in

THE Anti-Chinese bill has become a law. The bill prohibits immigration of Chinese to this country for ten years. Chinamen

This subject has attracted much attention and provoked much discussion, and it seems as if it was all unnecessary. The Chinese banking business at Mineral Point. He recame in the first place because there was a demand for their labor and they continued to come for the same reason. The citizens of the Pacific coast might have readily settled the whole matter by "boycotting" the Chinese; refusing to employ them or to purchase goods of their manufacture. If this plan had been adopted unanimously the steamers bound for the "Flowery Kingdom" would soon have been crowded with homeward bound Chinamen. We doubt very much if the law now passed will give entire satisfaction.

MILWAUKEE is now one of the greatest manufacturing centres of milling machinery in the world. Among the widely known manufacturing institutions here are the Reliance Works of Messrs. Edw. P. Allis & Co.; The Cream City Iron Works of Filer, Stowell & Co.; The Cockle Separator Manufacturing Co.; Messrs. Birge & Smith, mill-builders, etc.; The Milwaukee Dust Machine Company and Messrs Weisel & Vilters, Engine builders, etc. The most extensive millbuilding and furnishing establishment probably in this country is the one first named, but all of the others are doing an extensive and profitable business. Milwaukee has great advantages which will certainly make it one of the great manufacturing centres of the country. To those about to embark in the manufacturing business we would say, that they will do well to examine Milwaukee's advantages before locating elsewhere.

Mr. Joseph Nimmo, jr., of the Bureau of Statistics, reports that the exports of domestic breadstuffs during March amounted to \$12,404,735, against \$22,301,161 for the same month in 1881, or a decrease of over 45 per cent. The total values for the exports during the three months ended March 31 of each of the years named were respectively \$35,557,452 and \$51,149,613, a loss of about 30 per cent. For the nine months ended March 31, last, the value of the exports of domestic breadstuffs was \$147,701,367, against \$204,729,787 for a like period in the preceding fiscal year, a loss of about 25 per cent. The exports of tallow and provisions fell off about 50 per cent in March, 1882, as compared with March, 1881, and about 331 per cent during the three months ended March 31, last, as against the same three months in 1881. For five months ended March 31, these exports fell off nearly 25 per cent, and for eleven months ended with same date they decreased about 22 per cent.

Bashful Millers.

We have been present at many meetings of millers at their state and national meetings and have often regretted that so few This ought not to be the case. As a general thing, so far as our observations have extended, three or four gentlemen had to run the THE grain trade of Russia is said to be meeting, do the speaking, make the motions, every miller in the room would turn sociably to his neighbor and enter into cheerful conversation conveying to each other in this way many beneficial ideas which ought to have been brought before the convention as a body. More than this, we have known a miller to attend a meeting and after it was all over say that "two or three fellows run the machine just as they wanted to." We asked him why he did not pitch in and help run it. "Oh! I

THE first new wheat of the crop of 1882 regular annual meeting and be prepared to ted. Such an association would be a financial EIGHT electric light companies including benefit to every individual mill in the state,

Death of Ex-Governor Cadwallader C. Washburn.

Sunday, May 14, 1882, Gen. C. C. Washburn breathed his last at Eureka Springs, Ark., whither he had gone in the vain hope of regaining his health. He was born in Livermore, Me., in 1818. There he grew to manhood, but emigrated to Wisconsin, then a territory, in 1841 and commenced the moved from there to LaCrosse and was elected to Congress in 1854, where he remained until the war broke out in 1861, when he re signed and entered the army at the head of a cavalry regiment which he raised. After serving four years he returned home a Major General and was immediately again elected to Congress, where he remained until 1871. He was then elected Governor of Wisconsin. This was the last public office he held, his term as Governor expiring in 1873.

Gen. Washburn's name was known in milling circles throughout the world as owner of the great Washburn flouring mills in Minneapolis. From his various investments it is estimated that he left at his death an estate worth more than \$2,000,000. Among his g eat gifts to Wisconsin is the Washburn observatory at Madison which cost upwards of \$100,000. He also presented his magnificent country seat called Edgewood, near Madison, to be used as a reform school for girls. He was a great-hearted, charitable, honorable man and his country mourns to lose him.

Cornell University and Mechanic Arts.

In 1870. Hon. Hiram Sibley, of Rochester, N. Y., provided for the erection of a suitable building for the repartment of Mechanical Arts of the Cornell University, at Ithica, N. Y. He also gave ten thousand dollars for increasing its equipment of tools, machines, etc., and has since made a further gift of thirty thousand dollars for the endowment of the professorship of Practical Mechanics and Machine Construction. Still later he provided means for erecting and fitting up a brass and iron foundry, and a blacksmith shop.

Closely connected with the lecture-rooms are the rooms for freehand and mechanical drawing, the designing of machinery, and pattern-making, and the machine shop. The shop practice embraces work requiring the use of all hand tools and the machines employed in the ordinary machine shops.

Each student in the department is required to devote two hours a day to work in the shop; but such students as have, before entering, acquired sufficient practical knowledge, are admitted to advanced standing. Attendance is required upon ten lectures or recitations a week, or their equivalent, in addition to two hours daily drawing, two hours daily shopwork, and the passing of the examination at the close of each term. The complete course occupies four years.

The machine shop is used for the sole purpose of giving instruction in practical work. It is supplied with lathes of various kinds, planers, grinding machinery, drilling machines, shaping machines, a universal milling machine fitted for cutting plane, bevel, and spiral gears, spiral cutters, twist drills, with additional tools and attachments for graduating scales and circles, and for working various forms and shapes.

In addition to the hand and lathe tools of the usual kind there are tools of the greatest accuracy, consisting of standard surfaceplates, straight edges, and squares of various sizes, a standard measuring machine, measuring from zero to twelve inches by the tenthousandth of an inch, a universal grinding machine for producing true cylindrical and conical forms, and a set of Bett's standard

In the iron and brass foundry and the blacksmith shop, instruction is given in molding, casting, and forging. The cupola used is one of Colliau's improved, with a capacity of of melting one ton of iron per

For the purpose of instruction in experimental work there is a twenty-ton Riehle the state association, should be present at the testing machine, arranged for testing the order.

strength of materials by tension, compression' and transverse strain; Richard's and Thompson's steam-engine indicators, and Amsler's planometer; Schaeffer & Budenberg's revolution counter, steam-guages, injector, inspiraif every one of the 780 mills were representor, pop-valve, steam pump; Baldwin's link and valve motion, experimental valve motion, together with a large collection of brass, iron. and wooden models instructive and mechanical principles.

The course of instruction in mechanical drawing is progressive, from a geometrical drawing to the designing of machines and the making of complete working drawings.

The appliances for instruction consist of several hundred drawings selected from those of technical schools abroad, and from representative American steam-engine makers and others; of photographs, models, and machines; and of apparatus used in copying by the "blue print process."

The Codfish.

This tropical bird very seldom wings his way so far west as Wyoming. He loves the sea breeze and humid atmosphere of the Atlantic ocean, and when isolated in this mountain clime pines for his native home.

The codfish cannot sing, but is prized for his beautiful plumage and seductive odor.

The codfish of commerce is devoid of digestive apparatus, and is more or less permeated with salt.

Codfish on toast is not as expensive as quail on toast.

The codfish ball is made of the shattered remains of the adult codfish mixed with the tropical Irish potato of commerce.

The codfish has a great wealth of glad unfettered smile. When he laughs at anything he has that same wide waste of mirth and back teeth that Mr. Talmage has. The Wyoming codfish is generally dead. Death in most cases is the result of exposure and loss of appetite. No one can look at the codfish of commerce and not shed a tear. Far from home with his system filled with salt, while his internal economy is gone, there is an air of sadness and homesickness and briny hopelessness about him that no one can see unmoved.

It is in our home life, however that the codfish makes himself felt and remembered. When he enters our household, we feel his all prevading presence, like the perfume of wooden violets, or the seductive odor of a dead mouse in a piano.

Friends may visit us and go away to be forgotten with the advent of a new face, but the cold, calm, silent corpse of the codfish cannot be forgotten. Its chastened influence per meates the entire ranch. It steals into the parlor like an unbidden guest and flavors the costly curtains and high-priced lambrequins. It enters the dark closet and dallies lovingly with our swallow-tailed coat. It goes into your sleeping apartment and makes its home in your glove box and handkerchief case.

That is why we say it is a solemn thing to take the life of a codfish. We would not do it. We would pass him by a thousand times, no matter how ferocious he might be, rather than take his life, and have our happy home haunted by his unholy presence.—Laramie Boomerang.

Items of News.

A 125-barrel roller mill using rolls for reduction purposes and for flouring middlings and finishing low grade (rolls exclusively) is being built at Chattanooga, Tenn., for C. C. Shelton, proprietor of the well-known "Citico Mills." Nordyke & Marmon Co., of Indianapolis, Ind., furnish the entire machinery.

Louisville, Ky., is about to redeem its reputation for good flouring mills, in the enterprise of Mr. C. M. Slocum, a well known miller of Mt. Sterling, Ky., who is about to build a fourrun new process flouring mill there, having placed his order for the entire outfit with Nordyke & Marmon Co., of Indianapolis, Ind.

THE plans for the new Excelsior Flouring Mill at Minneapolis, Minn., have been completed. The building will be of stone, 40x105 feet, and six stories and basement in height. The motive power will be supplied by a thirtyfive inch Victor wheel under thirty-five feet head, which will yield about 400-horse power. The daily capacity will be 800 barrels.

Hicks, Brown & Co., of Mansfield, Ohio are increasing their capacity to 400 barrels and changing to the full roller system. They will use the Gray Patent Noiseless Roller Machines, with sharp cutting rolls on the wheat reductions, and 16 pairs of Wegmann's Patent Porcelain Rolls on the middlings. Edw. P. Allis & Co., of Milwaukee, have the

The Positive Adjustment and Automatic Middlings Mill.

We illustrate this month a new and novel middlings mill. New to the world at large, although it has been thoroughly tested for over three years, in which time the inventor, Mr. S. P. Walling, a practical miller and millwright, has put in operation a large number of them and with the best results. He has taken out several patents on it and thoroughly perfected its various points, so that in offering it to the public the manufacturers state that it will be guaranteed not only to equal but to excel other mills now in the market, as it contains many valuable points which the milling fraternity have long felt the need of. In this mill the temper screw is applied direct to the top of the spindle which fixes page, an illustrathe distance between the buhrs and renders it impossible for them to touch each other should the feed stop and the buhrs run empty. though set to a close flouring point. The runner or under buhr is rigged upon the spindle, although easily removed to dress, and it is held to the upper buhr by, a lever millers making and adjustable weight so any desired pressure the manufacture can be had to hold it to its work. At the same time should any iron or any foreign substance come between the buhrs they will open and let itthrough and after it has passed come back to exactly the same point and continue their work. Should the material accidentally be fed into the buhrs too fast nished they will open enough to save clogging or throwing off the belt. There is a perfect setting device at each end of the spindle, but the set at the step or lower end of the spindle is automatic in its adjustment to the upper set. The spindle at both top and bottom is furnished with adjustable side bearing boxes, so the strain of the driving belt is upon this, than in any the lower side bearing box and not on the steel plug in the lower end of the spindle. This steel plug simply carries the weight and is subject to no side strain. The columns are cast solid with the curb and base and coupled together in the center as shown in the cut so they have no side sway or tremble as is noticeable in other portable mills which have a joint at each end of the columns, so that the heating or warming of the spindle and the expansion of the iron does not close the buhrs together as in other portable mills. The upper buhr rests on rubber cushions so that tramming is rendered very easy and perfect. The curb is furnished with three openings at equal points to make examination easy when tramming or setting the cap stone with the runner. The oil pot in the step holds nearly a pint of oil and the wearing plate in the step is two inches above the bottom of the oil cup so that the sediment can settle below the wearing surface. These mills are more easily as the cap stone rests at three points on rubber cushions so that one point can be raised or lowered without varying the others. With four points, when one is raised or lowered it must move the point opposite. The curbs are turned out and the cap that holds the upper stone is turned to fit so the joint moves easily and does not bind. These mills are built strongly with large bearing surfaces, and for grinding middlings, wheat, buckwheat, corn, feed, plaster, paint, coal facings and all kinds of minerals usually ground in buhr stones, the manufacturers claim that they have no equal, as they run to a positive point with an automatic adjustment and are elf protecting, self oiling, self adjusting and in perfect balance. They are claimed to be simple, durable, and economical. Our readers will undoubtedly recognize this firm as the manufacturers of the well known Brewster buckwheat refiner, which received the highest award of merit at the millers' international exposition at Cincinnati, in 1880. Their reputation for thorough and careful workmanship is unquestioned, and they express a determination to keep their work up to the high standard which has been attained in years past. Further particulars regarding the middlings mill or buckwheat refiner will turned to the buhrs, thus preventing waste | illustrations will at the same time be of value Messrs. Brewster Bros. & Co., Unadilla, N. Y.

While the mechanism for the various prothe subjects of much inventive thought and account of shrinkage. study, and while the past few years have witnessed marvelous and radical changes therein, the manufacture of other cereal food pro- air current, while spread out on the sieve the mind a very vivid picture of the realityducts (especially buck-wheat flour), have not where they are easily purified without waste. it does not say much for the twelve months been considered of so much importance until Each grade is treated in a similar manner of late years. Now, buck-wheat flour is known with its separate blast of air, and the reader employed in this vast industry; hence I have remain to be a healthy and nourishing food, when will readily perceive that the work is done endeavored in a pictorial form to convey to

Brewster process, it has become well known buhrs. and highly valued as a pleasant, healthy and and the fact shows well the merits of the Brewster machinery, and if our grandfathers der that they had not set their minds to work but little power; they are strongly and substanenabled their own generation to know what structed with especial reference to the requiregood buck-wheat flour was.

We have the pleasure of presenting on this tion of Brewster's Celebrated Buck Wheat Refiner, which has met with the greatest favor amongst of buck-wheat flour either a speciality or a branch of their business. These machines are furwith French buhr stones to crack and hull the buckwheat, which after long experience it has been found can be done better in other way. It is claimed that 50,-000 bushels of buck-wheat may be passed between the stones before it is necessary to redress them. The buhrs eighth of an inch

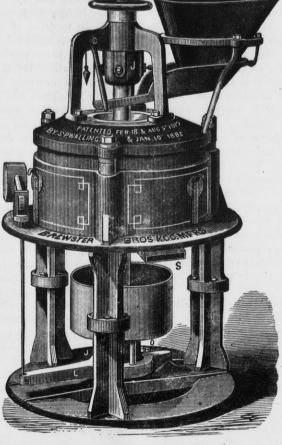
apart, thus hulling and leaving a large portion A Popular Illustration of the Magniof the meats of the buck-wheat kernels whole. The buhrs are adjusted by a single touch when running, thereby always doing good work. The products from the buhrs are divided into five grades, four of which are purified with air currents (suitable to size and weight) and each blast of air is controlled independent from the others. The product of the upper screen is composed of hulls and a little whole grain. The hulls are removed duced in England. As our own country pro-

properly made, and the Brewster process is perfectly and without waste. The bran drawn the mind's eye of my young friends somesaid to be by far the best for its manufacture. from the different grades is repurified, and thing like the true meaning of those figures; Since buck-wheat flour was made by the anything worth saving is returned to the for mere magnitude to the youthful mind has

The machines are furnished with tight and nutritious food throughout the civilized world, loose drive pulleys, counter-balance screens, steel madril fan and a perfect feeding device, so that one can stop and start with the grain could only see the method of making buck- in the refiner, obviating all danger of clogging, wheat flour now, and the great excellence of and they occupy but little space, and require the flour as now made, they would indeed won- but little attention. These machines require on the matter long years ago and have tally built of selected materials being conments of millers and the work they have to per-

form. These Refiners are manubuck-wheat flour.

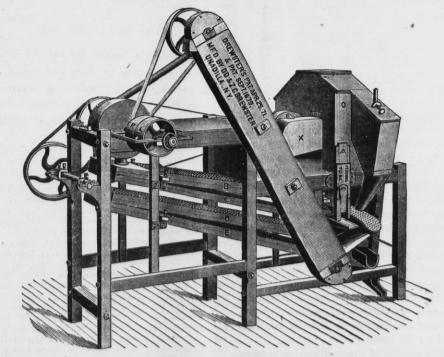
ALL Europe is rate of immigration continues. By and the question by will be, What shall we do with all these people? or, rather, what will they do with themselves Chicago Journal. Or rather, what will



run about an Posicive adjustment and automatic middlings mill. they do with us?

tude of England's Annual Production of Coal.

Sir Henry Bessemer, the famous inventor, has addressed to the youths of England, through the medium of the London Times, a letter in which he strives to convey to them an idea of the quantity of coal annually protaken apart and put together than any other, by an air current and the whole kernels re- duces fully one-half the quantity, his popular



BREWSTER'S CELEBRATED BUCK-WHEAT REFINER.

be cheerfully furnished by the manufacturers, of any buck-wheat, wet or dry. The manner in which the buhrs are set, controls the trade. amount of returns at any time, but it is better The Brewster Buck-Wheat Refiner. to have some to return constantly as then no waste occurs from the aspiration, whether the grain is wet or dry, and yet it leaves it cesses of wheat-flour manufacture have been much coarser, and the coarser the better on

The next grade of products are the coarsest meats which are expose to another separate

as showing the magnitude of our own coal

It is only when the mind can fairly grasp the magnitude of our coal consumption that the importance of its economy can be fully realized. The statistics of the coal trade show that during the year 1881 the quantity of coal raised in Great Britain was no less than 154,184,300 tons. When the eye passes over these nine figures, it does not leave on

always an absorbing interest, and the gigantic works of the ancients, fortunately supply us with a ready means of comparison with our own. Let us take, as an example, the great pyramid of Gheezeh, a work of human labor which has excited the admiration of the world for thousands of years. Though in itself inaccessible to my young friends, we fortunately have its base clearly marked out in the metropolis.

When Inigo Jones laid out Lincoln's-innfields, he placed the houses on opposite sides of the square just so far from each other as to enclose a space between them of precisely factured by the same dimensions as the base of the great MESSRS. BREWFTER pyramid. Measuring up to the front wals of BROS. & Co. of the houses, this space is just equal to eleven UNADILLA, N. Y., acres and four poles. Now, if my young friends a firm well known will imagine St. Paul's Cathedral to be placed to most millers to in the center of this square space, and having be rapidly grow- a flagstaff 95 feet in height standing up above ing into favor the top of the cross, we shall have attained with many mill- an altitude of 499 feet, which is precisely furnishers. They equal to that of the great pyramid. Further will cheerfully let us imagine that four ropes are made answer all cor- to extend from the top of this flag-staff, respondence each one terminating at one of the addressed to them four corners of the square and touching the about milling front walls of the houses. We shall then machinery, and have a perfect outline of the pyramid of exespecially about actly the same size as the original. The whole machinery for the space enclosed within these diagonal ropes is manufacture of equal to 79,881,417 cubic feet, and if occupied by one solid mass of coal it would weigh 2,-781,581 tons—a mass less than one fifty-fifth part of the coal raised last year in Great coming over Or Britain. In fact the coal trade could supply will, if the present such a mass as this every week, and at the end of the year have more than nine million tons

Higher up the Nile, Thebes presents us with another example of what may be accomplished by human labor. The great temple of nameses, at Carnac, with its hundred columns of 12 feet in diameter, and over 100 feet in height, can not fail to deeply impress the imagination of all, who in their mind's eye, can realize this magnificent colonnade. It may be interesting to ascertain what size of column and what extent of colonnade we could construct with the coal we laboriously sculpture from its solid bed in every year.

Let us imagine a plain, cylindrical column of 50 feet in diameter and 500 feet in height, our one year's production of coal would suffice to make no less than 4511 of these gigantic columns, which, if placed only at their own diameter apart, would form a colonnade which would extend in a straight line to a distance of no less than 85 miles and 750 yards-in fact we dig in every working day throughout the year a little more than enough to form 14 of these tall and massive columns, which if placed upon each other, would reach an altitude of 7,000 feet.

But there is yet another great work of antiquity which our boys will not fail to remember as offering itself for comparison; they have all heard of the Great Wall of China, which was erected more than 2,000 years ago to exclude the Tartars from the Chinese empire. This great wall extends to a distance of 1400 miles, and is 20 feet in height, and 24 feet in thickness, and hence contains no less than 3,548,160,000 cubic feet of solid matter. Now our last years production of coal was 4,427,586,820 cubic feet, and is sufficient in oulk to build a wall around London of 200 miles in length, 100 feet high, and 41 feet 11 inches in thickness; a mass not only equal to the whole cubic contents of the Great Wall of China, but sufficient to add another 346 miles to its length.

These imaginary coal structures can scarcely fail to impress the mind of youth with the enormous consumption of coal; and when they are told that in many of its applications the useful effect obtained is not one-fifth of its theoretic capabilities, they will be enabled to form some idea of the vast importance of the economic problem which calls so loudly for solution.

MESSRS. HULBERT & PAIGE have recently issued the following circular, which explains

PAINESVILLE, O. May, 1, 1882.

On and after this date the firm of Hulbert & Paige will be known, and the business conducted under the name of THE PAIGE MANU-FACTURING COMPANY. Please note the same on your books. Soliciting your good will and of inceasant toil of the 495,000 men who are continued patronage for the Company, we Yours Very Respectfully, HULBERT & PAIGE.

(Continued from front page.)

sideways by four adjustable babbit boxes. In the bottom of the pot, opposite the diagonal hole in the square button is placed a plugged drain-pipe by means of which the babbit grit and gummy oil can be removed at any time.

The cogs of the core wheels ought to be kept tight and must be doped once a week with a mixture of beeswax, tallow and plumwork with little friction and will last a great

length of time.

Transmission of power ought to be effected wherever possible by belts. The "old-fashioned upright," driving upper mill machinery ought to be replaced by a belt. In this I agree perfectly with Mr. Abernethy, the author of "Practical Hints on Mill Building." Even when core-wheels are employed to stop the noise of the gearing connected with such upright, power in friction is lost as the friction between iron and wood, well lubricated, is about a third greater than between iron and iron under similar conditions. Remember that this holds good also in roller-mills in which the mate roll is driven by corespur. Owing to the great friction the loose roll will be crowded off severely by each cog. The power lost in overcoming the belt stiffness is about equal to the power lost where core-wheels are used to do the same work.

I do not favor double belts, and always prefer to use fast-running single belts over large pulleys—in order to reduce the loss of power produced by bending the stiff double belts, and also in order to save on first cost. I do not hesitate to run belts up to a velocity of a mile per minute. Belt-tighteners ought to be avoided wherever possible, as are destructive to the . belts, and increase the loss of power. They are generally pulleys with short curvatures, and increase the power-loss enormously, especially when applied to double belts.

On upright belts, tighteners must be used to press the belt against the lower pulley. Slowrunning shafts, such as elevator shafts, shafts driving the bolting chest uprights, etc., cannot well be driven by belts without using very large pulleys and belts which is not advisable.

To increase the "life" of leather belts, and to diminish the loss of power resulting from belt-stiffeners, they should be oiled once a week with castor-oil or glycerine. A little glycerine on dry belts frequently "works wonders." They will hug the pulley better and need not be so tight, and will then save frictional loss in the bearings, and also the consumption of lubricators.

About two years ago rawhide belts were introduced into flour mills. They were used principally for driving the roller machines. Those machines generally have small pulleys -not larger than 30 inches, nor smaller than 12 inches in diameter, and pliable belts are especially desirable for driving such machines Dis as Gray's roller mills. The driving belts of those roller mills are bent in two directions right along, and the thicker and the stiffer the belts, the more power is lost by bending them in following the curvatures of the four pulleys over which they pass. Rawhide belts would be well adapted for roller mills if they would not stretch so much when new, and get stiff, unmangeable and covered with flour-dust after running a year or less. A great many millers used and liked them very much while new, as they would do the work required of them even when comparatively slack. The miller would patiently re-tighten them until the belts had lost about half an inch in width. When the belts became too stiff and actually brittle, oiling was resorted to, but the oil would not penetrate through the flour-paste coat which had grown on or into the belt. So, rawhide belting was gradually replaced by strong, single oak-tanned belting.

In modern mills the wheat is divided into many different components, which must all be treated separately, and consequently a great number of elevators become necessary. If the wheat elevator, sending the wheat into the mill as fast as it can be taken care of by the machinery, has a seven inch belt, and we assume that the partly finished and finished stuff, swells in size three times, that all the stuff is elevated four times, besides the spouting and conveying, then the sum of the widths of all other elevator belts ought to be

12 times 7, or 84 inches.

Now, I cannot plan a mill with less than 22 elevators, and frequently my mill plans have from 25 to 28 elevators—average width of belt is 4 inches; thus a mill with 27 elevators will contain say one 7 inch belt wheat elevator, twenty-six 4 inch belt elevators, besides the spouting, equal to 104 inches in width.

The surplus of belting for handling stuff in the course of being finished, and finished portioned.

stuff comes from the necessity of employing belts at least 3 inches wide, also from the desire to have all elevators for intermediate work provided with wider belts than absolutely necessary to carry up a given weight. This is done to prevent "choke ups." The wider belts will carry even if they are a trifle slack, and it is better for a mill to be fed insufficiently than to be prevented from debago. Treated in this manner they will livering the manufactured product. There are too many elevators to be looked after in a modern mill and one cannot afford to employ too narrow belts. The belts being wider than actually necessary in order to carry along the stuff easily, and therefor having but little tendency to stretch, it is advisable to use cotton belts for middlings, flour and bran elevators. The friction between cotton and iron is greater than between leather and iron. The adhering flour-dust also increases the grip on the pulley, and cotton belts being pliable hug the pulley well, and they are also cheaper than the poor light leather belts generally selected for elevators. For wheat and "break" elevators it is advisable to use good leather belting, as cotton wears out too rapidly when brought in contract with the sharp broken wheat kernels.

Elevator cups ought to be banded around the opening, for the wear takes place at the front edge of the cups. The SALEM cup, otherwise a strong and substantial cup, will soon get as sharp as a knife, and wear down at the front edge, losing capacity. A good strong cup is made by L. J. Mueller at Milwaukee, Wis., who indeed takes great care to turn out a cup showing unquestionable good workmanship, which he sells at a reasonable figure. His Northwestern cup is strongly banded and will last.

Elevators always ought to be perpendicular, with head and boot pulleys of the same diameter. It is advisable to make those pulleys 20 inches in diameter, and better yet, 24 inches. One can thus easily pass between the legs of a whole row of elevators, a feature which cannot be too highly esteemed.

Never put an elevator boot on the grinding floor, as it will obstruct the passage needed; put the boot intended to stand on the grinding floor in the basement below the joists. You can spout equally as well into the front of the boot (the ascending side) as into the back and sides of the boot; in the latter case the millwright must be careful to enter the boot high enough, so that the cups will scrape away the discharge from the spout; if the spout enters too low down, it will inevitably clog. I have found that elevators carrying wheat are often run so fast that they "carry back" considerably, and I have, guided by my experience, made the following table of speeds at which the elevators will discharge well. The cups are assumed to be 16 inches from underside to underside.

ameter of pulley.		ulley.	Maximum Revolutions.	Maximum belt speed in feet.		
24	inches		44			
26	"	•	46	315		
28	44		47	344		
30	"		47			
33	44		48			
36	"		47	441		
40	66		46			
48	44		43			
54	- 11		40			
60	44		87			
66	44		35			
72	**		32			

The larger the pulley, the better chance will the cups have for discharging. Middlings and flour being more bulky and lighter than wheat, will not be discharged so readily as wheat. Middlings, flour and bran elevators, if 20 inches in diameter, ought not to run faster than 42 revolutions; if 24 inches in diameter, they should not be run faster than 40 revolutions. The shafts for elevators ought to be made extra-heavy and boxes placed 5 or 6 feet apart; there is considerable weight suspended on the shaft and the torsional strength, generally taken into account in shafting, must be but little regarded when the thickness of the elevator shafts are calculated. The lateral strength of the shatt, is taxed far more than the torsional.

For the benefit of the millwrights reading this, I will give a reliable list of shafting theoretically and practically tried. I computed it and made it short and easy.

8	PEED	OF SH	AFT,	100 R	EVOLUTION	IS PE	R MIN	UTE.
13/4	inch	rolled	shaf	t trans	mits	5 7	horse	power,
21/	44	"				11	44	44
12	44	+4	4.6			14	44	44
62	44	44	.4			17	44	44
74	44	4.				25	44	44
11/	66	44	66		1	85	44	44 .
12	44	44	44			40	66	. 66
53	4	44	44			50	44	44
14	4	44	44			60	44	44
14	44	44	44			80	- 44	44
/2	44	hamme	ered	shaft	transmits	140	44	44
14	44	11		41	44	180	44	**
12	44	44		**	44	250	44	"
114	44	**		66	44	350	44	. 11
12	**	44		**	44	450	44	44

This table can easily be memorized up to 4 inch shafting. Whatever the shaft runs more or less than 100 revolutions can be easily pro-

EXAMPLE: A 31 inch shaft makes 150 revolutions per minute, how much power will it transmit?

A 31 inch shaft at 100 revolutions as seen in the table above, transmits 40 horsepower; then 3½ at 150=40 plus ½ of 40=60 horsepower.

EXAMPLE: A 4 inch shaft running 40 revolutions per minute, will transmit how many horse power?

A 4 inch shaft at 100 revolutions transmits 60 horse power, at 40 it will transmit fortyonehundredths, or four-tenths of 60= to 24 horsepower.

For elevator shafts figure as follows-The line runs 40 feet, twenty eight elevators, with belts averaging 4 inches in width, are on the line. Estimate 4 elevators to one horsepower and altogether the 28 elevators require 7 horsepower. Double this, and the question to be answered is, how thick must the first length of shaft be to drive 14 horse power at 40 revolutions per minute? The answer is; a shaft running 40 revolutions and driving 14 horse power will drive 21 as many, or 35 horse power if revolving 100 times per minute. Our table gives us 31 inches; that is the diameter of the first length. Towards the other end, this diameter can be decreased to 2½ inches. No elevator shaft ought to be less than 2½ inches in diameter.

Up to a few years ago, flour mills contained but very few pulleys and most of them were either wood-rimmed or solid wood pulleys; maple boxes were also used on most of the shafts. Now, owing to higher wages and prices of lumber, and furthermore on account of selecting light shafts and small pulleys to run at high speed, the inducement to use wooden pulleys and maple boxes has gradu- UNITED STATES MILLER. Price \$10.00 post ally decreased, so much so indeed, that no more wood-rimmed pulleys are made for flour mills, and maple boxes for shafting are but very seldom used. For shafting running less than 75 revolutions per minute, maple boxes may be used, but the insurance companies encourage the use of babbit boxes for slow shafts, so that the better mills of to-day run their elevator shafts, driving bolt-uprights, etc., in babbit boxes which cost but little more than maple ones.

(To be continued.)

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY. OFFICE, No. 118 GRAND AVENUE, MILWAUKEE, WIS.

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wise agreed upon,
For estimates for advertising, address the United States
MILLER. [Entered at the Post Office at Milwaukee, Wis., as second lass matter.]

MILWAUKEE, JUNE, 1882.

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

Flour Mill Directory.

CAWKER'S AMERICAN FLOUR MILL DIRECTORY for 1882, was completed, ready for delivery February 1, 1882. It shows that there are in the United States 21,346 flour mil s and in the Dominion of Canada 1,488. The mills in the United States are distributed as follows:

Alabama, 388; Arizona, 17; Arkansas, 234, California 209; Colorado, 52; Connecticut, 309; Dakota, 44; Delaware, 96; District of Columbia, 7; Florida, 81; Georgia, 514; Idaho, 18; Illinois, 1258; Indiana, 1163; Indian Territory, 3; Iowa, 872; Kansas, 437; Kentucky, 642; Louisiana, 41; Maine, 220; Maryland, 349; Massachusetts, 363 Michigan, 831; Minnesota, 472; Mississippi, 297; Missouri; 942; Montana, 20; Nebraska, 205; Nevada, 10; New Hampshire, 202; New Jersey, 445; New Mexico, 28; New York, 1942; North Carolina, 556; Ohio, 1462; Oregon, 129; Pennsylvania, 2786; Rhode Island, 47; South Carolina, 205; Tennesee, 620; Texas, 548; Utah, 129; Vermont, 231; Virginia, 689; Washington Territory, 45; West Virginia, 404; Wisconsin, 780; Wyoming, 3; Total, 21,356.

The directory is printed from new Burgeois type on heavy tinted paper and is substantially bound. It makes a book of 200 large pages. The post offices are alphabetically arranged in each state, territory or province. The name of the mill, the kind of power used and the capacity of barrels of flour per day of 24 hours are given wherever obtained which is in thousands of instances This work is indispensible to all business men desiring to reach the American Milling Trade.

Price Ten Dollars per copy on receipt of which it will be sent post paid to any address. Remit by registered letter, post-office money order or draft on Chicago or New York made payable to the order of E. Harrison Cawker, publisher of The United States Miller, Milwaukee, Wis.

THE leading millers in Spain are commencing to introduce roller mills and quite a number have already been ordered from European and American manufacturers.

Most of the flour mills in the northwest are still either idle, or running just enough to keep from being idle. All, however, anticipate a big boom when the harvest comes in.

GEO. T. SMITH, of middlings purifier fame has returned to his native home and has already taken out another patent for an improvement of value to the Smith Middlings Purifier.

WE call the attention of our readers to the new advertisement of the Centrifugal Flour Dressing Machine, manufactured by the Geo. T. Smith Middlings Purifier Co., of Jackson, Mich. These machines are giving great satisfaction whenever introduced. We hope to be able to give an illustrated description of them next month.

MESSRS. BANKS & SMITH, rice dealers, at Orangeburg, N. C., writes us as follows:

"We wish a grain table of 44 pounds to the bushel showing the weight of from 1 pound up and from 50c per bushel to either one, two or three dollars. Do you know where we can find a work of the kind? if so, do inform

If any of our readers know of such a table being published, we hope they will inform us or the firm above named.

ONE HUNDRED AND FIFTY of the leading mill furnishers and flour brokers in the United States and foreign countries have already purchased CAWKER'S AMERICAN FLOUR MILL DIRECTORY FOR 1882. It is the most complete flour trade directory ever published and is indespensible to any mill-furnishing dealer. The work can be obtained at the office of the paid to any address.

Market Review.

Prepared expressly for the "United States Miller," by Messrs. E. P. Bacon & Co., of Milwaukee, Wis.

Our market has ruled comparatively steady on wheat during the past month, ranging from \$1.29 to \$1.33 for No. 2 Spring, in store; but an unsettled feeling has prevailed, arising from continued manipulation of the market on one hand and disturbing influences at Chicago from proposed change in Rules of the Chamber of Commerce affecting deliveries together with pending arbitration in regard to the settlement of defaulted contracts for April delivery in that market. The result on both of these subjects has been unfavorable to the "bull" interest. The Rules at Chicago have been so modified, that on and after June 1st, contracts for wheat for future delivery are understood to comprise both No. 2 Spring and No. 2 Red Winter, or higher grades of either, unless otherwise specified. Quotations from that date will consequently be based upon the inferior of the two kinds of Wheat in market price. No change, however, will be made in this market, and contracts and quotations will be for No. 2 Spring as heretofore.

The arbitration Committee to whom was referred the determining of the true value of No. 2 Spring Wheat at Chicago on the last day of April, upon which defaulted contracts should be settled, rendered their decision on the 26th day of May, at \$1.31, greatly to the surprise of the trade generally, the expectation being from \$1.35 to \$1.38. This is re garded as removing the principal restraint from short-sellers and putting the market largely in their hands, buyers being denied the right of holding sellers to their contracts. in that market. Here, however, sellers will be held to the strictest accountability as heretofore.

A steady milling demand has prevailed through the month, which has been more marked at Chicago than here, from the fact that prices there have ruled from 4 to 6c. lower than here. The stock in store here shows a reduction of 270,000 bushels for the month, being now 800,000 bushels, against 1,800,000 bushels at the corresponding date last year.

The market to-day experienced a sharp re-action-from the decline of a few days since for cash and early future deliveries, closing on noon 'Change at \$1.301 for cash or June delivery, and \$1.29½ for July. Later deliveries, however, receded still further, closing at \$1.14 for August. Crop prospects in the winter wheat sections continue highly favorable and now promise a larger yield than the remarkable crop of 1880. In the spring wheat section a largely reduced acreage has been sown, probably not to exceed 75 per cent. of last years area.

All matters which have been in litigation between our companies have been adjusted on terms which are mutually satisfactory.

The firm of Huntley, Holcomb & Heine, sell and assign all their patents relating to Purifiers and Dust Collectors, both in the United States and foreign countries, together with the good will of their purifier business, to the Geo. T. Smith and Consolidated Middlings Purifier Companies, receiving license to use all machines heretofore sold by said firm, and also license for a limited number of machines to be manu-With the patents, the Consolidated factured. Middlings Purifier Company also acquires all rights of action which may have accrued under any of said patents.

It is intended in this settlement to protect and perfect the rights of all purchasers from either Company in the use of their machines as they exist. (Signed)

> Consolidated Middlings Purifier Co., Geo. T. Smith Middlings Purifier Co., Huntley, Holcomb & Heine.

New York City, May 9th, 1882.

The Various Processes of Grinding.

FROM EMERICH PEKAR'S REPORT TO THE HUN-GARIAN GOVERNMENT.

(Translated from the Ungarische Muehlen Zeitung of Vienna, Austria, for The Miller, London.)

Continued from April Number.

The break with the low-grinding system, or rather the first deviation from it, occurred, as lossy and Josef Csanak. The employment of already pointed out, in the beginning of the rollers thus showed the way of removing the present century in the French "mouture économique" and in the "mouture ronde," practiced in Saxony, Bohemia, and more Switzerland, and chiefly in Hungary, where especially in the Vienna district, where, in the roller process continued more and more grinding the hard Hungarian wheats, this system originated in the second half of this miller, Johann Blum, of Ofen, was the leader century from insignificant or accidental cir- in this progressive movement, followed by cumstances, when Pauer began to purify the Heinrich Haggenmacher, at that time foremiddlings in a machine instead of on a hand- man in Barber and Klusemann's mill (now sieve, and consequently obtained thereby the Louise), and who later on became promore middlings. In Austria and Bohemia prietor of a mill. On the basis of this process the system of middlings milling was con-numerous large mills were established in tinued up to and past 1850, the wheat being damped to toughen the bran. The task of of the decade from 1860. The process thus half middlings milling, which originated in introducing the process of gradual and con- created was further developed. Already, in Budapest, has been introduced to a greater the new game you taught me. Most of the secutive breaking of the wheat in order to 1873, Ganz's works in Budapest turned out make middlings, and from them flour, was reserved for Hungary. In 1821 Helfenburg, idea, and further extraordinarily developed of Rorschach, Switzerland, attempted to sur- by Mr. Mechwart. Karl Haggenmacher inthe stones by the pressure of revolving iron rollers, an idea further developed by various other parties, but only brought into practical brought the arrangements of the mill to a Sulzberger of Zurich, constructed his roller mill. Count Stefan Szechenyi, whose fore- ments, which he introduced under great Company in Budapest, which met with the In this mill the Sulzberger rollers were used, concern, the "Pester Walzmuehlen" Com-

Sulzberger's system, but gradually disap- the superiority of our system and its arrangepeared. Most of the rollers were bought up ments. by the Budapest mill, and with these rolls the above-mentioned gradual reduction and arrangements out of the question the numer- by the quality of the wheat, have been accus- If you should loose while I was your broker

were commenced. The cause of the adoption of this system exists in the steely nature of our wheats, ripened by the hot sun of our rich Alföld district. Shortly afterwards, in 1842, the Josefs Walzmuehle, of Budapest, was followed by the establishment of the "Istvan" Roller Mill in Debreczin, which after overcoming many difficulties, became a most flourishing concern under the untiring care and able management of Emerich Kombran from the steely wheats. An important step now followed in Austria, Bohemia, to supplant the stones. The Hungarian Budapest and the provinces in the course persede the cutting and pounding action of vented a middlings purifier superior to anything known until then in respect to the perfection of its work and capacity, and he working operations when the Swiss engineer, more organized system. George Rieger was the pioneer of the new roller mill arrangesight, as it now appears, grasped the future responsibility, but with brilliant success. The established in 1839 the Josefs Roller Mill late Josef Ullmann was also a pioneer in the sense that he opened up a market for our most bitter opposition and loss from the flours in distant foreign countries. This rehostility shown to it by the Pesth and Ofen sulted in the development of the manufacture Miller's Guilds and the mistrust of the public. of the necessary machinery, and where, in 1860, and even at the beginning of 1870, we and these very rolls are at the present time were compelled to go to Austria, or even bread and not for pastry. This demand is at work in the old mill of this still flourishing further, for our machinery, we now produce our own, and export besides a considerable quantity, for wherever our flour appears its

making of middling previously referred to ous processes of manufacturing flour practomed to one old straight grade of flour, and my next visit would not be so pleasant.

ticed in the different countries may in reality be divided into two chief processes and a third one branching from them. The countries which orginally grew soft floury wheats developed and perfected at an early date the system of a single reduction, further necessias many grades of flour as we do, but, unfortated by the damping of the grain. At the tunately, it is only a question of a very short most the small quantity of fine middlings made in this process had to be reground. and excellence. To the third or half-high This practice was universal in the West of system of grinding, the old French system of Europe, in fact it may be said in the whole reduction by several operations may be said tained. The results intended to be got by manufacture of macaroni, is produced from the single reduction were one grade of hard wheat, and forms a specially flourishing finished flour of from 70 to 72 per cent. from branch of industry in France. 100 lbs. of wheat. The famous "Eight Marks" flour of Paris is produced on this system, and the French firm of millers, Darblay, who are reckoned among the largest in the world, make at present one grade of flour about 69 to 70 lbs. of flour out of 109 lbs. of wheat. The six pounds produced beyond this divided into two other grades cannot be considered as a commercial article, as it is deficient both in quality and quantity.

In Great Britain efforts were made to extract a larger percentage of flour from the wheat. The native wheats there are comparatively poor in gluten, the flour is weak, and, consequent on the system of grinding, they contain bran.

The second principal system, a slow grinding one, as necessitated by the nature of the wheats, with brittle brans and steely endosperm, in the countries adopting it, was the middlings milling, high or Hungarian system of grinding, which was only developed at a producing flour free from bran, but in its ally from one another, as regards their freewheat which required this mode of treatment is the finest in the world, rich in all the essenit, is white, pure, and at the same time the

strongest and most nutritive. The third process is of more modern date, and is termed half-high or half-middlings grindings. In the development of this system, the quality of the wheat and the character of Ashley-he's older than me, and the smartest the demand from the consuming centres, boy round here-he says they don't pay all were modifying influences, both of which are apparent in the system as now developed. cents a bushel; and that my \$100 would buy In some states of the North American Union, 2,000 bushels of grain; and that if it went u p where a hard steely wheat similar to the five cents a bushel, I would make \$100. He Hungarian was grown, the price of this fine ciphered it all out for me, just like a sum in variety was continually lower than that of the arithmetic. I hear that it sometimes goes soft wheats, because the flour was dark on up 10 cents a bushel, and that would be account of the brittle bran. The same was \$200. I havn't said nothing to Pa about this, likewise the case in greater or smaller districts because he talks against spekelatin'-says it's of other states. When the Hungarian flours, like gambling. made from similar wheats, were shown in the markets and exibitions of the world, the or corn. I tried by mixing some on a board, attention of interested parties was drawn to and scraped off some with my eyes shut to them, and our system of grinding was adopted see which was ahead. My luck was on corn in its entirety in Russia and Galicia, while in 'most all the time. Minneapolis, the central point of the Northern States of the American Union, the imitation you buy-only settle when the time is up and just after 1865. They call it sometimes patent business I ever heard of, and mean to follow further progress. We therefore find that the answer. or less extent in all quarters of the world. boys play marbles for "keeps" on the sly, beroller mills based on Wegmann's fundamental The flour thus obtained does not equal in cause teacher don't allow it. I lost all mine quantity that obtained in low grinding, but it last week, and don't play any more, because is a fact that our system of middlings milling I don't think it's right. has spread over the whole world, and at present is being used in part on soft wheats with excellent results. I call this system half-high or half- middlings grinding for this reason, that neither in Germany, England, or America especially, has our exhaustive and costly process been adopted in its entirety. To indicate only one country as an example, the United States could not adopt our system, because there is no sale there for the dark flours, represented by our numbers, 7, 8, 8½ and 83, for the rich and the poor alike are accustomed to a white bread, and the flour is intended to supply the requirements for white have sold that fine sorrel colt, and have \$100, satisfied by the production of three grades, as is now the case in Minneapolis, for example prides himself on being able to say No, in such and in them partially darker grades are a way as to please almost as much as if he In several places abroad mills were built on excellence and freedom from bran testifies to sometimes mixed, though not to any great said Yes. To do this with you may require extent. Another reason why middlings mil- a long letter. There may be forty reasons lings flourished there only to a certain de- why I should not grant your request. First, Leaving the minor and less important gree, is the fact that the public, influenced your chance to loose is greater than to make.

therefore this custom had to be taken into account, as of the greatest importance in producing this grade of flour by another system. From local reasons, it is consequently not to be supposed that the Americans will make time for their flour to equal ours in purity world, and at the present day it is still re- to belong, by which the semolina for the

(To be continued.)

Grain Speculation.

CORRESPONDENCE BETWEEN A NEBRASKA LAD AND HIS CHICAGO UNCLE.

[From the Chicago Tribune.]

LINCOLN, Neb., April, 1882.-MY DEAR UNCLE JOHN: I have not forgotten your visit to us last fall, when you came to look after the stock on your ranch. Hope I shall be home when you come again. I have wanted to talk with you about a very particular matter, and concluded to write. You remember my sorrel colt that Pa gave me to raise? Well last month I sold him for \$100, and have got the money. The man who bought him has his perfect mate, and would not take \$125 for him. I want to make money; and you said once, it takes money to make money; and so I sold him, though Pa said I would do better to keep him. I know where I can get later period on account of the difficulty in two young colts for \$100-or eight nice calves-or quite a herd of sheep with lambs; results it surpassed the other systems in an and Pa says I can keep them free if I will go unexpected manner. The products of this out to the farm twice a week to look after the system consisted originally of four to five, stock. But it seems a long time for colts afterwards of seven to eight, and at present and calves to grow up, and I want to make of eleven grades of flour, all differing materi- money quick-like young Mr. Drake who comes out here from Chicago. They say he dom from bran and other properties. The makes \$200 or \$300 in a day sometimes, specalatin' in grain. That's a long sight better than putting out \$100 a whole year for \$6 or tial components, gas, gluten, and salts; and \$8 interest. I know you deal in grain some the flour, apart from the absence of bran in way, and Ma says you have made money in that business.

Now, I thought it would be the best thing for me if I could get you to take my \$100 and spekelate for me. I think by what Ma said you could do it 'most as well as not. Steve up for the grain, but only a margin, say five

I don't know which is best to buy-wheat

Steve says you don't have to take the grain of our process of gradual reduction began take the profit. I think that is the neatest process, or Hungarian process and by the it when I am a man. I want to send the importation of our roller mills they made money now; but Ma says, wait till I get your

I 'most forgot to tell you, the boys all play

Hoping to hear soon, I am your affectionate nephew. JAMES BURNS, JR.

P. S.—Steve says young Drake has lost money lately spekelatin, because he bought too high and sold too quick. I don't think it was very smart to do that. I wouldn't do it, you know.

CHICAGO, April, 1882.—James Burns Jr., Lincoln, Neb .- MY DEAR NEPHEW: This is my first opportunity for answering your interesting letter, which came several days ago. I am much interested by it, and will endeavor to answer it faithfully. So you and want me to advise you, or help you to use it. Now, your modern business-man money to country towns to buy grain and ship it here, where it goes into one of those great elevators to be loaded on vessels for the East. All this is properly business, and as necessary to be done as to raise grain on farms. But to sell what you don't possess and don't expect to receive, is not necessary, or useful in any sense.

I will try to show you the difference between the two ways of trading.

We will say, for example, that the crop of corn in the country is 10,000,000 bushels, and that the market price is 50 cents per bushel -total value \$5,000,000; but that, before any of it was used or shipped abroad, the price rose to 75 cents a bushel. The aggregate gain to farmers and dealers on advance would be \$2,500,000; which is a legitimate gain in money to the country. If this advance in the price was caused by general short crops and scarcity in provisions, so that the \$7,500,-000 received for the crop would not buy so much other commodities as \$5,000,000 had done the former year, then, though an apparent gain, is in reality a loss to the country and the cause of harder times, though some individuals may have grown rich on the advance from 50 to 75 cents. Advance in prices does not always bring better times.

I think you are bright enough to see that an advance of 25 cents a bushel on 10,000,000 bushels of corn amounts to just \$2,500,000, and cannot by any honest figuring be made anything else; but I know many men who consider themselves bright, who believe that an advance of 25 cents a bushel on 10,000,000 bushels of corn may be made to amount to \$10,000,000, or even \$40,000,000 or \$50,000,000. I will try to show you how they do it. They do not do it by buying and selling grain, but by pretending to buy and sell grain-some of them selling what they don't possess and cannot get, and some buying what they know cannot be delivered and what they do not expect to receive.

You can see in the case suppose that \$2,-500,000 is an actual gain in money to the country, and all the actual gain there can be on the 10,000,000 bushels at 25 cents a bushel. Every dollar of gain beyond that on the crop of that grain is not made out of the grain, but out of each other-that is, all that one man or set of men make in this way must be lost by some other man or set of men. That is exactly the case in all kinds of gamblingall the gains of one player must be losses to another. It is like playing marbles for keeps; you understand that.

In these fictitious deals in phantom grain, the gainer and looser do not trade together directly; if they did, each would know who gained what he lost, or lost what he gained. and future meeting on the street would not be so pleasant. But the trades are made through a broker, so that the parties who lose and gain do not know each other. Brokers call this kind of trade dealing in options; which means that the seller has the option to deliver the grain, or settle the loss or gain, and that the buyer has the same option. It is well understood on both sides there is no real grain in the business.

This is the kind of trading you wish for, you may say. It is wrong for one to sell what one does not own and cannot deliver. But if you wish to buy what you don't want to take. you must buy of one who dosn't want to deliver. One is as bad as the other, and both are mere betters, instead of buyers and sellers.

attended a church-society meeting a few years ago, when the pastor advised a few of his leading men to "take a venture in wheat on the Board of Trade" for the benefit of the church; and some of them seriously thought of doing it. Wheat had been going up; some thought it would go higher—some thought it would decline. Now, suppose that six of these men had agreed to try their luck for the benefit of the church in an equal amount "on options"; and that three had sold 10,000 bushels each, believing it would go down, and three had bought 10,000 bushels each, believing it would go up. At the end of the month wheat had gone down 10 cents a bushel, and the three sellers were entitled to \$1,000 each, while the three buyers had lost \$1,000 each. The three winners had the credit of giving \$3,000 to the church; but the money came from the three losers. If they had all bought they would have lost \$6,000, and if they had all sold, they would have gained (not made) \$6,000-but they would have gained it from the poor fellows they pretended

I know a broker who is assistant manager

not in a gambling way. I send agents and late in grain privately. I presume he would serve boys also, if they are good boys and belong to the Sunday-School.

I want you to get this principle well fixed in your mind-namely: that all trades in which the gains on one side come and must come from losses on the other side, are gambling. All true trade is an advantage to both sides. The farmer sells his grain because he wants money to put into growing stock or crops; the buyer expects to make a profit for his trouble and money; the miller, starchfactory, and glucose-factory expect to make a profit on their skill and labor, and so on.

If you will come to Chicago with your \$100 you can have a choice of several ways to make or lose money quickly. You can buy tickets in lotteries; or you can bet it on games of chance; or you can find "bucketshops." where you can bet what the price of any kind of grain will be next month or next week, or in the afternoon, or to-morrow. Any one of such games or "deals" is just as moral and harmless to yourself and your neighbor as the other. All you may make in either some one must lose. Or, if you don't like the look or smell of the bucketshops, you can find a respectable broker in a nice office, who will conduct your "bucketshop trade" on the great Board of Trade. A better, more wholesome, moral sentiment begins to appear on this subject. Some of the states have always protected gambling and lotteries by law. Now advertisements of all such schemes are excluded from the mails. Many states have tried to prevent 'commercial gambling," but so far without success. But the world moves, and efficient laws to correct these evils will be made and enforced, so that transactions now engaged in by christian men will sometimes be punished. Already shrewd business men who indulge in these speculations will not excuse it in others. Your father is right. If he speculated in the way you want to, and wholesale merchants here with whom he trades knew it, they would not give him credit for a day. There is not a bank-cashier in the country who could keep his place if it was known he speculated in grain. My advice is: Invest your money in colts, calves or sheep. You will gain more to let the lambs gambol on the prairie than to turn lamb yourself and gamble on the Board of Trade.

Faithfully, YOUR UNCLE JOHN.

Kentucky Millers' Association.

The Kentucky Millers' Association held their regular annual meeting in Louisville, Ky., May 4. The meeting was held in an apartment furnished by the Louisville Board of Trade. The following officers of the Association were present: W. M. Potts, Richmond, President; John E. Miles, Frankfort; Wm. Shaw, Paris; S. C, Kerr, Winchester and L. H. Nottagle, Lexington, Vice-Presidents, and W. G. Proctor, of Danville, Secreary and Treasurer.

The members of the Association were entertained with a brief address of welcome by Mr. Chas. Ballard, which was appropriately responded to by Mr. W. E. Grubbs, of Shelby City, Ky.

The roll was then called and the following delegates responded to their names: W. E. Grubbs, Shelby City, W. N. Potts, Richmond; W. G. Proctor, Danville; J. W. Gilbert, Owensboro; J. W. Hackett, Louisville; C. C. Marble, Eminence, William Watts, Jessamine county; Lewis Rose, Hamilton, O.; C. T. Spillman, Paint Lick, Ky.; J. H. Spemenwarter, Laurel, Ky.; B. Collins, Elizabethtown; E. O. Marnott, Long Grove, Ky.; A. Weisenberg, Payne's Depot; W. H. George, Dayton, O.; J. W. Zaring, Shelbyville; H. P. Edward, Hamilton, O.; D. H. Ranck, editor Millstone, Indianapolis, Ind.; C. F. Hall, editor Grain Cleaner, Moline, Ill.; John Dishman, Bowling Green, Ky.; J. E. Miles, Greenville, Ky.; A. W. Robinson, Grahamton, Ky.; Jas. Colt, Henderson, Ky.; Geo. W. Mullen, Whitesville, Ky.; W. H. Wherritt, Lancaster, Ky.; Jno. T. Rabbeth, Hopkinsville, Ky.; R. A. Gordon, Louisville, Ky.; S. P. Kerr, Winchester, Ky.; J. N. Miles, Frankfort, Ky.; J. D. Combs, Memphis, Ind.; Chas. A. Winn, Indianapolis, Ind.; F. Compton, Frankfort, Ky.; I. R. Eubank, Frankfort, Ky.

The minutes of the last meeting were then read and approved, and the President delivered his annual address as follows:

GENTLEMEN OF THE KENTUCKY MILLERS' ASSOCIATION: After another year has passed and gone, with all its vicis-situdes, I trust and hope this convention will join me in returning gratitude to the Ruler of the Universe for per-

our metropolis for their many acts of kindness extended Louisville, the pride of our State, I must be alowed to say, I am proud of her, and I think every heart will throb in unison with mine when reading the history of her, and then witnessing what she is to-day. I have been here when the population was only ten thousand. I saw beech trees grubbed up where our beautiful Broadway now is, with its many handsome residences, or I should say, palaces, and the huge proportions of depots and machine shops of our system of railroads that bind our beloved South in ribs of steel. I feel proud of Louis ville. It may be a weakness but I am not ashamed to confess it. Gentlemen, millers of Kentucky, we have met here, from, I hope, all parts of the State, entire strangers; and this is the strangest part that we are strangers and I hope we will not long remain so to each other. have met to get acquainted and confer for our mutual benefit; to tell of our wants our prospects, failures and achievements in our business. And I wish to impress on every one present that he, or they, have a work to per form to make this convention pleasant and profitable. hold that no two intelligent millers can be together ar hour without being benefited. Then when we have as sembled the wisdom of the Kentucky millers, it appears that it must redound to their interest. ing there were four committees appointed, to make re port at this time and place—one on the New Process of Milling, one on Tariff Rates on Railroads, one on Insurance and one on Grain. I hope those committees have been industrious, and have interesting reports on all those interesting subjects, and then I wish to have a free discussion and get all the information from millers and grain men here, and save time and expense to us, that we will not have all to incur, for at this time, when there is such a great revolution in milling, it would bankrupt any miller to try all the various methods. We can con fer with each other and learn from each. I thought twenty-five years since that I knew all about milling, and with all the experience since, I now feel like I know little, and the little I know I would very much dislike to see you getting at the same expense. Experience is good teacher, but too costly to be indulged in, and I hope and am satisfied that many, if not all, will leave this convention very much benefited. I have labored for the last four years for our success, and it is in your hands and power to foster and care for it. We have a written con stitution and by-laws, and our Secretary will be pleased to furnish every miller, mill-owner or others desiring a copy, and, after examining it to your satisfaction, I hope to have an accession to our forces. I want you to become men bers. The cost is very trifling in comparison to the benefits; a nominal sum-just enough to defray the necessar; expenses. As our deliberations progress, and at the prope time, I want to see a goodly number avail themselves of the privilege of joining our little band of pioneers. I should call your attention to the Millers' National Association and its benefits, but I will leave that to abler hands. The 'ring have had their day in the North and Northwest. The Nation al Association, an indispensable power to measure arm with the giant, has like the shepherd boy, slain the monster and they will next turn their attention to other fields of labor. And I tell you it will be a day of calamity when they ascertain you are not members of the National As sociation. Who will fight all your battles, pay all the doc tor's bills, and bind up and take care of the wounded Gentlemen, I feel rather embarrassed under the kind treatment our friends have extended to us on this occasion and I hope some one will move to appoint a committee to express our sentiments as to the many acts of kindness extended to us while custodians of the Falls City. May she live and prosper and her shadow never grow less I think it is my duty to call your attention to a few subjects of interest connected with us. I desire there should be a committee appointed on the following subjects:On freights, on railroads and steamboats, on insurance, on milling, and on grain. We have before us a vast amount of labor. are only now groping our way in darkness. I hope every miller here will enjoy himself and pass off the time pleas antly and profitably. I have, perhaps, said enough, and I will desist, and hear from you. I hope every miller or mill owner present will let us hear from him, give us his experience in mi.l machinery and his process, whether adverse or prosperous, join the association, enroll his name and post-office, and consider himself at home with us, and and help to shape the destinies of our association, and have an influence in fixing the next and all subsequent places of meeting. We want to visit all parts of the State with our annual or called meetings

The following new members were then elected: McAllister & Salle, Sanford: John White, Madison county; Jones, Ballard & Ballard, Louisville; George Deering & Co., Lancaster; John Dresher, Louisville; W. C. Smith, Louisville; E. Gripp & Sons, Louisville: J. T. McKenzie, Smithville; John Raidt & Co., Louisville; John H. Spillman, Garrard county; Uhbank & Gilbert, Franklin; George M. Mullen, Whitesville; J. E. Mills, Greenville; W. T. Pyne, Louisville; J. G. Kirker, Louisville; C. C. Marble, Lancaster; Rodgers Russell, Simpsonville.

Secretary W. G. Proctor then made his report as treasurer, showing all debts paid, and a balance on hand of \$6.15.

On motion a committee to revise the bylaws was appointed, with instructions to report May 5th.

The convention then adjourned to meet at 10:30 A. M. May 5th. That hour having arrived the meeting was called to order by President Potts, and after the reading of the minutes the roll was called, only a small number answering to their names. The first business in order was the election of new members, and the following names were proposed and received: Loving, Crutcher & Co., Louisville; W. L. Murphy, Louisville; Kentucky Flour Company, Louisville; J. C. Ameling, Louisville; A. Brandeis & Son, Louisville; G. W. Whipple, Louisville; Verhoff & Scrader, Louisville; W. H. Grainger & Co., Louisville; W. B. Crawford, Harrods-

The next business in order was the election of officers for the ensuing year. Mr. W. C. I know a broker who is assistant manager in our Sunday-School. He advertises that he has fitted up his rooms especially for the ac-

It is true I am in the grain business, but commodation of ladies who wish to specu- us not to feel deeply thankful to the good citizens of dent. Mr. Grubbs seconded the nomination. and he was declared elected by acclamation. He took his seat at once and thanked the society in a few words for the honor conferred upon him, a new member. The next officers to be elected were four Vice Presidents. The following four gentlemen were elected by acclamation: First Vice President, W. C. Smith, Louisville; second Vice President. W. N. Grubbs, Henderson; third Vice President, W. S. Giltner, Eminence; fourth Vice President, J. N. Meyers, Frankfort.

Mr. Smith then nominated Mr. Proctor for re-election as Secretary and Treasurer, but that gentleman declined to serve, and nominated W. H. Whirritt, of Lexington, who was unanimously elected.

Upon report of the committee some ammendments were made to the constitution and by-laws.

Louisville was selected as the place of holding the next annual meeting on May 6,

A rambling discussion about wheats, milling machinery and processes was then engaged in of interest to all present. The standing committees on Freight, Milling wheat, Systems of Milling, and Insurance were then appointed by the President.

In the evening a banquet was given the visiting millers and mill-furnishers at Phoenix Hill which was much enjoyed by all present. It seems to be the opinion of all present that the Kentucky Millers' Association will now enjoy a "regular boom"-that the milling interests of the state are roused and that a prosperous and well attended meeting will be held next year.

The Squirrel Problem.

"A squirrel is up a tree and a man on the ground with a gun is trying to shoot it; but the squirrel persists in keeping on the opposite side of the tree from the man. The man walks clear around the tree to the place of starting, the squirrel going about in the same direction and keeping the tree all the time between itself and the man. Now the problem is, 'Has the man been around the squirrel?' He has been around the tree with the squirrel on it, but has he been around the

The Express invited answers to this problem, and received twenty-seven of which fifteen say yes, the man does go around the squirrel, and twelve say no, he does not. A few have sent us their reasons, and two send figures demonstrating the problem. The following answers are printed:

1. Of course the man goes around the squirrel. He goes around the tree and everything on it.

2. Should the squirrel have the start I am of the opinion that the man goes around it.

3. Not by a darn sight does the hunter walk around the squirrel.

4. The man does not go around the squirrel. Might as well claim that-by having a horse attached at A and another at B, each describing the same circle, keeping at opposite sides of circle—the horse at A would at every time going around the ring go around the inside half of B and that B re turned the compliment

A(to A in the same manner simply because the outside of one described a larger circle than the inside of the other. In other words a man or horse in describing any circle goes

around one-half of himself. 5. The man goes around the squirrel. It is just like a wheel within a wheel.

6. The man does not go around the squirrel. I have tried it and had I got around the squirrel I would have shot it.

7. If there was no tree there and the squirrel was running around in a circle on the ground and the man was going in a larger circle I should say the man went around the squirrel. But when you put a tree there it is different. The man does not go around the squirrel on the tree.

8. The man doesn't go around the squirrel any more than the squirrel goes around the

9. Of course the man doesn't go around the squirrel. If I am standing on the nigh side of a horse and start to walk around him, and the horse keeps turning as I go, I am on the nigh side of him all the time, am I not? And I don't go around him if I am on the nigh side all the time, do I? The case is precisely similar to this of the squirrel on the tree.-Buffalo Express.

Eighty-six looms and 3,376 spindles are in motion at the jute works of the Dolphin Mfg. Co., Paterson, New Jersey, and the finished product aggregates 4,144,748 pounds per annum.

Items of Interest.

New Orleans newspapers are inferring great things for the future of that city as a port of export, owing to the completion of a contract recently for shipping 300,000 bushels of grain (700 carloads) from San Francisco to Europe via the Texas Pacific Railway and New Orleans. It is inferred by the Picayune that this "is only a foretaste of what may be expected when the wheels of the great southern trans-continental route become lubricated."

AN EXTRAORDINARY SPRING .- In a mine near the busy centre of St. Etienne, a French mining engineer, in boring at a depth of 1,500 ft., is reported to have come upon a hot spring, whose waters rushed forth in a column to a height of nearly 80ft. above the surface of the earth. It is similar in height and heat to the so-called Stracke Geyser, and is strongly impregnated with carbonic acid. The French Academy of Sciences have determined to send a deputation to examine minutely into the peculiarities of this phenomenon.

WATER POWER.—The town of Saint Etienne, in France, is supplied by a torrent called the Furens, the waters of which are barred by two dams. It is now proposed by M. Contesmall Fourneyron turbines, actuating directly some dynamo-electric machines, with a view to providing Saint Etienne, about 8 kilometres distant (say 5 miles), with both motor force and light. The fall is about 133 ft., and the daily supply is such as to give theoretically some 617 horse-power, of which a wellarranged turbine would receive two-thirds, or 400 effective horsepower. Allowing for loss by conductors, it is estimated that about 200 effective horse-power would be utilized at Saint Etienne.

An Improvement on the Faure secondary battery, recently announced, has almost rendered the former's invention useless. The two metals used in the Faure battery were separated by felt strips, which it was found the acidulated water rotted. In the improved device the outer plate is done away with, and the metal is let into perforations in the other, which is found to give better results and last longer without attention. Mr. Faure is now doubtless sorry that he refused £250,000 for his invention. There is a general agreement between electricians that a successful secondary battery is to play a very important part in the practical adaptation of electricity to every-day uses, not only as a reservoir to supply power, light, etc., but as a regulator

A GIGANTIC scheme is on foot, said to originate from Mr. Edward Atkinson, which, if carried out, will abolish all the cotton warehouses in the South. It is claimed to be the purpose of the company of which Mr. Atkinson is reported to be the head, to establish ginneries at every accessible point to and on all railroad lines, purchase the planters' cotton in the seed, gin it, and with the use of the Dederic press, press it into bales of 125 pounds, and sell direct to the factories. It is further stated that it is the purpose of the company to secure space in Oglethorpe Park for the erection of gins and presses to manipulate all the cotton coming into the Atlanta market. Should the plan be feasible, a revolution will be wrought in the handling of the

BELTING .- It is economy to put on a wide t rather than make a narrow one too tight. Vertical belts should be drawn moderately

Prof. J. Bauschinger publishes the result of a series of tests of the tensile strength of different sorts of belting made in the Mechano-Technical Laboratory at Munich. In making a graphic representation of the results by setting the loads per square inch on a horizontal line and erecting verticals corresponding to the elongations at the different loads, the curves thus obtained show considerable difference for leather, india rubber, and cotten belts. All these materials stretch more at first, with light loads, than afterward. The lines, therefore, are more curved at the beginning, and afterward approach more to a straight line. But with leather belts the approximation to a straight line begins at once, and is more pronounced than with india rubber or cotton belts, showing that they stretch in the beginning more in proportion to the load, and possess a high degree of elasticity. The conclusion drawn from the tests by Prof. Bauschinger is that india rubber and cotton belts are inferior to leather, not only as regards elasticity, but also as regards ingwater, and the other ingredients stirred tensile strength, for the same section, and in. only attain in strength that of medium or inferior sorts of leather. By cementing and important tests of wooden columns, says an Gazette, (London.)

sewing the ends leather straps lose one-quarter to one third of their strength, if the joints are not made with great care.

Duty of Capital to Labor.

In the course of an article on the above head the Hartford Courant says: We shall never be free from the class of ignorant, cheap politicians who seek to advance their own interests by arraying labor against capital, but their power for evil will be greatly lessened when our railroads and our leading manufacturing industries have adopted some system of recognizing and rewarding good service, by means of which each has secured the loyality of its best men. That this is possible has been demonstrated repeatedly, although it must be admitted, in isolated cases. When it becomes more general, strikes will be rare occurences; for the better class of laborers will recognize the fact that their employers would not call for reduction in wages if the interests of both employers and employed did not require it. When men know that prosperity for the employer brings an advance in wages without pressure, they will be more ready in a season of adversity to submit to a reduction without grumb-Granchamps to utilise the water-power to drive ling. There is unfortunately too much reason for the common belief that an increase of pay seldom comes until it is forced, no matter how good the times while the first excuse for reduction is improved with cele-

Things worth Knowing.

PAINT FOR SMOKE STACKS .- Linseed oil mixed with graphite is said to be a valuable paint for iron smoke-stacks. John Dent of Ore Knob, N. C. says he painted two iron smoke-stacks subject to the corrosive action of sulphurous acid fumes, with a mixture of this kind two years ago and they appear now to be as good as new.

FLOUR PASTE.—Flour, four ounces; water, 1 pint; nitric acid, 40 minims: oil of cloves, 5 minims; carbolic acid, 5 minims. Thoroughly mix the flour and water, strain through a sieve, add the nitric acid, apply heat until thoroughly cooked, and when nearly cold, add the oil of cloves and carbo-

Polishers' glaze is not a varnish, but finish, applied after the work has been bodied-in in the usual way, and which saves the time and trouble of splitting off-small work especially. It is often applied with a brush, though some prefer a rubber, in which case it should be simply wiped on, and not rubbed. It is made by dissolving gum-benzoin in spirits. Fill a bottle about one-quarter up with the gum, broken small, and then fill with spirits and let it stand a few hours.

THE ECONOMY OF HARD AND SMOOTH ROADS. At a recent meeting of the Engineers club of Philadelphia, Mr. Rudolph Heving, the President presented some notes on the resistance to traction on streets, compiled from various authors who had experimented on the subject, in which he showed that if one horse can just draw a load, on a level, over iron rails, it will take 13 horses to draw it over asphaet 31 over the best Belgian, 5 over ordinary Belgian, 7 over good cobble stone, 13 over a bad cobble stone, 20 over an ordinary earth road and 40 over a sandy road.

glue and American isinglass equal parts, and last season, 42,000,000 bushels of wheat were If properly put together no rivets will be acity of the country was probably not as needed, as the cement is as strong as the great as in the present, while there has been

for cementing belts, similar, but not quite equal, to this.

RUBBER STAMP INK .- The following proportions are said to give an excellent ink. which, while not drying up on the pad, will upon the paper. Aniline red (violet), 90 grains; boiling distilled water, 1 ounce; glycerine, half a teaspoonful; treacle, half as much as glycerine. The crystals of the violet dye to be powdered and rubbed up with the boil-

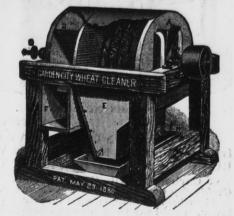
Eastern exchange, such as are in common use in the construction of cotton and woolen mills, have lately been made at the instance of Mr. Atkinson, President of the Boston Manufacturers' Mutual Fire Insurance Co. The tests were made with the testing machine at the Watertown Arsenal. The formulas in use for computing the strength of wooden columns are based on tests applied to columns of about two inches on a side and four or five feet long. The new tests were made with columns of pine and oak of the size and length used in actual construction. All but two were round, hollow columns, of from eight to eleven inches in diameter, the two being about nine inches square. The greatest amount of pressure exerted in any case was about 265,000 pounds. The tests have disclosed frequent instances of defective boring in the colums. The object in boring is to open an air passage through the heart of the stick for the prevention of dry rot after it is in position in the building. It is essential of course, that the bore should extend from end to end, but this has not always been effected. The sticks were bored first from one end and then from the other, and the borings have sometimes failed to meet in the middle of the stick. The tests also show that to taper the sticks is a mistake, inasmuch as it weakens the column more than has heretofore been estimated. Reasons for exercising more caution in other respects in the construction and adjustment of wooden columns in build-, ings have also been disclosed.

THE San Francisco Journal of Commerce says: We exported in 1881 over 30,000,000 bushels of wheat, most of it from San Francisco, some from San Diego and Wilmington, which are becoming important outlets for the product of Southern California. The total is as nearly double the 1880 export as possible, while it is 2½-fold that of 1878 This shows that the doubling up of our export to Great Britain did not seriously affect our prospects in that market, though the eastern shipments increased at the same time. It did, however, interfere with Russian exports, which have been smaller, showing conclusively that our improved machinery and dear labor can beat the backward cheap labor of Russia in the markets of the world. But Russia will not consent to be thus shouldered out even if the prices of wheat should have to go lower. The result would be not only lower prices, but increased consumption as well, so that the increased production of this coast would not go to waste. We make about 1,700,000 barrels of flour a year, most of which is consumed here and in the Pacific States surrounding us, such as Nevada, Arizona, Idaho, Montana and Colorado. Last year we exported nearly 800,000 barrels, leaving about a million barrels for consumption at home and in the telritories. As our population increases we shal consume a correspondingly larger proportion of flour on this coast. The extension of the Southern Pacific and the opening up of connections with Texas insures us a market with Mexico and Gulf generally for our flour, which will doubtless be quite important, though it remains for the future to say what the extent of that will be.

An important feature of the general export movement from America, revealed by the last official accounts, is the tremendous de-CEMENT FOR LEATHER BELTS.—For making cline in the flour exports from Atlantic ports. cement for leather belts, take of common Although the American crop was so short place in a glue-pot. Add water to cover the nevertheless shipped out of those ports in the whole. Soak ten hours. Then bring the first eight months of the crop year, thus mixture to a boiling heat, and add pure tan- showing a very considerable surplus notwithnin, till the whole becomes ropy or like the standing the shortage, but during these same white of eggs. Apply warm. Buff off the eight months the exports of flour were 2.100,grain of the leather where it is to be cemen- 000 barrels, or 1,560,000 barrels less than for ted: rub the joint surfaces solidly together; the corresponding period in the previous let it dry a few hours and it is ready for use. season, when the extent of the milling cap-42,000,000 bushels of wheat to spare to the The American Machinist says of the above foreigner. This season, from Atlantic ports We have known ten dollars paid for a recipe there has been sent abroad from the same source some 75 per cent less of flour, than last year. A decrease to this enormous extent while the milling capacity is being steadily enlarged and there is plenty of wheat for exportation, is a very bad sign for Amerione of the worst for some years. Meanwhile English millers are determined, if possible, maintain the ground thus won partly by fortuitous circumstances; but we have yet to see whether the effect of another good and THE STRENGTH OF WOODEN COLUMNS.—Some full American crop, with the formidable array of merchant mills in that country, will not be again felt as heavily as before.—Millers

"BEST IN THE WORLD."

GARDEN CITY



Gathmann's patent "inclined bristles" prevents all clogging when the brushes are run close together. This is the

ONLY DOUBLE BRUSH

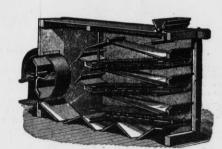
Which can be set up close so that it will

Thoroughly Brush Wheat. Guaranteed to IMPROVE COLOR of the PLOUR.

It don't break or scratch the grain. Removes all the dust. Very light running. Send for circular and prices.

Prices Reduced! Improved Garden City

Middlings Purifier!



With Travelling Cloth Cleaners

Our improved Purifier has every device requisite to make it perfect, and every one in use is giving the greatest satisfaction to the users. The Cloth Cleaners are guaranteed to clean the cloth better than is done on any other purifier. Send for our new circular.

Over 4000 Garden City Purifiers in use, nearly 500 of which are the Improved

The Best and now the Cheapest. Write for circulars and price list.

We are agents for the

BODMER

Bolting Cloth!

Which has long been acknowledged as the yet not readily smear when not impressed can millers, whose trade has, no doubt, been best made, and which has lately been further improved, making it now beyond comto keep foreign flour at a distance, and to petition. We make it up in the best style at short notice. Send for prices and samples.

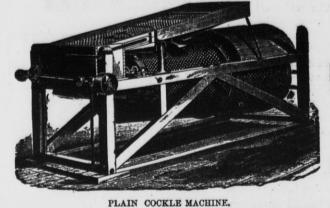
Garden City Mill Furnishing Company,

CHICAGO, ILL.

Mention this paper when you write us.

COCKLE SEPARATOR MANUFACTURING COMPANY, MILWAUKEE.

GENERAL MILL FURNISHERS



IMPROVED COCKLE SEPARATORS

Richardson's Dustless Wheat Separators!

Also Sole Manufacturer of BEARDSLEE'S PAT. GRAIN CLEANER.

We will contract to furnish entire Wheat Cleaning Machinery for mills, and guarantee the best results.

Send for Illustrated Catalogue.

Perforated Zinc at Bottom Figures. WE GUARANTEE GREAT CAPACITY combined with GOOD QUALITY OF WORK. Any common Sieve will separate the cockle from wheat but to separate it WITHOUT WASTE is the GREATEST FEATURE of our Machine. A WASTEFUL machine is a DAILY LOSS OF MONEY in a mill. There is NO MACHINE IN THE MARKET which can stand comparison with ours.

Carbondale, Ill., Dec. 2. 1881.

Cockle Separator Mfg. Co., Milwaukee.
Gentlemen:—Replying to your late favor, would say that we can cheerfully recommend your Cockle Separator as doing all that you claim for it We have tested ours throughly by this time and know whereof we speak. We would not think of doing without it, having tried it once, and can conscientiously vouch for its good work.

Yours respectfully,

BROWN & WINFREY.

Perrysville, Ind., Nov. 24, 1881.

Cockle Separator Mfg. Co., Milwaukee.
Sirs:—The combined machine I bought of twenty-seven years, but never have I seen anything that will equal yours in cleaning wheat.

As an Oat Separator it is No. 1, and for Cockle it cannot be beat. I can take screenings and separate the cockle from it without wasting any of the small wheat. In my opinion every mill in the United States ought to have one, and if I were to build a mill I would have no other. I remain

Yours respectfully,

B. O. CARPENTER.

Pott's Patent Automatic Feeder I The best device for regulating the FEED ON ROLLER I stimple. Senton trial upon application. Write for circular properties.

Minneapolis, Minn. Aug. 22, 1881. Cockle Separator Mfg. Co.:

We have been using two of Beardslees's wheat cleaners, a scourer and finisher, for nearly two years, and are passing one hundred and fifty bushels per hour through them, one third more than rated capacity, and are not using any other cleaners, and consider our wheat as well cleaned as any in Minne-

Yours truly,
CAHILL, FLETCHER & CO.

La Crosse, Wis., July 30, 1881.
Cockle Separator Mfg. Co., Milwaukee.
Gentlemen: — The Beardslee Grain Cleaner sent me about the middle of Luce has been in operation with the content of the cont

June has been in operation since that

time with very satisfactory results. 1 cannot see that it breaks the wheat or requires an unusual amount of power to run it. Yours truly,

WILLIAM LISTMAN.

BEARDSLEE'S WHEAT CLEANER

Milwaukee, Wis., Aug. 23, 1881. Cockle Separator Mfg. Co.

Gentlemen:-The Beardslee's Grain Cleaners which we have purchased from you for our New Era and Milwaukee Mills give us the best of satisfac-

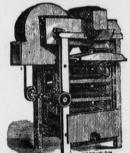
NEW ERA MILLING CO.

Pott's Patent Automatic Feeder! The best device for regulating the FEED ON ROLLER MILLS, PURIFIERS, and other machines requiring a regular feed, spread out the full width, Very cheap and simple. Sent on trial upon application. Write for circulars with illustrations. Perforated Zinc of all sizes at low rates. Send for Illustrated Catalogue.

HOWES, BABCOCK & EWELL.

Silver Creek, Chautauqua County, New York, U.S. A. Established 1856.

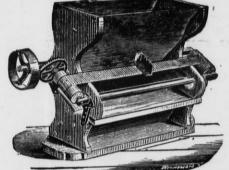
MANUFACTURERS OF THE WORLD-RENOWNED EUREKA GRAIN CLEANING MACHINERY AND SPECIALTIES HEREWITH ILLUSTRATED



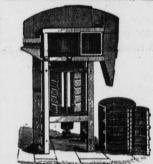
occupies but little space, does its work in an effectual manner. Is also built for use in Elevators and Warehouses, with a capacity of from having thorough ventilation. Over 11,000 of these Machines are now in use.



The Eureka Smut and Separating Machine,



Eureka Magnetic Automatic Separator. Removes all metallic particles from a flowing stream of grain, requiring no attention from the miller. 5 sizes.



Eureka Brush Finishing Machine Recognized as the leading one of this class of machines. Universally recommended for finishing the process of cleaning.



Silver Creek Flour Packer. Will pack whole and half barrels, and half, quarter, eighth and sixteenth barrel sacks. Provided with labor-sav-ing patent creveling steel coll spring regulating the packing to perfection.

GENUINE DUFOUR AND ANCHOR BRAND BOLTING CLOTHS. FULL STOCK ALWAYS ON HAND, MADE UP BY THE AID OF OUR OWN PATENTED ATTACHMENTS, IN A SUPERIOR MANNER.

Ger. Agency for Australian Colonies & New Zealand, THOS. TYSON, MELBOURNE, VICTORIA.

Abernethey's New Book.

PRACTICAL HINTS

Mill Building.

The Latest, Best and Only Exclusively Flour Mill Work in Print.

Every Miller, Millwright and Millwright's Apprentice should have a copy.

THE UNITED STATES MILLER for one year and a copy of this book will be sent for \$4.00. Address,

UNITED STATES MILLER,

Milwaukee, Wis.



EUREKA MANUFACTURING CO.,

Manufacturers and Sole Proprietors of the

BECKER BRUSH,

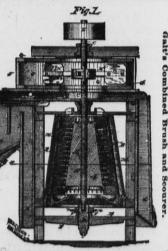
Galt's Combined Smut and Brush Machine. The Only Practical Cone-Shaped Machines in the Market, and for that Reason the Best.

ADJUSTABLE WHILE IN MOTION.

Nearly 1,000 of these Machines in Use.

In the United States and foreign countries, and so far as we know all that use them are pleased. Millers, millwrights, and milling experts claim the Cone Shape Solid Cylinder Brush is the true principle to properly clean grain. All machines sent on trial, the users to be the judges of the work. For price and terms apply to

EUREKA MANF'G CO., ROCK FALLS, ILL., U. S. A. [Mention this paper when you write.]



HARRIS-CORLISS ENGINE.

WM. A. HARRIS, Providence, R. I.

Built under their original patents until their expiration. Improvements since added: "STOP MOTION ON REGULATOR," prevents engine from run ning away; "SELF-PACKING VALVE STEMS" (two patents), dispenses with four stuffing boxes; "RECESSED VALVE SEATS" prevent the wearing of shoulders on seats, and remedying a troublesome defect in other Corliss Engines, "BABBITT & HARRIS' PISTON PACKING" (two patents). "DRIP COLLECTING DEVICES" (one patent). Also in "General Construction" and "Superior Workmanship."

The BEST and MOST WORKMANLIKE form of the Corliss Engine now in the market, substantially built, of the best materials, and in both Coudensing and Non-Condensing forms.

The Condensing Engine will save from 25 to 35 per cent. of fuel, or add a like amount to the power and consume no more fuel. Small parts are made in quantities and inter-changeable, and kept in stock, for the convenience of repairs and to be placed on new work ordered at short notice.

NO OTHER engine builder has authority to state that he can furnish this engine.

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WM. A. HARRIS, Proprietor.

A NEW PROCESS ROLLER MILL! FOR SALE!

In the City of Milwaukee, known as the "City Mills." Capacity, 250 to 300 barrels per day. Has an established City and Shipping Trade. Mill now running. For further particulars, address,

ESTATE OF WM. C. DURANT,

"CITY MILLS," [Mention this Paper when you write.]

MILWAUKEE, WIS.



FROM 1-4 to 10,000 LBS. WEIGHT. True to pattern, sound and solid, of unequaled strength, toughness and

durability.

An invaluable substitute for forgings or cast iron requiring threefold strength. Gearing of all kinds, Shoes, Dies, Hammer-Heads, Cross-Heads, for Looomotives, etc.

15,000 Crank Shafts and 10,000 Gear Wheels of this steel now running
prove its superiority over all other steel castings.

CRANK SHAFTS, CROSS-HEADS and GEARING, specialties.

Circulars and price list free. Address,

CHESTER STEEL CASTINGS CO.,

407 LIBERTY ST., PHILAI ELPHIA, U. S. A.

TRADE NOTES.

Hurst Bros., Salem, Oregon, have purchased of E. P. Allis & Co.. Milwaukee, four pair of Gray's Noiseless Roller Mills.

E. P. Allis & Co., Milwaukee, have sold T. M. Shirk & Co., of Mt. Carroll, Ill., 4 pair of Gray's Pat. Noiseless Roller Mills.

E. P. Allis & Co., of Milwaukee, are building a 50x60 Reynolds-Corliss cylinder for compounding Edw. Sanderson's engine.

CAPITOL CITY MILLS, of Salem, Oregon, ordered of E. P. Allis & Co., of Milwaukee, 6 pair of Gray's Pat. Noiseless Roller Mills.

THE 4 pairs of Gray's Noiseless Roller Mills bought by Schinger & Schauble, Mascoutah, Ill., were from E. P. Allis & Co., Milwaukee.

J. J. KNOEPPLER & Co., of Milwaukee, ordered E. P. Allis & Co., to improve their present engine by putting on a 20x36 Reynolds-Corlis Cylinder.

JOHNSON & CUNNINGHAM, of Centralia, Ill., have just purchased of E. P. Allis & Co., of Milwaukee, 6 pairs of Gray's Pat. Noiseless Roller Mills.

JAMES K. HURIN, of Cincinnati, has lately ordered of E. P. Allis & Co., Milwaukee, 4 pairs of Wegmann Patent Porcelain Rolls for middlings.

E. P. Allis & Co., of Milwaukee, have an order from Hanley, Fuller & Co., of LaFayette, Ind., for 6 pair of Gray's Pat. Noisoless Roller Mills.

GIBSON & Co., Indianapolis, in repairing Noiseless Roller Mills of E. P. Allis & Co,, Milwaukee.

E. P. Allis & Co., Milwaukee, have lately received an order from Chisholm Bros., of Chicago, for 14 pair of Gray's Pat. Noiseless Roller Mills.

E. P. Allis & Co., have just received an order from the Salem Mill Co., of Salem, Oregon, for 4 pairs of Wegmann Pat. Porcelain Rolls for middlings.

CHISHOLM BROS., Chicago, Ill., have ordered two pairs of Gray's Patent Noiseless Roller Mills, from E. P. Allis & Co., of Milwaukee, to be sent to London.

D. L. Wing & Co., of St. Louis, say they have ordered 18 pair of Gray's Pat. Noiseless Roller Mills of the extensive mill furnishers E. P. Allis & Co., Milwaukee.

EDW. SANDERSON & Co., of Milwaukee, will put in 12 more pair of the Gray Pat. Noiseless Roller Mills. E. P. Allis & Co., of Milwaukee will furnish the machines.

WM. ANNESSER, of Ottawa, Ohio, have ordered of E. P. Allis & Co., of Milwaukee, 6 pair of sharp cutting iron rolls and two pair of Wegmann Patent Porcelain Rolls.

THE 10 pair of Gray's Patent Noiseless Roller Mills to be used in the mill of Geo, Fortune, of River Falls, Wis., are to be furnished by E. P. Allis & Co., Milwaukee.

E. P. Allis & Co., of Milwaukee, have sold T. W. Kelly, of Elgin, Ill., 3 pair of sharp corrugated iron rolls for wheat, and 1 pair of Wegmann Pat. Porcelain Rolls for middlings.

THE power used to run the new roller mills being built for Walsh, DeRoo & Co., Holland, Mich., by E. P. Allis & Co., of Milwaukee, will be a 14x42 Corliss engine from the same

E. P. Allis & Co. have the order of J. S. Wheeler, Murfreesboro, Tenn., for 5 pairs of sharp corrugated iron rolls for wheat and one pair of Wegmann Patent Porcelain Rolls for middlings.

HARRINGTON & MOREHOUSE, of Jefferson, Iowa, have decided to adopt the roller system and placed an order with E. P. Allis & Co., of Milwaukee, for 14 pair of Gray's Patent Noiseless Roller Mills.

E. P. Allis & Co., of Milwaukee are changing over the mill of Johnson & Co., Franklin, Pa. 9 pair of sharp cutting rolls for wheat and 3 pairs of Wegmann Pat. Porcelain Rolls for middlings will be used.

J. MILLER & Co., of Racine, with their accustomed enterprise have ordered E. P. Allis & Co., of Milwaukee, to replace their 8x24 Reynolds-Corliss Engine destroyed with their shops, at Racine by the recent fire.

UPHAM SON & Co., of Blue Rapids, Kan., are changing over their mills to the roller system. They have bought 16 pair of Gray's Patent Noiseless Roller Mills and all necessary machinery of E. P. Allis & Co., Milwau-

A NEW DEPARTUR

We are the Sole and Exclusive Licensees for this Country under the

MORRITZ MARTIN PATENTS

40N =



And we are now prepared to fill orders for machines with latest improvements, which include

OUR NEW DOUBLE CONVEYORS. NEW CLOTH FIXING AND STRETCHING DEVICE. NEW AND SIMPLIFIED MANNER OF DRIVING.

THE CENTRIFUGAL has more than FOUR TIMES the capacity of the ordinary reel, and will make clear flour and a clean finish on stock that cannot be treated in the common reel without loss, no matter how much silk it is passed over.

IT IS SPECIALLY ADAPTED to handling soft, reground material, full of light impurities, whether from rolls or stone. IT IS INDISPENSABLE to a CLOSE FINISH in any system of gradual reduction milling, and will improve the quality of the low grade flour at the same time it makes the offal cleaner

IT MAKES A CLEAN SEPARATION on caked and flaky meal from smooth rolls, which no other style of reel can do. IT IS VASTLY SUPERIOR to the common reel for dusting middlings.

THEY CAN BE USED TO ADVANTAGE as a complete system of bolting, to the exclusion of the ordinary reel.

Over One Hundred sold in six weeks. REFERENCE TO LEADING MILLERS IN THE UNITED STATES.

Write for descriptive circular and price list to

GEO. T. SMITH MIDDLINGS PURIFIER CO., - Jackson, Michigan.

[Mention the United States Miller when you write.]

for middlings. The rolls will run in Gray's pat. noiseless frame with belt movement. E. P. Allis & Co., of Mllwaukee, are doing the

A STEAM boiler must burst before an explosion takes place, but the interval between the bursting and the explosion is of a short duration as that between the breaking of a gun cap and the discharge of the gun.

DILLON, BOWERS & STOCK, of Rock Falls, Ills., have placed an order with E. P. Allis & Co., Milwaukee, for 7 pair of sharp corrugated iron rolls for wheat and two pair of Wegmann Pat. Porcelain Rolls for middlings.

S. T. HAYT, of Corning, N. Y., ordered of E. P. Allis & Co., Milwaukee, 11 pair of sharp Pittsburgh, Pa.: Geo. Hasler, Salt Lake City, cutting iron rolls for wheat and 1 pair of Wegmann Pat. Porcelain Rolls for middlings, all with Gray's pat. noiseless frame and belt George, North Aurora, Ill.; N. Long & Co., movement.

Thos. J. Cox, Bloomington, Ill., is changing his mill, and has ordered of E. P. Allis & Co. 12 pairs of Gray's Pat. Noiseless Roller Mills, 11 pairs of sharp corrugated iron rolls for wheat, and one pair of Wegmann Pat. Porcelain Rolls for middlings.

THE new roller mill being built by E. P. Allis & Co. for Walsh, De Roo & Co., Holland, Mich., will use 13 pair of sharp cutting iron rolls for wheat and three pair of Wegmann Patent Porcelain Rolls for middlings, all in Gray's Patent Noiseless Frame, with belt movement.

DUNLAP & McCance, of Richmond, Va., are making a complete change in their mill, E. P. Allis & Co. having contracted to furnish them 30 pair of sharp cutting iron rolls for wheat and 18 pair of Wegmann Pat. Porcelain Rolls for middlings, all in Gray's Pat. Noiseless Frame with belt movement, and all the machinery necessary for a 600 barrel mill.

SMUT in wheat is a plant, and like the nushroom is propagated by its own seeds which are so small, that they are absorbed by the wheat plant with the water taken from the soil and conveyed with the sap to the wheat kernel, where it finds proper elements for its development, turning the whole interior of the kernel to one mass of smut.

J. H. REDFIELD, of Salem, Ind., writes that the prospects for the mill furnisher and millers are very good, so far as his observation goes. He says "I have now under contract and am building new mills as follows: one 3 run mill for H. Matthews, at Tunnelton, Ind., one three run mill for Jonathan Turley, Mitchell, Ind., one 4 run mill for H. L. Giers, at Otterville, Ill., I am overhauling and furnishing new machinery for O. H. Merritt, Jonesville, Ind.; F. M. Lemmons, Leesville, Ind.; Gwartney & Watson, Mauckport, Ind., and others. My sales for purifiers during the past few weeks are as follows: Louis Jeffries, Rochester, Ill.; Phillip Crackman, Saulsbury, Ind.; Thos. Bradford & Co., Cincinnati, O.; S. M. Smith, York, Pa.; Johnson & Melloy, HICKS, BROWN & Co., of Mansfield, O., are Scottsburgh, Ind.; H. W. Clark, Knoxville, making extensive repairs in their mill, in- Tenn.; Wanner & Hoag, Marlette, Mich.; 25 pair of sharp cutting iron rolls for wheat Russell, Concord, Tenn.; N. C. Durham, will be forthcoming to complete the vessels ous harvest in the southwest.

their mill ordered 6 pair of Gray's Patent and 15 pair of Wegmann Pat. Porcelain Rolls Melan, Ind.; Michael Robert, East Berlin, which are already fixed. We cleared the Pa.; F. M. Lemonds, Leesville, Ind.; Bailey Bros., St. Paul, Ind.; J. D. Hammond, Hammonds Mills, Ga.; Col. Schultz, Blanchard, Iowa; H, W. Blark, Knoxville, Tenn.; Gregsby & Gresgsby, West Baden, Ind.; Josiah Peeling, York, Pa.; James Davenport, Abbyville, O.; Jonathan Turley, Nutchell, Ind.; and others.

THE following millers have lately placed orders with E. P. Allis & Co., of Milwaukee, for Gray's Patent Noiseless Roller Mills: Wilderman & Hill, Freeburg, Ill.; H. Temple, Fenton, Mo.; Engelke & Feiner, St. Louis, Mo.; D. B. Merrill & Co., Plainsville, Mich.; Ellis Faber, Rich Hill, Mo.; Teusher & Co., St. Louis, Mo.; Whitmyre, Brungard & Co., Utah; Wood Maude Milling Co., St. Louis, Mo.; Little Piney Mills, Rolla, Mo.; Alonzo Russellville, Ky.; J. B. King & Co., New Brighton, Staten Island; McQueen & Sanbrook, La Barge, Mich.: A. Henshaw & Co., Marcus Iowa; Swarting & Co., Wolcott, Iowa; Jos. Kratochwill, Dayton, O.; Mt. Leonard Mill Co,, Mt. Leonard, Mo.; Geo. A. Mix, Oregon Ill.; Wm. Steigley, Kingsbury, Ind.; Hobson & Hartsock, Nokomis, Ill. John Hurd, Marshall, Mich.; Wm. Wells, Hillsboro, Ill.; D. B. Pocock, Navorre, O.; L. W. Taylor & Co., Mt. Pleasant, Iowa.; Chambers & Smiler, Hegensville, Mo.; Ardinger, Piper & Co., Carrollton, Ill.; Park Bros., Ada, O.; Holliday & Duncan, Cobden, Ill.; Page, Norton & Co., North Topeka, Kan.; Oatley & Hargrave, Boonville, Ind.; Hood & Bradley, Belmont, N. Y.; Wacker & Ash, Niantic, Ill.; J. K. Mulley & Co., Denver, Col.; Kidder Bros., Terre Haute, Ind.; H. B. Powell, Shawneestown, Ill.; F. W. Stock, Hillsdale, Mich.; Week, Funger & Co., Marissa, Ill.; W. G. Gage & Co., Fulton, N. Y.; Capre County Mills, Jackson, Mo.; Wm. Abbot, Hillsburg, Ill.; Dillon, Brown & Stock, Rock Falls, Ill.; McMahon & Co., Greggsville, Ill.; F. L. Johnson & Co., St. Louis, Mo.; Dartch & Munford, Clarksville, Tenn.; Williams, Tall & Co., Whalan, Minn.

NEW ZEALAND.

CHRISTCHURCH, 1st March, 1882.-In our last monthly circular we made reference to the vast amount of damage done to the standing crops of ripe corn by the blighting northwest winds which prevailed during the last week in January, and we regret to say that the extent of that damage is being more fully realized now that harvest operations are further advanced. Fortunately the acreage under wheat in this district is greater than in the previous year, and will, in some measure, compensate for the reduced yield, but even with the increased acreage the total supplies available for export will fall considerably below the figures of last season. The quality of the wheat this year is dry and sound, but owing to the continuance of dry weather the berry is not so plump as last year. Tonnage -the tonnage engagements for the United Kingdom are slightly over 80,000 tons capaccreasing the capacity to 400 barrels, and using Isaac Shepherdson, Riverton, Neb.; W. R. ity, and it is questionable if sufficient wheat ery thing looks encouraging for a bounte-

Firth of Lorne yesterday, with the first cargo of this season's wheat; extensive shipments will be made during the current month. Wh eat.—to-day's prices are equal to 49s. per 480 lbs. c. f. and i. to Europe, or 4s 7d. to 4s. 8d. per bushel. f.o.b., for standard samples of average quality, whilst Tuscan is selling at 4s. 9d. to 4s. 10d. f.o.b., with a fair demand. Flour is dull, and to-days quotation is £10 per ton f.o.b., with a weak market.—The New Zealand Grain Agency and Mercantile Company, Limited.

RECENT MILLING PATENTS.

APRIL 25, 1882.

Middlings purifier, Anton Besser, Vienna, Austria.

Feeder for roller mills, Chas. B. Campbell, assignor to John T. Noye M'fg. Co., Buffalo,

Buckwheat huller, G. S. Cranson, assignor to R. L. Downton, St. Louis, Mo.

Mill-pick, Lawrence Lafayette Suncock, Wheat-heater, Nordyke & Marmon Co.,

Indianapolis, Ind. Grain-dryer and heater, L. C. Porter,

Winona, Minn. Grinding-mill, C. H. Morse, Chicago Ill.

Grain-dryer and cooler, Stanley E. Warrell, Hannibal, Mo.

MAY 2, 1882.

Grain-Cleaner, Isaac Snare, Richwood, Ohio. Rice-polisher, Henry B. Stevens, Buffalo,

N. Y. Automatic grain-weighing machine, Simp-

son & Gault, Cincinnati, O. May 9, 1882.

Grinding-roll, Richard Birkholz, Milwaukee,

Grinding-mill, James M. Collier, Gadsden,

Millstone-dress, John M. Speer, jr., Fort Branch, Ind.

MAY 16, 1882.

Centrifugal separator, Albert D. Bellinger, Minneapolis Minn.

Roller-mill, John R. Davis, jr., Neenah,

Grain-conveyer, Robert Dunbar, Buffalo, N. Y.

Grain-elevator, Frank J. Firth, Philadelphia, Pa.

Hominy-mill apparatus, James Goodyear, Yonkers, N. Y. Dust-collecter, Francis H. McElfrish, Terre

Haute, Ind. Middlings-purifier, Geo. T. Smith, Jackson,

Millstone-driver, Lewis P. Weaver, New Harmony, Ind.

MAY 23, 1882.

Grain-decorticating apparatus, Wilson Ager, Washington, D. C.

REPORTS from Texas say that the crop outlook there was never better. So far ev[Written for the UNITED STATES MILLER] The Miller's Cough.

By FRANK B. GOLLEY, M. D., of Milwaukee, Wis.

Among the many diseases to which the human family is liable, probably but one or perhaps two, should excite more alarm, or appeal more definitely to the patient and friends for prompt relief, than the series of lung affections. Their insidiousness seems calculated to mislead, and in the vast majority of cases it does so. As introductory to the special diseases to be considered, and in order that a clearer and more comprehensive idea of the special conditions in question may be obtained, let us first inquire into the ordinary causes of cough. 1st; we may have a cough from an irritable condition of the lining membrane, of the throat and larynx. That is the membranes are very sensative and easily irritated, causing cough. 2nd; cough may be caused by some source of direct irritations in the throat or bronchial tubes, such as inhaling very cold air, irritating gasses, or particles. 3rd; a person may cough from an unhealthy condition of the blood, influencing the nervous system, as in rheumatic and gouty individuals, also in malarial poisoning. We may have cough from direct nervous disturbance in cases of diseased brain, and from hysteria, but these need not detain us here. 4th: a vast number of cases of cough are from reflex irritation. The irritation may be in the lungs, from the heart, liver, or from the alimentary canal. (dyspepsia.) The character of cough is unhappily too familiar to people in general, and certainly needs no time at my hands. All artisans working in dust for a sufficient length of time, are sooner or later affected with throat, bronchial, and lung troubles, often of a severe nature; especially do we find this the case with men working in metal, stone, cotton, coal mines or flour mills; cough, usually being a prominent symptom. The minute particles of the substances enter the lungs with the inspired air, producing for a time perhaps no noticeable effect; but after a sufficient quantity has come in contact with the now irritated surfaces, the effect is disastrous in the extreme. Nature has provided admirably, but not in all cases adequately for these conditions. So long as the particles are in the bronchial tubes, the peculiar structure of the membrane is such, that they are continually carried toward the throat, and may, in moderate quantities be thown off. After they have passed the tubes, and come in In treating a case of asthma the remedies are contact with the delicate lung membranes they can in no way be thrown off except by the quick expulsion of the contained air or breath. After what has been said it will be tle if any improvement, it merges into chronic apparent to the most casual observer that too catarrhal pneumonia, with excessive cell particular precautions cannot be taken in these cases. In all authorities on throat and lung diseases we find as one of the prominent causes of bronchitis and consumption the following words: "the inhalation of irritating particles." The reader will now easily understand how, in the stone-cutter or metal-worker the continual application of minute, but irregular sharp pointed pieces of metal or any other material, to so delicate a structure, can do untold injury. After these conditions have existed for a length of time, a slight irritation ensues, with congestion and increased secretion. Soon an inflammation ensues which, with the often poorly ventilated effort for his relief, for fear of the result. working apartments paves the way for that disease which prevails in every quarter of the cough have been touched upon, and conglobe, viz; consumption. Over three millions | sidered; we have also acquainted ourselves of people die annually with this disease. It with a number of its characteristics; this also occasions a larger proportion of deaths being done, we are now in a position to inthan any other disease not epidemic or en- telligently suggest some means for its relief. demic. What has been said in regard to men working in metals or stone is applicable to disagreeable condition, we look after the those employed in coal mines. Here we not cause, and if possible, remove it. The prime only have the irritating qualities and poor air, cause in this case is irritation, caused by inbut the lungs may become so saturated with the coal dust, that they are discolored and as is the case with those already mentioned, the but as this is out of the question, we must breathing capacity is severely compromised. We now come after a brief comparison of the same conditions in allied occupations to the particularly interesting part of our subject. the lungs, or it would have been more In Millers we have a more favorable, but sufficiently annoying condition. Here we have to deal with an organic substance, easily de- that if a practical instrument of this kind composed, but of itself containing some decidedly irritating ingredients. Wheat when analyzed is found to consist principally of starch crystals (60 per cent.) which are inten, (the sticky tough part of flour when wet,) of those agents likely to be the most serviceand dextrin (10 per cent.) together with some able after the disease is fully established.

show the conduct of flour under similar cir- the beginning of this article, but each is subcumstances outside the body. Afterward how exactly we may have these same processes going on in the lungs. When flour is moistened with a little water, it, as is well known putrefies very easily; this is caused by the gluten which is composed of several substances, viz: sulphur, carbon, nitrogen, hydrogen, &c. By the means of the putrefying gluten, fermentation in the sugar and starch is produced with the formation of acitic and lactic acids. Both are quite powerful acids. Again if a slightly alpaline solution be added to flour, the gluten is dissolved and the starch crystals are thrown down. Luckily these crystals are of a more rounded form, and not so irregular as those of stone or coal. Right here allow me one digression, and that is, that raw starch is very difficult of digestion, passing the body undigested. The chewing or eating of wheat is a prolific cause of dyspepsia, and as has been before mentioned, dyspepsia may cause cough. From what has thus far been shown, we may with confidence deduce the following conditions regarding millers cough. 1st; we have fourteen hundred square feet of meml r neous surface in the average lung, with which particles of dust are continually coming in contact, and as I have already shown may become decomposed; for here we have the proper conditions. A warm moist membrane secreting an alkaline fluid, readily mixing with the dust, and its subsequent decomposition is separated from the blood by a membrane only one twenty-four-hundreth of an inch in thickness. That is a narrow space, but in a healthy man who has lived his three score years and ten not one drop of blood ever escapes. It is a wonder that so little trouble is experienced from these conditions.

This state of affairs continuing for years with but little if any intermission, produces the inflamed conditions recognized by many long engaged in flouring mills. This eventuates in a chronic catarrhal condition of the whole membraneous surfaces, often being an extension downwards from the bronchial tubes. This irritable condition of the membrane lining the tubes after a time renders the nerves in these parts hyper-sensative, producing spasms of the muscular fibers of the tubes inducing that excessively annoying affection, "asthma". It is quite uncommon to find a case of pure spasm of the tubes unassociated with its twin affection bronchitis. often directed to the bronchitis, as the primary lesson. After these milder conditions have existed for a length of time, with but litproliferation, which may be so abundant as to stop up the alveoli of the lungs, or in the next place, it may in connection with the last, progress into chronic interstilial pneumonia (that is a chronic inflamation of the tissue between the lung spaces) which is neither more nor less than a variety of consumption. Its onset is slow and at first its symptoms are undefined; but in an individual exposed to the inhalation of metal, stone, cotton, or graindust, who has dragging pains in the sides, short breath, irritable and ineffectual cough, gradual loss of strength, and perchance a nightsweat, be cautious of him, and use every

The more prominent conditions of millers' Ordinarily, if we wish to rid ourselves of any halation of dust. Good advice would be to avoid the dust and breathe pure air for a time, accomodate ourselves to the situation.

It has seemed to be impracticable to wear some form of shield to keep the dust from generally adopted by millers. I would suggest, however, (I believe some are in use now) could be satisfactorily adopted, it would be of great service in many cases.

We have now disposed of the mechanical appliances at our command, and as a last exsoluble in water, and about equal parts of glu- pedient will turn our attention to the selection mineral, oily and wrody substances. It might Should there be a decidedly catarrhal conbe well to add that wheat contains 12 per cent. dition confined particularly to the throat, water. Now in order that the effect of the the following preparation would be useful.

stood, with the readers permission, I will briefly have the causes of cough as enumerated at ject to dust as the existing cause.

> Recipe. Pulv. Ammon Chloride, forty grains, Syr. Senigae, half an ounce, Ext. Hyoscyami, Fluid., half an ounce, Syr. Tolu, add enough to make four ounces. Sig: Take a tea-spoonful from four to six times a day.

> Should the trouble be further down in the chest, with asthma and considerable expec-

toration, use the following:

Recipe. Tinct. Belladonna, three drams, Syr. Ipicac, four drams, Tinct. opii Camphorata, one ounce, Puly. Ammon Chloride, thirty grains. Syr, Tolu, sufficient to make four ounces.

Sig: Use a tea-spoonful three to five times a day as required; use after meals and on retiring.

If the cough occurs in a nervous person with but little expectoration, and no consumption, try the following:

Recipe. Acid Hydrocyanie, dilute, half a dram, Spts. Chloroform, two drams, Syr. Scillae, three drams, Aqu. Lauri Cerasi, three drams, Syr. Simple, sufficient to make three ounces

Sig: Take a tea-spoonful after meals and

The various forms of dyspepsia causing cough are so numerous, and depend upon so many conditions, that it is impossible to give any one or two prescriptions applicable to all the cases, nevertheless I will give as a tonic. where the lungs have a tendency to inflamation, the following:

> Acid nitrici dilute, two drams, Tinct. Columbae, one ounce, Syr. Ginger, one ounce,

Add Tinct. Auranti, sufficient to make four ounces Sig: Take a tea-spoonful three times a day as a tonic at meal time.

As a stomach bitter and tonic where no acid is needed, try the following:

> Tinct. Cinchona comp, one ounce, Tinct. Gentian comp., one ounce, Syr. Limonis (U. S.), two ounces

Sig: Take a tea-spoonful three times a day in a little water before meals (take clear if preferred).

Hoping some of the above suggestions may be of service to the numerous readers of THE UNITED STATES MILLER, I am,

Yours respectfully, F. B. GOLLEY, M. D.

NEWS.

Everybody Reads This.

ITEMS GATHERED FROM CORRESPONDENT, TELEGRAMS AND EXCHANGES.

Burned-J. B. Syke's mill at Harber, Mo. GEO. Dow is renovating his mill thoroughly, at Cambridge, Wis.

WILLIAMS & KLENCK are building a mill at Oakland City, Ind.

SAXTON & MILLIGAN, at Summer, Ill., are remodeling their mill.

A Two-Run water mill is being built at Salem, Ga,, for J. D. Langhorn. M. Groff has purchased Miller Bros. & Co.'s

mill at West Caro, Ohio. J. M. Woods of Knightstown, Ind., has sold

his flour mill to J. Holland. Nelson Munson will build a 100 barrel roller mill at Warren, Minn., this year.

THE Minneapolis millwright firm of Gunn Cross & Co. has dissolved partnership.

THE great flour mills at Cardiff, Wales, destroyed by fire May 5th. Loss \$250,000.

HEUCK's flour mills were burned recently at Chaska, Minn. Loss \$20,000. Insurance \$5,000.

F. W. Aldridge is said to have purchased Roberts & Perkins' mill at Fargo, Dak. He will make extensive improvements and increase

THE Throop Grain Cleaner Co. now of Auburn, N. Y., will, it is said, soon remove to Buffalo, New York.

CROCKER, FISK & Co.'s new mill at Minneapolis, Minn., will have a capacity of about 500 barrels per day.

THE Eureka Mfg. Co. of Rock Falls, Ill., have sold a Becker Brush to the Noel Mill Co. of Nashville, Tenn.

THE business men of Stromsburg, Neb, have raised a bonus of \$2,000 towards the erection of a grist mill at that place.

A NEW process four-run flouring mill using rolls for finishing, is being built at Union Mills, Md., for E. F. Shriver & Co.

L. C. PORTER, of the Porter Milling Co. of Winona, Minn., will, with his family, go to Europe to spend the summer.

Col. A. W. Woodford, of Weston, W. Va. is about to commence the erection of a fine large dust on the lungs may be more readily under- It will be noticed, by the way, that we may flouring mill driven by an automatic engine.

THE flouring mill at Vail, Ia., was struck by lightning and set on fire, but the flames were extinguished before much damage was done.

WASHBURN, CROSBY & Co., of Minneapolis, will put in one of Stout, Mills & Temples'

water wheels with a capacity of 800 horse power. THE Southern States have during the past season purchased \$177,000,000 worth of bread-

stuffs and provisions from the Northern States. MESSRS. W. & F. Livingston, importers of bolting cloths and millstones, have removed

from Broadway to Greenwich street, New York. May 16, the engine house and grist mill on Gov. Smith's farm at St. Albans Bay, Vt., was burned, the loss being \$2,500, partially insured.

A WORKMAN in Owen Clarke's new mill at Stevens point, Wis, fell a distance of eighteen feet one day last week, receiving fatal injuries.

A LARGE grain elevator and flouring mill is being built at Athens, Ga., for the Athens Com press and Mill Co., to be driven by a Cummer engine.

Todd Mills at Dallas, Texas, are putting in a new brush machine, and have bought the "Becker" of the Eureka Mfg. Co. of Rock Falls, Illinois.

E. A THOMAS has commenced the erection of a first-class new process flouring mill, to be driven by an automatic engine, at Straumsburg, Nebraska.

WM. SCHAFER of Lancaster, Mo., wants the best brush made, and after looking around has bought the "Becker made by the Eureka Mfg. Co. of Rock Falls Ill.

A 200-barrel gradual reduction mill using Jonathan Mills reduction mills for reducing purposes, rolls for finishing is being built at Charleston, Ill., for F. F. Randolph.

HERZOG & ROBERTS' flour mil! in Racine, Wis., was burned down recently. Loss \$20,000. Insurance \$16,000. The mill will be rebuilt immediately on the latest and most improved plan.

HOFER BROS., of Moundsville and Powhattan, O., have ordered machinery for a large combined stone and roller mill of Nordyke & Marmon Co., which will be erected at Powhattan.

W. A. SETTLE of Clarkswell, Tenn., wants a Becker Brush, and no other one. He knows that the work it does can't be beat and orders one from the Eureka Mfg. Co. of Rock Falls, Ill.

FRAZIER MACKAY, formerly of Algona, Iowa, has accepted the offer of the citizens of Pipestone, Minn., who agreed to pay a bonus to him in case a four-run new process mill was built

JOHN McFarland of Watsontown, Pa., has heard what the Becker is doing for other mills, and don't intend to be behind. He has sent an order for one to the Eureka Mfg. Co, of Rock

J. H. Townshend & Co. have purchased Isaac Staples' mill at Stillwater, Minn. Townshend & Co.'s two mills in Stillwater have a capacity of 550 barrels per day. Their old mill will soon have its capacity enlarged.

DAVIS & TAYLOR of Lawrence, Mass., (the largest millers in the state) upon investigation have concluded the Becker was what they wanted, and have ordered one of the Eureka Mfg. Co. of Rock Falls, Ill.

JOHN LEAN & Co., Whitewater, Wis., telegraphed for a Becker Brush to come quick. It will improve the grade of his flour. The Eureka Mfg. Co. of Rock Falls, Ill., sent him one by telegraph time the same day.

Cooley, Wheelock & Reed, of Murfreesboro, Tenn., are overhauling their mill, and find they want a Becker Brush to properly clean their wheat and have ordered one through their contractors from the Eureka Mfg. Co. of Rock Falls, Ills.

G. A. Webber, a first-class millwright and hauling a number of mills in the Southern States, and has put in Becker Brushes in them, and says his customers can't find anything to suit them so well as the Becker.

C. S. Annis of Atlanta, Ga., who took an active part at the Atlanta Exposition in the mill furnishing line, writes us that he is crowded with applications to overhaul old style Southern mills, and so far they all want the Becker Brush to thoroughly clean the wheat.

THE mill property at Menomonee Falls, Wis., belonging to J. B. Nehs, has lately been sold to Fred. Lepper, of Milwaukee, and Peter Schlafer, of Germantown, Wis., who will hereafter conduct the business. Mr. Lepper is said to be an old first-class mill hand, and it is expected that under his supervision the mill will be greatly improved.

ALFRED H. CARY, a former mill owner, died May 16, at Grand Rapids, Mich., aged 71. In 1854 he bought the Buena Vista mills, at Bear Creek, in Plainfield, Mich., which he operated, in company with R. M. Collins, for about fifteen years. In 1869 he purchased an interest in the Valley City Mills, which were operated by A. H. Cary & Co. till about five years ago. He was highly esteemed among his acquaintances, and did much towards building up the city which was his home.

Room 23 Chamber of Commerce.

MILWAUKEE.

E. P. Bacon & Co., L. Everingham & Co.,

No. 125 LaSalle Street,

CHICAGO.

COMMISSION MERCHANTS!

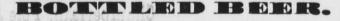
GRAIN, SEEDS, PROVISIONS,

Special Attention given to the Purchase and Shipment of Crain for Milling Purposes.

We have an experienced man in attendance at each elevator constantly, to see to the inspection of grain when loaded into cars for shipment, and the interests of parties ordering through us will be carefully protected in every way.

Orders for Purchase and Sale of Grain for Future Delivery will be Promptly and Carefully Executed.

Mention this paper when you write us.]



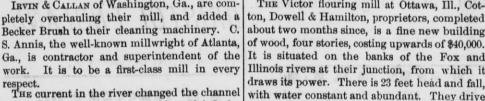
VOECHTING, SHAPE & CO.,

- JOSEPH SCHLITZ BREWING COMPANY'S

CELEBRATED MILWAUKEE LAGER BEER

MILWAUKEE, WISCONSIN. BOTTLERS' SUPPLIES CONSTANTLY ON HAND.

Parties corresponding will please state where they saw this advertisement.]



in the White River, Ind., recently and left the water-power flour mill at Whitehall high and dry a long distance from the new channel. The proprietor of the mill thinks it will be easier to put in a steam engine than to move the river back again.

REBUILT.—The Southern Mills, which are owned by Engelke & Feiner, and which were partially destroyed by fire last Christmas, have been rebuilt and, with increased capacity, are now ready for and doing a big business. The mills are situated on Fifth Street, near Gratiot, St. Louis. The owners are to be congratulated upon so speedy a resumption of active operations.

THE following well-known mill furnishing houses have ordered Becker Brushes for their contracts for the past month and the past few years, and tell us their customers are suited every time: Sinker, Davis & Co., Indianapolis, Ind.; Barney & Kilby, Sandusky, Ohio; Richmond City Mill Works, Richmond, Ind.; Nordyke & Marmon Co., Indianapolis, Ind.; Oscar Oexle, & Co., Germany.

In Mayer's mill, Bloomington, Ill., Peter Ronic, aged about 18, met with a terrible accident a few days ago. His clothing caught in the cogs, and he was drawn into the machinery. He was terribly mangled, his left leg being broken and left arm badly shattered. The flesh on both broken limbs was fearfully mangled. The arm must be amputated, but it is said the leg can be saved.

Among the new enterprises which Independence, Kas., has secured this spring, the large flouring mill of Mr. Bowen of Ottumwa, Iowa, is one of the most important. He is an old miller and wheat buyer, and has the necessary capital to manage the business to its full extent. The excavations for the basement has commenced, and work on the three upper stories will be hurried forward, in order to be able to handle the new wheat crop.

THE Kehlor Milling Co., of St. Louis, have closed a contract with the John T. Noye Mfg. Co., for furnishing the machinery for their new mill in that city. The building is 362x80 feet, and five stories high, and will have capacity for turning out 800 barrels of flour in 24 hours. This mill is to be fitted up on the Stevens roller system complete, containing twenty-two double Stevens roller mills. The machinery will be driven by a 28x48 Corliss engine. Cleaning machinery, purifiers, bolting, etc., will be the same as that usually used in such mills. The rolls will be driven by belts entirely, and exhaust from same taken by two Sturtevant fans. All iron work, bolting chests, aspirators, etc., are to be made by the contractors in Buffalo, and the Richmond Mfg. Co., by special contract with Mr. Kehlor, will furnish the cleaning machinery.

IRVIN & CALLAN of Washington, Ga., are com- THE Victor flouring mill at Ottawa, Ill., Cot-It is situated on the banks of the Fox and Illinois rivers at their junction, from which it draws its power. There is 23 feet head and fall, with water constant and abundant. They drive ten sets of Hungarian rollers, and one run of buhrs. The capacity of the mill is 250 barrels per day. It is running on winter wheat exclusively, and the larger part of its product is taken by the home market.

John H. Miller.

MANUFACTURER OF

MILLER'S COMPOSITION



SECTIONAL FURBOW GAUGES AND STAFF

The Best, Cheapest, and Most Durable Rubber in the Market, USED DRY. Will outwear any Rubber made in the world, and retain its cutting qualities until entirely worn out.

FACE RUBBER, 12x6x3 inches; weight 12 lbs; price, \$3,00. FURROW RUBBER, 12x6x1/4, 1/2, 13/4 and 2 inches, as required, \$2.50; or both for \$5,00, by Express. Furrow Gauges and Staff \$1.25 per set, by mail Send for circulars, testimonials &c. Address all orders as above.

N. B.—This Rubber will not wear a pair of Buhrs out of existence in 15 minutes. But if used in connection with the Pick and Red Staff will leave the face and Furrows in the best possible condition for making good work. For cleansing the face of Glazing it has no equal. Try it and be convinced. Money refunded if not satisfactory.

**Mention U.S. Miller when you write to me.

CHOICE BEVELLED EDGE

BRANDS FLOUR

For two dollars and upwards. Also RUBBER STAMPS, BURNING BRANDS, SEALS, STEEL NAME STAMPS, LETTERS AND FIGURES, Etc. Orders promptly attended to CHAS. H. CLARKE, 82 Wisconsin St., Milwaukee,

SITUATION WANTED

By a Miller of long experience; Situation in a large City mill preferred.

Address, JOHN HAWKS,

Care of United States Miller, Milwaukee, Wis-

Steam Flouring Mill For Sale.

On account of owner's death. Four acres of land with the mill with 4000 grape vines and orchard. Mill has three run of buhrs. It is three stories high and has good stone basement; built six years ago. Mill now has a good Custom trade and is also adapted to Merchant milling Plenty of grain raised in the vicinity with large demand for feed stuffs. A modern built frame house and barn in good order on the premises. Situated 3½ miles from Allegheny, only ¼ mile from city line. Terms: Half cash, balance on time to suit purchaser. Address

MRS. JNO. KNOEDLER, West View, Allegheny Co., Pa.

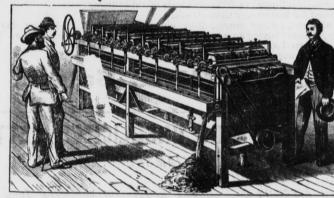
ELECTRIC PURIFIER COMPANY,

New Haven, Conn.

Factory, New Haven, New York Office, 17 Moore Street.

This Company was Organized at New Haven on the first of March, 1881, with a Capital of

Electric Middlings Purifiers.



HAVING PURCHASED THE SMITH-OSEORNE PATENTS GRANTED BY THE

United States, Great Britain, France, Belgium, Austria and Canada.

The first Machine manufactured was put up soon after the United States patent was granted, in February, 1880, in the ATLANTIC MILLS, BROOKLYN, and has been in almost constant practical use since, demonstrating beyond a question that it possesses the following advantages:

beyond a question that it possesses the following advantages:

It Purifies Middlings Absolutely without Waste.

It Purifies Middlings with Greatly Reduced Power.

It Purifies Middlings with Greatly Reduced Space.

It Purifies Middlings with Greatly Increased Rapidity.

It Purifies Middlings with Greatly Increased Rapidity.

It Purifies Middlings from Spring and Winter Wheat Equally Well.

It Dispenses with the Use of Air Blasts.

It Dispenses with the Use of all Dust Houses.

It Dispenses with the Use of all Dust Collectors.

It Dispenses with the Dangers of Explosion and Fire.

IT PURIFIES DUST HOUSE MATERIAL OF ALL KINDS.

IT PURIFIES THE FINEST MIDDLINGS OF ALL KINDS.

It is Remarkably Adapted to Custom Mills.

It is Excellently Adapted to Manufacture Farina.

SOMETHING NEW.

A Combination Electric Purifier-A Complete System of Three Purifiers in One. Samples of work will be sent upon application, by mail, and all inquiries answered from the New York Office.

Parties contemplating building new mills, or reconstructing old ones, should see the superior working of the ELECTRIC SYSTEM before making contracts for Purifiers elsewhere.

JOHN RICE, General Manager. No. 17 Moore St., NEW YORK.

GEO. G. SMITH, San Francisco, Cal., Manufacturer and Agent for the Pacific Slope.

JAMES E. LOOMIS, St. Louis, Mo., Gener

Western Agent. [Mention this paper when you write to us.]

"THE GREAT ROCK ISLAND ROUTE"

Calls your attention to the following REASONS WHY, if about to make a Journey to the GREAT WEST, you should travel over it:

should travel over it:

As nearly absolute safety as is possible to be attained. Fure connections in Union Depots, at all important points. No change of cars between Chicago, Kansas City, Leavenworth, Atenson or Council, Bluffer, Quick journeys because carried on Fast Express Trains. Day cars that are not only artistically decorated, but furnished with seats that admit of ease and comfort. Sleeping cars that permit quiet rest in home-like beds. Dining cars that are used only for eating purposes, and in which the best of meals are served for the reasonable sum of seventy-five cents each. A journey that furnishes the linest views of the fertile farms and pretty cities of illinois, lown and Missouri, and is afterwards remembered as one of the pleasant incidents of life. You arrive at destination rested, not weary; clean, not dirty; calm, not angry. In brief, you get the maximum of comfort at a minimum of cost.



That the unremitting care of the Chicago, Rock Island & Pacific Rallway for the comfort of its patrons is appreciated, is attested by its constantly increasing business, and the fact that it is the favorite route with delerates and visitors to the great assemble great, religious, educational and benevolent, that assemble from time to time in the great cities of the United States, as well as tourists who seek the pleasantest lines of travel while er route to behold the wonderful scenes of Colorado, the Yellowstone and Yosemite. To accommodate those who desire to visit Colorado for health, pleasure or business, in the most auspicious time of the year, the commer season and months of September and October, the Company every year puts on sale, May ist, at all coupon ticket offices in the United States and Canadas, round trip tickets to

DENVER, COLORADO SPRINGS AND PUEBLO,

Attenued rates, good returning until October list. Also to San Francisco, for natics of ten or more, good for

At reduced rates, good returning, until October 31st. Also to San Francisco, for parties of ten or more, good for ninety days, at great reduction from regular fares.

REMERIER this is the most direct route for all points WEST and SOUTHWEST. For further information, time-tables, maps or folders, call upon or address

R. R. CABLE, Vice-Pres't and Gen'l Man'gr, Chicago.

E. ST. JOHN, Gen'l Ticket and Pass'r Agent, Chicago.

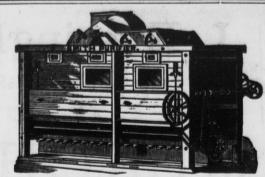
Low in Price!

Quantity and Quality of Work Considered.

LICENSED

Under ALL Patents ewned by the Consolidated Middlings Purifier Co.

SIMPLE, EASILY ADJUSTED.



Adapted to all Systems

Condition of Middlings.

FOURTEEN SIZES,

SINGLE, DOUBLE AND SPECIAL MACHINES,

DURABLE, LIGHT RUNNING.

TWO THOUSAND SMITH PURIFIERS WERE SOLD IN 1881.

More than FOUR THOUSAND now Running in the United States.

Is in Use in Every Milling Country in the World. Has GRADED, CONTROLLABLE AIR CURRENTS.

Has a POSITIVE AND EFFICIENT means of cleaning the Silk of the Sieve.

It is Impossible to do Good and Economical Work without these Features. OUR CLOTH TIGHTENER makes it both Easy and Convenient to keep the Silk always properly stretched. OUR AUTOMATIC FEED is Positively SELF-ADJUSTING and RELIABLE.

Write for Descriptive Circular and Price List to

GEO. T. SMITH MIDDLINGS PURIFIER CO., Jackson, Mich., U. S. A.

[Mention this paper when you write us.]

REDFIELD'S COMBINED ELEVATOR AND

Why these Purifiers are Such Favorites Wherever Introduced.

- It is because they do better work.
 Are more simple in construction, less subject to get out of order, and require less attention.
- Are more durable, as they have fewer journals and wearing parts. Require less power. Sieves do not choke up, as soft substances in middlings are not permitted to come in contact with the sieve.

6. Are more readly adjusted to different kinds of middlings.
7. Are furnished for less money than others.
8. Last, but not least, by any means, they elevate their own middlings any height and distance necessary, thereby saving an expense, in setting up and starting, of from \$50 to \$150. Right to use fully protected and guarantee given.

For circulars giving prices and full particulars, address

J. H, REDFIELD, Salem, Ind

[Mention this paper when you write.]

***PLEASE READ THIS UNSOLICITED LETTER. **

WILLIAMSBURG; PA., MAY 20. 1882.

CASE MFG. CO., COLUMBUS; OHIO.

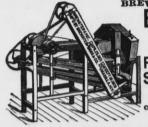
Gents: We herewith enclose you draft for \$-for feed boxes we ordered for our Smith and Ohio machines. They work like a charm, doing excellently. If you want them back, you will have to buy the machines to which they are attached. We have a strong opinion in their favor, and know that they are just what millers want who are using purifiers. Very Truly, DAVID SNIVELY & SONS.

This Box does not flour the middlings in feeding them, but gives an even and constant distribution over the entire width of the cloth. It stops and starts with the mill, and when once set requires no more attention. It cannot choke or fail to work. It can be secured in a few moments to any Purifier. We have never heard a complaint of this Feed Box or the Price. Address,

CASE MFG. CO., COLUMBUS, O.

[Mention this paper when you write.]

Buckwheat Refiners & Portable



Buckwheat Refiner Is the only Machine PURE, WHITE, SHARP FLOUR can be obtained.

The only reliable, practical and durable Machine IN THE WORLD.

AND AUTOMATIC Middlings Mill Is strictly Self Protecting,

The BEST ADJUSTMENT IN THE WORLD,
And the only
PERFECT GRANULATOR, GRINDS COOL, SELF OILING, GREAT SAVING OF POWER, SIMPLICITY AND Durability Combined.



Satisfaction Guaranteed on all our Goods. Send for descriptive Circular, giving Prices, Sizes, Terms, et

BREWSTER BROS. & CO., Unadilla, N. Y.

[Mentisn this paper when you write.]

G. 22. 1/444555555; MANSFIELD, OHIO,

Plans and Specifications for Mills of any Capacity.

ROLLER MILLS ON THE STEVENS SYSTEM SPECIALTY.

BOLTING CLOTH of the Best Brands at Importers' Prices. Water Wheels, Purifiers, Cleaning Machinery, Reels, Belting,

And Everything used in a Flour Mill, AT THE LOWEST PRICES. If you want anything for your Mill, write first to me.

J. J. BELL.

41 S. William St., New York,

Manufacturer and Importer of

MILLSTONES, BOLTING CLOTHS.

Mill Irons, Belting, Mill Picks, Iron Proof Staffs, Smut Machines, Elevator Cups, and

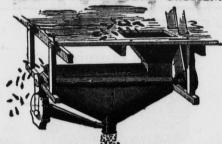
Mill Furnishings in General.

Having been engaged in the manufacture of ESO-PUS MILLSTONES, CHASERS, &c., for the past 30 years, I am prepared to fill all orders not only at the lowest price, but the best qualities for the purpose intended. (Mention this paper when you write.)

FOR SALE.

A good water power and mill with two run of stone at Stone Bank, Waukesha County, Wis. Mill is doing a good business, which with a moderate amount of improve-ments, could be largely increased. One half or the whole will be sold to the right party. For full particulars, ad-dress, U. S. MILLER, Milwaukee, Wis.

TRIUMPH POWER CORN SHELLER.

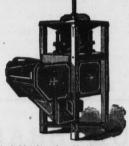


Shells and Cleans 2,000 Bushels Ears per Day. The Cheapest, Best, and most Simple Power Corn Sheller in use. Send for Circular and Price List.

Manufacturers of Steam Engines, Mill Builders and Mill Furnishers. HULBERT & PAIGE, Painesville, Ohio. [Mention this paper when you write us.]

MARSHALL'S

SHELLER.



The only Self-Adjusting Sheller in use that will

SHELL CORN, MIXED

FAST AND WELL

And that will clean it THOROUGHLY. Easy of access to all parts liable to clog. Thoroughly made. Sold as cheap as the cheapest.

G. MARSHALL & SON, Mfrs. Kilbourn City, Wis.

[Mention this paper when you write to us.]

BIRGE & SMITH.

PLANS, SPECIFICATIONS & ESTIMATES

MADE FOR ALL KINDS OF

MILLWORK, MACHINERY, ETC. Flour, Sawmill, Tanners' and Brewers' Machinery, and General Mill Furnishers,

Corner of East Water and Knapp Sts., MILWAUKEE, - - - WISCONSIN.

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BOLTING

Best Brands

SOLD AT IMPORTERS LOWEST PRICES. Sold by the piece, or cut and made up in any quantity desired. Plans of bolting complete for stone or roller mills. Address,

C. F. MILLER,

Mansfield, Ohio.

Grain Cargoes!

To all continental ports are Superintended by H. GOLDSTUCK.

HAVRE, FRANCE.

BUDGETT, JAMES & BRANTH

BRISTOL, ENGLAND.

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Chamberlain, Pole & Co.,

Brokers & Factors

IN FLOUR.

BRISTOL, ENGLAND.

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H. G. JANSSEN & CO.,

Amsterdam, Netherlands, Europe.

Orobio de Castro & Co.,

AMSTERDAM (Holland), Europe.

Telegrams, OROBIO, Amsterdam, AGENTS FOR

Flour and Grain,

AMERICAN

Correspondence Solicited. CONSIGNMENTS ACCEPTED.

MILLER. Millwright & Millfurnisher

Robert Grimshaw.

A practical and useful Hand Book, on Mill construction, Plans, Water Wheeis, Boilers, Engines, Transmission, Grain Cleaning, Wheat Drying and Heating, Granulation and Grinding, Buhr Stone, Mounting Buhrs, Various Millstone Dresses, Buhr Dressing, Rollers, Purifiers, Reels and Chests, Elevating, Spouting and Conveying, Weighing, Testing, Packing, Branding and Storing, Changing and Altering Mills, Millwrighting Tools and Operations, Composition and Structure of the Wheat-Berry, Grain Destroyers, &c., &c., &c. 550 large octavo pages, 350 illustrations, contains three times as much matter as any Milling work published. Free by Mail on receipt of \$6.00. Address all addresses to

P. ASHLEY

408 PEAL STREET,

Camden, N.

Made entirely of STEEL. ONE MAN with it can easily move a loaded car. Will not slip on ice or grease.

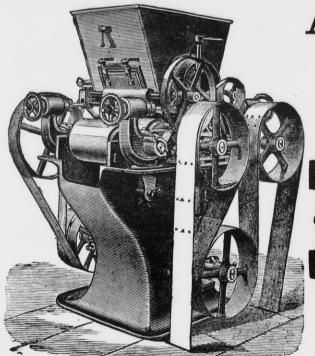
HER E. P. DWIGHT.
Dealer in Railroad Supplies, 407
Library St., Philadelphia, Pa.

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EDW. P. ALLIS & CO.

MILWAUKEE, WISCONSIN,

MILL BUILDERS AND FURNISHERS,



AND SOLE MANUFACTURERS OF

GRAY'S PATENT NOISELESS

ROLLER WILLS

CORRUGATED AND SMOOTH CHILLED IRON ROLLS,

WEGMANN'S PATENT PORCELAIN ROLLS.

We shall be Pleased to hear from Millers contemplating an improvement in their Mills, or Building new ones, and can furnish Estimates and Plans of our system of GRADUAL REDUCTION ROLLER MILLING. We have built and Changed over hundreds of Mills, in all parts of the Country, and using all classes of wheat, BOTH HARD AND SOFT, and can furnish References on application. The Largest and Best Mills of this Country are using our System and Roller Machines. Messrs. C. A. Pillsbury & Co., of Minneapolis, have over 400 PAIRS OF OUR ROLLS AND HAVE RECENTLY PLACED AN ORDER WITH US FOR ABOUT ONE HUNDRED AND TWENTY MORE. We have had a longer and larger experience in Roller Mill Building than any other manufacturers of this country. There is no EXPERIMENT ABOUT OUR SYSTEM and rolls, so expensive to millers, and when the mills that we build or change over are ready to start, THEY DO SO AND WITH PERFECT SUCCESS, and there is no further changing, additions, stopping or expense. We manufactured and sold during the year 1881 over TWO THOUSAND FIVE HUNDRED pairs of rolls.

We can send competent men to consult with any millers who contemplate an improvement, and whom they can depend upon as being BELIABLE AND THOROUGHLY COMPETENT to advise them as to the number and kind of machines required, best method of placing them and the change required, if any, in the bolting and purifying system. WE DO NOT URGE A GENERAL CLEANING OUT OF ALL OLD MACHINERY unless we clearly see such would be the ONLY COURSE TO PURSUE to make a SATISFACTORY AND RELIABLE MILL. In nearly all instances we can use all the Old Machinery, leaving it in its original position, or with as slight a change as possible. We aim to make the Improvement so that it will be a Profitable one to the Miller, and at the least expense possible.

Our System is THOROUGH and RELIABLE, and our Roller Machine Perfected by Long Experience, and the Miller Takes no Chances in using them, as HE DOES with the New Fangled Notions of Drive and Adjustment on many other machines now TRY-ING TO FOLLOW OUR IMPROVEMENTS and still avoid our Patents, in BOTH of which THEY FAIL. We were the first to advocate the Entire Belt Drive, and were opposed by every other maker, who claimed it was not positive, etc., etc., and now that our Belt Drive is an ACKNOWLEDGED SUCCESS, and will SUPERSEDE EVERY OTHER STYLE, these advocates of Gear Drive have suddenly learned that Belts are the Thing. The same may be said of our Spreading Device, Feed Gates, and Adjustable Swing Boxes. Other Makers are now copying these. ALL these Features, including BELT DRIVE with ADJUSTABLE COUNTERSHAFT and TIGHTENER, the SPREADING DEVICE, FEED GATES, Adjustable Swing Boxes and Leveling Devices, Self-Oiling Boxes, etc., are secured to us by several Strong Patents, and we CAUTION MILLERS in regard to these Infringements of Our Patents and Rights, for we shall look to THEM for Redress. The matter is in the hands of our Attorneys, who will soon take VIGOROUS ACTION against the Makers and USERS OF MACHINES infringing Our Patents.

Several machines are already on the market which Broadly Infringe, and we are informed that other makers are now changing their Old Style Machines, and adopting in a large measure Our Improvements. BEWARE OF THEM.

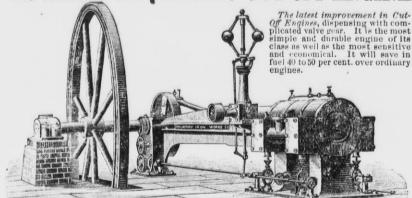
Send for New Illustrated Catalogue, Giving full Information, to

EDW. P. ALLIS & CO.,

MILWAUKEE, WIS.

[Please mention the United States Miller when you write to us]

"HOWARD" AUTOMATIC CUT-OFF ENGINE.



Built only by the MURRAY IRON WORKS CO., BURLINGTON, IOWA.

BUILDERS OF ALL KINDS OF ENGINES AND MACHINERY

POOLE & HUNT'S Leffel Turbine Water Wheel

Made of best materials 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.



James Leffel's Improved WATER

NEW PRICE LIST FOR 1881.

The "OLD RELIABLE" with Improvements, making it the Most Perfect Tur-sine now in Use, comprising the Largest and the Smallest Wheels, under both the Highest and Lowest Heads used in this country. Our new Pocket Wheel Book for 1881 and 1882 sent free to those using water power. Address

JAMES LEFFEL & Co., Springfield, Ohio.

and 109 Liberty Street N. Y. City.

Stout, Mills & Temple, DAYTON, OHIO.

MANUFACTURERS OF THE

American Turbine Water Wheel, Best Quality French BURR MILLSTONES.

Sole Agents in Dayton for the sale of

DU FOUR & CO'S CELEBRATED BOLTING CLOTHS.

Fiour and Paper Mill Machinery, Best Chilled or Por-celain Rolls for Crushing Wheat and Middlings and

GENERAL MILL FURNISHINGS.

The American Turbine, as recently improved, is unequaled in the power utilized from a given quantity of water, and is decidedly the best "PART GATE" Water Wheel ever known. It has also been otherwise greatly improved.

Large Illustrated Catalogue Sent Free on Application. 🖘

[Mention this paper when you write us.]



Circular Saw Mills, Shafting, Pulleys, Hangers & General Mill Machinery, Stating Particulars of Stream, &c. (

The Perfect Feed Box



It insures a perfectly even distribution of the middlings over the entire width of the cloth. Every miller will ap-preciate this. Fits all purifiers. Address,

CASE MANUFACTURING CO.,

COLUMBUS, OHIO.

[Please mention this paper when you writeto us.]

Over 1,500 of these Turbines



IN USE. It has tight shutting and easily operated Gate; gives more power for the water used, and w ill last longer than any other Turbine Large shop with improaed tools for making this wheel and machinery. Illustrated Pamphlet and Catalogue with prices sent free by

BURNHAM BROS. OFFICE YORK PENNS you write us.]

Milling Made Profitable.

We build mills on any system known. We guarantee a saving of 25 per cent. on the cost of construction and room occupied by

BOLTING CHESTS. We handle 45 bushels per hour on one

reel successfully C. B. SLATER & CO Blanchester, Ohio.



[Mention this paper when you write us.]



Mill Furnishing, Foundrymen & Machinists. Established 1851. MANUFACTURE MILL STONES. Flouring Mill Contractors. Send for Pamphlet.

Nordyke & Marmon Co Indianapolis, Ind. [Mention this paper when you write us.]

IMPORTANT NOTICE TO MILLERS.

The RICHMOND MILL WORKS, and RICHMOND MILL FURNISHING WORKS are wholly removed to Indianapolis, Ind., with all the former patterns, tools, and machinery, and those of the firm who formerly built up and established the reputation of this house; therefore, to save delay or miscarriage, all letters intended for this concern should be addressed with care to NORDYKE & MARMON CO.

INDIANAPOLIS, IND.

RICHMOND MANUFACTURING CO.,

LOCKPORT, N. Y.,

- Manufacturers of -

RICHMOND'S CELEBRATED

Smut Machines,

Brush Machines,

Grain Separators,

Nearly Two Hundred of these Machines are now in operation in the city of Minneapolis, Minn., alone, and more than sixty in the city of Milwaukee, Wis. They are also extensively used in many other sections, both on nice and Spring

SEND FOR DESCRIPTIVE CATALOGUE. 64

and Bran Dusters.

[Mention this paper when you write.]

A PURIFIER

That fills all the demands of modern milling.
That is subject to the most complete control possible.
That gives double the capacity of any other in the same floor space.
That has two Screens, each with its own Feed Bar, and each tails off.
That has the best patented devices ever used on a Purifier.
That has the most thorough control of the blast.
That has the most convenient method of "cut-off."
That has absolutely the best cloth cleaner (patented) in use.
That has the perfection of cloth tighteners used while running.
That is made either single or double, (double principle patented).
That carries 25 to 90 square feet of bolting surface, against 13 to 45 in others.
That tas its bearing boxes detached from the wooden frame.
That renders them fire-proof. These are recent and important attachments.
That does its work "not absolutely without waste" BUT WELL.
That has many new and important devices, convenient and simple.
That does not infringe any patent, (can convince any one of this).
That is not an experiment, but has been tried and tested by hundreds.
That is not an experiment, but has been tried and tested by hundreds.
That is in use from Long Island to San Francisco, from Dakota to Texas.
That not one of which has ever been returned by any miller,

These are some of the things we have to say about the Case Purifier, and if one jot or title of them is found to be untrue, we will take the machine back and pay all expenses, including freight both ways. Can fill orders promptly.

CASE MANUFACTURING Co., Columbus, Ohio.

[Mention this paper when you write]

CAWKER'S

AMERICAN FLOUR MILL DIRECTORY

Is Now Ready for Delivery.

It has been compiled with the utmost care, and contains 22,844 Addresses

Of Flour Mill Owners in the UNITED STATES and CANADA. It give the Capacity and Motive Power of Mills wherever obtained.

MILL FURNISHERS, FLOUR BROKERS,

And Every one Desiring to Reach the Trade, WILL FIND THIS WORK SIMPLY INVALUABLE.

PRICE, TEN DOLLARS PER COPY.

Address THE UNITED STATES MILLER, Milwaukee, Wis.

JOHN C. HICCINS,

Manufacturer and Dresser of

No. 169 W. Kinzie Street,

CHICAGO, ILLINOIS.



Picks will be sent on 30 or 60 days' trial to any responsible miller in the United States or Canada, and if not superior in every respect to any other pick made in this or 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 manufield, 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 United States and Canada. Send for Circular and Price List.

[Mention this paper when you write us.]

[Mention this paper when you write us.]



HENRY HERZER.

Manufacturer

and

Dresser OF-

MILL PICKS! NO. 456 ON THE CANAL,

MILWAUKEE, WIS.

I have had twenty-two years experience in the manufacture and dressing of Mill Picks, and can and do make as fine Mill Picks as can be made by anybody anywhere. I use only the best imported Steel for the purpose. My work is known by millers throughout the country, and is pronounced to be first class by the very best indees.

and is pronounced and is pronounced with the most gratifying testimonials. We have hundreds of the most gratifying testimonials from nearly all the States. We solicit your orders and guarantee satisfaction. Address as above.

[Please mention this paper when you write.]

We continue to act as Solicitors for Patents, Caveats, Trade Marks, Copyrights, etc., for the United States, Canada, Cuba, England, France, Germany, etc. We have had thirty-five years' experience.

Patents obtained through us are noticed in the SCIENTIFIC AMERICAN. This large and splendid filustrated weekly paper, \$3.20 a year, shows the Progress of Science, is very interesting, and has an enormous circulation. Address MUNN & CO., Patent Solicitors. Publishers of SCIENTIFIC AMERICAN, 37 Park Row, New York. Hand book about Patants sent free.

Northwestern Mill Bucket Manufactory

310, 312, and 314 FLORIDA STREET.



Is furnishing Mills and Elevators in all parts of the country with their superior BUCKETS.

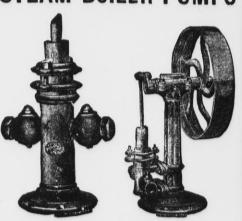
They are UNEQUALED for their SHAPE, STRENGTH and CHEAPRESS.

CHEAPNESS.

Leather, Rubber, Canvas Belting and Bolts at lowest market rates. We have no traveling agents. Sample Buckets sent on application. Large orders will receive liberal discounts. Send for sample order.

Address all inquiries and orders to L. J. MUELLER, 197 Reed St., Milwaukee, Wis.. [Mention this paper when you write us.]

STEAM BOILER PUMPS



We manufacture over forty different styles and sizes of Steam Boiler Feed Pumps, for hand and power, at prices from \$10 to \$100.

Catalogues furnished on application.

RUMBEY & CO., SENECA FALLS, N. Y.

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

[Mention this paper when you write us.]



Address: T. C. ALCOTT & SON, Mount Holly, N. J. [Mention this paper when you write us.]

W. E. CATLIN & CO., 68 LAKE ST., CHICAGO, ILL.,



E. HARRISON CAWKER. VOI. 13, NO. 3.

MILWAUKEE. JULY, 1882.

{Terms: \$1.00 a Year in Advanctingle Copies, 10 Centre.

THE STEVENS ROLLER MILLS

Remove all Germs without Breaking or Crushing them, and Hull the Black Cockle and Remove the Hulls, Clean Bran thoroughly, and make a Higher Grade of Flour than any other Mill known.

OVER 2000 PAIRS NOW IN USE!

Having Secured the BEST BELT MOVEMENT ever offered

We are prepared to furnish mills to be run entirely by belt, obtaining the nearest approach to a Positive Motion Without Gears.

We also manufacture the

Celebrated Cosgrove Concentrated Mill

Which is the Most Compact and Convenient Arrangement of Break Rolls and Separators.

READ THE FOLLOWING LETTER FROM A WELL-KNOWN FIRM:

Messes. John T. Nove & Sons, Buffalo, New York—

Gentlemen: We take pleasure in addressing you in regard to the introduction of the "Cosgrove Roller System" in our Mills at Brooklyn. By removing four pairs of our Millstones and putting in their place the two sets of the Cosgrove System, purchased from you, we find that with our former bolting and purifying arrangements, we can turn out flour, all roller ground, in quality from 50 to 75 cents per barrel superior to that made from the same wheat by Millstones. We are now grinding no wheat with stones. In making the change, our Mill was shut down but 4½ days to make connections with Elevators, Conveyors, etc. We drive the Cosgrove Machines from the same shaft that we formerly drove the Millstones. The work of the change was done by our own Millwrights, everything being so favorably located. The advantages that we find are principally, viz.: Saving from ½ to ½ power required to make the same amount of flour by stones; uniformity of work of the Rolls, and the ease with which they are managed, one man being fully able to give proper attention to two or more sets if we had them; the separations made by the cylinders are perfect; any miller can quickly adjust them exactly to suit the wheat he wishes to grind and the work required; the capacity of our machines we find fully 50 per cent. above the amount you guaranteed (200 barrels). In conclusion, we will say, that the result generally of the system is entirely satisfactory to us for the best of reasons, our customers are thoroughly pleased and satisfied with our flour.

F. E. SMITH & CO.

Among Recent Orders We Name the Following from Prominent Millers:

Lexington Mill Co., Lexington, O., 12 pairs,
Pollock & Co., Vincennes, Ind., 12 pairs,
James Norris, St. Catherines, Ont., 28 pairs,

E. O. Stanard & Co., St. Louis, Mo., 28 pairs,
Penfield, Lyon & Co., Oswego, N. Y., 2 Cosgroves.,
McNeil & Baldwin, Akron, O., Cosgrove and 10 pairs.

E. T. Archibald & Co., Dundas, Minn., 12 pairs,
Crocker, Fisk & Co., Minneapolis, Minn., 54 pairs.

Jno. T. Noye Manufacturing Company, Buffalo, N. Y.

[Please mention the United States Miller when you write to us.]

E. W. PRIDE, Agent, Neenah, Wis.

ODELL'S ROLLER

An Established Success.

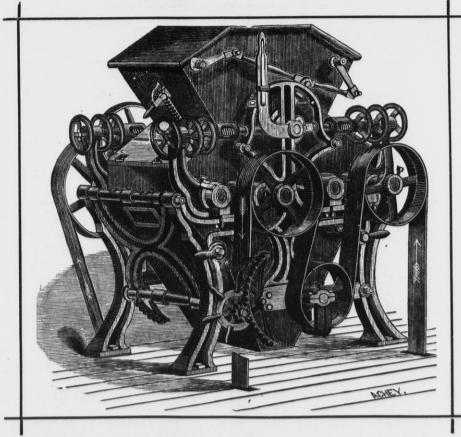
We invite particular attention to the following

POINTS OF SUPERIORITY.

possessed by the Odell Roller Mill over all competitors, all of which are covered by Letters Patent, and cannot be used on any other machine.

1. It is driven entirely with belts, which are so arranged as to be equivalent to giving each of the four rolls a separate driving belt from the power-shaft, thus obtaining a positive differential motion, which can not be had with short belts.

2. It is the only Roller Mill in market which can be instantly stopped without throwing off the driving belt, or that has adequate tightener devices for taking up the stretch of the driving-belts.



MILL.

3. It is the only Roller Mill in which one movement of a hand-lever spreads the rolls apart and shuts off the feed at the same time. The reverse movement of this lever brings the rolls back again exactly into working position and at the same time turns on the feed.

4. It is the only Roller Mill in which the movable roll-bearings may be adjusted to and from the stationary roll-bearings without disturbing the tension-spring.

5. Our corrugation is a decided advance over all others. It produces a more even granulation, more middlings of uniform shape and size, and cleans the bran better.

WE USE NONE BUT THE BEST

Ansonia Rolls!

References and letters of introduction to parties using Odell Rolls will be furnished on application, to all who desire to investigate the actual work of these splendid machines.

Circular and Prices on Application to Sole Manufacturer,

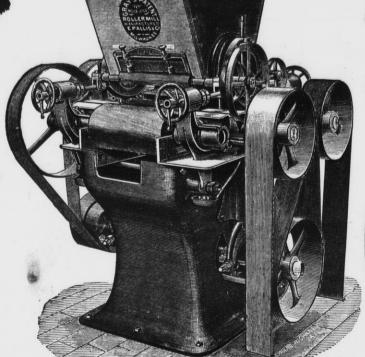
STILWELL & BIERCE MANUFACTURING CO.,

[Mention this Paper when you write to us.]

DAYTON, OHIO, U.S. A.

GRAY?S

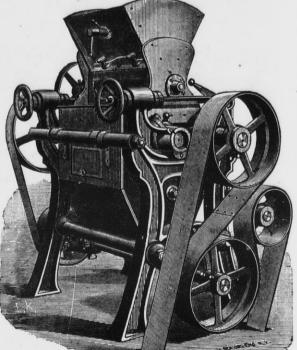
PATENT NOISELESS ROLLER



MILLS

WITH

CORRUGATED



SMOOTH CHILLED IRON ROLLS

And WEGMANN'S PATENT PORCELAIN ROLLS,

MANUFACTURED EXCLUSIVELY BY

EDW. P. ALLIS & CO.

MILWAUKEE, WIS.

TO MILLERS USING NOISELESS ROLLS WITH POSITIVE BELT DRIVE.

We have at great expense obtained valuable Letters Patent known as the Gray Patents, being Nos. 222,895, 228,525, 235,761, 238,677, 251,217, of dates Dec. 23, '79, June 8, '80, Dec. 21, '80, March 8, '81, Dec. 20, '81, and which fully cover and protect our noiseless Belt Drive Roller Mill. We have with no little patience been aware that certain manufacturers have been infringing one or all of these patents, and inducing the Millers to purchase Rollers from them.

Now we are determined to bring suits against all users of such Rollers unless they will acknowledge the validity of our patents and pay us a royalty for using them.

While we may seriously regret to take such a course, yet all can easily understand that in order to protect our rights we must declare and enforce them.

We have instructed our attorney to institute suits against infringers, and before another month we expect that suits will be begun. If any Miller desires to settle before suit we will be liberal with him.

Our desire is to furnish the best Noiseless Roller Mill made, and we claim that we do. Our patents are the foundation patents. A hint to the wise is sufficient.

EDW. P. ALLIS & CO.

[Mention this paper when ; ou write to us.]

E, HARRISON CAWKER. \ Vol. 13, No. 3.}

MILWAUKEE. JULY, 1882.

Terms: \$1.00 a Year in Advance Single Copies, 10 Cents.

Automatic Cut-Off Engine.

BUILT BY WOODBURY, BOOTH & PRYOR, ROCHES-TER, N. Y.

Our engraving is a side view of an autobuilt by the above firm. In its construction the new ideas of engineering have been a very sensitive governor, having a large adopted, making it light, compact, strong range of movement within a small variation where strength is needed, doing away with in speed. It is provided with a dash pot. the old ideas and superfluous metal, and adopting the new ideas and practice in which sented in these engines is that of close govern-

is embodied that of high speed. The engine is now being used largely for electric lighting, to which it is especially adapted, as well as for any other purpose requiring the highest degree of economy and uniformity of speed, by its construction, adjustments and the finish. It is built upon what is usually known as the truss or girder frame, which has been so modified as to bring the bases and holding down bolts in a direct line, enabling the engine to be set upon a straight foundation, and also to catch the drips, as oil and water, collecting them suitably for ready removal. The cylinder ports are dropped sufficiently to drain from the bottom of the

cylinder, carrying off the water of condensation and obviating the necessity of using condense cocks in the cylinder. The main valve is driven by an eccentric on the main shaft through the intervention of a rockerarm, and the cut-off valve by an independent eccentric. The cut-off eccentric rod connects with the slide working in the bracket by means of a ball and socket joint, which allows the valve to rotate in its seat more or less according to the requirements of the load and the pressure of the steam. The rotation, which never exceeds one-quarter of a revolution of the valve, is accomplished by a segment on the cut-off valve slide working into a rack attached to the governor spindle, which places the cut-off at all times under complete control of the governor. The construction of the main and cui-off valves is shown in Figs. 2 and 3.

Fig. 2 shows a horizontal section through the center of the main valve. It will be seen that the distribution of the steam (admission and exhaust) is accomplished by an ordinary double "D" slide valve, and is no more liable to leakage or derangement than that on the common slide valve engine, and if the cut-off valve was left open and detached from the parts which actuate it, the whole would work the same as an ordinary slide valve.

Fig. 3 exhibits a vertical section through the cut-off valve. This valve works in a small cylinder attached to the main valve, and cast in the same piece with it. The valve is a cylindrical one, having ports directly opposite, and thereby perfectly balanced. This valve has diagonal admission edges with ports to correspond, so that by turning or rolling it slightly in its seat, it is made to cut off longer or shorter, as the case requires, the range being from zero (or nothing) to three-quarters stroke.

This rolling movement is under control of the governor, and, combined as it is with the sliding of the valve in its seat, it offers but very slight resistance, being even less than that of an ordinary throttling governor valve. Particular attention is called to the fact that

the parts of the valve works inside of the where they can be seen at all times. The the opposite side from the ball. This makes

One of the most valuable features pre-

It is claimed that this cut-off combines the steam chest. All the other parts connected following advantages: Simplicity of construcwith the valves and valve gearing are outside tion and non-liability to derangements of the parts. Positive and certain motion, it having arms of the governor extend across the cen- no trip (or catch and let go) movement whatmatic cut-off engine, one of a series of sizes tre, and have their point of suspension on ever. Freedom from violent shocks of any ing the wheat plant. After coming to town valve. Cutting off the steam sharply when

the roots, but he could not discover the cause. On Saturday morning his search was rewarded by finding a small reddish brown worm, about half an inch long and about twice as thick as a fruit stem, which was eatkind, enabling it to be worked at any re- he took the worm to the Le Sueur flour mill, quired speed as well as an ordinary slide where the miller gave him two larger and perhaps full grown of the same kind, which the requtsite point is reached, owing to its he said were often seen in wheat when long and rapid travel, and lapping well be- brought to the mill, and which were also in yond the edges of the ports. Constant uni- the bran and shorts. The miller also showed

a hardened light-colored worm, much shorter and thicker than the others, which he said was the last condition of the wheat-eating worm before emerging into a full fledged fly. In confirmation of Mr. Barnes' theory, that this worm is destroying the wheat in parts of many fields, Daniel Dougal, who lives in the timber near Cleveland, says that the wheat on at least two acres of a fifteen acre field on his farm has been destroyed by the same worm, and that he has seen hundreds of them at work. On inquiry we find that the wheat in a great many fields is simila rly affected, although farmers have not examined closely enough to know whether it is from the

same cause or some other. This same worm partially destroyed the wheat on some farms last year, and did much injury to Mr. Barnes' crop then. It does not cut down all the wheat where it works, nor does it work all over the same field. It is believed to work most on the soils impoverished by continuous wheat croppings, and as far as learned is not at work on land cropped with corn last year. Whether this new enemy of the wheat crop lives throughout the year in the soil, or whether it winters in wheat bins, is yet an unsolved problem.—Le Sueur (Minn.) Sentinel.

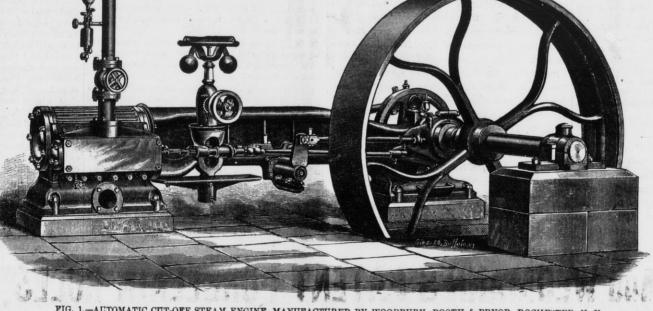
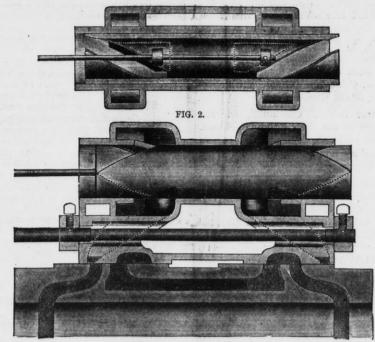


FIG. 1.-AUTOMATIC CUT-OFF STEAM ENGINE, MANUFACTURED BY WOODBURY, BOOTH & PRYOR, ROCHESTER, N. Y,



perform. The mere rolling of the balanced cut-off valve, while sliding lengthwise in its seat, will readily be seen to require but a trifling amount of force. The governor has, therefore, nothing to do but regulate the speed, without being hampered or loaded with a heavy cut-off valve working under boiler pressure, or with any other resistance, presenting in this respect a marked contrast to many of the automatic engines now in the market. These engines have been placed in many establishments where the very closest approximation to regularity of speed was not only desirable, but an absolute necessity; and it is a fact borne out by the testimony of the users that they give a steadier motion than any other, maintaining it throughout the there are but two valves, each consisting of range of their power, with a variation of not exwith the fastening of the rods, constitute all under the most sudden variations of load. I something was cutting the wheat plants near cooling, no dew is deposited.

ing, and in this respect they are without a formity of speed, immediate provision berival. The secret of this remarkably uni- ing made by the governor for the most sudform speed lies first in the peculiar construc- den change of load, and the movement of tion of the governor itself, and second, in the the valve not having the slightest tendency fact that it has comparatively no work to to move the governor arms from their natural position due to the speed.

As a result of the above advantages there is secured in these engines a high degree of economy, which, combined with their simplicity, and recognized durability, make them rank at once among the most efficient and desirable engines in market. These engines are finely fitted and finished, and any further information can be obtained by addressing the makers, who also build steam boilers and other varieties of engines in a large range of patterns and sizes.

A Wheat-Eating Worm.

J. M. Barnes has made a discovery of another enemy of the growing wheat, on his farm near town. He had noticed for a week or more that in spots his wheat was becoming one single piece of casting, and that these, ceeding three per cent. from the normal speed, thinner, and he found on examination that

The Cause of Dew.

If dew fell it would fall for the same reason that rain falls; but dew does not fall. It is simply a deposit, moisture always contained in the air to a greater or less degree, and which, when there is enough of it, will always form on any cold body exposed to the moist air, in precisely the same way that a cold bottle or stone, taken from a cold cellar and suddenly exposed in the shade to the moist, warm summer air, will become wet. This sweating, nor does this moisture come out of the bottle or stone as many people believe, but from the air. It is for the same reason that moisture will condense against the window-panes when the air is cold outside and moist inside, the moisture slowly freezing while its deposits form crystal ice which we so often admire in winter. When the weather is cold enough the moisture will even freeze plants and grass, and then we call it hoar frost; if it does not freeze it is simply dew. The only point left to be explained is why does the ground become so cool during the night, so much cooler than the air above, as to cause the latter to deposit its moisture. This was for many years a vexed problem till Wells first suggested the radiation of obscure heat, which takes place from the surface of the earth through the clear atmosphere into the space above, and so causes the surface to become much cooler than the air itself. He demonstrated this by means of thermometers placed at different heights, and also by the fact that dew is only deposited on cloudless nights. When there are clouds they reflect the heat or prevent it from escaping. The surface of the earth thus being kept from

UNITED STATES MILLER.

PUBLISHED MONTHLY. OFFICE NO. 118 GRAND AVENUE, MILWAUKEE, WIS. Subscription Price....... Foreign Subscription......\$1 per year in advance. .\$1.50 per year in advance.

MILWAUKEE, JULY, 1882.

Market Review.

Prepared expressly for the "United States Miller." by Messrs. E. P. Bacon & Co., of Milwaukee. Wis.

Wheat has ruled comparatively steady during the past month for present and July delivery, the range in prices on No. 2 having been between \$1.30 and \$1.34 in store. The stock remains concentrated in the hands of one concern, who continue to take all that is offered for July delivery. The same concern holds the entire stock at Chicago also, which has been reduced during the month 1,250,000 bus. by shipments East which it is understood have been made for the account of the "clique," the stock in store there now being only 1,866,000 bushels. The stock in store here has not undergone any material change during the month, being now 806,000 bushels. The aggregate stocks in the country show on increase during the month of 1,027,000 bushels, although the export movement for the month amounts to 2,450,000 bushels, against 1,440,000 bushels the previous month.

Harvesting in the Winter Wheat section has become quite general south of and including Kansas, Missouri and Southern Illinois, but is being retarded seriously by wet weather which has done considerable damage to wheat in the shock in some locations. New wheat is beginning to arrive freely at St. Louis, the receipts there during the past week having been about 200,000 bushels, which, however, is largely short of what has been expected, and short-sellers have consequently had to fill their contracts for June delivery at a loss of from 10 to 15 cents per bushel.

The market to-day receded 1-11/2 cent on No. 2 for immediate and July delivery, closing at \$1.32. Arrivals grading below No. 2 are sold wholly by sample each carload on its own merits, at prices ranging from 3 cents over to 20 cents under No. 2 price; for such as is suitable for milling varying according to soundness, condition and variety of wheat. Straight No. 3, which consists wholly of what the "mixers" put into the elevators of this grade, is steady at \$1.07 in store.

Milwaukee, June 30, 1882.

WE CALL the attention of steam users to the new advertisement of Corliss and improved slide-valve engines, manufactured by Messrs. Weisel & Vilter, of Milwaukee. These engines are in many of the largest manufacturing institutions of the West, and have a very high reputation for power and economy. Parties intending to purchase engines will do well to call on, or write to them.

THE CASE MANUFACTURING Co., of Columbus, Ohio, presents to the milling public through a full page advertisement in this paper the merits of the CASE BREAK MACHINE. These machines have been already quite extensively introduced, and their success seems to be unquestionably assured. The machines have been operating for several months in the Empire Mills of Milwaukee, and proprietors and operatives speak in the highest terms concerning them. We trust that the trade will duly investigate their merits. The Case Manufacturing Co. are well known to the trade, and their efforts to furnish first class milling machinery are appreciated.

The Milwaukee Dust Collector Mfg. Co., of Milwaukee, Wis.

We respectfully call the attention of our readers, to the announcement in a full page advertisement of the above named company. This company has been organized and chartered under the laws of the State of Wisconsin, and the members of the company are from amongst the prominent and wealthy citizens of Milwaukee. The Company has made long and careful examination of the Dust Collector Machine manufactured by them, and its members are entirely satisfied that it has no equal in existence. The Company has ample capital and will place this machine before the millers of the country immediately, and believe that their efforts will meet with the warmest approbation of the trade. No Miller should fail to write to them for their descriptive circular.

The Millers' Mutual Insurance Company of Wisconsin.

The above named company has been duly organized; the following gentlemen constitute the board of directors: J. L. Clement, Neenah; A. A. Freeman, La Crosse; J. C. Fliegler, Manitowoc; S. C. Wiley, Appleton; W. S. Green, Milford; II. Truman, Manitowoc; E. W. Arndt, Depere; S. H. Seamans, Milwaukee; John Schuette, Manitowoc.

Mr. John Schuette, of Manitowoc, the chairman of the Committee on Insurance, has addressed a circular to Wisconsin millers explaining the affairs of the company and soliciting patronage. We are informed that from all appearances at this early date the company will prove successful. Wisconsin millers should take hold of this matter and Frame with belt movement.

help it along, for it is a matter of direct importance to every flour mill owner in the state. Mr. John Schuette, of Manitowoc, will answer any inquiries addressed to him on this subject.

THE Boston Journal of Commerce has assumed a magazine form, put on a new dress and is as handsome as can be. It is now in its twentieth volume and is a welcome visitor to manufacturers and work-shops everywhere.

Not Too Cool.

An Austrian miller claims that absolutely cool grinding is as injurious to flour as too warm grinding. He has experimented on the matter for a long time. He thinks many roller mills should grind more rapidly than they do, so as to produce a certain amount of fermentation while the grain is being ground. This fermentation caused by a slight degree of warmth during grinding gives an aromatic flavor to the flour that is very desirable.

Indiana State Millers' Association.

The Indiana State Millers' Association met in annual convention at the Grand Hotel, Indianapolis, on the 8th. The meeting was called to order by J. R. Callender, president. The secretary, Richard Thomas, presented his report showing that the present membership comprises 26 members, representing 107 runs. As treasurer, Mr. Thomas reported receipts \$763, disbursements, \$402; balance in treasury, \$361. By resolution it was determined to assess each member \$7 per run to meet the assessment of the National Association. Officers were elected as follows: President, John R. Callender; secretary and treasurer, Nicholas Elles; vice-president, John A. Thompson. The secretary was voted \$50 and thanks for services rendered. Messrs. Pollock, Trow and Paddock were appointed an executive committee.

AIKENS & BRO., of Atlanta, Ga., have ordered some break and other machinery of the Case Mfg Co., of Columbus, O.

THE Victoria Mill Co., of St. Louis, Mo., have just put in Case's Little Giant Reduction Machine with capacity for 120 bushels of wheat

ALEX. AULT, of Bellair, O., has ordered the Case 4th and 5th breaks to displace those he is now using. He has a Gradual Reduction

D. B. SEARS' Sons, Rock Island, Ill., are putting in a full line of the Case Reduction Machines. They have been using the Case First Break for some time past.

THE Imperial Mill Co., of Clocksville, Mo., have just put in a lot of machinery furnished by the Case Mfg. Co., Columbus, O., among which is their Purifier, Break Machine, etc.

Messes. Root & Co., Cincinnati, O., are putting in more of the Case Break Machines. They have been running them over a year on first break, and are now adding them for some of the other breaks.

Jos. A. GEBHART & Sons, of Dayton, O., have just placed their order with the Case Mfg. Co., Columbus, O., for a full line of their breaks and rolls. They will have a full fledged Gradual Reduction Mill on the Case system.

MILWAUKEE ITEMS.

W. SCHMIDT & Co., wanting to use porcellain rolls for middlings, ordered 4 pair of E. P. Allis & Co., Milwaukee, all in Gray's Patent Noiseless Frame.

E. P. Allis & Co, of Milwaukee, are changing over the mill of Andrew Bowling, of Staunton, Va., to the roller system, and will put in 8 pair of sharp cutting rolls for wheat and 2 pair of porcelain for middlings.

THE Great Western Mfg. Co., of Leavenworth, Kas., have just placed an order with E. P. Allis & Co. Milwaukee, for a pair of iron rolls in Gray's Patent Noiseless Frame with belt movement.

J. L. ALLARD, of Paducan, N. Y., has given E. P. Allis & Co. a contract to change over his mill to the roller system. 4 pairs of sharp cutting rolls for wheat and 2 pairs of porcellain rolls for middlings will be used all being in Gray's Patent Noiseless Frame with belt move-

E. P. Allis & Co., Milwaukee, have just received an order from the Salem Flour Mill, of Salem, Oregon, for 4 pair of iron rolls and 3 pair of porcelain rolls in Gray's Patent Noiseless Frame with belt movement.

E. P. Allis & Co, of Milwaukee, are changing the mill of John Black, of Sycamore, Ill., to the roller system; the rolls used will be in Gray's Patent Noiseless Frame.

MURRAY & BRADLEY of Marquand, Mo., have ordered of E. P. Allis & Co., of Milwaukee, 2 pair of sharp cutting rolls for wheat and a pair of Wegmann Patent Porcelain Rolls for middlings. These rolls will be placed in Gray's Patent Noiseless Frame with belt movement.

FRANK CLARK, of Hamilton, Mo., is changing over his mill to the roller system. E. P. Allis & Co, of Milwaukee, are doing the work and will put in 10 pair of sharp cutting and smooth iron rolls, and 4 pair of Wegmann Patent Noiseless Frame with belt movement.

C. A. ROBERTS, of Fargo, Dakota Territory, has contracted with E. P. Allis & Co., of Milwaukee, to increase the capacity of his mill by 6 pair of smooth rolls and 6 pair of porcelain rolls and a 14x12 Reynolds Corliss Engine. The rolls will run in Gray's Patent Noiseless

E. P. ALLIS & Co., of Milwaukee, are changing over the mill of Keines & Williams, of Logan Ohio, and will put in 10 pair of iron and 8 pair of Wegmann Patent Porcelain rolls, all in Gray's Noiseless Frame.

E. P. ALLIS & Co., of Milwaukee are building a 1000 barrel mill on the roller system for C. Sperry & Co., of Stockton, Cal, Messrs Sperry & Co. will use 54 pair of iron rolls and 6 pair of Wegmann Patent Porcelain rolls. These rolls will be in Gray's Patent Noiseless Frame with

E. P. ALLIS & Co. of Milwaukee, in changing over the mill of Johnson & Jarrett, of Des Moines, Iowa, will put in 8 pair of Gray's Patent Noiseless Roller Mills with belt

D. D Wing & Co., of St. Louis, Mo., have placed an order with E P. Allis & Co., of Milwaukee, for 12 pair of rolls in Gray's Patent Noiseless Frame.

E. P. Allrs & Co., of Milwaukee, are in receipt of an order from the Cockle Sep. Mfg. Co. of Milwaukee, for 8 pair of rolls in Gray's Patent Noiseless Frame

E. P ALLIS & Co, of Milwaukee, have recently shipped to prominent millers in London, England, 10 pair of rolls in Gray's Patent Noiseless Frame, and 6 of Gray's Puri-

S. R. Cross, of San Francisco, Cal., has just ordered of E. P. Allis & Co. 6 pair of rolls in Gray's Patent Noiseless Frame with belt movement.

E. P. Allis & Co., of Milwaukee, are in receipt of an order to ship 10 pair of rolls to J. H. Townsend & Co, of Stillwater, Minn, the rolls to be in Gray's Patent Noiseless Frame with belt movement.

CHISHOLM BROS & GUNN, of Chicago, have placed orders with E. P. Allis & Co. for 10 pair of iron and two pair of Wegmann Patent Porcelain rolls in Gray's Palent Noiseless Frame with belt movement.

HOFFMAN & BILLINGL, of Milwaukee have lately placed an order with E. P. Allis & Co, of Milwaukee, for the engines to be built for the new Madison water works; they will be Reynolds Improved Corliss Engine with Cylinders 14x36 and 18x43.

THE Philip Best Brewing Co., of Milwaukee, ordered of E. P. Allis & Co., of Milwaukee, an 18x20 Reynolds Corlise Engine for their new malt house.

J. H. KERBICK & Co, of Minneapolis, Minn., have ordered of E P. Allis & Co., of Milwaukee, two of Rey nolds Improved Corliss Engines, the cylinders of one 14x42 and the other 12x36.

E. P. Allis & Co., of Milwaukee, are in receipt of an order from E. Bradford, of Sparta Center, Mich., for a 14x36 Corliss Engine.

J. E. ELLWOOD & Co., of De Kalb, Ill., have recently placed an order with E. P. Allis & Co. for a 20x42 Rey nolds Corliss Engine with Reynolds Improved Heater.

E. P. Allis & Co., of Milwaukee, have the contract for increasing the capacity of the mill of The Goodlander Mill & Elev. Co., of Fort Scott, Kas. They will use 20 pair of iron and 12 pair of porcelain rolls in Gray's Patent Noiseless Frame, The power to run this mill will be a Reynold's Corliss Engine 20x48 which is being built by E.

THE Minneapolis Harvester Works, Minneapolis, Minn. have placed an order with E. P. Allis & Co. ior an 18x48 Reynold's Corliss Engine.

E. P. Allis & Co., of Milwaukee, have an order to ship Wardell & Hinkley, of Chicago, a 14x36 Reynold's Corliss

E. P. Allis & Co., of Milwaukee, are to ship Hale Bros of Lyon, Mich., 6 pair of rolls in Gray's Patent Noiseless Frame with belt movement.

E. P. Allis & Co., of Milwaukee, have an order to ship to T. R. Grabill & Bro., Millersburg, Pa , 4 pair of Gray's Patent No.seless Roller Mills.

JOHNSON & CUNNINGHAM, of Centralia, Ill., are changing over their mill to the roller system, they will use two pair of sharp cutting rolls in Gray's Gradual Reduction Frame and 2 pair in Gray's Patent Noiseless Belt Frame. E. P. Allis & Co., of Milwaukee, are doing the work.

THE MILWAUKEE DUST COLLECTOR MFG. Co. report an order from the New Era Milling Co., Milwaukee, to furnish them machines enough for all their purifiers, etc. This mill will hereafter dispense entirely with the old-fashioned dust-room. This is the first mill in the United States dispensing with dust-room entirely.

THE most important machine for mills nowadays is good dust collector, The machine manufactured by the Milwaukee Dust Collector Mfg. Co. is without any question a success having proved so in mills in Minneapolis and Milwaukee, where machines have been in constant use for nearly three months.

From California.

A Letter from W. D. Gray, Milwaukee's Favorite Milling Engineer.

A CALIFORNIA BRANCH OF E. P. ALLIS & CO. ES-TABLISHED.

San Francisco, June 1st, 1882. Editor United States Miller:

Before leaving Milwaukee, I promised to write to you soon after my arrival in the Folden State and I will now try to redeem that promise. I arrived here about eight days since. The journey from Chicago occupied just five days and nights of continuous railroad travel. During much of that time we passed over treeless prairies, deserts and mountains. It has been said that nothing has been made in vain, but I have not yet decided in my own mind just what much of that country is intended for. It may be that it is unfinished and that when it is completed ages hence, it may become the garden of America. I have not seen much of the country yet, and thus far I have only visited Stockton, San Jose and Sacramento. From my short experience I should judge that my short experience I should judge that San Francisco, in regard to climate, is somewhat unfortunate. We get here the cold winds and fogs from the bay. I have worn my overcoat nearly every day since my arrival here. If you go inland, however, a short distance and a little south, you come to a country of fruits and flowers and "fift for the a country of fruits and flowers and "fit for the gods to dwell in."

I am busy figuring on a 1,000 barrel mill, and when I get through with that I intend to see a little more of the country. I find our old friend George Smith, formerly of Mil-waukee, established here in the mill-building business and he is doing a good business. He

has changed several mills here over to the roller system with good results. Of course it could not be otherwise, as he is a good mill-wright and is using the best roller in the world. He is now engaged in building a new 30.) barrel roller mill in this city, known as the Yosemite Mills and owned by Splirall & Faman. There are no stones used in this mill and the rolls to be used are Gray's Patent Noiseless Roller Mills, which, by the way, I may say here, you will find wherever you find the choicest brands of flour manufactured.

Hon. Horace Davis, of San Francisco has just got his mill started since changing it over to the roller system. He is using about 40 roller machines, no stones; is turning out 1,000 barrels per day and is doing good work, at least so it is reported.

The millers of the Pacific coast are just

getting "woke up" to the advantages of the roller system and are convinced that something must be done, but they do not like to throw away their millstones and it will take sometime yet to get them thoroughly converted as it did our millers at home, but the time will come soon when they will see and fully understand the advantages of our most mod-ern improvements and will adopt them.

Most of the mills on this coast are small, ranging in capacity from 50 to 200 barrels per day. With a few exceptions they are not only small but crude in construction, but they rattle away and most of them are making money. Put these same mills in Milwaukee or Minneapolis and they would not pay to run a day. You might ask—why can't they they run here? I think the reason is plain. They have better and cheaper wheat. Not long ago, wheat, was shipped wheat. Not long ago wheat was shipped from here to Minneapolis and sold there at from five to ten cents per bushel cheaper than their native wheat. So you see that wheat here is cheap and I think better. It is not an uncommon occurrence here to find wheat that will weigh from 65 to 68 pounds to the bushel and these mills take five bushels and over to make one barrel of flour and still they have run these mills and made money. What a difference between this wheat and that which we have been grinding in Milwaukee during the past winter—in the Daisy Roller Millfor instance! It would weigh ten pounds per bushel less, and poor samples less still, and yet we made a good yield and excellent flour. To do this, however, it is necessary to have the best of modern milling

machinery.

I find the tendency here is, with millers putting in the roller system, to try to make too much flour for the amount of machinery used, and consequently these mills do not give the best results but are a great improvement on the stone mills, which they have supplanted. This is bound to become a great milling country and men desiring to build new mills will do well to look at this country. With cheap wheat and all water freight to Europe, it looks to me as if a good mill here has decidedly the advantage of one in an

Eastern state.

I grieve to read the announcement of the death of Gov. Washburn. Who, of all connected with the milling industry does not mourn the event. We feel as if we could not spare him, but as it has pleased our great Creator to take him away we must submit. Peace be to his ashes. He lived a noble life and left the world better them be found if and left the world better than he found it. What more can man accomplish than to benefit the world by living in it. Gov. Washburn has done more for the mill-

ing industry than any man of this age. It was his mill and his money that introduced the middlings purifier into this country. It was Gov. Washburn who caused the first roller mill in America to be built and proved it to be a success. It will be long before the trade will see his like again. The millers of America might, with a display of good taste, erect a monument to his memory, though without any shaft of marble to mark his resting place, we may well believe that his name and the results of his enterprise and labor will never die.

Yours truly, W. D. GRAY.

P. S., June 8th, 1882.—I have just returned from Stockton by river. It is about 90 miles from here to Stockton by rail and about 150 by river, the river being very crooked. As I could make my journey during the night and enjoy a pleasant evening on the steamer, I went to Stockton and returned by the river route. Stockton is where Mr. Sperry's mill is located. It was destroyed by fire April 2, last, and he has now started to rebuild it, for which we have just taken the contract. It will be a 1,000 barrel mill using Gray rollers throughout, except five pair of millstones for fine middlings. They are not yet quite satisfied to rely on rollers entirely, but they will, no doubt, soon be so. Mr. Sperry's mill will be 100 feet long, 90 on the ground and five stories in height. It will have heavy, red brick walls of a very neat design, giving it a very imposing appearance. I think it will be the finest millhouse on this coast and expect the inside machinery and arrangements to be second to none either here or in the East. Mr. Sperry is one of the most prominent and successful millers on this coast and there is no doubt but that with the mill we will build for him, he will make money. The plans have been made while I have been here under the directions of J. R. Cross and myself. Mr. Cross-will remain in this state and run a branch of E. P. Allis & Co's busi-ness of which he will be manager and I think we will have a good share of the mill-building business of the Pacific States. I shall take a short trip to Los Angelos and then start for home, where I hope to find all things well. I am,

Yours truly, W. D. GRAY.

GLAD TIDINGS OF GREAT JOY

TO MILL OWNERS WITH DUSTY MILLS AND CLOUDY BROWS.

An Important Problem Solved at Last.

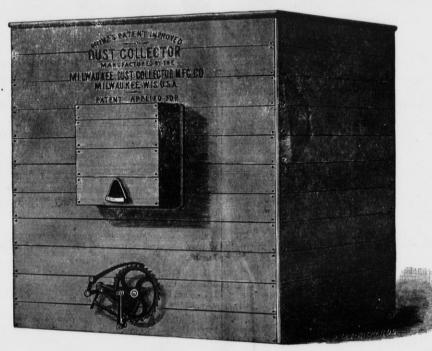
Taking care of the dust laden air from Middlings Purifiers and other machines, using air to carry off the dust, has been thoroughly met and conquered in the highest degree by the

PRINZ DUST COLLECTOR.

After years of study and experiment success has crowned the labor of F. PRINZ. He produced a machine, that will give satisfaction in such a manner that no miller would ask for anything better.

Simplicity is a Leading Feature

in this machine.



NO DEAD AIR CHAMBER.

The dead air chamber, which has been a source of much trouble in other machines by wearing out and allowing the air to get in, thereby injuring the power of the cleaning mechanism on the cloth, which results in the cloth filling up, is entirely overcome in this machine, as it has NO DEAD AIR CHAMBER.

LESS POWER IS USED

with this machine than any other as there is no back pressure on the fan; the motion of the fan has to be reduced whenever this machine is applied.

It does away with the cumbersome dusty, dirty old-fashioned dust room entirely and the numerous spouts leading to them, which fill up the Mill, leaving no room to get around.

IT RETAINS THE DUST IN THE MILL,

thus allowing no waste of stock by being blown out into the air as is the case with the old fashioned dust-room.

It does away with the liability of dust explosions as the air coming from the machine is entirely free from dust, which is not the case with the air coming from any other Dust Collector offered to the milling public heretofore.

We the undersigned manufacturers

GUARANTEE ENTIRE SATISFACTION

in the use of this machine.

Our machine does not infringe on any patent, which we fully guarantee; on the other hand we caution parties against purchasing infringing machines.

LOW PRICES FOR EXCELLENT MACHINES.

TESTIMONIAL.

Milwaukee, June 18th, 1882.

MILWAUKEE DUST COLLECTOR MANUFACTURING CO:

Gentlemen,—The Dust Collector you have put in on trial in our Mill is giving the same satisfaction as when first started, over two months ago. We have therefore concluded to adopt your machine for all our Purifiers, Roller Exhausts and Cleaning Machinery. You will please make as many Machines for us as are necessary. Yours Truly,

More testimonials are given in our circular, for which please address

Milwaukee Dust Collector Mfg. Co.

[Please mention the United States Miller when you write to us.]

Milwaukee, wis. U. S. A.

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

PURLISHED MONTHLY. OFFICE, No. 118 GRAND AVENUE, MILWAUKEE, WIS. EUESCRIPTION PRICE.—PER YEAR, IN ADVANCE.

wise agreed upon, For estimates for advertising, address the United States

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

MILWAUKEE, JULY, 1882.

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.

Flour Mill Directory.

CAWKER'S AMERICAN FLOUR MILL DIRECTORY for 1882. was completed, ready for delivery February 1, 1882

It shows that there are in the United States 21,346 flour mil's and in the Dominion of Canada 1,488. The mills in the United States are distributed as follows:

Alabama, 388; Arizona, 17; Arkansas, 234, California 209; Colorado, 52; Connecticut, 309; Dakota, 44; Delaware, 96; District of Columbia, 7; Florida, 81; Georgia, 514; Idaho, 18; Illinois, 1258; Indiana, 1163; Indian Territory, 3; Iowa, 872; Kansas, 437; Kentucky, 642; Louisiana, 41; Maine, 220; Maryland, 349; Massachusetts, 363 Michigan, 831; Minnesota, 472; Mississippi, 297; Missouri, 942; Montana, 20; Nebraska, 205; Nevada, 10; New Hampshire, 202; New Jersey, 445; New Mexico, 28; New York, 1942: North Carolina, 556: Ohio, 1462: Oregon, 129: Pennsylvania, 2786; Rhode Island, 47; South Carolina, 205; Tennesee, 620; Texas, 548; Utah, 129; Vermont, 231; Virginia, 689; Washington Territory, 45; West Virginia, 404; Wisconsin, 780; Wyoming, 3; Total, 21,356.

The directory is printed from new Burgeois type on heavy tinted paper and is substantially bound. It makes a book of 200 large pages. The post offices are alphabetically arranged in each state, territory or province. The name of the mill, the kind of power used and the capacity of barrels of flour per day of 24 hours are given wherever obtained which is in thousands of instances This work is indispensible to all business men desiring to reach the American Milling Trade.

Price Ten Dollars per copy on receipt of which it will be sent post paid to any address. Remit by registered letter, post-office money order or draft on Chicago or New York made payable to the order of E. Harrison Cawker, publisher of THE UNITED STATES MILLER, Milwaukee, Wis.

WE call the especial attention of our readers to the "Important Letter to Millers" from the STILWELL & BIERCE MANUFACTURING Co., of Dayton, Ohio.

A Boston writer predicts that wind-mills will, in the near future, be used extensively for the purpose of generating and storing electricity for use as desired.

Our readers who are about to purchase bolting cloth, will do well to read the new announcement of Messrs. Howes, Babcock & Ewell, of Silver Creek, N. Y., printed on another page. Purchasers of this firm may rest assured that they will get goods exactly as represented.

The immigrants that landed in New York last year came from the different countries as follows: Germany, 199,000; Ireland, 64,-000; England, 39,000; Sweden and Norway, 50,000; Italy, 18,000; Switzerland, 12,000; Scotland, 11,000; Russia, 11,000; Bohemia, 10,000.

IF anyone doubts that the Southern States copy of The Tradesman, published at Chattatising and reading pages. Our word for it, he will be converted. The South is rapidly developing its wonderful resources and is attracting the attention of enterprising observers everywhere. Long may her present prosperity continue and increase.

THE President of the United States has appointed the following committee to revise the tariff: John L. Hayes, of Mass., (chairman); Henry W. Oliver, Jr., of Pa.; Austin M. Garland, of Ill.; Jacob A. Ambler, of Ohio; Robert P. Porter, of the District of Columbia; John W. H. Underwood, of Ga.; Duncan F. Kenner. of La.; Alexander R. Boteler, of W. Va.; William H. McMahon, of N. Y. The furnisher by whom he is employed and sent to majority of the members are strongly in favor of a strong protective tariff.

THE PHONIX FOUNDRY AND MACHINE enlarged their capital, shops, and general manufacturing facilities and are better than mize for the miller and millers should not overever prepared to turn out large quantities of look this fact. mill work. Our old friend Jonathan Mills,

known the world over as an inventor of flour mill machinery, and designer and builder of flour mills, assumes the position of general manager. Among the machines manufactured by this establishment are the JONATHAN MILLS CENTRIFUGAL BOLTING REELS and improved ROLLER MILLS. The Company will also make a specialty of furnishing MILLS' GRADUAL REDUCTION MACHINES and will also do a general mill-furnishing and mill-building business. The Phoenix Foundry and Machine Works have a fine reputation amongst millers and now they are better prepared than ever before to meet promptly all of their many wants.

Death of Samuel Babcock.

Mr. Samuel Babcock of Silver Creek, N. Y., father of Mr. Babcock, of the firm of Howes, Babcock & Ewell of that place, while taking a walk on the afternoon of June 11th, was struck by a passing freight train and instantly killed. "Uncle Samuel," as he was fondly called by his fellow citizens, was universally beloved for his kind and genial ways. The large force of workmen in the Eureka Smut Machine Works, which he often used to visit, passed resolutions of condolence and attended his funeral in a body. Mr. Babcock was in his 90th year when he was so suddenly summoned to that better land beyond. We extend our heartfelt sympathy to his family and friends.

> [Written for the United States MILLER.] Plain Talks About Milling.

By RICHARD BIRKHOLZ, M. E.

(Continued from June number.)

An indirect saving can be made by always buying good machinery. Many millers will buy from the lowest bidder and mill furnishers aiming to sell only the best machinery cannot compete in price with those who slight work in order to make a margin on a low bid. Each will manage to earn about the same; they all desire to make money. I believe it will pay any miller to buy of such mill furnishers as have gained, and are ambitious to maintain, a reputation by manufacturing good, well-finished machinery. The results of cheap contracts are unround, badly turned shafts; shafts which are of uneven diameters; shafts which will let a pulley or gear slide on loosely at one end and have to be filed towards the middle to admit it to its place of destination; couplings which fit loosely on the ends of the shafts instead of being drive-fit, which after being keyed on. are not square on the shafts and which, after the bolts have been put in and tightened, will "spring" the shafts, causing them to wabble around, wearing and loosening the boxes, consuming power, wabbling the pulleys on them in all directions. A well-made coupling requires time, skill and absolute correctness of workmanship. Poor fitting pulleys are another result of cheap work; they will not go onto the shafts at all or else they will go on too loosely and after the key or setscrew is tightened they will run untrue and out of balance, shaking the entire mill-floors. Then badly fitted gearing, which will not run on the pitchline, on account of being bored eccentrically or slanting, is another result of cheap work. Such gears cause an intermitting noise whether they are of iron or core and iron, Among other cheap things I will mention, green maple cogs, poorly set and dressed are not rapidly developing their manufactur- core-wheels, badly trimmed pinion teeth ing and agricultural interests let him take a cheap and nasty babbit, poor belting and elevator cups, leaky bolting chests with loose nooga, Tenn., and glance through its adver- joints, green lumber, conveyor shafts of green wood, warping up and cutting conveyor boxes. Poorly fitted keyes are constantly in danger of working loose and dropping out, thereby causing breakages and delays. I would therefore advise millers to make their purchases from manufacturers or dealers of whom they are well convinced that they will snpply only good machinery.

Many millers are inclined to regard the millwright as one seeking to despoil them of their cherished wealth, but if they are good correct advisers, they should be esteemed as their best friends. The millwright must necessarily have the entire confidence of the millowner consulting him, and also of the mill the mill-owner. His salary in a mill-furnishing establishment is proportionate to his capability as shown in his dealings with millers. A good and faithful millwright has the prosper-WORKS, of Terre Haute, Ind., have recently ity of the miller employing his services constantly in view. It is to his interest to econo-

The millwright visits a mill, and is asked to

use his best judgment in effecting a change embodying the latest improvements. He examines the building; he finds low and few stories and feels somewhat discouraged; he contracted upper story with waste-room under the main roof.

When the miller consents upon his advice to take away the roofs and carry up the building full size, making high stories of such gained room and putting on a flat roof, the millwright begins to "take some heart into his work." Then he feels cheerful and as if he could accomplish something desirable.

A new process mill must have high storiesa building with basement and four to five stories above. I do not say that a new process mill cannot be made out of a cupola topped building with few floors-oh, no-but a surplus of elevators, shafting and gearing must be resorted to. Elevators will be present everywhere and more money is spent sometimes in rebuilding such mills with an unfavorable building than the changing of the building would cost and besides this's great deal of power is lost in extra gearing.

If millers would only make it a point to go and visit good mills before they change their own, they would see how little room is wasted by so many elevators, all standing in line, admitting passage between their legs, all plumb and on one shaft. They would see how necessary it is for driving and spouting to the chests and purifiers if they stand in a certain direction relative to the rolls. Having seen these things so necessary, they would more readily consent to follow the suggestions of the faithful millwright—make a clean sweep and place the machinery as it ought to stand for convenience sake. They can re-utilize nearly all of the old shafting, pulleys and gears, all belts, elevator boots, etc.

Remember that a good millwright does not simply care for placing a few rolls; he is ambitious to see the miller do the best possible work therewith in conjunction with the rest of the machinery. He will draw up a diagram, the fruit of mere hard earned experience, decide upon the cloth to be used and how the stuff must be handled. In this manner he differs vastly from the agents, who will "talk the head off" of a miller to sell him some machines and then leave him to his own unaided endeavors to make his investment pay.

Unscrupulous agents try to "get on the right side" of the miller by telling him that a small outlay will do wonders; will enable him with his poorly constructed mill to rival the best mills in the country. This class of agents are ready to stone the faithful millwright, who, by conscientious advice, as circumstances may justify, recommends the miller to "gut his mill." Excuse me for this denunciation of "cheap John" millwright (?) agents, who are doing much to injure the

fair milling prospects of this glorious country. I dare say many millers understand the usefulness of the designing millwright almost too well, for mill building establishments are frequently overrun with millers wanting experts to examine their mills and asking for drawings and plans. The millwright is often compelled to lay aside jobs already ordered and attend to the wants of speculative millers. He will consult with them, make measurements of their mills, make drawings, specifications, estimates, and finally draw up of power, is far more annoying where the rolls the contract. When this point is reached, the are provided with dull dress. The dull rolls, enthusiastic owners frequently come to a dead moreover, have to run at greater velocity than stop, like Old Grandfather's Clock. They conclude they do not want to build or that they want to ask some other builder, trying to get a cheaper (and nastier) job. The millwright will then reach out his hand for a reasonable remuneration for his lost time, and thenwell, there have been cases where the millowner refused to pay.

If contracts are signed, the millwright's time must be paid for, for in this country nothing runs without it is greased; "every hen must have her kernel of corn;" and in some shape the miller must pay. And why should not the millwright be paid for his work in planning and designing mills, when architects call for and obtain for their templet drawings 11 to 2 per cent. of the total cost of building? A millwright's duty is more tedious and requires more skill than the architects.

In the old bolting chests where "returning" was followed, the reels generally pitched in different directions. It is profitable in any case to lay reels all one way even if it is necessary to rebuild the chest. Conveyors are thus saved and that means improved mill products. Conveying of middlings and products of rolls ought to be done away with as much as possible. Middlings going to puri-

fiers must never be conveyed, as they will make dust on the way which will be blown into the dust room and either clog the cloth or penetrate and get back into the mill or be feels still worse when he finds a cupola roof, blown out of the mill and wasted. Middlings from the purifiers ought not to be conveyed to exceed 10 feet, for a fine, soft, atomized flour dust will be produced, impairing the absorbing and baking capacity of the rest of the flour with which it is mixed.

Flour may be conveyed without harm for the molecules are so far reduced that they will not powder by the action of a conveyor. Breaks and products of smooth rolls ought not be conveyed to exceed 6 feet, on account of producing flour dust; if such are conveyed for a short distance, the flights of the conveyors must be iron in order to shove along the stuff without stirring it up.

The roller bodies running about 580 feet per minute, throw off centrifugally a great portion of dust which will crowd out through the crevices of the hopper, etc., tend to make the grinding floor dusty.

E. P. Allis & Co. put on iron flighted conveyors below the line of rolls from which the air is gently exhausted by a fan, which delivers it into a separate cloth dust room, (Kirk & Fender). The conveyors are placed below the joist but are spacious in size over flights, serving as a dust trunk, and between the joists or just below them cross trunks are placed communicating with space over the conveyor and with the fan. This arrangement accounts for the dustless floors found in mills constructed by this firm. Conveying is not aimed at—the meal is simply gathered into the conveyors to discharge out of one spout into the elevator. The meal is not conveyed over five feet.

The loss of dust through slatted windows of old-fashioned dust rooms is calculated to be about 4 of one per cent. of wheat ground; this would be in a 1000 barrel mill 2100 lbs. per 24 hours. We will calculate three-fourths of this to bring the price of shorts-about nine dollars, and the rest rbout 2½ barrels of stuff considered to be low grade, amounts to about ten dollars; thus a wasting of nineteen dollars per day is suffered by a poor dustroom in a 1000 barrel mill or \$5,700 per year. Besides that a great amount of coal is lost on account of the warm air of the mill being sent out of the building. Here a saving may be effected by even the smallest mill owner.

It has been satisfactorily proved by experiments and long practice that millstones require more power to accomplish certain results than rolls. The heavier the mass the more power is required to keep it revolving. This is an old theory in mechanics. Stones have a greater working surface than rolls, hence they consume more power. It is advisable to substitute rolls with suitable grinding surfaces, for millstones, for working on any kind of millstuffs, even when taking into consideration only, the gain of power. The greatest gain of power yet observed by doing work with rolls that was formerly done with stones, is in that of the granulation of corn. Rolls with dull corrugations require more power than sharp dressed rolls, for the reduction of wheat by bruising or squeezing requires greater pressure. In case of sharp dressed rolls the power lost by friction in bearings, is as great as the power required for grinding. This pressure, respectively loss sharp dressed rolls to granulate the same amount of wheat, hence the bearings are more liable to heat.

WHEAT CLEANING MACHINES, especially the smutters, consume a great deal of power. I have indicated a 600 bushel receiving separator in one case and found it to consume 62 horse powers. A 100 bushel smutter in another case consumed 16 horse power! In buying cleaning machines be careful to purchase only light running machines able to give good results. Do not buy smutters or decorticators which will overdo the requirements and act too severely on the bran. The thicker the bran is left by the smutter, the larger it will be when finished and the less it will pulverize in the breaks. The main duty of the smutter is to scour off the fuzz on the end of the wheat berry. The dirt in the crease can only be removed partly by a brush and entirely by a brush and first break rolls.

A well-planned mill with as few gears, shafts, elevators, belts and conveyors as possible; with good and substantial furnishings, built by careful and correct millwrights will also greatly contribute towards the economization of power.

(To be Continued.)

A New Mechanical Dictionary.

ICAN MECHANICAL DICTIONARY, in 1877, the progress made in the development of the mechanic arts is unprecedented in the history of the world. Not only in such striking and wonderful achievements as relate to the telephone, phonograph and electric light, toward which popular attention is naturally drawn, but in every department of applied mechanics, there has been developed a fertility of resource in the adaption of means to ends quite as marvelous and equally important in practical results. Achievement has outrun the most sanguine expectation, and with such rapidity that even the most recent records are found to be very deficient in supplying information most desired.

The hearty approval which Knight's Amer-ICAN MECHANICAL DICTIONARY has received in all parts of the world has encouraged the publishers to issue an entirely new volume, thus continuing the record from the date at which the former work went to press, but carefully avoiding repetition, and aiming to furnish not only a satisfactory supplement to the original work, but a book which shall have an individual and separate value as a built up work in engine construction. complete record of half a decade in the hisdent that this volume forms an indispensible term "built up" as applied to the subject unsupplement to all works of reference upon der consideration. We mean a structure

mechanics now extant, as none of them cover the period mentioned.

The same method has been adopted in dealing with the subject matter in both works. First, each article appears in its proper alphabetical place, thus fulfilling the function of a dictionary, in affording direct response to inquiry. Second, the items of information thus distributed throughout the work are classified in Special Indexes of the Art, Profession or Manufacture to which they pertain. The book thus fills the function of a Cyclopædia, which is a collection of treatises.

The value of a work of references depends largely upon its index. When one has a question to ask of an ordinary cyclopædia it is frequently

or heading to look.

The author has invented a system of what he terms "Specific Indexes," by the use of which the inquirer is guided straight to the information he is in quest of, even though he be entirely ignorant of the name of a thing, and have but the most vague and general notion of its use. This is accomplished by grouping under the general title of each Science, Art, Trade, or Profession, a list or "Specific Index" of every article in the book bearing any relation to the subject in ques-The titles of these Indexes are in turn grouped at the beginning of the book, so that by a glance one may determine which clew to follow.

Beside the use above mentioned, these specific indexes afford the reader an excellent opportunity for investigating thoroughly all that pertains directly or indirectly to any special subject, by using the index under the title of that subject as a sort of head-center, and following out its various branches through all their ramifications.

Special attention is called to a new and valuable feature in the work, by means of which exhaustive information on any subject is placed within easy reach. The author has made a complete index to technical literature, covering a period of five years, and embracing all English and American technical journals published from 1876 to 1880 inclusive. Under title of each subject may be found a complete list of every article which has appeared, during this period, in the columns of these periodicals and as every subject of importance has been thoroughly discussed therein, it is evident that the whole ta easy command. This Index cannot fail to it, and lead to the adoption of one where the tools of some trade, or that there is not in came from this one shop.

upon any line of inquiry.

"Index-learning turns no student pale, Yet holds the eel of science by the tail."

The work treats many thousand subjects and is illustrated with over 2,500 carefully prepared engravings, and numerous full-page plates, and for general typographical excellence, quality of paper and printing, it is unsurpassed. It may be bound uniform with any edition of the Knight's American Mc chanical Dictionary, or with any cyclopædia or other book of reference of the usual size of one fore and aft and two athwartship memand shape. Sold only by subscription in four sections, containing 240 pages each.

For further particulars address the Publishers, Houghton, Mifflin & Co., Boston,

Built-up Work in Engine Construction.

BY HORACE SEE.

[A paper read before the American Society of Mechanical Engineers.]

This paper is intended to treat, in as general and brief a way as possible, of some of the advantages resulting from the use of

It will be desirable for you before proceed-

meet with the heartiest appreciation among hammer can fashion each piece to near the the direct line of what he has set out for those who have experienced the labor and required shape, where but a small portion of Since the completion of Knight's Amer- difficulty attending an exhaustive search the tough material has to be removed, and where the risks are a great deal less. All of direction in the world. In other words, he these requirements are met by the built-up system, which has also the additional advantage of furnishing to the forge such shapes as can be more easily made with the fibres of the material running in the proper direc-

> With castings the evils resulting from crowding too much into one piece are of an analagous character. We will take a bed-plate to illustrate this. Two patterns, each consisting bers have to be made and the mold for each built up in loam.

> It is quite likely that the molding of one will have to follow the other on account of a limited amount of room in the foundry, either on the floor or in the oven. In the machine shop the largest planing machine is called into play, and that, quite possible, not able to plane more than one piece at a time. Each piece will also have to be set twice.

Here the evil is not so much from the weakness of the structure as from the adoption of a slow and expensive system. This that a young man who is to follow mechanical system will doubtless have to give place to the built-up, by making each member of the tory of invention. From this fact it is eviling farther, to understand what is meant by the bed separate, where but one pattern is required for the athwartship, and another for pressed as it should be that as he learns to the fore and aft pieces. This subdivision also use his hands he should just as systematic-

quite as much for the exercise of all the faculties of the mind as there is in any other should start out to learn something quite different from the commonly accepted idea of a trade-something to which the skill of his hands is only secondary. Not by any means that the acquirement of the highest degree of manual dexterity should not be striven for but that from the beginning he should fully appreciate that that is only incident to the real business he is to learn.

The young man who is destined for one of the professions is fitted by a course of study, not educated for the profession, but fitted so that when he comes to the practical part of it he shall be in a condition to educate himself. It is considered in his case, and rightly enough, that a system of training is absolutely essential to success, and so some years are devoted to the task of learning how to learn.

In the case of the prospective mechanic it is not thought that any preliminary training is at best more than a convenience. The difficulty however, is not entirely, nor mainly, that the prevailing idea combats the theory pursuits should be taught to reason systematically by some sort of previous eeucational training, but that the sentiment is not im-

> ally learn to use his higher faculties. In aword, the popular idea of a trade needs to be vastly enlarged, and made to comprehend what really constitutes a mechanic. In this way a young man may be able to understand in the beginning what it sometimes takes him years to learn—takes him so long to learn what to do, that he never begins to do it.

> It would be foolish to call a man a surgeon who knows how to cut, but not when or where. It is equally foolish to call a man a mechanic who knows how, but not when or why to do a thing.

Another fallacy, and one which has much to do with fostering the belief that it is not worth while to interest anything but muscle in the case of the mechanic,

very difficult to determine under which title formed by the union of several simple mem- allows you to make the castings-in green sand. is that there is not so much ahead of the mechanic as there is ahead of the professioncan be most conveniently, quickly and econ- together at one setting, as well as the fore and all man. This, notwithstanding it is contrary

If from 200 boys 100 are taken, indiscriminately, for any of the professions, and the other 100 are devoted to mechanical pursuits, preparation and education, each with the special object in view, in the end the average condition of the mechanic will be the best. Not only this, but the probability of some of It would appear to be the general belief their number reaching a position of eminence before the world is also better. will be more absolute failures amongst the professional class than amongst the otherthat is, failures to make a respectable living, because that part of the business done with mechanic than to the other.

Nothing is more essential to the mechanic than an appreciation of the fact that, quite as much as the professional man, he needs an education other than that of the hands; in other words, that becoming a skilled workman is only one of the means to an end .-

It is not many years since, that the number of cotton mills in Canada could be counted on the fingers, and when the number of spindles was less than 50,000. A recent collection like many another false idea that ought to shows us twenty-one cotton factories, aggregating nearly 400,000 spindles, and more are The young man who looks to mechanical now projected. It is a somewhat curious fact that the larger proportion of the quantity of taken off after leaving the hammer to bring ning divest himself—and in this he should be machinery for the whole 370,000 spindles has them to the proper finished shape should assisted by those of greater experience—of been supplied by the one firm of Howard & certainly cause the abandonment of a practite idea that the great end and aim of his Bullough, of Accrington, England, Nearly, range of recent investigation is thus placed tice with so much uncertainty hanging over life is to become an adept in the use of the if not quite, two-thirds of this machinery



GROTTO AND AQUARIUM OF THE TROCADÉRO. -PARIS, 1881.

(From Knight's Mechanical Dictionary.)

omically made to give the required strength. aft one, on a smaller planer than in the other to all facts, is the prevailing opinion.

Some object to this form of construction from mistaken ideas of economy, others from a false interpretation of beauty, but the largest class from extreme conservatism.

The advantages can be better understood by considering how a few of the forgings and castings, shown in the accompanying illustrations, entering into the construction of a compound marine propellor engine, are

The following extract from a letter in Enginereing, of August 19, 1881, strikes the keynote of the subject: "The fact will doubtless have its influence for all time coming when ed fallacies, which, without foundation in the shafts for gigantic steamers are to be or- fact or reason, has been productive of a great the hands alone will be worth more to the dered, as it is absolutely impossible to insure deal of harm. Acting from these considerathat a forging shall be perfectly sound and destitute of flaws if, when it leaves the ham- get along in any of these so-called learned mer, it is such an immense and ponderous professions is believed, without any preliminmass as to weigh fully thirty tons, as did the ary preparation, to be as sure of success in a one fitted into the Servia, being eventually finished, however, at about eighteen tons in weight. All such shafts in future will doubtless be built."

The same argument applies to the solid forked connecting rod, which requires about 50 per cent. of its weight to be taken off after leaving the hammer, with the attendant risk of not discovering the flaw until near the completion of the work. The impossibility of insuring soundness in forgings which require 40 to 50 per cent. of their weight to be

bers, these members or pieces being such as All of the athwartship pieces can be planed system.

This subject could be elaborated, but I think enough has been said to call attention to and furnish food for reflection upon a very giving each equal advantages in the way of important part of steam engine construction.

Mechanical and Professional Educa-tion.

talent of a different and higher order to insure success in other of the affairs of life than it does to succeed as a mechanic. This is one of the commonly accepttions, a boy who is thought to be too dull to mechanical direction as any one.

Probably the foundation of this fallacy would be found as far back as the time when American Machinist. there was supposed to be no occasion for a man who worked with his hands to make any particular use of his head. However this may be, this fallacy, handed down through hundreds of years, clings to the present time have disappeared generations ago.

pursuits for a vocation should in the begin-

The Cuckoo Song.

OR, HOW THE MILLER WON HER.

O Kitty Bell, 'twas sweet, I swear, To wander in the spring together, When buds were blooming everywhere, And it was golden weather! And down the lanes beside the farm You roamed beside me, tripping lightly, Blushing you hung upon my arm, And the small gloved hand pressed tightly! And the orchis sprang In the scented meadow, And the throstle sang

In the greenwood shadow: And your eyes were bright With happy dew,— Could I doubt a light So divinely blue, When you kiss'd and sighed "I will be true?" Though far and wide The brown bird cried-

O Kitty Bell, the cry seemed sweet! For you were kind, and flowers were springing; The dusty willow in the heat Its woolly bells were swinging, And in its boll the linnet brown Finish'd her nest with wool and feather, And we had thought of nestling down In the farm by the mill, together.

And over the hill The breeze was blowing, And the arms of the mill Kept coming and going; And who but love Was between us two, When around and above The flittermice flew, And as night drew nigh You swore to be true! Cuckoo! I heard the cry From woods hard by-

"Cuckoo! cuckoo! cuckoo!

O Kitty Bell, 'tis spring again, But all the face of things look iller; The nests are built in wood and lane, But you are nested with the miller. And other lovers kiss and swear, While I behold in scorn and pity, For "all," I cry, "is false and fair," And curse the cuckoo and Kitty.

I hear the cry

And over the Mill The breeze is blowing And the arms of the mill Keep coming and going: And the hidden bird Is singing anew The warning I heard When I trnsted you And I sicken and sigh With my heart thrilled through. Ouckoo Wherever I fly

[Written for the UNITED STATES MILLER.]

"Cuckoo! cuckoo! cuckoo

Tables of Velocities, Rotations, Etc.

It often happens that the practical man requires to make calculations to determine the lineal velocity of belts or of band saws in feet per minute, on pulleys of given diameters, with various rotation speeds; or to determine the number of rotations per minute desired to obtain the desired rim speed or belt speed, with pulleys or saws of different diameters. To help in this matter, we have had prepared tables enabling such details to be run through more quickly and with less likelihood of being wrong than if they were hastily done with a pencil or a piece of chalk, upon the shop door or mill floor.

We will suppose that it is desired to find the velocity of a belt, in order to calculate roughly its horse power. If it run upon a 58 inch pulley at 350 turns per minute, refer ence to the first table will show that its speed (not allowing for slipping) is 5314 feet per minute. This table is especially convenient because the pulley diameters are expressed TABLE OF REVOLUTIONS PER MINUTE FOR VARin inches and the belt speeds in feet. We give also the factors which will enable anyone to make these calculations more rapidly than where the circumference is determined first in inches and then reduced to feet.

A further application of this table will be in the case of a band saw, where the velocity of the blade must be in a certain proportion to the rate of feed of the stuff. If, for example, a band-sawing machine have pulleys 60 inches in diameter (and the larger they are the better), and the feed must be one one-hundreth the blade velocity, the table will show that the blade has a velocity of 4712; and in this case the feed should be 47 feet per min-

The rough rule for horse power of single leather belts is that 1000 feet of belt per minute gives one horse power for every inch of belt width; thus a 6 inch belt traveling 2000 feet would have 12 horse power.

If, now, a 52 inch pulley runs 400 revolutions, a 10 inch belt upon this pulley would transmit 54.45 horse power; because there would be, according to the table, 5445 feet of belt passing per minute; this would give 5.445 horse power for every inch wide the belt was and as the belt was 10 inches wide its horse Works, at Terre Haute, Ind.

power would be 54.45. It is proper to remark in this connection that this rough rule of thumb of the horse power of belts is very rough and that there is a very wide margin owing to the capacity of the belt for transmission depending so largely upon the tension, the arc of contact, the condition of the belt and of the pulley, the diameter of the pulley, etc.

The second table is a proper companion to the first. It is intended to show how many revolutions per minute will be requisite to give a required number of feet per minute of rim speed, with pulleys or saws of various diameters.

If, for example, it be desired to run a circular saw 12,000 feet per minute, and the saw be 72 inches in diameter, the table shows that the saw must run about 637 turns. If this saw be worn down by filing, to 66 inches diameter and the same rim speed be desired then it must have about 695 turns.

By the aid of the two tables there may be solved without any trouble many of the questions in transmission by belts or by wire ropes, which come up so often to the practical man. Thus, in considering the advisability of running a wire rope 9,000 feet or 13,000 feet to carry a certain horse power; in the first case there would be required a 60 inch pulley at about 573 turns per minute, and in the second the same pulley at 752 rotations. If, now, these pulleys were considered to be too small for the high speed, the same rope speed would begot, with much less liability to break the rope by sudden turns by employing a 72 inch pulley 477 turns for 9,000 feet or 690 turns for 13,000 feet. Or if it were desired to take off power from a wire rope running 670 turns upon 72 inch pulleys, and to obtain a speed of 800 turns, the last column in the table will show the figure 801 opposite 62, and this would show that a 62 inch pulley would give 801 turns with 13,000 feet rim speed.

These tables were calculated by one of our contributors to meet his own demands for such aids, and as they have proved useful to him, we present them to our readers.

Rule. To find lineal velocity of a band saw or a belt in feet per minute, multiply diameter in inches by 3.1416 and divide the product by 12, and by the number of revolutions per minute.

TABLE OF LINEAL VELOCITY OF BELTS OR OF BAND-SAWS, (GIVEN IN FEET PER MINUTE), ON PULLEYS OF GIVEN DIAMETERS, AT VARIOUS

Diam pul'y in in.	Revolutions Per Minute.							
	300	350	400	450	500	600	Diam pul'y in in.	
30	2356	2749	3142	3534	3927	4712	30	
32	2513	2932	3351	3770	4189	5025	32	
34	2670	3115	3560	4005	4451	5341	34	
36	2827	3298	3770	4241	4712	5654	36	
38	2984	3482	3979	4477	4974	5909	38	
40	3141	3665	4189	4712	5236	6283	40	
42	3298	3848	4398	4948	5498	6597	42	
44	3455	4031	4607	5184	5760	6911	44	
46	3612	4215	4817	5419	6021	7226	46	
48	3770	4398	5027	5655	6288		48	
50	3927	4581	5236	5890	6545		50	
52	4081	4765	5445	6126	6807		52	
54	4241	4948	5655	6362	7069		54	
56	4398	5131	5864	6591	7330		56	
58	4555	5314	6074	6833	7692		58	
60	4712	5497	6283	7069	7854		60	

Rule. To find the number of revolutions per minute of circular saws, pulleys or wheels of various diameters corresponding to a given rim speed: Multiply the diameter in inches by 3.1416 and divide the product into twelve times the rim speed in feet; or divide the liameter in inches into 382 times the rim

Less accurately; divide 11 times the diameter in inches into 42 times the rim speed in

Diam	Ri	Ī			
pul'y in in.	9000	10,000	11,000	12,000	. 13,000
8	4297.12	4774.62	5252	5732.50	6207
10	3437.70	3818.70	4201.60	4586	4865,60
12	2864.75	3189.08	3501.33	3821.66	4138
14	2455.50	2728.35	3001.14	3275.71	3546.85
16	2148.56	2387 31	2626	2866 25	3103.50
18	1905.94	2122 05	23342	2547.77	2578.66
20	1718.85	1909.85	2100.80	2293	2482.80
22	1562.59	1736.22	1909.81	2084.54	2257109
24	1432.37	1591.54	1750.66	1910.08	2069
26	1322.19	1469.11	1616	1763.84	1909 84
28	1227.75	1364.17	1500.57	1637 85	1773.09
30	1145.90	1273,23	1400,53	1528.66	1655.20
32	1074 28	1193 65	1313	1433.12	1551 75
34	1011.08	1123.44	1285 76	1348.82	1460,47
36	954.91	1061.02	1167.11	1273.88	1379.33
38	904.65	1005.18	1105.68	1206.84	1306.73
40	859.42	954.92	1050,40	1146 50	1241.40
42	818.50	909.45	1000,38	1091 90	1182.28
44	781.29	868,11	954.90	1042.27	1128.54
46	747.32	830 36	913.39	996 95	1079.47
48	716-19	795,77	875 33	955.41	1034.50
50	697.54	763.94	840.32	917.20	993 12
52	661 09	734,55	808,00	881,92	954,92
54	636,61	797,35	778,07	849,25	919,55
56	613,87	682,68	750,28	818,92	886.71
58	592,70	658,56	724,41	790,68	856,13
60	572,86	636,61	700,26	764.43	827,60
62	554.46	616,08	677.67	739,67	800.90
64	537.14	596,51	656,50	716,56	775.87
66	520,86	578,74	636,60	694,84	752,36
68	505.54	561,72	617.88	674,41	730,23
70	491,10	545,67	600,22	655.14	709.37
72	477.45	540,51	583,55	636,94	689,66
74	464,55	516,17	567.78	619.72	671.02

JONATHAN MILLS has left the firm of Chis holm Brothers, and has accepted a position as general manager with the Phœnix Iron

Centrifugal Bolting Reels.

The centrifugal reel was originally introduced by Naegel & Kaemp, of Hamburg, Germany, who are very important engineers and employ a large staff. The machine was found to be exceedingly useful, having a very great capacity, while occupying only little space. The diameter of the original machine was much smaller than that of the machines which have recently become so popular in England; but the quality of the work performed by Naegel & Kaemp's centrifugal has never been questioned. Very large numbers of the machines were introduced in the mills of Germany and Austria-Hungary, but it was a long time before English millers could be induced to adopt the reels.

When once the reputation of Nagel & Kaemp's centrifugal had been established, numerous modifications were introduced by other inventors, such as Martin, Fiestel, &c., and at present almost every Continental millfurnisher manufactures a special machine of his own. Nagel & Kaemp's centrifugal has an outer drum consisting of a sectional framework of wood, on the inside of which the silk gauze is fastened. The beaters are of iron, curved in such a manner as to throw the meal in a regular stream against the silk, while the pitch of the beater has been calculated by careful experiment so as to carry forward the material being operated upon as fast as necessary. In roller mills the centrifugal was found to be especially useful, as the beaters assisted in separating any flaky ma-

H. J. Sanderson, of Manchester, (now Sanderson & Gillespie, of London), worked hard for a long time before he could induce many English millers to adopt it to any great extent. Samuel Fitton, of Macclesfield, was one of the first to accept the innovation.

Hoerde & Co., of Vienna, put Martin's Centrifugal upon the British market and the machine met with some success.

But the introduction of Sutcliffe's Centrifugal, invented by Abraham Crabtree, foreman of Sutcliffe & Sons' mill, caused quite a stir. This machine has a drum of very much larger diameter than the original machine, and the silk covering is put on the outside of the drum. A revolving brush placed longitudinally beneath the reel, keeps the meshes of the silk free and open, greatly increasing its capacity. A very large number of machines of this make were soon in operation. A general acceptance of the centrifugal followed; many of the machines differing little from those mentioned.

Bedford, of Leeds, added rotating vanes at the head end of his reel to assist in detaching the caked material from chilled iron rolls; Ellison, of Leeds, serrated the edges of the beater blades at the feed end in his machine for the same purpose, while Carter added a brush detacher. Various minor differences of driving, etc.

Now that enterprising American firms have been manufacturing some of the best machines, millers in the United States will have the centrifugal is sure to find favor for grading middlings, handling the breaks from rollers, and dressing roller flour.—Millers' Jour-

Puts, Calls, and Straddles.

"I believe you have gambled in Wallstreet, Mr. Breezy," said Mrs. Breezy, helping her lord and master to a cup of coffee.

"I have speculated a little in stocks, dear, if that's what you mean," said Mr. Breezy, unfolding his napkin.

"Same thing," said Mrs. Breezy; "you can call it speculation; I know it's gambling. How do they do it anyway? I read about puts and calls and straddles, and buy a three's you let me sell you the salt?" but I can never make any head or tail out of it. I suppose it's some horrid slang you men have invented."

"Well, no, dear," said Mr. Breezy, helping his better two-thirds to a chop. "It isn't exactly slang. You see, for instance, I buy a hundred short-"

"You do what?" cried Mrs. Breezy.

"I buy a hundred short," repeated Mr. Breezy.

"Well, what in the name of common sense do you mean by that?" asked Mrs. Breezy. English? You buy a hundred short, and what has short got to do with it?"

my dear," said Mr. Breezy. "You see if a man is long on stock he is—"

what are you getting to? First you are short and then you are long. What does a man want to get long on stock for, anyway?"

"My dear, if you will allow me-"

"To be sure. Go ahead. Tell me something about Wall street, but don't talk nonsense," said Mrs. Breezy.

"Well, my dear, we'll suppose that I have "put" on Wabash, and—"

"There you go again," said Mrs. Breezy. Will you or will you not talk in a language I can understand? What is Wabash, anyway? suppose it is another slang term?"

"No, that's a stock " said Mr. Breezy; "you see, dear, if I have a "call" on Wabash or Northwestern—"

"If you call on the Northwest?" cried Mrs. Breezy; "are you really going mad, Mr. Breezy? Well, I might expect as much from the life you have led recently. What with clubs and politics, you are going headlong to ome terrible fate.'

"My dear, it will be impossible for me to explain anything unless you will give me five minutes to do it in," said Mr. Breezy, with unusual warmth. "Now, at the beginning of this week Omaha preferred started at 1062 and 105-"

"Omaha preferred?" asked Mrs. Breezy. Why is it preferred? Who preferred it? What has Omaha got to do with New York and Wall street, anyway, and what do you mean by 106½?"

"I shall have to give it up," said Mr. Breezy in a despairing voice.

"No, Mr. Breezy. I have started out to know something about Wall street, and I won't allow you to get out of it in that way," said Mrs. Breezy, setting herself more firmly in her chair. "Now, Mr. Breezy, you will please drop slang and come to something I can understand. For instance, what is a bull

"Ho, ha, ha-oh!" laughed Mr. Breezy. "What do you mean by laughing at me,

Mr. Breezy? I'm sure I—' "Ho, ho, ha-oh!" and Mr. Breezy fairly doubled up with laughter.

"Mr. Breezy, you haven't the manners of a savage," cried Mrs. Breezy, pushing back her hair, "and I don't believe you know any more about Wall street than a two weeks' old baby," and Mrs. Breezy made Hazael time to the kitchen to take revenge upon the cook. -Brooklyn Eagle.

Be Careful How You Talk.

Many years ago, in Milwaukee, there was a large grocery house, where there was a salesman employed (now a wholesale grocer in this city) who adopted and used all the slang phrases as they came along.

One day a man went into the store, and taking out a long list of groceries needed, asked of the salesman, "have you got any good sugar?" Salesman said: "We haven't exist in the several machines in the manner got anything else;" (the slang phrase then in vogue.) The man bought and paid for five barrels of sugar, and went outsaying he would be in again and take them.

In about an hour he drove up, and meetan opportunity of judging of their merits, but ing the salesman, who noticed several chests under any circumstances it is safe to say that of tea, etc., on his wagon, was asked, "Why didn't you let me sell you, your tea?"

"Why," said the man, "when I asked you if you'd got good sugar, you said you "hadn't anything else," and I supposed that sugar was all you kept."

Slang phrases have not been in favor with that grocer since that time.

This reminds us of another grocer, at Fox Lake, whose "front name" was Peter. While standing at his door he was accosted by a farmer, "Have you got any salt, Peter?"

"No," said the grocer.

Along towards night the granger was seen driving by with several barrels of salt on his wagon, when the grocer asked, "Why didn't

"I asked you if you had any," said the granger, "and you said no, and I drove over to Beaver Dam to get it."

"Confound it," said the grocer, "I thought you asked me if I had any saltpetre."

A Chattanooga letter says: Already there is invested here over \$3,000,000 in manufacturing enterprises, over \$2,000,000 of which is in iron interests. One company alone, the Roane Iron Company, has a paid up capital of \$1,000,000, and I understand money is every day seeking investment here. To give an 'Why don't you talk United States—I mean idea how much values have increased here, in 1871 there was \$3,600,000 worth of property and in 1881 it swelled to \$6,500,000, or about 100 per cent. In 1882 the assessed value will be over \$7,000,000. In the manufactories there are employed over 3,000 hands, the Roane Iron Company paying one-fourth of these, or 800 in all.

A Legal Decision.

Millers who were engaged in manufacturing flour, mixing for the purpose red and white wheat, and who had wheat in store for the purpose, and were receiving wheat in store for others and issuing warehouse receipts therefor, applied to a bank for a loan, and were allowed the loan on condition of their giving a warehouse receipt for 18,000 bushels No. 1 white winter wheat and No. 2 red, the same or an equivalent in flour to be held for the bank as security for the payment of a note of \$20,000. The millers subsequently failed in business, having put a fraudulent mortgagee in possession and the bank replevied from him such wheat as was found in store-3,000 bushels No. 1 white winter-and took flour manufactured from the wheat in store for the remainder. Upon these facts the Supreme Court of Michigan held: 1. That a warehouse-man could make a valid pledge of grain in store by issuing a receipt therefor, without the ceremony of making actual delivery of the grain. 2. That the pledge in this case was not invalid because of its specifying two kinds of wheat, but that the pledge was entitled to take an equal amount of each kind. 3. That, not finding the requisite amount of wheat, the bank might legally take an equivalent from the flour, as they did.

Items of Interest.

Washington County, Pennsylvania, is said to be largest wool-growing county in the Union, and to produce annually 2,500,000 to 3,000,000 pounds of wool, worth in cash \$1,000,000.

THE Northern Pacific is now built through Oregon into Idaho, and nearly 300 miles west of Bismarck, leaving a gap of 600 miles to complete the road. The company have used up \$20,000,000, and called another \$1,000,000 from their subscribers.

STRIKES are not, as a rule, successful. The statistics reported by the Bureau of Labor of Massachusetts, show that, out of 159 strikes, only 18 were entirely successful; 109 were unsuccessful; 16 were compromised and 6 were declared to be partly successful.

COLUMBUS, Ga., has now in operation seven cotton mills, containing 2,000 looms and 60,000 spindles, employing 3,000 hands, consuming 20,000 bales of cotton, with a capital of \$1,983,500, annually producing \$2,181,850. As a consequence, Columbus is growing rapidly and is one of the most thrifty inland cities in the South.

THE New Zealanders are seriously exor cised because of the myriads of rabbits which are eating up colony farm products and threaten an entire devastation. Cats are found to be their most effective destroyers and are trained and used by the professional rabbiters, but the supply is limited, there being but few available ones.

THE enlargement of the Welland Canal, commenced in 1872, is very nearly completed. It is a work of great magnitude and loosens the hull proper, so that it may be revast usefulness, and when finished will have cost thirteen million dollars. All that yet remains is the finishing of the aqueduct which is being constructed over the Chippewa, at Welland, at a cost of one million. Prior to the enlargement, the capacity of the canal was for vessels not exceeding five hundred It depends on the property of soap solution tons; it will now have a capacity for those of being decomposed by acids, and being transone thousand tons. The twenty-six locks formed into fatty acids which are insoluble in connecting Lakes Ontario and Erie are each two hundred and seventy-five feet long and a solution containing from $2\frac{1}{2}$ to 5 per cent. forty-five feet wide with lifts of fourteen more soap dissolved in water. The tannic

EDWARD WILLIS, a Sudbury (Mass.) miller, has at the present time a seven-toed cat, which is rearing two seven-toed kittens of her acids, and renders the leather perfectly imown, three red or "ferret" squirrels, and a raccoon. They are all together, and the cat regularly nurses the entire lot, manifesting just as much affection and anxiety the welfare of the squirrels and the raccoon as she does for her own offspring. The squirrels, which are about five weeks old, regularly leave the cat and go to the edge of the woodland to frolic, and as regularly return to the it well in a weak solution composed of warm house of Mr. Willis to go to sleep with the cat. The family is a happy one and is per-

cal schools in Germany, chairs of "Electro- to separate and become soft like silk. After devoted to theoretical principles, the most to touch up highly-polished surfaces, it is freimportant measuring instruments and meas- quently observed to scratch the work; this is Company; capital, \$15,000,000.

urement, electrolysis, illumination and trans- caused by particles of dust, and even hard mission of force, and a second to telegraphy rouge, that are left in the leather, and if re-(including railway signaling and telephone moved by a clear rouge brush it will then matters). Practical exercises will follow up give the brightest and best finish, which all the lectures. In 1876 a professor of tele-good workmen like to see on their work. graphy was appointed in the Dresden Polytechnikum.

have heard a charming story, illustrative wash yellow with copperas and covering the of the wonderful intelligence of some horses. One evening the officer on guard hearing a noise in the stables, concluded copperas and scatter in the corner of the that a horse must have got loose. He floor. The result was a perfect stampede of therefore went with a corporal of the guard, and, looking through a keyhole, of either rats or mice has been heard around saw an old troop-horse lifting up the lid of the house. Every spring a coat of yellow the corn bin and munching away at the oats. The officer rattled the door by mistake. The old charger instantly cocked his ears, stole back to his stall, artfully slipped his head back into his halter, and awaited events as if nothing had happened. Seeing this, the officer and corporal, pretending to be deceived, after looking around the stables, went out up everything eatable in the cellar and in the again. So soon, however, as the horse heard the lock turned upon them, he slipped his halter and attacked the corn bin again. Afthis the crafty old warrior was firmly secured. -London Figaro.

Things Worth Knowing.

Graphite paint has lately been put to a new use. It has been applied to iron to protect it against the corrosive action of the sulphurous acid fumes which are so destructive experiment was so successful that the corrugated iron roofs of the Colorado Smelting Works in Denver have been coated with it.

A WEALTHY land owner in the Tyrol has made an application of the microphone to the detection of subterranean springs. He fixed the microphones at the spots where he supposed water might exist, each being conat night, he puts his ear to each of the instruments and listened for the murmuring of the waters-and in several cases heard it.

BLACK walnut can now be manufactured very cheaply. One part of walnut peel extract is mixed with six parts of water, and the wood is coated with the solution. When on it, and then your walnut is ready. Furniture dealers have been known to make excellent walnut from very poor pine, but the difference was slightly perceptible; however, this method is said to defy detection.

A MODE OF HULLING WHEAT .- A Swiss process of removing the bran of wheat without loss of nutritive matter, consists in moistening the wheat before grinding with a solution of caustic soda in water. The solution is prepared by dissolving six and two-thirds pounds of caustic soda in one hundred and thirty-eight pounds of water. The steeping may be from fifteen to twenty minutes, and may be done in vats similar to those used by brewers. The caustic solution swells and moved by the slightest friction, leaving the gluten with the body of the grain.

IMPERMEABLE LEATHER.—The following process for rendering leather impermeable. says the Manchester Mechanical World, is given by Mr. Jacques, of Hemning, near Sarrebourg, water. The leather is dipped before using in acid contained in the leather, more or less, according to the method of tanning, transforms the soap solution into insoluble fatty permeable.

Many work-shops contain a dirty washleather, which is thrown aside and wasted for the want of knowing how to clean it. Make a solution of weak soda and warm water; rub plenty ef soap into the leather, and allow it to remain in soak for two hours; then rub it well until it is quite clean. Afterwards rinse water, soda and yellow soap. It must not be rinsed in water only, for then it would be so feetly at home with strangers who call to see it. hard when dry as to be unfit for use. It is In a recent lecture in Berlin, Dr. Werner the small quantity of soap left in the leather

To EVICT RATS.—A writer in the Scientific American says: "We clean our premises of SLY OLD HORSE.—Anent "The Blues," I the detestable vermin, rats, by making whitestone and rafters with it. In every crevice in which a rat may go we put the crystals of the rats and mice. Since that time not a footfall wash is given the cellar as a purifier, as a rat exterminator, and no typhoid, dysentery, or fever attacks the family. Many persons deliberately attract all the rats in the neighborhood by leaving the fruits and vegetables uncovered in the cellar, and sometimes even the soap is left open for their regalement. Cover pantry, and you will soon starve them out. These precautions, joined to the services of a good cat, will prove as good a rat exterminator as the chemist can provide. We never allow rats to be poisoned in our dwelling. They are so apt to die between the walls and produce annoyance."

FIREPROOF PAINT.—Some experiments, says the London (Eng.) Timber Trades Journal. were recently shown at the offices of the United Asbestos Co., in the presence of the Lord in metallurgical works. The result of the Chamberlain and others. The Abestos was prepared as a paint, with which wood, canvas, and gauze net were coated, and various specimens were submitted to the action of fire and strong flame, but in no case was ignition effected. Among other experiments, a piece of light pine wood, about six inches long by four inches square, painted with five coats, was placed for upwards of half an hour nected with its telephone and battery. Then in an ordinary grate fire; but although the wood within was reduced to charcoal there was no blaze whatever emitted during the charring. In the yard of the premises a small model theatre, built of wood, was sprinkled with turpentine and set light to. Every portion ignited, and the whole consumed. A similar model, with the scenes the material is about half dry a solution of and the wood framing all painted with Asbesbi-chromate of potash with water is rubbed tos, was drenched with turpentine and set fire to, but the thin scenes were only partially charred at the lower ends with the turpentine flames, while the timbering was not even ignited. Similar experiments were made with two models of large size and with similar results. The process is now being applied to the whole of the woodwork on the great stage of the Crystal Palace.

> CONSUMPTION OF BOXES IN CALIFORNIA.—It looks, says the Reno Gazette, as if the consumption of boxes on the Pacific coast would continue to increase and the manufacture of them become one of the greatest industries in the country. There is already a vast amount of packing going on, and it must increase rapidly for many years, for the resources of the coast are not one-tenth part developed. The whole East is open to the California producer of grapes, apples, pears and small fruits, while the whole world is drawing on her for salmon, canned goods, borax and other staples. Nevada, Utah, Col-Texas send for greens and vegetables every day in the year nearly, and they all have to be boxed. All this time great vineyards are being planted to grapes, the foothills are being cleared and orchards set out, the rivers are being stocked with salmon and trout, borax beds are being opened up in Nevada, soda is being shipped to San Francisco by the car-load, to be refined and canned, the sugar trade is growing, manufactures are increasing; and they are all shipped in wood. The outlook is a grand one, and it should stimulate the manufacturers to make preparations for working cheaply and to advantage The present way of turning out boxes is very extravrgant.

Foreign Items.

DURING the year 1881 there were granted, in Germany, 4,399 patents.

An English and Canadian syndicate, of which the Duke of Manchester is the head. Siemens expressed a wish that in all techni- that allows the finer particles of the leather has purchased of the Canada Pacific Railroad 5,000,000 acres of land of sections running technik" might be instituted for instruction rinsing, wring it well in a rough towel and dry from Brandon to the eastern boundary of of youth in electricity and its applications. quickly; then pull it about and brush it well, British Columbia, with an interest in all the This has now been realized in the Technical and it will become softer and better than town sites laid out by the railway company. High School at Stuttgart. One term will be most new leathers. In using a rough leather The price is \$2.70 per acre. The scheme will be called the Canadian Northwest Land

"BEST IN THE WORLD."

GARDEN CITY



Gathmann's patent "inclined bristles" prevents all clogging when the brushes are run close together. This is the

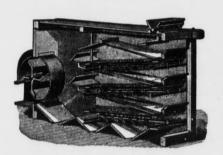
ONLY DOUBLE BRUSH

Which can be set up close so that it will

Thoroughly Brush Wheat. Guaranteed to IMPROVE COLOR of the FLOUR.

It don't break or scratch the grain. Removes all the dust. Very light running. Send for circular and prices.

Prices Reduced! Improved Garden City



With Travelling Cloth Cleaners

Our improved Purifier has every device requisite to make it perfect, and every one in use is giving the greatest satisfaction to the users. The Cloth Cleaners are guaranorada, Wyoming, Arizona, New Mexico and teed to clean the cloth better than is done on any other purifier. Send for our new circular.

Over 4000 Garden City Purifiers in use, nearly 500 of which are the Improved Machine.

The Best and now the Cheapest. Write for circulars and price list.

We are agents for the

BODMER **Bolting Cloth!**

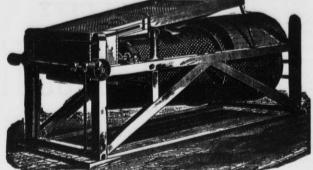
Which has long been acknowledged as the best made, and which has lately been further improved, making it now beyond competition. We make it up in the best style at short notice. Send for prices and samples.

Garden City Mill Furnishing Company.

CHICAGO, ILL. [Mention this paper when you write us.]

COCKLE SEPARATOR MANUFACTURING COMPANY, MILWAUKEE.

GENERAL MILL FURNISHERS



COCKLE SEPARATORS **IMPROVED**

(Kurth's Patent,) Also built in combination with

Richardson's Dustless Wheat Separators!

Also Sole Manufacturer of BEARDSLEE'S PAT. GRAIN CLEANER.

We will contract to furnish entire Wheat Cleaning Machinery for mills, and guarantee the best results.

Perforated Zinc at Bottom Figures.

Send for Illustrated Catalogue.



WILLIAM LISTMAN. Milwaukee, Wis., Aug. 23, 1881.

Cockle Separator Mfg. Co. Gentlemen:-The Beardslee's Grain

any other cleaners, and consider our Cleaners which we have purchased wheat as well cleaned as any in Minne-from you for our New Era and Milwaukee Mills give us the best of satisfaction. Experienced millers having seen the work done by the machine agree with us, that it cannot be beat. You are at liberty to use our names as a reference, and to any party calling on us we will be pleased to show the machine in operation, Yours truly,

NEW ERA MILLING CO.

BEARDSLEE'S WHEAT CLEANER.



Carbondale, Ill., Dec. 2, 1881.

Cockle Separator Mfg. Co., Milwaukee.

Gentlemen:—Replying to your late favor, would say that we can cheerfully recommend your Cockle Separator as doing all that you claim for it. We summer, works to my entire satisfaction.

Yours respectfully.

Perrysville, Ind., Nov. 24, 1881.

Cockle Separator Mfg. Co., Milwaukee.

Gentlemen:—Replying to your late favor, would say that the recommend your Cockle Separator as combined machine I bought of you last doing all that you claim for it. We summer, works to my entire satisfaction.

W. T. PRICE, per D. G. THOMAS.

P. S—I have been milling now for the stime and know whereof we speak.

Yours respectfully.

Perrysville, Ind., Nov. 24, 1881.

Cockle Separator Mfg. Co., Milwaukee.

Respectfully yours, we have been using two of Beards—to we have been using two years, and are passing one hundred and fifty bushels per hour through them, one third more than rated capacity, and are not using two yours in cleaning wheat.

P. S—I have been milling now for twenty-seven years, but never have I seen anything that will equal yours in cleaning wheat.

A Vours truly.

Cockle Separator Mfg. Co., Milwaukee.

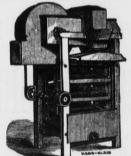
Gentlemen:—Replying to your late favor, would say that the weaks of the 28th inst., I would say that the 2

Gentlemen: — The Beardslee Grain we will be ple Cleaner sent me about the middle of in operation,

Pott's Patent Automatic Feeder! The best device for regulating the FEED ON ROLLER MILLS, PURIFIERS, and other machines requiring a regular feed, spread out the full width. Very cheap and simple. Sent on trial upon application. Write for circulars with illustrations. Perforated Zinc of all sizes at low rates. Send for Illustrated Catalogue.

HOWES, BABCOCK & EWELL

Silver Creek, Chautauqua County, New York, U.S. A. Established 1856. MANUFACTURERS OF THE WORLD-RENOWNED EUREKA GRAIN CLEANING MACHINERY AND SPECIALTIES HEREWITH ILLUSTRATED



The Eureka Separator occupies but little space, does its work in an effectual manner. Is also built for use in Ele-vators and Warehouses, with a capacity of from 100 to 1,000 bashels per hour.

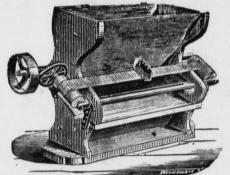
Machine,

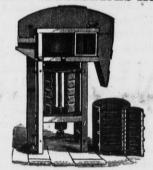
Machine,

A combined Smut and Separating Machine. having thorough ventilation. Over 14,000 of these Machines are now in use.



The Eureka Smut and Separating Machine,





Eureka Brush Finishing Machine Eureka Magnetic Automatic Separator.

Removes all metallic particles from a flowing stream of grain, requiring no attention from the miller. 5 sizes.

TIMO OLOTATO EVENT (CO. D. 1971)



Silver Creek Flour Packer. will pack whole and half barrels, and half, quarter, eighth and sixteenth barrel sacks. Provided with labor-sav-ing patent creveling steel coil spring regulating the packing to perfection.

GENUINE DUFOUR AND ANCHOR BRAND BOLTING CLOTHS, FULL STOCK ALWAYS ON HAND, MADE UP BY THE AID OF OUR OWN PATENTED ATTACHMENTS, IN A SUPERIOR MANNER.

Gen. Agency for Australian Colonies & New Zealand, THOS. TYSON, MELBOURNE, VICTORIA.

Abernethey's New Book.

PRACTICAL HINTS

Mill Building

The Latest, Best and Only Exclusively Flour Mill Work in Print.

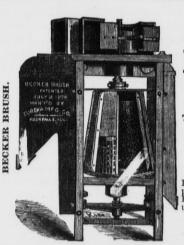
Every Miller, Millwright and Millwright's Apprentice should have a copy.

THE UNITED STATES MILLER for one year and a copy of this book will be sent for \$4 00, Address,

[Mention this paper when you write us.

UNITED STATES MILLER

Milwaukee, Wis.



EUREKA MANUFACTURING CO.,

Manufacturers and Sole Proprietors of the

BECKER BRUSH,

Galt's Combined Smut and Brush Machine.

The Only Practical Cone-Shaped Machines in the Market, and for that Reason the Best.

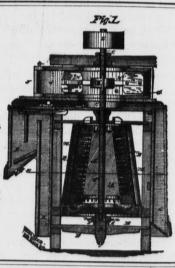
ADJUSTABLE WHILE IN MOTION.

Nearly 1,000 of these Machines in Use.

In the United States and foreign countries, and so far as we know all that use them are pleased. Millers, millwrights, and milling experts claim the Cone Shape Solid Cylinder Brush is the true principle to properly clean grain. All machines sent on trial, the users to be the judges of the work. For price and terms apply to

EUREKA MANF'G CO., ROCK FALLS, ILL., U. S. A.

[Mention this paper when you write.]



HARRIS-CORLISS ENGINE.

WM. A. HARRIS, Providence, R. I.

Built under their original patents until their expiration. Improvements since added: "STOP MOTION ON REGULATOR," prevents engine from running away; "SELF-PACKING VALVE STEMS" (two patents), dispenses with tour stuffing boxes; "RECESSED VALVE SEATS" prevent the wearing of shoulders on seats, and remedying a troublesome defect in other Corliss Engines, "BABBITT & HARRIS' PISTON PACKING" (two patents). "DRIP COLLECTING DEVICES" (one patent). Also in "General Construction" and "Superior Workmanship."

The BEST and MOST WORKMANLIKE form of the Corliss Engine now in the market, sub-

stantially built, of the best materials, and in both Coudensing and Non-Condensing forms.

The Condensing Engine will save from 25 to 35 per cent. of fuel, or add a like amount to the power and consume no more fuel. Small parts are made in quantities and inter-changeable, and kept in stock, for the convenience of repairs and to be placed on new work ordered at short notice.

NO OTHER engine builder has authority to state that he can furnish this engine.

The ONLY WORKS where this engine can be obtained are at PROVIDENCE, R. I., no outside parties being licensed.

parties being licensed.

WM. A. HARRIS, Proprietor.

A NEW PROCESS ROLLER MILL!

FOR SALE!

In the City of Milwaukee, known as the "City Mills." Capacity, 250 to 300 barrels per day. Has an established City and Shipping Trade. Mill now running. For further particulars, address,

ESTATE OF WM. C. DURANT,

"CITY MILLS," [Mention this Paper when you write.]

MILWAUKEE, WIS.



Vorks, CHESTER, PA.
[Mention this paper when you write us.]

FROM 1-4 to 10,000 LBS. WEIGHT.

True to pattern, sound and solid, of unequaled strength, toughness and durability. An invaluable substitute for forgings or cast iron requiring threefold strength. Gearing of all kinds, Shoes, Dies, Hammer-Heads, Cross-Heads, for Loco-

Gearing of all kinds, Shoes, Dies, Morels of this steel now running motives, etc.

15,000 Crank Shafts and 10,000 Gear Wheels of this steel now running prove its superiority over all other steel castings.

CRANK SHAFTS, CROSS-HEADS and GEARING, specialties.

Circulars and price list free.

CHESTER STEEL CASTINGS CO., 407 LIBERTY ST., PHILADELPHIA, U. S. A.

NEWS.

GEO. H. Corliss, of Providence, R. I., has recently furnished pumping engines for that city. BURNED .- B. E. Smith's mill, at Pott's Grove, Pa. Loss, \$14,000.

BURNED.-Henry Rodee's mill, at Ogdensburg, N. Y. Loss, \$65,000. Insurance, \$43,000. SCOTT, PENROSE & Co., have dissolved partnership. D. Scott continues the business.

FREDERICK H. PERRY, of Whitney's Point, is dead.

KLUMER & VOGES, of Evansville, Ind., dissolved; Fred. Voges continues.

Mrs. J. A. Ellis, of Grafton, Neb., has sold out her milling business to Welch & Price.

THE mill of Messrs. Hole & Fanger, at Celina, O., burned out. No insurance.

CRAIK & KROLL, Hawley, Minn., dissolved; Kroll continues.

HARVEY & Son's mill at Marion, Ind,, which our readers will remember as being recently destroyed by fire is about to be rebuilt. The machinery is to be furnished by the Nordyke & Marmon Co., of Indianapolis, Ind.

MESSRS. FISHER BROS'. mill, at Spencer, Ind., buint out; loss \$5000. Insured.

TENNESSEE winter wheat has already arrived in Milwaukee and is being ground into flour.

A LARGE roller mill is to be erected at Abilene, Kan. It will have a capacity of about 200 barrels per day.

THE KELLER PURIFIER Co., of Lima, O., will hereafter bé known as the LIMA MILL FURNISH-

THE firms owning the "Union" and "Sparta" flour mills, at Sparta, Ill., have consolidated under the name of Gordon, Barker & Co.

THE Keller Purifier Co., of Lima O., will hereafter be known as The Lima Mill Furnish-

Peleg Howland of the milling firm of P. & F. A. Howland, of i ambton Mills, Ontario, Canada, is dead.

E. A. Townley & Co., Monticello, Ill., have dissolved and are succeeded by S. H. Hubbell

Messrs. Cox, Bruner & Co., of Peo; ia, Ill., have disposed of their milling interests to J. W. Donmayer & Co.

THE milling firm of Smith & Jovey, of Hobart, Ind., have dissolved and are succeeded by Jovey & Ballentine.

THE firm of Barrett & Oglesby, of Dalton, Ga., is dissolved. The business will be carried on by Barrett, Denton & Lynn.

THE Home City Mills, at Toledo, O., owned by Vogel & Son, were entirely destroyed by fire June 23. Loss, \$37,500. Insurance, \$22.600.

THE Star Mills, owned by Messrs. Wells Bros. & Perkins, at Coffeyville, Kan., was burned June 8. Loss, \$6,000. Insurance, \$1,200.

That jolly miller, Sam. Robinson, of Sandersville, Ga., recently caught with his hook and line, in his mill pond, a cat-fish weighing fortyfive pounds.

Don't throw away your old flour barrels. They are useful. It has been found that an ordinary flour barrel will hold 678,900 silver dol-

MESSRS. WALSH, DE Roo & Co., have commenced the erection of a 175 barrel roller mill at Holland, Mich. It is furnished with a Reynolds-Corliss engine and the Gray Roller Mills.

L. R. Brown & Co., formerly of Stevensville, Mich., have found a desirable location at Spring Station, Ind., and will transfer their business to the latter place. The machinery for the new flouring mill is of the Nordyke & Marmon Co's make, at Indianapolis, Ind.

FOR SALE.

A Four-run Mill at Troy, Doniphan Co., Kansas, with Rolls and Purifier, plenty of steam power, and every-thing in good order for making first-class flour. For particulars address. D. M. PARKER, Troy, Doniphan Co., Kan.

A FACT.

I sell my flour in competition with the best St. Louis Mills, I get the same price. My Mill has made a net profit, since the harvest of 1881, of nearly 50 per cent. over the cost of the Mill.

AN OPINION.

I could not afford to do without the Slater Reels if I had to pay twenty-five dollars a month for the privilege of using each Reel in the mill. This is the statement of Mr. J. W. Buky, of Nicholasville, Ky.

C. B. SLATER & CO.

SLATER'S REELS.

Mt. Sterling, Ill. May 25, 1882 C. B. SLATER & CO.

Gents,-Since putting in your Chest my business has increased one-third. A Car of Flour shipped to St. Louis last week graded next to the highest.

Respectfully yours,

R. H. ROSS.

Mr. Ross' Flour being a straight grade puts it away ahead of lots of Patents and Roller Mill Fleur. No other change was made in the Mill.

Correspondence solicited. Respectfully yours,

C. B. SLATER & CO.

Milwaukee Steam Engine Works.

Improved Corliss Engine

Slide Valve Engines, with Latest Improvements.

MANUFACTURED BY-

WEISEL & VILTER

Milwaukee, Wis.

Don't order your Cloth until you have

conferred with us; it will pay you both in point of quality and price. We are prepared with special facilities for this work. Write Address, us before you order.

CASE MFG. CO.,

Office # Factory; Columbus, Ohio. Fifth St., North of Waughten.

Birge & Smith.

PLANS, SPECIFICATIONS & ESTIMATES

MADE FOR ALL KINDS OF

MILLWORK, MACHINERY, ETC.

Flour, Sawmill, Tanners' and Brewers' Machinery, and General Mill Furnishers,

Corner of East Water and Knapp Sts., MILWAUKEE, - - - WISCONSIN.

[Mention this paper when you write us

BOLTING CLOTH Important Letter to Millers.



Let it not be forgotten that we keep a very large stock of the genuine Dufour Bolting Cloth always on hand, and to get the genuine article. In addition to this we keep conaddition to this we keep con-

This Cut was taken from a Corliss, 12 inch Diameter, 36 inch Stroke.

stantly on hand a large stock of Dutch Anchor Cloth, which we import direct from the manufacturers, in Switzerland, and is not sold by country. This we warrant to be equal to, and even superior, to any other brand in the market, except Dufour. We know what we say reel in the best manner possible, by the use of our Patent Attachments, using the best of Ticking and Silk Twist. Please write us for prices, discounts, and samples of cloth and making, before purchasing elsewhere. Address,

> HOWES, BABCOCK & EWELL, Silver Creek, N. Y.

We wish to call your attention to a few facts in regard to the

ODELL ROLLER MILL

FIRST. This Mill is driven by an entirely new noiseless belt drive, (using no counter shafts), and being so arranged as to be instantly started and those who order that brand stopped without throwing off the belt. It differs entirely from any other from us will always be sure drive, infringes nobody's patent, and is the invention of Mr. U. H. Odell. IT IS COVERED BY BOTTOM PATENTS, AND CAN BE USED ON NO OTHER MACHINE.

> SECOND. Our device for spreading the rolls apart is superior to all others, and we were the first manufacturers to connect the feed gates with the roll spreading mechanism. Our patents broadly cover devices for spreading the rolls and simultaneously shutting off the feed.

THIRD. We are aware that some manufacturers, recognizing the great value of these devices, are striving to copy them, and adopt them on their mills, and WE HEREBY WARN MILLERS AT THIS EARLY DAY, any other dealers in Bolting Cloths in this THAT ANY MILL WHICH HAS LEVER OR GEAR DEVICES FOR SPREADING THE ROLLS, AND AT THE SAME TIME SHUTTING OFF THE FEED, IS INFRINCING OUR PATENTS. The same is TRUE WITH REGARD TO OUR TIGHTENERS FOR STARTING AND STOP-PING THE MILL WITHOUT THROWING OFF THE BELT. NOW WE HAVE THE SOLE RIGHT TO MANUFACTURE AND USE THESE DE-VICES, AND WE INTEND TO FULLY PROTECT OURSELVES; AND in this regard. Cloths made up ready for the we take this opportunity to put millers on their guard AGAINST BUYING MACHINES WITH THESE ADJUSTMENTS OF ANY BODY, UNLESS THE MACHINES ARE THE ODELL ROLLER MILLS, MANUFACTURED BY US.

> We are prepared to fill orders for these Mills promptly, and guarantee them to be of the very best material and workmanship.

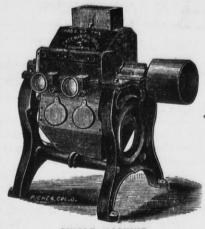
> Millers buying the Odell Rolls are SECURE FROM ANY INFRINGE-MENT. On the front page of this paper is a cut of this Mill, which please examine carefully.

Very Respectfully yours,

STILWELL & BIERCE MF'G. CO.,

Dayton, Ohio.

The Case Break Machines.



SINGLE MACHINE. Capacity, 5 to 60 Bushels per hour.

Milwaukee, Wis., March 29, 1882.

CASE MANUFACTURING CO., Columbus, O.: Dear Sirs,—They excel our most sanguine expectations. After a trial of about three months we are highly pleased with their work, their capacity, and small amount of power required to drive them. If these Machines work as well on the other breaks as upon the first, they will prove a great acquisition to the list of Improved Milling Machinery.

S. H. SEAMANS & CO.

(Mr. S. is Secretary of the Millers' National Association.)

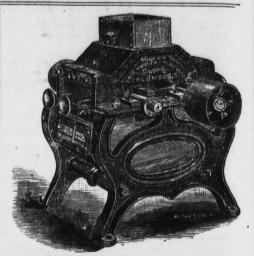
Marietta, Ga., April 1, 1881.

THE CASE MANUFACTURING CO., Columbus, O.:

Dear Sirs,-I find in my travels the "Little Giant" is the best Machine for 1st, 2nd and 3rd break reductions of any Rolls or Disk Machines I saw on the market, and I have determined to adopt them. Please quote me prices, and also on your No. 3 Double Purifier. The Little Giant is ahead of them all, and no mistake.

Yours Truly,

T. H. CHEEK, Supt., Kenesaw Mill Co.



Double Machine—Capacity, 120 Bushels per hour

E HILLE GIANT

THE FRONT.

It has been running successfully for more than a year in some of the best Mills, doing better work than the Rolls or any other system. It produces more Middlings, less Break Flour, and runs with less power than any Break Machine in use. We have a number of mills now running on our entire system with splendid results. MANY ROLLER MILLS ARE PUTTING OUR FIRST BREAK AHEAD OF THEIR ROLLS. The "Little Giant" splits almost every grain through the seam, and makes ONLY ONE BARREL OF BREAK FLOUR IN THREE HUNDRED BARRELS.

TO ROLLER MILL MEN WE WOULD SAY:

Write us for particulars and OUR VERY LOW PRICE LIST as compared with Rolls. Below we name a few of the many that are using our Machines:

ROOTS & CO., Cincinnati, Ohio. KENESAW MILL COMPANY, Marietta, Georgia. WM. BROWNLEE, Irvington, Illinois.

D. B. SEARS' SONS, Rock Island. Illinois.

GOLDEN AGE MILL CO., San Francisco, California

LOS GATOS MANUFACTURING CO., Los Gatos, California. TEXAS STAR MILLS, Galveston, Texas.

WEAR. LEE & CO., Belton, Texas.

W. B. GORTON, Lima, Ohio.

J. B. HICKS & CO., La Grange., Ohio.

J. B. MILLER & CO., Ashley, Ohio.

S. H. SEAMANS & CO., Milwaukee, Wisconsin.

J. H. LAUDIS, Yerks, Pennsylvania.

We are also manufacturing CORRUGATED ROLLS for the Fourth, Fifth and Sixth Breaks. Our Combined system being superior to anything now in use. We also make a splendid SMOOTH Roll for germ and sizing. All our Rolls have an Automatic Feed, and many other valuable points.

HE CASE MIDDLINGS PURIFIER

A-The Fan Spout is reversible-is made to blow toward either end of Purifier.

The Fan can be placed on top or end of Purifier-when on end it increases the length 39 inches, and diminishes the height 22 inches.

B-Air-valve upper Riddle.

C—Cut-off for upper Riddle, sliding one-half the length of Riddle.

D-Air-valve, lower Riddle.

E-Upper Riddle tails off here.

F-Lower Riddle tails off here.

G-Cut-off for lower Riddle, sliding one-half the length of Riddle.

The Purifier is driven from this end of Fan Shaft, unless otherwise or-Nº I. DOUBLES

H-Feed Box for upper Riddle.

I-Bolting Cloth for upper Riddle.

-Purified Middlings from upper

L-Cut-off from upper Riddle.

M-Feed Box for lower Riddle.

N-Bolting Cloth for lower Riddle.

O-Purified Middlings from lower

-Cut-off from lower Riddle.

The upper and lower halves are each complete machine, and can be run together, or separately, as desired.

Doing more and better work than any other, giving Double the Capacity, costing less, and runs without jar or noise. It is the ONLY DOUBLE PURIFIER, and has many new and valuable points, which we have covered with Patents. Can fill orders promptly. Address

OFFICE AND FACTORY,

5th Street, North of Naughten.

[Please mention the United States Miller when you write to us.]

CASE MANUFACTURING

E. P. Bacon & Co.,

Room 23 Chamber of Commerce,

MILWAUKEE.

L. Everingham & Co.,

No. 125 LaSalle Street,

CHICAGO.

COMMISSION MERCHANTS

GRAIN, SEEDS, PROVISIONS,

Special Attention given to the Purchase and Shipment of Crain for Milling Purposes.

We have an experienced man in attendance at each elevator constantly, to see to the inspection of grain when loaded into cars for shipment, and the interests of parties ordering through us will be carefully protected in every way.

Orders for Purchase and Sale of Grain for Future Delivery will be Promptly and Carefully Executed.

Mention this paper when you write us.]

A NEW DEPARTURE

We are the Sole and Exclusive Licensees for this Country under the

MORRTIZ MARTIN PATENTS

CENTRIFICAL FLOIR DRESSING

And we are now prepared to fill orders for machines with latest improvements, which include

OUR NEW DOUBLE COVEYORS,

NEW CLOTH FIXING AND STRETCHING DEVICE. NEW AND SIMPLIFIED MANNER OF DRIVING.

THE CENTRIFUGAL has more than FOUR TIMES the capacity of the ordinary reel, and will mae clear flour and a clean finish on stock that cannot be treated in the common reel without loss, no matter how much sil it is passed over.

IT IS SPECIALLY ADAPTED to handling soft, reground material, full of light impurities, whether from rolls or stone. IT IS INDISPENSABLE to a CLOSE FINISH in any system of gradual reduction milling, and will improve the quality of the low grade flour at the same time it makes the offal cleaner

IT MAKES A CLEAN SEPARATION on caed and flay meal from smooth rowhich no other style of reel can do IT IS VASTLY SUPERIOR to the common reel for dusting middlings.

THEY CAN BE USED TO ADVANTAGE as a complete system of bolting, to the exclusion of the ordinary reel.

Over one Hundred sold in six weeks.

REFERENCE TO LEADING MILLERS IN THE UNITED SATES.

Write for descriptive circular and price list to

GEO. T. SMITH MIDDLINGS PURIFIER CO., - Jackson, Michigan

[Mention the United States Miller when you write.]

John H. Miller.

MANUFACTURER OF

MILLER'S COMPOSITION



PETERSBURGH, PA.

PETERSBURGH, PA.

The Best, Cheapest, and Most-Durable Rubber in the Market, USED DRY. Will outwear any Rubber made in the world, and retain its cutting qualities until entirely worn out.

FACE RUBBER, 12x6x3 inches; weight 12 lbs; price, \$3,00. FURROW RUBBER, 12x6x1\(\frac{1}{2}\), 1\(\frac{1}{2}\), 1\(\frac{1}{2}\), and 2 inches, as required, \$2.50; or both for \$5,00, by \(\text{Lxpess}\). Furrow Gauges and Staff \$1 25 per set, by mail Send for circulars, testimonials &c. Address all orders as above.

N. B.—This Rubber will not wear a pair of Buhrs out of existence in 15 minutes. But if used in connection with the Pick and Red Staff will leave the face and Furrows in the best possible condition for making good work. For cleansing the face of Glazing, it has no equal. Try it and be convinced. Money refunded if not satisfactory.

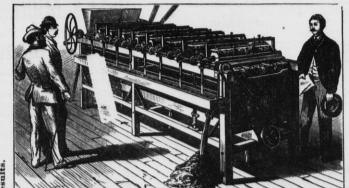
Steam Flouring Mill For Sale.

On account of owner's death. Four acres of land with the mill with 4000 grape vines and orchard. Mill has three run of buhrs It is three stories high and has good stone basement; built six years ago. Mill now has a good Custom trade and is also adapted to Merchant milling. Plenty of grain raised in the vicinity with large demand for feed stuffs. A modern built frame house and barn in good order on the premises. Situated 3½ miles from Allegheny, only ¼ mile from city line Terms: Half cash, balance on time to suit purchaser. Address

MRS. JNO. KNOEDLER,

West View, Allegheny Co., Pa.

NEW YORK OFFICE, I7 MOORE ST.



Circulars, Samples, and all Info: mation desired will be sent out from the New York Office on Application.

JOHN RICE, General Manager,

GEORGE G. SMITH, San Francisco,

JAMES E. LOOMIS, Gen, Western Agent, St. Louis, Mo. 17 Moore Street, New York. Manufacturer and Agent for Pacific Coast.

5 ~ 6 6 6 6 6 6 6 5 5 5 5 5

MANSFIELD, OHIO,

Plans and Specifications for Mills of any Capacity.

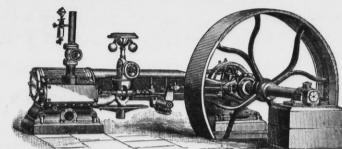
ON THE STEVENS SYSTEM ROLLER MILLS

BOLTING CLOTH of the Best Brands at Importers' Prices. Water Wheels, Purifiers, Cleaning Machinery, Reels, Belting,

Everything used in a Flour Mill, AT THE LOWEST PRICES. If you want anything for you Mill, write first to me.

ELECTRIC PURIFIER CO. WOODBURY, BOOTH & PRYOR

ROCHESTER, N. Y.,



Manufacturers of

Automatic Cut-Off, Fixed Cut-Off, and Slide Valve

Engines, Tubular Boilers.

[Mention this paper when you write.]

VOECHTING, SHAPE & CO.,

SOLE BOTTLERS OF

JOSEPH SCHLITZ BREWING COMPANY'S

CELEBRATED MILWAUKEE LAGER BEER

- - WISCONSIN

BOTTLERS' SUPPLIES CONSTANTLY ON HAND.

Parties corresponding will please state where they saw this advertisement.]



The Geo. T. Smith Middlings Purifier.

LOW IN PRICE.

Quantity and Quality of Work Considered.

Licensed Under all Patents

Owned by the Consolidated Middlings Purifier Company.

Simple, Easily Adjusted,

For the more complete protection of our customers, and to put an end at once and forever to the demands for royalties by which they have recently been annoyed we have purchased ALL PATENTS relating to Purifiers, lately owned by Huntley, Holcomb & Heine, including the well-known MIDDLETON PATENT and its several re-issues.

Every purchaser or owner of a Geo. T. Smith Purifier, in the past or future, owns the right to use it unmolested and unchallenged, and in this right we have, can and shall protect them.

Intending purchasers should give this notice attention, as it is of the utmost importance to

Adapted to all Systems

Of Milling, and every Grade and Condition of Middlings.

FOURTEEN SIZES

Single, Double and Special Machines.

Durable, Light Running.

Two Thousand SMITH PURIFIERS ware Sold in 1881. Brokers & Factors

THE SMITH PURIFIER is in Use in every Milling Country in the World. More than Four Thousand are now running in the United States.

The Smith Purifier has a Positive and Effective Means of Cleaning the Silk of the Sieve. The Smith Purifier has Graded, Controllable Air Currents. It is Impossible to do Good and Economical Work without these Features.

OUR CLOTH TIGHTENER

OUR AUTOMATIC FEED

Makes it both convenient and easy to keep the Silk always properly stretched. IS POSITIVELY SELF-ADJUSTING AND RELIABLE.

WRITE FOR DESCRIPTIVE PRICE LIST AND CIRCULAR TO

GEO. T. SMITH MIDDLINGS PURIFIER CO., Jackson, Michigan

REDFIELD'S COMBINED ELEVATOR AND

Why these Purifiers are Such Favorites Wherever Introduced.

It is because they do better work.

Are more simple in construction, less subject to get out of order, and require less attention.

3. Are more durable, as they have fewer journals and wearing parts.
4. Require less power.
5. Sieves do not choke up, as soft substances in middlings are not permitted to come in contact with the sieve.

6. Are more readly adjusted to different kinds of middlings.
7. Are furnished for less money than others.
8. Last, but not least, by any means, they elevate their own middlings any height and distance necessary, thereby saving an expense, in setting up and starting, of from \$50 to \$150.

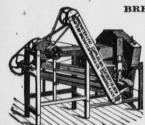
Right to use fully protected and guarantee given.

For circulars giving prices and full particulars, address

H. REDFIELD, Salem, Ind.

[Mention this paper when you write.]

Buckwheat Refiners & Portable Mills.



BREWSTER'S CELEBRATED | The Positive Adjustment Buckwheat Refiner

Is the only Machine whereby the greatest yields of PURE, WHITE, SHARP FLOUR can be obtained.

The only reliable, practi-al and durable Machine IN THE WORLD.

AND AUTOMATIC

Middlings Mill
Is strictly Self Protecting,
The BEST ADJUSTMENT
IN THE WORLD
And the only
PERFECT GRANULATOR,
GRINDS COOL SELF OILING.

GRINDS COOL, SELF OILING, GREAT SAVING OF POWER, SIMPLICITY AND Durability Combined.

Satisfaction Guaranteed on all our Goods. Send for descriptive Circular, giving Prices, Sizes, Terms, etc.

BREWSTER BROS. & CO., Unadilla, N. Y.

[Mention this paper when you write.]

"THE GREAT ROCK ISLAND ROUTE"

Calls your attention to the following REASONS WHY, if about to make a Journey to the GREAT WEST, you should travel over it:

As nearly absolute safety as is possible to be attained. Sure connections in Union Depots, at all important points. No change of cars between CHICAGO, KANAS CITY, LEAVENWORTH, ATCHISON OF COUNCIL HLUFFS, Christopher of the control of the control



That the unremitting care of the Chicago, Rock Island & Pacific Railway for the comfort of its patrons is appreciated, is attested by its constantly increasing business, and the fact that it is the favorite route with delegates and visitors to the great assemblages, political, religious, educational and benevolent, that assemble from time to time in the great cities of the United States, as well as tourists who seek the pleasantest lines of travel while en route to behold the wonderful scenes of Colorado, the Yellowstone and Yosemite. To accommodate those who desire to visit Colorado for health, pleasure or business, in the most auspicious time of the year, the Summer season and months of September and October, the Company every year puts on sale, May ist, at all coupon ticket offices in the United States and Canadas, round trip tickets to

DENVER, COLORADO SPRINGS AND PUEBLO,

Atreduced rates, good returning, until Cether 31st. Also to Supernocase and the control of the political states and the company control of the political states and canadas, round trip tickets to

At reduced rates, good returning, until October 31st. Also to San Francisco, for parties of ten or more, good for ninety days, at great reduction from regular fares.

ENEMEMENTER, this is the most direct route for all points WEST and SOUTHWEST. For further information, time-tables, maps or folders, call upon or address

R. R. CABLE, Vice-Pres't and Gen'l Man'gr, Chicago.

E. ST. JOHN, Gen'l Ticket and Pass'r Agent, Chicago.

J. J. BELL,

41 S. William St., New York,

Manufacturer and Importer of

MILLSTONES, BOLTING CLOTHS.

Mill Irons, Belting, Mill Picks, Iron Proof Staffs,

Smut Machines, Elevator Cups, and

Mill Furnishings in General.

AT Having been engaged in the manufacture of ESO-PUS MILLSTONES, CHASERS, &c., for the past 30 years, I am prepared to fill all orders not only at the lowest price, but the best qualities for the purpose intended. (Mention this paper when you write.)

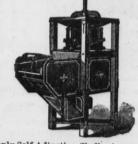
TRIUMPH PUWER CORN SHELLER.



Shells and Cleans 2,000 Bushels Ears per Day. The Cheapest, Best, and most Simple Power Corn Sheller in use. Send for Circular and Price List. Manufacturers of Steam Engines, Mill Builders and Mill Furnishers.

HULBERT & PAIGE MFG. CO., Painesville, Ohio. [Mention this paper when you write us.]

MARSHALL'S



The only Self-Adjusting Sheller in use that will

SHELL MIXED CORN,

FAST AND WELL,

And that will clean it THOROUGHLY. Easy of access to all parts liable to clog. Thoroughly lade. Sold as cheap as the cheapest. Send for circulars to

G. MARSHALL & SON,

Founders and Machinists and Manufacturers of Marshall's Rotary Force Pump. Improved Jonval Turbine Water Wheel, etc.

Kilbourn City, Wis.

[Mention this paper when you write to us.]

SITUATION WANTED

By a Miller of long experience; Situation in a large City mill preferred.

Address, JOHN HAWKS,

Care of United States Miller, Milwaukee, WisBOLTING

O LOT

SOLD AT IMPORTERS LOWEST PRICES. Sold by the piece, or cut and made up in any quantity desired. Plans of bolting complete for stone or roller mills.

Address,

C. F. MILLER, Mansfield, Ohio.

BUDGETT, JAMES & BRANTH.

BRISTOL, ENGLAND.

[Mention this paper when you write us.]

Chamberlain, Pole & Co.,

IN FLOUR.

BRISTOL. ENGLAND.

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H. G. JANSSEN & CO.. minikkin

Amsterdam, Netherlands, Europe.

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AMSTERDAM (Holland), Europe,

felegrams, OROBIO, Amsterdam, AGENTS FOR

Flour and Grain,

Correspondence Solicited.

CONSIGNMENTS ACCEPTED.

JUST OUT!

MILLER, Millwright & Millfurnisher

Robert Grimshaw.

A practical and useful Hand Book, on Mill sonstruction, Plans, Water Wheels, Boilers, Wheels, A practical and useful Hand Book, on Mill construction, Plans, Water Wheeis, Boilers, Engines, Transmission, Grain Cleaning, Wheat Drying and Heating, Granulation and Grinding, Buhr Stone, Mounting Buhrs, Various Millstone Dresses, Buhr Dressing, Rollers, Purifiers, Reels and Chests, Elevating, Spouting and Conveying, Weighing, Testing, Packing, Branding and Storing, Changing and Altering Mills, Millwrighting Tools and Operations, Composition and Structure of the Wheat-Berry, Grain Destroyers, &c., &c., &c. 550 large octavo pages, 350 illustrations. Contains three times as much matter as any other Milling work published. Free by Mail on receipt of \$6.00. Address all orders to

R. P. ASHLEY.

408 PEARL SREET.

Camden, N.

Made entirely of STEEL. ONE MAN with it can easily move a loaded car. Will not slip on ice or grease.

USHER E. P. DWIGHT,
Dealer in Railroad Supplies, 407
Library St., Philadelphia, Pa. Mention this paper when you write us.]

CHOICE BEVELLED EDGE

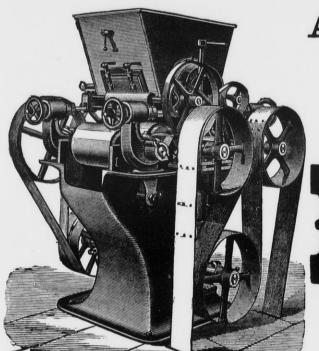
FLOUR BRANDS

For two dollars and upwards. Also RUBBER STAMPS, BURNING BRANDS, SEALS, STEEL NAME STAMPS, LETTERS AND FIGURES, Etc. Orders promptly attended to CHAS. H. CLARKE, 82 Wisconsin St., Milwankee,

EDW. P. ALLIS & GO.

MILWAUKEE, WISCONSIN,

LL BUILDERS AND FURNISHERS,



SOLE MANUFACTURERS

GRAY'S PATENT NOISELESS

GLLER WILLS

CORRUGATED AND SMOOTH CHILLED IRON ROLLS,

WEGMANN'S PATENT PORCELAIN ROLLS.

We shall be Pleased to hear from Millers contemplating an improvement in their Mills, or Building new ones, and can furnish Estimates and Plans of our system of GRADUAL REDUCTION ROLLER MILLING. We have built and Changed over hundreds of Mills, in all parts of the Country, and using all classes of wheat, BOTH HARD AND SOFT, and can furnish References on application. The Largest and Best Mills of this Country are using our System and Roller Machines. Messrs. C. A. Pillsbury & Co., of Minneapolis, have over 400 PAIRS OF OUR ROLLS AND HAVE RECENTLY PLACED AN ORDER WITH US FOR ABOUT ONE HUNDRED AND TWENTY MORE. We have had a longer and larger experience in Roller Mill Building than any other manufacturers of this country. There is no EXPERIMENT ABOUT OUR SYSTEM and rolls, so expensive to millers, and when the mills that we build or change over are ready to start, THEY DO SO AND WITH PERFECT SUCCESS, and there is no further changing, additions, stopping or expense. We manufactured and sold during the year 1881 over TWO THOUSAND FIVE HUNDRED pairs of rolls.

We can send competent men to consult with any millers who contemplate an improvement, and whom they can depend upon as being RELIABLE AND THOROUGHLY COMPETENT to advise them as to the number and kind of machines required, best method of placing them and the change required, if any, in the bolting and purifying system. WE DO NOT URGE A GENERAL CLEANING OUT OF ALL OLD MACHINERY unless we clearly see such would be the ONLY COURSE TO PURSUE to make a SATISFACTORY AND RELIABLE MILL. In nearly all instances we can use all the Old Machinery, leaving it in its original position, or with as slight a change as possible. We aim to make the Improvement so that it will be a Profitable one to the Miller. and at the least expense possible.

Our System is THOROUGH and RELIABLE, and our Roller Machine Perfected by Long Experience, and the Miller Takes no Chances in using them, as HE DOES with the New Fangled Notions of Drive and Adjustment on many other machines now ING TO FOLLOW OUR IMPROVEMENTS and still avoid our Patents, in BOTH of which THEY FAIL. We were the first to advocate the Entire Belt Drive, and were opposed by every other maker, who claimed it was not positive, etc., etc., and now that our Belt Drive is an ACKNOWLEDGED SUCCESS, and will SUPERSEDE EVERY OTHER STYLE, these advocates of Gear Drive have suddenly learned that Belts are the Thing. The same may be said of our Spreading Device, Feed Gates, and Adjustable Swing Boxes. Other Makers are now copying these. ALL these Features, including BELT DRIVE with ADJUSTABLE COUNTERSHAFT and TIGHTENER, the SPREADING DEVICE, FEED GATES, Adjustable Swing Boxes and Leveling Devices, Self-Oiling Boxes, etc., are secured to us by several Strong Patents, and we CAUTION MILLERS in regard to these Infringements of Our Patents and Rights, for we shall look to THEM for Redress. The matter is in the hands of our Attorneys, who will soon take VIGOROUS ACTION against the Makers and USERS OF MACHINES infringing Our Patents.

Several machines are already on the market which Broadly Infringe, and we are informed that other makers are now changing their Old Style Machines, and adopting in a large measure Our Improvements. BEWARE OF THEM.

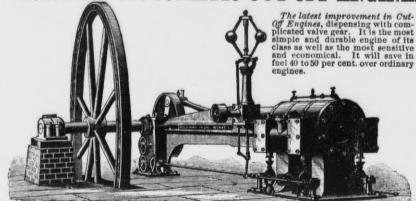
Send for New Illustrated Catalogue, Giving full Information, to

EDW. P. ALLIS & CO.,

MILWAUKEE, WIS.

[Please mention the United States Miller when you write to us.]

"HOWARD" AUTOMATIC CUT-OFF ENGINE.



Built only by the MURRAY IRON WORKS CO., BURLINGTON, IOWA.

BUILDERS OF ALL KINDS OF ENGINES AND MACHINERY

POOLE & HUNT'S Leffel Turbine Water Wheel

Made of best materials 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. sa 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 us.]

James Leffel's Improved WATER WHEE

The "OLD RELIABLE" with Improvements, making it the **Most Perfect Tarbine now in Use**, comprising the **Largest** and the **Smallest** Wheels, under both the **Highest** and **Lowest** Heads used in this country. Our new Pocket Wheel Book for 1881 and 1882 sent free to those using water power. Address

JAMES LEFFEL & Co., Springfield, Ohio

and 109 Liberty Street N. Y. City.

[Mention this paper when you write us.]

Stout, Mills & Temple,

DAYTON,

OHIO.



MANUFACTURERS OF THE American Turbine Water Wheel,

Best Quality French BURR MILLSTONES.

Sole Agents in Dayton for the sale of DU FOUR & CO'S CELEBRATED BOLTING CLOTHS.

Flour and Paper Mill Machinery, Best Chilled or Por-celain Rolls for Crushing Wheat and Middlings and

GENERAL MILL FURNISHINGS.

The American Turbine, as recently improved, is unequaled in the power utilized from a given quantity of water, and is decidedly the best "Part Gate" Water Wheel ever known. It has also been otherwise greatly improved.

Large Illustrated Catalogue Sent Free on Application. 🖘

[Mention this paper when you write us.]

MEDAL & PREMIUM AWARDED TO CATENTE CHATES Most Perfect Turbine in Use. WATER. MANUFACTUREDBY T.C.ALCOTT&SON BLE r GATE Applicat AND BEST EFFECTIVE. the Eff MANUFACTURERS OF Circular Saw Mills, Shafting, Pulleys,

Hangers & General Mill Machinery, Stating Particulars of Stream, &c Address: T. C. ALCOTT & SON. Mount Holly, N. J.

[Mention this paper when you write us.]

The Perfect Feed Box



Itinsures a perfectly even distribution of the middling over the entire width of the cloth. Every miller will appreciate this. Fits all purifiers. Address,

CASE MANUFACTURING CO.,

COLUMBUS, OHIO.

W. E. CATLIN & CO., 68 LAKE ST., CHICAGO, ILL. AGENTS.

Please mention this paper when you writeto us.]

Over 1,500 of these Turbines



IN USE. It has tight shutting and easily operated Gate; gives more power for the water used, and will last longer than any other Turbine Large shop with improaed tools for making this wheel and machinery. Illustrated Pamphlet and Catalogue with prices sent free by

BURNHAM BROS.

Milling Made Profitable.

BOLTING CHESTS





Mill Furnishing, Foundrymen & Machinists.

MILL STONES. Flouring Mill Contractors. Send for Pamphlet. Nordyke & Marmon Co

Indianapolis, Ind. [Mention this paper when you write us.]

IMPORTANT NOTICE TO MILLERS.

The RICHMOND MILL WORKS, and RICHMOND MILL FURNISHING WORKS are wholly removed to Indianapolis, Ind., with all the former patterns, tools, and machinery, and those of the firm who formerly built up and established the reputation of this house; therefore, to save delay or miscarriage, all letters intended for this concern should be addressed with care to NORDYKE & MARMON CO.

INDIANAPOLIS, IND.

RICHMOND MANUFACTURING CO...

LOCKPORT, N. Y.,

- Manufacturers of ---

RICHMOND'S CELEBRATED

Smut Machines.

Brush Machines,

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Nearly Two Hundred of these Machines are now in operation in the city of Minneapolis, Minn., alone, and more than sixty in the city of Milwaukee, Wis. They are also extensively used in many other sections, both on Winter and Spring Wheat.

SEND FOR DESCRIPTIVE CATALOGUE.

PURIFIER

These are some of the things we have to say about the Case Purifier, and if one jot or tittle of them is found to be untrue, we will take the machine back and pay all expenses, including freight both ways. Can fill orders promptly.

CAWKER'S

AMERICAN FLOUR MILL DIRECTORY

It has been compiled with the utmost care, and contains 22,844 Addresses

It gives the Capacity and Motive Power of Mills wherever obtained.

MILL FURNISHERS, FLOUR BROKERS,

WILL FIND THIS WORK SIMPLY INVALUABLE.

JOHN C. HICCINS.

Manufacturer and Dresser of

No. 169 W. Kinzie Street,

CHICAGO, - ILLINOIS.



Picks will be sent on 30 or 60 days' trial to any responsible miller in the United States or Canada, and if not superior in every respect to 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 Sheffeld, 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 United States and Canada. Send for Circular and Price List.

[Mention this paper when you write us.]

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HENRY HERZER,

Manufacturer

and



MILL PICKS!

NO. 456 ON THE CANAL, MILWAUKEE, WIS.

I have had twenty-two years experience in the manufacture and dressing of Mill Picks, and can and do make as fine Mill Picks as can be made by anybody anywhere. I use only the best imported Steel for the purpose. My work is known by millers throughout the country, and is pronounced to be first class by the very best indees.

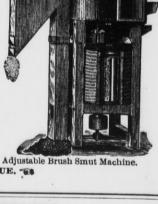
and is productive.

We have hundreds of the most gratifying testimonials from nearly all the States. We solicit your orders and guarantee satisfaction. Address as above.

[Please mention this paper when you write.]

We continue to act as Solicitors for Patents, Caveats, Trade Marks, Copyrights, etc., for the United States, Canada, Cuba, England, France, Germany, etc. We have had thirty-five years' experience.

Patents obtained through us are noticed in the SCIENTIFIC AMERICAN. This large and splendid illustrated weekly paper, \$3.0 a year, shows the Progress of Science, is very interesting, and has an enormous circulation. Address MUNN & CO., Patent Solicitors. Publishers of SCIENTIFIC AMERICAN, \$7 Park Row, New York. Hand book about Patants sent free.



That fills all the demands of modern milling,
That is subject to the most complete control possible.
That gives double the capacity of any other in the same floor space.
That has two Screens, each with its own Feed Bar, and each tails off.
That has the best patented devices ever used on a Purifier.
That has the most thorough control of the blast.
That has the most convenient method of "cut-off."
That has absolutely the best cloth cleaner (patented) in use.
That is made either single or double, (double principle patented).
That carries 25 to 90 square feet of bolting surface, against 13 to 45 in others.
That costs no more, nor as much as others with half the capacity.
That has its bearing boxes detached from the wooden frame.
That renders them fire-proof. These are recent and important attachments
That does its work "not absolutely without waste" BUT WELL.
That has many new and important devices, convenient and simple.
That has many new and important devices, convenient and simple.
That does not infringe any patent, (can convince any one of this).
That is not an experiment, but has been tried and tested by hundreds.
That is not an experiment to San Francisco, from Dakota to Texas.
That not one of which has ever been returned by any miller,

CASE MANUFACTURING Co., Columbus, Ohio. [Mention this paper when you write]

FOR 1882:

Is Now Ready for Delivery.

Of Flour Mill Owners in the UNITED STATES and CANADA.

And Every one Desiring to Reach the Trade,

PRICE, TEN DOLLARS PER COPY. Address THE UNITED STATES MILLER, Milwaukee, Wis.

Northwestern Mill Bucket Manufactory

310, 312, and 314 FLORIDA STREET.



Is furnishing Mills and Elevators in all parts of the country with their superior BUCKETS.

They are Unrqualed for their Shape, Strength and Cheapness.

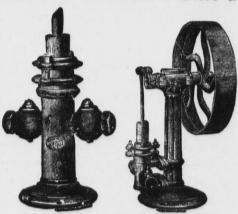
Leather, Rubber, Canvas Belting and Bolts at lowest market rates. We have no traveling agents. Sample Buckets sent on application. Large orders will receive liberal discounts. Send for sample order.

Address all inquiries and orders to

L. J. MUELLER, 197 Reed St., Milwaukee, Wis..

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We manufacture over forty different styles and sizes of Steam Boiler Feed Pumps, for hand and power, at prices from \$10 to \$100.

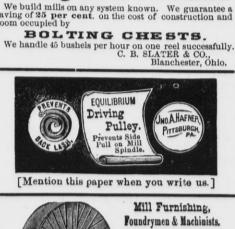
Catalogues furnished on application.

RUMBEY & CO., SENECA FALLS, N. Y.

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

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E. HARRISON CAWKER. \ Vol. 13, No. 4.}

MILWAUKEE, AUGUST, 1882.

Terms: \$1.00 a Year in Advance. Single Copies, 10 Cents.

BUBISHOLLBRUIL

Remove all Germs without Breaking or Crushing them, and Hull the Black Cockle and Remove the Hulls, Clean Bran thoroughly, and make a Higher Grade of Flour than any other Mill known.

VER 2000 PAIRS NOW IN USE!

Having Secured the BEST BELT MOVEMENT ever offered

We are prepared to furnish mills to be run entirely by belt, obtaining the nearest approach to a Positive Motion Without Gears. We also manufacture the

cosgrove Concentrated Mill Celebrated

Which is the Most Compact and Convenient Arrangement of Break Rolls and Separators.

READ THE FOLLOWING LETTER FROM A WELL-KNOWN FIRM:

Brooklyn, New York, February 20, 1882. MESSRS. JOHN T. NOYE & SONS, Buffalo, New York-Gentlemen: We take pleasure in addressing you in regard to the introduction of the "Cosgrove Roller System" in our Mills at Brooklyn. By removing four pairs of our Millstones and putting in their place the two sets of the Cosgrove System, purchased from you, we find that with our former bolting and purifying arrangements, we can turn out flour, all roller ground, in quality from 50 to 75 cents per barrel superior to that made from the same wheat by Millstones. We are now grinding no wheat with stones. In making the change, our Mill was shut down but 4½ days to make connections with Elevators, Conveyors, etc. We drive the Cosgrove Machines from the same shaft that we formerly drove the Millstones. The work of the change was done by our own Millwrights, everything being so favorably located. The advantages that we find are principally, viz.: Saving from ½ to ½ power required to make the same amount of flour by stones; uniformity of work of the Rolls, and the ease with which they are managed, one man being fully able to give proper attention to two or more sets if we had them; the separations made by the cylinders are perfect; any miller can quickly adjust them exactly to suit the wheat he wishes to grind and the work required; the capacity of our machines we find fully 50 per cent. above the amount you guaranteed (200 barrels). In conclusion, we will say, that the result generally of the system is entirely satisfactory to us for the best of reasons, our customers are thoroughly pleased and satisfied with our flour.

Yours truly,

F. E. SMITH & CO.

Among Recent Orders We Name the Following from Prominent Millers:

E. O. Stanard & Co., St. Louis, Mo., 28 pairs,
Penfield, Lyon & Co.. Oswego, N. Y., 2 Cosgroves.,
Ont., 28 pairs,
McNeil & Baldwin, Akron, O., Cosgrove and 10 pairs.

E. T. Archibald & Co., Dundas, Minn., 12 pairs,
Crocker, Fisk & Co., Minneapolis, Minn., 54 pairs. Lexington Mill Co., Lexington, O., 12 pairs, Pollock & Co., Vincennes, Ind., 12 pairs, James Norris, St. Catherines, Ont., 28 pairs,

Jno. T. Noye Manufacturing Company, Buffalo, N. Y. mention the United States Miller when you write to us.] E. W. PRIDE, Agent, Neenah, Wis.

[Please mention the United States Miller when you write to us.]

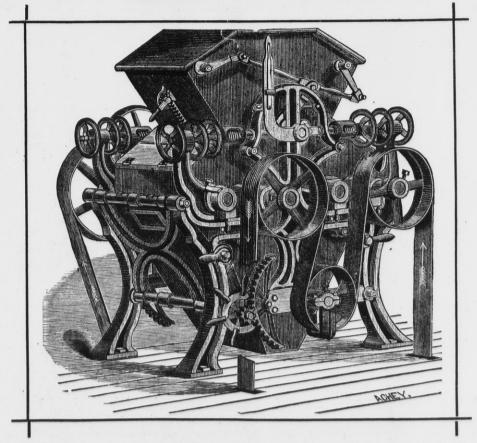
DELL'S R OLLER

We invite particular attention to the following

POINTS OF SUPERIORITY,

possessed by the Odell Roller Mill over all competitors, all of which are covered by Letters Patent, and cannot be used on any other machine.

- 1. It is driven entirely with belts, which are so arranged as to be equivalent to giving each of the four rolls a separate driving belt from the power-shaft, thus obtaining a positive differential motion, which can not be had with short belts.
- 2. It is the only Roller Mill in market which can be instantly stopped without throwing off the driving belt, or that has adequate tightener devices for taking up the stretch of the driving-belts.



- 3. It is the only Roller Mill in which one movement of a hand-lever spreads the rolls apart and shuts off the feed at the same time. The reverse movement of this lever brings the rolls back again exactly into working position and at the same time turns on the feed.
- 4. It is the only Roller Mill in which the movable roll-bearings may be adjusted to and from the stationary roll-bearings without disturbing the tension-spring.
- 5. Our corrugation is a decided advance over all others. It produces a more even granulation, more middlings of uniform shape and size, and cleans the bran better.

WE USE NONE BUT THE BEST

References and letters of introduction to parties using Odell Rolls will be furnished on application, to all who desire to investigate the actual work of these splendid machines. Circular and Prices on Application to Sole Manufacturer,

STILWELL & BIERCE MANUFACTURING CO.,

[Mention this Paper when you write to us.]

DAYTON, OHIO, U.S. A.

Facts Worth Remembering

Millers who desire to avoid troublesome litigation, will do well to remember the following facts:

That Gray's Patent Noiseless Roller Mill, of which we are the sole manufacturers, was the First Positive Drive Belted Roller Mill invented and placed upon the market in this country or Europe.

That the construction of these Celebrated Roller Mills is Fully Covered by the Foundation Patents issued to W. D. Gray, and of which we have sole control. These patents are Nos. 222,895; 228,525; 235,761; 238,677; 251,217; dated December 23d, 1879; June 8th, 1880; December 21st, 1880; March 8th, 1881; December 20th, 1881. From the dates it will be seen that these patents are the earliest ones issued for improvements in Roller Mills, and a careful investigation will convince any miller that they cover every feature of value in a belted Roller Mill.

That several belted Roller Mills lately put upon the market by other manufacturers are simply imitations of **Gray's Patent Noiseless Roller Mills**, imitations in every way inferior to the original, in merit and design, and **Palpable Infringements** of our patents.

That we are fully **determined to Protect our Rights**, and have taken action to begin suits against infringers. While we regret the necessity of this step, it has been forced upon us by the unscrupulous conduct of other manufacturers.

We are thus explicit, in order that millers may have fair warning, and that they need not, by Purchasing Infringing Machines, involve themselves in Troublesome and Expensive Litigation, which must eventually result adversely to them. We have no disposition to deal harshly or unjustly, and only ask for a fair and candid investigation of our claims. Millers who are using Roller Mills which infringe our patents and who wish to avoid trouble by settling with us before incurring the expense of a suit, will be liberally dealt with, as it is not our design to oppress millers, but rather to force infringers to respect our rights.

Gray's Patent Noiseless Roller Mills

Are fully protected by foundation patents; they infringe no other patents, and they are the **Best** and **Most Successful** Roller Mills in the market, there being more of them in use than all other makes together. **Millers Run no Risk** in buying these Machines, and in purchasing of us will get the **Best Machine**, without any expensive accompaniments in the shape of suits for infringements.

EDW. P. ALLIS & CO.,

Sole Manufacturers of Gray's Patent Noiseless Roller Mills,

MILWAUKEE, WIS.

E. HARRISON CAWKER. VOL. 13, No. 4.

MILWAUKEE. AUGUST, 1882.

Terms: \$1.00 a Year in Advance. Single Copies, 10 Cents.

Decortication.

Decortication of wheat is the act of stripping off the covering of the wheat berry. Many inventors have striven to invent a machine which would effectually accomplish this, but heretofore they have not succeeded in doing so. The most recent invention for decorticating grain has been made and just been patented by Wilson Ager, of Washington, D. C. In reference to it, a late issue of the Minneapolis Tribune says:

"A series of important experiments in wheat cleaning processes, has during the past few months, engaged the attention of millers, and now that the invention is practically and successfully completed, we are enabled to give the following facts. Wilson Ager of the Trades mill, has perfected an invention which promises to be in great demand among millers everywhere. It is a grain decorticating apparatus, the process through which the grain passes completely removing the cuticle of the wheat berry, and enables the miller to realize a much higher | ercentage of high grade flour than hitherto. Mr. Ager claims that his process will secure to millers an additional profit of from \$90 to \$100 on every 100 barrels. The apparatus consists of a set of gray Derbyshire stone revolving on a hub, within a cylindrical case which revolves in an opposite direction. The grain is placed in the cylinder, and the stone blades revolving rapidly through the mass, between a row of steel teeth, remove both the germ and cuticle, which are carried away by a current of air, and subsequently mixed with the bran and shorts. The grain thus operated upon produces, after passing through the burrs, 90 per cent. of middlings, and when ground by rollers gives 92 per cent. Without this process of cleaning grain, the best results seldom exceed 60 per cent. by rollers, and about 45 by buhrs. When milled by either of the old processes, from 10 to 20 per cent. of the fancy grade is demanded for the purpose of mixing with the low grade, or break flour, amounting to about one-third of the product of the mill,in order to bring it up to the grade known as bakers' flour. This bakers' flour thus compounded sells at from \$1.50 to \$2.50 per barrel less than the fancy brand.

"By a recent experiment made in the Trades mill, the following result was obtained on a set of six breaks on the Gray roll; Weighing one pound of "chop" of the first break and whatever break flour and middlings so taken from said break is deducted from the second break, and so on to the third, fourth, fifth and sixth breaks. By pursuing the above course there is found 12 11-16 ounces of middlings, 21 ounces of break flour, one ounce of bran; loss by handling 1-16 of an ounce. This would show an average of about 90 per cent. of middlings and 10 per cent. of break flour of a superior quality break flour. It is safe to say that by this quantity ground for the year in question was method of cleaning, about 85 per cent. of the 7,281,053 bushels, producing 157,784 tons of mills will no doubt speedily find their way. sharp and white, worth \$2 more than ordinary best patent or fancy flour, 10 per cent. of firstclass bakers' and 5 per cent. of low grade or "red dog," can be obtained either by the roller or burr system. The entire production of the fancy grade, or 85 per cent. of every 100 barrels grades in the market as first-class fancy flour, the 10 per cent. being equal to any straight grade on the market. The test mentioned above was made on wheat cleaned by Mr. Ager's process, and ground by both the roller and buhr process of grinding. The bran produced is found superior to bran made without the cleaning process, being larger and broader than can be made by any other method, a result which has surprised millers, who have invariably contended that the bran would be pulverized so fine as to become mixed with the flour, thus lowering and injuring the grade.

"This invention is protected by three American patents on the mechanism, and one on the process. The invention is also patented in England, Canada, Austria, Hungary and Germany. The millers of this city and from all parts of the United States have been anxiously watching the progress of these experiments. The machine gives equal satisfaction with spring or winter wheat, and can be used on buckwheat, rye, or for pearling barley or rice.

The process will be immediately introduced in the leading mills of the country, and will return a handsome compensation for Mr. Ager's long years of patient experiment and study. Arrangements are being made to have the machinery manufactured in the state of New York, in Washington, D. C., and in Minneap-

"Mr. Ager has been engaged during the past forty years in the invention of machines for cleaning cereals. Some of his inventions have proved exceedingly remunerative. He spent seven years in Europe and other parts of the world giving instructions in the milling business. He secured the first patents issued in America for the manufacture of white buckwheat flour. It will be admitted that he is no fifty-four patents in different parts of the world, and this last invention promises to eclipse all the others.'

The Latest Statistics of Australasian Milling.

Now that science, in its many practical forms, is abridging time and space in a very real and significant manner, it behooves the chiefs and leaders of all important industries to be up and seeing what their competitors are doing, even when those competitors may be thousands of miles away. Ocean, like land transport, is being so cheapened and simplified that distance no longer yields that "natural protection," it formerly did but very often a complete knowledge of what is being done in distant places, in the way of certain productive matters, does become of great value and eminent service to those who are working on the same lines, and who cannot remain in ignorance of their rivals' movements without eventually suffering thence. At present it is needless to say that the American is the great rival of the British miller, but it may be as well to remember that even in Australia great and strenuous efforts are now making to substitute, as far as practicable, the export of flour for that of wheat, and especially is this so in Victoria and South Australia, to say nothing of New Zealand. In the present instance we shall confine ourselveschiefly to the great colony of Victoria, as we have just received the official governmental return of the milling statistics for that colony, some account of which will be certainly interesting and instructive to many of our readers. The flour mills, it appears then, numbered at the end of 1880 no less than 145, of which 136 were actuated by steam, and nine only by water. The estimated horse-power on is given at 742,126 bushels. Coming to don.) the approximate value of the grain operated on, we find the flour and meal produced valued at £1,651,351, while the estimated value of the machinery and plant is put as high as £227,643; to this must be added the sum of £181,122 on account of buildings and

improvements. The mills are pretty fairly dispersed over the area of the colony; adopting the alphabetical order we find that Ararat had 2, Bal-Swan Hill 3, St. Arnaud 3, Towring 2, Wimtoria, and that dissappeared in the year 1873. patented inventions which they have intro- drained from them.

Considering that these 145 flour mills grinding flour out to the value of something like a million of sterling belonged to the members of a community-vast, by the way, judged by Australian standards—numbering only 860,000 persons, it is evident that export considerations enter largely into the industrial calculations of Australian millers. They are doubtless the more encouraged to persevere in their endeavors to develop a considerable export trade from the fact that, owing to the late improvements in railway communications within the colony, carriage is now easy and cheap almost anywhere; and then again the Australian millers can secure an almost unlimited supply of wheat, some tyro in the milling business, having taken out of which is, it must be confessed, of good quality. To give some idea how wheat culture has steadily advanced in Victoria we may mention that the quantity of wheat raised in bushels in 1839 was just 12,600. In the following year it increased to 50,420, and in 1845 had grown to 234.734. In another decade it had reached the sum of 1,148,011 bushels, and in 1862 it stood at 3,008,487. In 1877 it reap their crops, nor send their grain to marwas returned at 7,018,257 and in the year un- ket. der notice it appears at the great total for such a population of 9,727,369 bushels.

Although these statistics, so well arranged by Mr. Hayter,, the Victoria Government statist, do not give us the flour mills returns for the other members of the group, we have been enabled through other sources to ascertain no less than 150 flour mills of 2,659 horsepower, driving 347 pairs of stones, and of these 140 were driven by steam. In South Australia there were at the same period 88 steam flour mills having an aggregate of 2,036-horse power, and 304 pairs of stones, the grand total for the Australasian Colonies many of the existing mills being fully renovated and equipped on the latest plan of scientific milling, but new mills were being that before long Australasian milling will the existing patent system. take a very considerable step onward, and altogether lift the industry out of those proslightingly applied.

In Australia proper, the millstone still continues to be the chief factor in the granula- their disposal, and prepared to use every persons. As to the wheat operated upon, the least one mill which works on the gradual supposed, to be found in the ranks of the op-7,281,053 bushels, producing 157,784 tons of mills will, no doubt, speedily find their way show that the sentiment of Congress is flour. The quantity of other grain operated into the adjacent colonies.—The Miller, (Lon- against them.

Amending the Patent Laws.

Apropos of our remarks in our last issue on the effort made by the enemies of the existing patent laws of the country to so amend them as to emasculate them of every element of protection for the inventor, we have had the opportunity of hearing a verbal report from the committee appointed by the laret 4, Echuca 2, Heathcote 2, Melbourne 7, Franklin Institute to proceed to Washington Stawell 2, St. Arnaud 3, Sandhurst 3, Talbot and lay before the Senate Committee on Pat-2, Wargaratta 3, Warrnambool 2. These are ents, the protest of the Institute against the the mills of the cities and towns. Taking proposed amendment. From this report, shires we find that Avoca has 3, Benalla 4, which contained many interesting points, it Chiltern 2, Dunmunkle 3, Dundas 2, Echuca appears that the strongest opposition to the 2. Glenlyon 2. Goulburn 2, Glenelg 4, Huntly patent system emanates from two powerful 2, Kyneton 4, Korong 3, Maffra 2, Marong 2, organizations, known as the Western Rail-Omeo 2, Oxley 2, Seymour 2, Shepparton 3, road Association and the Millers' Association both of which avow their open hostility. mera 3, Warranga 4, and Yarrawonga 2 mills. When it is considered how much the busi-It is a curious fact that only one mill driven ness represented by these organizations has by wind seems to have ever existed in Vic- profited and benefited by the numberless that the water could be easily and naturally

duced from time to time, their attitude towards the inventors of the country is not one which speaks highly for their fairness or honesty of purpose.

Again, it was pointed out that there was a strong opposition to the patent system among the farmers of the West, among whom the foreign element is largely represented. These men have somehow become possessed of the notion that the patent system operates to their detriment, and many of them, through ignorance, are opposed to the system of patents in any form. The folly and inconsistency of such stupid prejudice were forcibly shown in the report, when the spokesman of the committee remarked that no class of our population owed so much of their prosperity to, or were so completely dependent upon, the patent system of the country as these very farmers of the West, who, without, the aid of the numberless patented inventions in agricultural machinery, and in devices and machinery for faciltating and cheapening transportation, could neither sow their seed,

Another member of the committee made the announcement that the strength of the opposition to the patent system in Congress was greatly underestimated. He affirmed that the large vote by which the recent obnoxious and destructive amendment had passed the House of Representatives, was that in New South Wales there were in 1880, not, as many have charitably supposed, cast hastily and without due understanding of its crushing effects upon the inventor class, but expressed the deliberate convictions of most of those who voted in its favor. He added to this that he was satisfied, from personal knowledge gained by his intercourse with while in New Zealand there were no less than members of Congress, that it was only a for-102 flour mills. As a net result, we find that tunate accident that prevented this destructive measure from having been put through was at least 500 flour mills, while we learn the Senate with perhaps as large a majority on competent authority that not only were as it had commanded in the House. This accident was the fact that a majority of the Senate Committee on Patents happened, most fortunately, to be composed of memprojected, and all reports unite in predicting bers who were favorably disposed towards

These statements are full of instruction and warning to the inventors of the country. portions to which the word "Colonial" can be The facts brought out by this committee show the existence of several powerful organizations, with abundance of money at tion of wheat, although in not a few mills means at their command to break down the rollers, both porcelain and chilled iron, are protection which the patent laws give to the of these mills was 2,742, and the number of used in the softening of middlings and sem- inventor; they show a widespread opposition pairs of stones running, 454; employing 793 olina into flour. In New Zealand there is at among the farmer element, the last, it would be

> The strength of this opposition is so formidable, that it would be a grave error to ignore or undervalue it. Though defeated by a fortunate chance at this session of Congress, the enemies of the patent system will make a fresh onslaught at the next session, and it behooves the inventors and manufacturers who are jointly interested in the maintenance of the patent system of the country to see to it that their imperilled interests

ufacturer and Builder, (N. Y.)

STOUT, MILLS & TEMPLE, Dayton, O., employ 200 hands, and make the American turbine. Their corrugated and smooth chilled rolls, of which they are the patentees, are regarded as unexcelled in desirable qualities. Trade continues satisfactory.

shall be boldly and strongly defended.-Man-

THERE are in Ireland, according to official estimate 4,500,000 acres of waste mountain and bog, of which only about 1,000,000 are worth reclaiming, and these nearly all bog so situated

UNITED STATES MILLER.

PUBLISHED MONTHLY. OFFICE NO. 118 GRAND AVENUE, MILWAUKEE, WIS.

MILWAUKEE, AUGUST, 1882.

THE MILWAUKEE DUST COLLECTOR COM-PANY have received a great number of orders for their machine during the past month and the works will soon be crowded to their utmost capacity.

HON. J. B. A. KERN, owner of the Eagle Mills, Milwaukee, is the largest individual flour mill owner in the world. He is now making some very large additions to his already great mill here, of which we will give a description in a future number, when the work shall have been completed.

The Miller's Review, of Philadelphia, Pa., the latest venture in the field of milling journalism, has just issued its sixth number and it must be confessed a very handsome paper, and is ably conducted. The subscription price is one dollar per year. We cordially commend it to the milling fraternity.

The Miller (London), in its July number, prints an extended biography of the late ex-Gov. C. C. Washburn, with an excellent portrait. In opening its sketch The Miller says:

As a man, Mr. Washburn was fairly entitled to the term great, not perhaps, in the sense in which the term is used to designate those great deeds which figure most prominently in history, or those works of an intellectual stamp which live through all ages and give their authors an imperishable fame. Mr Washburn is entitled to the term because he was endowed with gifts which not only enriched his life with rare achievements, but which, had the opportunities been forthcoming to bring them into greatest play, would heve resulted in deeds which would have niched his memory among those of great historical

A RAIL for common roads has been introduced in France. It is embedded in concrete and is flush at the edges with the roadway. From the sides it slopes down to the centre, so as to enable the wheels of vehicles to retain their place upon it. The estimated cost is about \$2 a yard.

We think it would be well for this country if our inventors would turn their efforts and genius to the subject of improving the wagon roads of the country. The wear and tear on horses, harnesses and vehicles on many roads would soon pay for putting them in excellent

MR. GEORGE B. DIXWELL, of Boston, Mass. is the author of three of the ablest tariff documents ever written-" Premises of Free Trade Examined," "Review of Bastiat," "The Review of Hrofessor Perry" and "The Farmer Question." These pamplets, which have been widely circulated by John W. Hinton, of the North-western Tariff Bureau. of Milwaukee, are clearly and comprehensively written, and admirably adapted to all students and readers on the tariff ques-

Personal.

C. M. Palmer, Esq., the genial editor of The Northwestern Miller, made us a very agreeable visit during the closing days of the month. We were gratified to see that our friend was enjoying good health. He spoke loudly in praise of Minneapolis milling interests, but cheerfully admits that Milwaukee is not such a great ways behind.

The Barrel.

No single article of wooden ware is of more importance to the miller than the barrel. The invention of the barrel, made of strips of wood and rendered tight and strong by the Po, in Lombardy. There is, however, good reason to believe that the barrel was in use before the Gauls reached Italy, perhaps before their existence as a people. In one of should be submerged to such a depth as to the inscriptions copied by Wilkinson from Egyptian monuments may be seen two slaves emptying grain from a wooden-hooped vessel, while a scribe keeps tally and a sweeper stands by to sweep up the kernels. Close by a poor victim is undergoing the bastinado, for short measure or petty theft. for a short time. When there is backwater The measure is barrel-shaped, precisely like the kaye of modern Egypt, and would apparently hold about a peck. The age of this inscription is not indicated. Such measures would seem to have been in use very early turbine stand in the tail water. in Egypt, not for liquids, for which skins and earthen vessels were used. The arid cliunsuited to the use of hooped vessels.

Insurance.

The directors of the Wisconsin Millers Mutual Insurance Company met at the Newhall House, Milwaukee, July 25. and adopted by-laws and discussed the prospects of the Association. Their charter requires that 10 per cent. cash of the amount of insurance taken by any miller shall be paid in for the expenses of the Company, and that notes shall be given for the balance running for five years. When a loss occurs assessments are made on the notes. It is learned from past experience that the cost of mutual insurance on mills is about one-half the cost of stock insurance, and the company expect to make a great saving. The following officers were elected:

President-E. W. Arndt, De Pere. Vice-President-J. S. Clement, Neenah. Treasurer-S. H. Seamans, Milwaukee. Secretary-John Schuette, Manitowoc.

The office of the Company will be at Manitowoc, Wis. The object of the Association is to insure flouring mills, and they are now ready to take risks, having about 100 applications on hand.

The Wisconsin Millers' Mutual Insurance Company start out in business under the most favorable auspices and there seems to be but little doubt but that it will be a success and will save millers a considerable amount in cash for insurance. Wisconsin millers should lose no time in writing to the Secretary, as above, for full information.

Notes on Water Power.

FROM JAMES EMERSON.

"Efficiency," "Useful Effect," or "Percentage," are terms used to denote the economy of a wheel in its use of water, or the number of gallons it will pumb back into the pond for each one hundred gallons drawn therefrom to drive the wheel. There are wheels that for each one hundred gallons used will return but twenty-five, others will return fifty, while medium wheels return seventy-five, and a better class eighty to eighty-five; the very highest, under favorable circumstances, will return something over ninety per cent., and of course, other merits being equal, are by far the most desirable.

What is the real working head? The term "head," as used in connection with water power, means the difference in height from the surface of water in wheel-pit to the surface in penstock above, when the wheel is running.

A square inch of water means a stream exactly an inch square; its length depending upon the head from which it issues. For a head of four feet, it means a stream an inch square, 16.04 feet in length per second; for a head of a hundred feet, a stream an inch square, 80.35 feet in length per second. To turn this into cubic feet, multiply by 12, then divide by 1728.

Pressure of water on dams depends on the depth, and is the same whether the pond covers one foot or ten thousand acres.

Turbines of any make are not perceptibly affected by backwater, except through loss of head. I think a slight difference was found by a commission appointed by the French government to experiment with the Fourneyron wheels. I have in two or three chance to determine the matter by actual

Many builders insist that it is essential that a turbine should discharge under water; but it is doubtful for the same head whether it makes any difference, if the wheel is prophoops, finds in history no notice of origin or erly made, though it prevents trouble from inventor. Pliny attributes it to the Gauls of ice, and generally extra head is gained by submerging the lower part of wheel.

If a draft tube for any considerable proportion of the head is used, its lower end render its immersion constant, otherwise when first starting up only the head above the level will be available until the discharge has exhausted the air from the tube; then when it does take hold, unless the gate of the wheel works very quick, the speed is wild some length of time a short draft tube renders it convenient to get at the wheel in case it is necessary to do so; but in most cases I should prefer to have the lower part of a

A turbine is no more a hydraulic motor than the harness of a horse is a horse motor. judgment—he is sent out to seek trade in A turbine simply transmits the power of a motor, or the power evolved from falling thus lines of goods which he has never had Gray, Milwaukee, Wis.

Minneapolis, Minn.

Feeding Device for Grinding Mill—W. D. Gray, Milwaukee, Wis.

water. Consequently the power it may give out depends upon its efficiency, capacity, and the head under which it works. The same whee! may be placed where it may easily transmit a hundred horse-power, or be overloaded in attempting to transmit one.

Is there any turbine made that on a variable stream in efficiency can equal the overshot? Yes, plenty of them that will not only equal but far surpass the best overshot wheel ever constructed, at either whole or part gate, whether the supply of water is constant or variable.

New Patent Infringement Cases.

We have been favored with information which goes to show that the patent-right men have not yet done with the millers. It is reported that Messrs. Banning & Banning, lawyers, of Chicago, are about to commence suits against millers in Illinois, Wisconsin and Minnesota for infringement of a patent granted to Wm. A. King, April 3, 1877, for the use of magnets for cleaning wheat from metallic substances. The first claim is very broad and reads as follows: "In combina tion with a hopper, or other receptacle of a mill through which the material to be ground passes, a magnet, or magnets, or magnetic substances are arranged around or in the discharge."

The Secretary of the Millers' National As sociation, Mr. S. H. Seamans, of Milwaukee, upon receipt of this information, wrote to Messrs. Howes, Babcock & Ewell, of Silver Creek, N. Y., manufacturers of the best known magnetic separators, and asked them if their machines infringed upon anyone. Messrs. H. B. & E. obtained a lengthy review of magnetic separator patents and an opinion on the subject from an eminent firm well versed in patents.

They express the opinion unhesitatingly that the Magnetic Separators, manufactured by Messrs. Howes, Babcock & Ewell does not infringe. Further than this, this firm say that they will in any event protect their custom-

English patents for magnetic separators were granted in 1835, 1855 and 1857. Several similar patents have been granted in this country during the past twenty-five years, and have expired by limitation. We do not think that millers need to lay awake nights, worrying about this new patent case.

There also appears to be indications that a war about the roller mill patents will soon break out and will cause a deal of noise. It will probably be fought out principally between the various manufacturers. For some time we have seen notices in this and other milling papers warning millers to beware of buying infringing machines. These notices from different manufacturers are like the running fire of the "picket guard" before the battle begins. The jolly miller will be kept busy during the coming year, however, with the grinding of our enormous grain crop, and will soon await what seems to be a distant day of reckoning with composure.

Who Makes the Best viller?

It matters little what character or amount of machinery be introduced into a mill, whether it be a new or an old one, if the brains or the training necessary to manage all the details of the programming of the cases, when long draft-tubes were used, mill be wanting; it matters little what thought the loss greater than should occur amount of money be laid out, or what pains from the loss of head, but have had no be taken that the machinery be adapted to the work required, or what kind of salaries be paid the miller and his assistants, or whether the owner runs his own mill. First of all, whoever directs the operations of the mill must know how to run a mill; next, he must know how to run that mill. Now, whether a man is likely to thoroughly master the trade by serving an apprenticeship in a large mill is a question that may often be answered in the negative. It is generally understood in the mercantile trade, that the youth who starts out in a small house usually makes the most successful merchant, the reason given being that in the smaller establishment he is obliged to take a hand at everything about the place, and thus, in a comparatively short space of time, becomes familiar with all the details of the business; while if placed in a larger concern, he would be put through a lengthy probation in the basement, where his time would all be given to one character of duties; after passing several years, perhaps, in making a very slow advance-and long before entering those departments requiring the most skill and than the harness of a horse is a horse motor. judgment—he is sent out to seek trade in mate would at first thought seem to make it A turbine simply transmits the power of a some particular line of goods. There are

an opportunity of handling, at least in such a way as to become their master.

The simile will possibly illustrate our meaning with regard to milling. Take a stoneman and put him at the spout, or vice versa, and he may find that he is in some degree a failure. Place him suddenly among the maze of seeming intricacies of a modern mill, and he will be very far from at home. Take the same individual, after a fair experience in a custom mill of modest proportions, and place him in charge of one of somewhat greater capacity, and his natural aptitude will soon show itself in a thorough conception of the duties of his new position. This naturally leads to the inference that the miller who has had the running of the smallest and most antique mill, may become the most expert and successful manager. when called upon to lay out and manage the arrangements for the latest and most complete character of milling. We will probably be borne out by the testimony of others, in our assertion that the old fashioned grist miller generally makes the most successful merchant-miller. As the owners of mills not infrequently leave the running arrangements entirely to some one else, that responsibility, from which thorough capability usually springs, falls upon the miller in charge, and he, in reality, becomes the generalissimo of all the forces about the establishment.

Recent Mill ng Patents.

MAY 30.

Grinding Mill-Geo. K. Smith, Freeport, Ills.
Middlings Detacher—Chas. Brown,

Louis, Mo.
Mill Packer Register—Geo. L. Williams,

Edwardsville, Ills.
Roller Mill—Ira Westcott, Buffalo, N. Y., and Jos. S. Karns, Lima, O. JUNE 6.

Dust Collector-Samuel L. Bean, Washington. D. C. Roller Grinding Mill-Samuel L. Bean, Washington, D. C.

Millstone Dress-Edinboro Cyrus, Augusta.

Manufacture of Flour-John Hollinsworth, New York, N. Y.
Bolting Reel—Monroe Ingraham, Dade-

Machine for Cutting Spiral Grooves in Grinding Rolls—Edwin Reynolds, Milwaukee,

JUNE 13.

Process of Decorticating Grain-Wilson Ayer, Washington, D. C.
Grain Reduction Machine—John M. Case, Columbus, O.

Feed Regulator for Grinding Mills-Melvin

B. Church, Grand Rapids, Mich.
Grinding Mill—Melvin B. Church, Grand Rapids, Mich.
Device for Tightening Bolting Cloth—Milford Harmon, Jackson, Mich.
Grain Conveyor—Henry Harrison, Burlington Love

lington, Iowa.

Automatic Grain Sampler—Washington
Hawes, Port Richmond, N. Y. Grain Dryer-Edward Thompson, Hokah,

JUNE 20.

Buckwheat Hulling and Separating Machine—Wm. A. Cowley, Stamford, N. Y. Roller Mill—Noah W. Holt, Buffalo, N. Y Machine for Collecting Dust-Alvah H.

Kirk, Minneapolis, Minn.
Roller Mill (re-issue)—Udolpho H. Odell, Dayton, O. Grain Register—Wesley Stringer, Port

Dover, Ontario, Canada.

Middlings Purifier—Augustus Wolf, Allentown, Pa.

JUNE 27.

Grain Separator-Holman A. Barnard, J. B. Cornwall, Moline, Ills., and J. S. Leas, Rock Island, Ills.

Dust Collector-Milford Harmon, Jackson,

JULY 4.

Friction Gearing for Roller Mills—Chas. B. Campbell, Buffalo, N. Y. Roller Grinding Mill—James Dawson, Clear Grit, Minn.

Flour Dressing Machine—Wm. D. Gray, Milwaukee, Wis.

Apparatus for Drying Grain—Nels. W. Hawkenson, Litchfield, Minn.

Roller Mill-Udolpho H. Odell, Dayton, Ohio. JULY 11.

Method of, and Apparatus for, Degerminating Wheat—Chas. L. Gratiot, St. Louis,

Mo.
Roller Mill—Noah W. Holt, Buffalo, N. Y.
Dust Catcher for Mill Stones—George Dust Catcher for Mill Stones—Geo-Kiefer, Stuttgart, Wurtemburg, Germany. Grain Cleaning and Assorting Machine-Wilhelm Kruger, Kalk near Cologne, Ger-

Grinding Disk—William Lehman, Milwaukee, Wis.
Wheat and Middlings Reducing Mill—James Pye—Minneapolis, Minn.

JULY 18. Apparatus for Separating Cockle and Seeds from Wheat and other Grain—Ebenezer Winchester, Rochester, Minn.

Dust Arrester—Chas. M. Hardenbergh,

New Stive Room.

In the discussion on the report to the Home Secretary on the Macclesfield flour mill explosion, read at the meeting of the National Association of British and Irish Millers on the 13th of February, 1882, Mr. Stansfield referred to a stive room which was being erected by his firm for the dust which was blown from the stones and rollers in the mill.

Among the advantages claimed for this dust room are: 1. All the air must pass through cloth, canvas, or bunting. 2. An arrangement in which the largest area of canvas is placed in the least space. 3. An arrangement in which the wind in its course over the canvas travels downward, so that the dust dropping off the canvas is not driven up again by the incoming current of air. 4 The least possible amount of woodwork. 5. The least possible cost. 6. Simplicity.

The room is built some considerable distance from the mill, on the reservoir attached to the latter, and as the water could not be conveniently taken out, four pieces of an old boiler flue were each driven into the bottom of the reservoir and clayed round, the water being subsequently pumped out. Inside the caisson thus formed, 12 inches were excavated from the dam bottom for a solid foundation, and a bolt having been fixed vertically in the center of each the tubes were filled up with Portland cement concrete, a plate being attached to the bottom. Across the top of the foundation pillars two thicknesses of 11 in. planks were placed, which were covered by 2 in. boards, which are held down by four large castings, secured by the bolts already mentioned. The joists of the room are made fast to these castings, to prevent the fabric from being blown over. The room is 6 feet square by 30 feet high at the sides. The frame work is substantial, but covered with boarding of only 1 in. thickness, and at the top of the building is the stive box, 6 feet square and 2 feet high. The air from the fan is discharged through a 20 in. pipe. upward in the stive box, through an opening. The bottom of the box is composed of lattice work, with openings 3 inches square and 51 inch centers. In each of these openings is fixed a canvas or bunting pipe, having a circumference of 12 in. and 7½ yards long, these pipes hanging down into the room, and their lower ends are stopped by tying a loose knot on each. The large opening in the bottom of the stive box is useful manhole, in order to get to fasten the pipes in the openings in the lattice work. The area of a pipe 12 in. in circumference and 7½ yards long, is 2½ square yards, which, multiplied by 160=400 superficial yards. Only 140 tubes are placed in the stive room, so as to leave an opening on two sides of the pipes, which is convenient for allowing a man to go once or twice a week and shake them a little before or after emptying them. For this purpose an open floor is fixed 8 or 9 feet below the bottom of the stive box, access to which is afforded by a ladder fastened inside the room. In cleaning out the pipes, the man generally shakes them at the top, then opens a few of them at the time and lets the dust out, either into a sack held under, or on to the floor below, the quantity which escapes during the operation being trifling.

The dust room, which receives the air from nine large middlings purifiers and several other machines, and is bolted against the detail. We believe the day of radical changes edge of one of the mill buildings, is 7 feet 6 in processes and appliances has gone by. by 8 feet 6 inches inside measure, and 42 feet high. It contains 1,000 superficial feet of canvas, and at one time the stive from the millstones was blown into it. Since the explosion in the Messrs. Fitton's mill, however, Mr. Stansfield resolved to provide a special compartment for the latter; hence the erection of the independent stive room we have described above, and in which means have been provided for the filtration of a very large body of air at comparatively little cost. -The Miller, (London).

The Flour Mill of the Future.

Whether the roller system or disc system of wheat reduction will finalty achieve supremacy matters little for the purpose of this article-gradual reduction as a process has demonstrated its value so palpably that a return to low or flat grinding need not be apprehended for years to come. There are hundreds of millers, who, during the past decade, have spared no effort or expense to soil and climate. Until these properties No more too much bran in the flour and too keep in the van of improvement, while hun- were generally known, the bolting process of much flour in the bran; a perfect separation dreds more have given up the efforts to do milling seemed to have obtained special at- is secured, more and much better quality of so, apparently convinced that improvements tention, the growing fashion being for fine flour is obtained, giving the miller a better radical in their nature, would be forthcom- white flour, regardless of any other condition, margin for his investment, risk and labor, and Frame.

ing, so long as millers could be found to until the microscope was necessary to deteradopt them.

Looking back over the years that are been but a transitorial era in the history of American milling. No valuable ever the result of a single step, but are brought about little by little, and when thora better, more economical, or more profitable manner of reaching results. It is, perperfection may be, when we enter upon a system of improvement, as, in all probability, few would be willing to burden themselves with the anxiety and expense necessary to its attainment could they comprehend the magnitude of the undertaking, and as a consequence improvements would lanwere not altogether abandoned.

Every step taken in the right direction, however, compensates the one taking it, in some measure, and there is a certain degree of satisfaction, to the progressive man, in the fact that his efforts have not been altogether fruitless. He is encouraged to go still further, and, so long as every step taken results in his favor, so long will he continue to improve. The men who have the nerve to inaugurate improvements, and by inaugurating we mean adopting, are entitled to gratitude for their enterprise, as the results of their efforts in this direction serve as guides for others in the trade. If an improvement is of value it is so demonstrated by them and its adoption by others can be safely undertaken, but, if valueless, others are saved the expense and annoyance of testing.

The past ten years have been, as we said, a transitional era in the history of American milling. Systems and methods of procedure have been adopted, tested and abandoned, until, within a short time, mechanical appliances appear to have reached such a degree of pertection as to almost warrant the belief that the day of radical changes has assed. A system of gradual reduction has come to be recognized as preferable to any other, and, while opinions as to the relative merits of mechanisms for the performance of the reductions differ, the system itself is admittedly correct.

The flour mill of the future will be a very much different establishment from that of ten years ago. We look to see it a clean, tidy establishment, performing its offices almost wholly automatically; relieved in a great measure of its forests of spouts and elevator legs; having a pure, wholesome atmosphere, almost wholly devoid of dust, and its bolting facilities of a perfect character, readily comprehended, easily adjusted, and reduced in space occupied very materially from the present style. Much has been accomplished in this direction during the past two years; much still remains to be accomplished, but not, we believe, in the direction of radical changes in systems or appliances. These we have in abundance, giving most excellent and satisfactory results, but there is still room for improvement in the application of them. Improvements and changes will, of course, be made in the machines that go to make up the equipment of the mill, but it is not unlikely these changes and improvements will be simply matters of Milling World

Gradual Reduction Milling.

[From a paper read before the Farmers' Institute of Richland Co., Ohio, by Mr. C. A. Burrows, book-keeper for Hicks, Brown & Co., Mansfield, Ohio.

Until forty years ago the method of milling was seemingly to grind the grain as quickly as possible, regardless of the chemical effect on the product by friction and heat; it was truly chopped, bolted and bagged on short notice, and within the memory of many besides the oldest inhabitant a large portion of the offal was scattered to the winds or dumped below the dam. A better acquaintance of scientific matters, and the observation of practical minds, called attention to the constituent elements of the wheat berry and with the discussions of Drs. Graham and tinous elements so much desired; and now Jackson, everybody is now well advised that the principal components of the wheat grain are gluten, starch, albumen and minerals of

mine the number of meshes per square inch for prime wheat than heretofore, and with in the silken bolting cloth in use, bread repassed, one can now easily determine that it form doctors to the contrary notwithstanding. The day is dawning, however. Twenty years ago emigration swarmed toward the radical changes in systems of procedure are Northwest, which seemed to invite the wheat raiser especially, by its long clear summer days and dry atmosphere, and its specal oughly established, one hardly realizes the adaptness of conditions for the growth of the devious paths trodden in the attempt to reach hard spring wheats, requiring scarcely the period or proceeds of a four months' promissory note to put in seed, harvest, thresh haps, well that we do not realize how far off and market a crop. Analytical chemists had declared that these hardy wheats contained a large percentage of that flesh and bone element known as gluten, but from some cause then unknown, but attributed to milling, the flour from spring wheat did not make as satisfactory a loaf of bread as was desired. Investigation discovered the same weakness guish, if indeed attempts in that direction in bread from winter wheat flour. Necessity once again began invention, and ten years ago the new Gradual Reduction process of milling was born, and that revolutionist, the Middlings Purifier, declared himself the autocrat of the milling world. A new era in food products is the result. The astounding revelation is made that for centuries, the horse, pig and cow have luxuriated on the best portion of the wheat berry, fattened with socalled white middlings, and man had eked out an existence on the dry water element, known as starch. Less than ten years ago there was not in the United States any other mode of reducing wheat grain to flour than the old familiar circulating burr-stone; to-day its epitaph is being written.

> As the direct object of this writing is to induce farmers to cultivate the hard, flinty varieties of wheat, we beg leave to submit briefly the reason for so doing. As before noted, knowledge of the constituent properties of human food is now a matter not solely the property of the chemist; he has given it to children of public schools, and the demand is not from the miller, it is from the bread eater; he will be satisfied only with the best, and all there is of it in the wheat berry. The relatively very high price which strictly patent process flours of the past ten years have commanded, plainly indicates that merit will be appreciated. It may not be out of place to suggest that that flour is not manufactured in the ordinary use of the word. It is a creature of divine wisdom, pure and simple. Under the outer coatings of the berry, which have been termed bran, the infinitesimal granules of the various elements are found, requiring only more or less pressure or rubbing to disintegrate them, and in various formula under the hands of the baker, soon to be transformed into food. This superb article of flour cannot, in its purity, be obtained from soft wheat, nor wheat that contains an excessive proportion of starch, and though the wheat may be in proper condition, it has been found difficult to obtain satisfactory results in reducing with millstones. Indeed, the inevitable has tradspired, the stone burr is buried, and the fittest wheat only will survive the ordeal of the roll and purifier.

To those who may have witnessed the operations of the roller mill, it will not be necessary to say that the term roll does not correctly convey the idea of the action of the wheat berry. It is not crushed or flattened out as might be supposed, but is passed several times, at intervals, between rolls which run at differential speeds, and break or rub apart the coalesced granules. In its first passage, the grain is broken into two, possibly three pieces, which are scalped or bolted through coarse wire cloth, removing the germ and impurities found in the crease of the berry, and again passed through another pair of rolls, broken again as coarsely as possible, again scalped, portions of the bran removed, and so on through as many as six or seven reductions or "breaks," technically so termed. At each break small quantities of flour are made, which is passed to the purifiers, the revolutionist above referred to, a valuable machine, in which are recognized the laws of pneumatics and gravitation, producing purified middlings by separating the grits from the break flour. These purified middlings, and plenty of them, are the game of this interesting chase. They are the gluafter passing through forty or more reductions and separations are finally finished on porcelain rolls or stones specially designed various character, according to conditions of for that purpose. The product is complete.

enabling him to offer relatively better prices greater assurance can warrant the flour to make good, light, nutritious bread.

Flour and Grain Trade Notes.

THE total value of exports of breadstuffs for the eleven months ending May 31, 1882, was \$167,653,532 against \$245,955,413 for the eleven months ending May 31, 1881, a falling off of \$77,301,781.

PREPARATIONS are making for the shipment of grain from California to Europe via New Orleans. Messrs. Geerge Hart and John A. McNeil, of Stockton, Cal., have been here for some days examining terminal facilities and completing arrangements for through shipments, to begin as soon as the railroads can furnish the necessary transportation from the Pacific slope.

THE prospect of the wheat crop in California is exceedingly flattering. From July 1, 1879 to July 1, 1881—two crop years—California produced 93,000,000 bushels of wheat, for which some \$85,000,000 were realized, or nearly \$100 for each of its inhabitants—and the indications are that the crop of the present year will be the largest ever harvested in the state.

A San Francisco journal claims that, from present prospects, India this year will have as large a quantity as 69,000,000 bushels of wheat to spare for export. This would be nearly double what was sent to England last year, according to the Calcutta correspondent's statement, that quantity reduced from tons being 22,400,000 bushels of sixty pounds

The experience of the Georgia farmers has been favorable to the "Bill Dallas" wheat, a variety which originated in Lincoln County, Georgia, many years ago, but not brought prominently to notice until within the last five years. It is a full, plump-grained, amber-colored wheat, tolerably early, with tall, stiff straw, and is very hardy to resist dis ease, especially rust. Seed may be had in season, of Mark W. Johnson & Co., of Atlanta,

THE Age of Steel, (St. Louis), draws a rather gloomy picture for its readers. In a recent number it says, whilst considering the influence of crops on business: "From present indications, therefore, it looks as if the de-mand for American wheat will be exceedingly small, compared with last year's demand, and if we cannot dispose of our surplus grain abroad the fact is patent that large harvests would be of little or no benefit-in fact, might be the very reverse of beneficial. Add to this the awful certainty that gold is flowing out of the country in a constantly increasing stream, and the situation is not a pleasant one to contemplate. The balance of trade is largely against us, and the outflow of gold, if continued for any considerable length of ime, will leave us as poor as that famous bird called "Job's turkey.

We do not think that our contemporary need as yet sound the note of alarm. If our crops are large our people can live more cheaply than heretofore which we think all will consider a blessing, especially that portion of the people who are bread consumers. True our gold is going out to a moderate extent, but an unknown quantity of gold is coming into the country in the pockets of thrifty immigrants which does not m ke its appearance in the statistical records. It has been estimated that the number of immigrants who would come to this country to make their homes during the year 1882 exceed 800,000. This addition beside the natural increase of our population, will make our home consumption greater than ever be-

If the cost of living had not increased so greatly of late, we should have heard little or nothing about strikes. We confidently look forward to an immense harvest, a fair foreign demand, remunerative prices to the producer, and altogether a year's business at the end of which we can say we have had much to be thankful for.

J. B. MILLER & Co., of Ashley, Deleware Co., O., have just started up again, having put in a full line Reduction Machines, Rolls, Purifiers, etc., furnished by the Case Mfg. Co., Columbus, O. They have only been running about three weeks, but are so pleased with the new system that they have settled for it in full. Mr. Miller says the women in the neighborhood are constantly dropping into their office with a loaf of bread from his new flour and complimenting him on it and make him feel good.

A. FREDENHAGEN, St. Charles, Ill., visited Milwaukee a few days since and left his order with E. P. Allis & Co. for two pairs of their porcelain rolls in Gray's Noiseless Frame, also one pair of their sharp corrugated rolls in Gray's

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY. OFFICE, No. 118 GRAND AVENUE, MILWAUKEE, WIS.

SUBSCRIPTION PRICE.—PER YEAR, IN ADVANCE.

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

MILWAUKEE, AUGUST, 1882.

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

Flour Mill Directory.

CAWKER'S AMERICAN FLOUR MILL DIRECTORY for 1882, was completed, ready for delivery February 1, 1882.

It shows that there are in the United States 21,346 flour mil's and in the Dominion of Canada 1,488. The mills in the United States are distributed as follows:

Alabama, 388; Arizona, 17; Arkansas, 234, California 209; Colorado, 52; Connecticut, 309; Dakota, 44; Delaware, 96; District of Columbia, 7; Florida, 81; Georgia, 514; Idaho, 18; Illinois, 1258; Indiana, 1163; Indian Territory, 3; Iowa, 872; Kansas, 437; Kentucky, 642; Louisiana, 41; Maine, 220; Maryland, 349; Massachusetts, 363 Michigan, 831; Minnesota, 472; Mississippi, 297; Missouri; 942; Montana, 20; Nebraska, 205; Nevada, 10; New Hampshire, 202; New Jersey, 445; New Mexico, 28; New York, 1942; North Carolina, 556; Ohio, 1462; Oregon, 129; Pennsylvania, 2786; Rhode Island, 47; South Carolina, 205; Tennesee, 620; Texas, 548; Utah, 129; Vermont, 231; Virginia, 689; Washington Territory, 45; West Virginia, 404; Wisconsin, 780; Wyoming, 3; Total, 21,356.

The directory is printed from new Burgeois type on heavy tinted paper and is substantially bound. It makes a book of 200 large pages. The post offices are alphabetically arranged in each state, territory or province. The name of the mill, the kind of power used and the capacity of barrels of flour per day of 24 hours are given wherever obtained which is in thousands of instances This work is indispensible to all business men desiring to reach the American Milling Trade.

Price Ten Dollars per copy on receipt of which it will be sent post paid to any address. Remit by registered letter, post-office money order or draft on Chicago or New York made payable to the order of E. Harrison Cawker, publisher of The United States Miller, Milwaukee, Wis.

THE total value of the export of breadstuffs for the six months ending June 30, 1882, was \$64,833,581 against \$111,980,917 during the corresponding period in 1881.

An item has been going the rounds of the milling papers lately, announcing the immigration of one hundred millers from Hamburg, May 31. These immigrants we are informed were silk millers and not flour millers.

THE MILLERS' NATIONAL INSURANCE Co., of Chicago, in their report dated July 1, 1882 show, total assets \$685,024.53. They have no unpaid losses and no contested claims. The total amount of losses paid since organization aggregate \$160,402.14. Col. W. L. Barnum, of 143 La Salle St., Chicago, Ill., is the secretary of the company.

THE United States Senate has passed a bill appropriating money to pay for surveying the line of the proposed Hennepin canal. The people of Illinois will be called upon this fall to vote upon the question as to whether or not they will cede to the United States, the Illinois and Michigan canal. It is expected that this will be done; if not, it is not probable that the U.S. Government will undertake the enterprise.

THE business failures for the six months ended June 30th, as reported by the mercantile agency of R. G. Dun & Co., were 3,597, with liabilities of \$5,000,000. The failures for the first six months of 1881 were 2,862, with liabilities aggregating \$40,000,000. The increase for the first half of the present year is, therefore, in number and amount, about 25 per cent. as compared with the corresponding period of 1881.

WE have received from the publisher, Mr. Howard Lockwood, 74 Duane street, New York, a copy of "The Miller, Millwright and Millfurnisher," by Robert Grimshaw, C. E. This is a handsome work of about 550 pages, illustrated by 400 engravings. The work is a cipal points West, who will at once take valuable compilation of almost everything charge of such packages and send them pertaining to modern milling, and any millowner, millwright, or miller will find it of weighing from 2 lbs to 20 lbs are most desirgreat use to him and should have it in his library. The book shows the results of much labor and research and is carefully indexed so as to make its information easily available age would be from \$1.00 to \$3.50 from New to anyone. The price of the book is \$6.00 York. Shippers will receive any informaper copy, post paid to any address. We predict for the the book a handsome sale.

Mr. J. F. Graham, a veteran miller of Rockthan stones for making flour, and in a recent letter to us, says:

"Is it not a lamentable thing to see millers all over the country throwing away their splendid millstones for those miserable roller mills and spending millions for an article that is nothing but a bill of expense, when the very stones they have thrown away can be made to outdo the roller mills or any other iron device that has ever been made. I can satisfy the most skeptical miller in a short time, if he will visit my mill, of the superiority of stones for milling, either for making middlings, cleaning bran, or any other necessary reduction required to make good flour economically.

WE have received from the United States Department of Agriculture a 100 page pamphlet entitled "Florida; its Climate, Soil, Productions and Agricultural Capabilities.' This work is an excellent advertisement for Florida, and it seems to us as if it had ought to have been printed and paid for by that State. We understand that 864,000 copies of bring suit for infringement of patents against this pamphlet have been printed the cost of which could not possibly have been less than \$50,000. If Florida has the right to be advertised so enormously at the expense of the U. S. Government we see no reason why other states should not also have a feed out of the public advertising crib.

On the 15th of July, Mr. S. H. Seamans, Secretary of the Millers' National Association, published his report of the condition of crops, received in answer to 2,000 circular inquiries sent out to the millers and others in every section of the country. After giving his report in detail, Mr. Seamans concluded as follows:

A careful perusal of the foregoing will confirm the opinion that that the crop of 1882 will prove an exceptional one, in quantity and quality, in fact the outlook indicates the largest wheat crop ever raised in the United States. If the yield of 1881 is correctly estimated, on the basis of 488 millions, the crop of 1882 will exceed 500 milions, providing the spring wheat meets with no Not only is the quantity immense, but the misfortune. quality promises, or is equal to any crop of former years, We look to see our millers in position to make flour which will enable them to compete, both in quality and price, with any market in the world.

In answer to the question, "What is the amount in mills and warehouses in Wisconsin?" the circular says:

"Very little outside of Milwaukee; 700,000 in store in Milwaukee, held by "Ring Grippers;" the quality of which is unsatisfactory to the millers, and can only be used to advantage for making choice flour by adding a large percentage of the hard varieties. Sample wheat selling in the Milwaukee market to-day at \$1.45 to \$1.50 per bushel. So long as the present rules of inspection remain, which allow the grade to be governed by the weight test admitting scoured wheat into No. 2 and higher grades, so long will our "grade" wheat be inferior for milling.

The Suez Canal.

Should the Egyptian war be the cause of closing the Suez Canal the commerce between Europe and the Orient would be very seriously interfered with. It seems probable that but few shipments of wheat from India will be made if the war continues. If the canal is closed all commerce will have to be carried on via Cape Horn or via the Pacific steamers, railroad across the United States, and then again by steamer to Europe.

The Suez Canal was opened for traffic Nov. 17th, 1869. It cost about \$60,000,000 and is owned principally by British capitalists. It has caused a great increase in traffic between Europe and Oriental countries, and the British public has congratulated itself on being well supplied with cheap wheat from British India via the Suez Canal. We are loth to believe that Indian wheat will soon cut any very important figure in the European trade with the canal open and unobstructed. If Arabi Bey should blockade the canal now it will strike a blow to the Indian grain trade from which it will not soon recover.

Important to Millers and Grain Shippers-How to Send Samples of Flour or Grain to Europe.

To any seeking a European market where in many instances it is absolutely necessary to send samples, it may prove desirable to know that the most complete arrangements exist for the rapid transportation and delivery of such packages promptly and at very moderate prices, by Theo. Baldwin's European Express, 53 Broadway, New York. This express has agents in the prinspeedily to any point in Europe. Packages able when quick delivery is important. The weight should not exceed 20 lbs, although much heavier are carried. Price of expresstion desired upon application to Wm. G. Taylor, P. O. Box, 354, Milwaukee; G. A. Carring-

ton, No. 8 North 3d St., Minneapolis; John Pet- Tower Hill, London, Eng. Mr. Thomas is ford, Ia., does not believe that rolls are better erson, Adams Express Co., Chicago; L. H. one of the most extensive flour buyers of Abrams, Jr., Adams Express Co., St. Louis, Great Britain. He is now on a trip through or at the Head Office in New York City. for business. Heavy expense has been incurred to make this sample service (now a specialty) as effective as possible. Many thousands of such packages are forwarded annually and they are now delivered almost as rapidly as the mails, even at remote points.

Another Patent Suit.

We are reliably informed that a party who claims to have patented the use of magnets for removing metalic substances from coffee, spices and other substances has announced his intention of demanding royalties from users of magnetic grain separators and in case his demands are not submitted to will such users.

The Millers' National Association has already received notification of the patentees' intentions. His claims will be thoroughly examined and if not found to be justifiable, they will, as a matter of course, he resisted.

[For the United States Miller] Two Hungarian Opinions About American Flour.

Mr. Emerich Pekar, the eminent Hungarian milling expert, in his recent report to his government, said:

"The United States could not adopt our system, because there is no sale for the dark flours, represented by our numbers, 7, 8, 81 and 83, for the rich and the poor alike are accustomed to a white bread, and the flour is intended to supply the requirements for white bread and not for pastry. This demand is satistied by the production of three grades, as is now the case in Minneapolis, for example and in them, darker grades are sometimes mixed though not to any great extent. Another reason why middlings milling flourished there only to a certain degree, is the fact that the public, influenced by the quality of the wheat, have been accustomed to one straight grade of flour, and therefore this custom had to be taken into account, as of the greatest importance in producing this grade of flour by another system. From local reasons, it is consequently not to be supposed that the Americans will make as many grades of flour as we do, but, unfortunately, it is on'y a question of a very short time for their flour to equal ours in purity and excellence.

And now comes the Ungarische Muehler Zeitung, which, commenting on the allove extract, says:

We beg leave to express a contrary opin-We do not believe that the strength for which our flour is celebrated is to be found in any of the American brands. * * * * Of twenty-six brands of American flour examined, two had no gluten at all and in two others was very deficient. Of thirteen Hungarian samples tested all were found to be glutinous to a high degree. glutinous to a high degree. Americans have not got the wheat to make a flour equal to Hungarian flour. We recently examined with great care, a sample of American "finest patent process" flour, sent to us from London. Under the microscope this flour appeared to be mixed with small, flattened particles of a yellowish color. Evidently this sample of flour was made from a mixture of American and Hungarian flour, the latter ground on smooth rolls. Upon doughing up and baking samples of this flour and of Hungarian flour No. 3 from the Ofen-Pest Mills, Budapest, the American sample was found to be greatly deficient in water absorbing qualities and did not rise as well.

Personal.

CLIFFORD F. HALL, editor of The Grain Cleaner, Moline, Ill., called during the past month.

GEO. T. SMITH, of world wide purifier fame, has been visiting Minneapolis during the past month.

Mr. GEO. B. HECKEL, one of the Chicago representatives of the Lockwood Press, of New Milwaukee.

Mr. Prinz, the inventor of the Prinz Dust Collector, called on us. He informs us that his machine is meeting with the most gratifying success.

Lindsay Atkinson, Esq., of Shell Rock, Neb., call on us July 28th. Mr. Atkinson will accept a position in the Daisy Roller Mill, of Milwaukee

Herman F. Notbohm, Esq., of Janesville, Wis., called on us during the month. He has closed out his entire interest in milling property in Janesville and expresses his infor the sake of pleasure and health.

July 22d we were favored with a call from Proctor Thomas, Esq., of 15 Trinity Square, tomer.

H. B. Storr, Adams Express Co., Cincinnati; this country partly for pleasure and partly

W. C. Edgar, of the Northwestern Miller, made us a pleasant call on his way East to visit friends. The N. W. Miller is prospering and it is safe to say will continue to do so in the hands of such able gentleman as Messrs. Palmer and Edgar.

Mr. J. E. Mann, of the Geo. T. Smith Middlings Purifier Co., made us a brief visit. The calls upon his time from customers are so frequent that he is kept in motion about 'eight days in the week" so to say. He says he will try to satisfy all demands if the weather keeps cool.

John Kelner, Esq., head miller for C. L. Colman, at Winnebago City, Minn., paid us a brief call. He reports the milling business dull just now on account of scarcity of wheat. Mr. Kelner's host of Milwaukee friends are glad to see him again.

Mr. S. S. Chisholm, of the firm of Chisholm Bros. & Gunn, Chicago, Ill., and formerly one of the proprietors of The American Miller, was married June 22, to an American lady at St. Pancras, England. We wish him and his bride a long and happy life.

Robt. Williams, Esq., the handsome head miller of the Empire Mills, of Milwaukee. has just closed his engagement with that mill and is taking a brief vacation. He thinks some of moving away from Milwaukee but we hope he will change his mind and bide with us yet a while.

Mr. C. C. Rogerman, editor of the Miller and Millwright, of Cincinnati, O., called on us recently on his way to the Northwest. Bro. Rogerman recently entered into the holy bonds of matrimony with Miss Lizzie Schraer, daughter of Hon. George Schraer, of Cincinnati. We congratulate him on his good fortune and wish the young couple a life of hap-

D. Narracong, Esq., of Reedsburg, Wis., called on us recently and showed us a handsome model of his recently invented waterwheel governor. This governor is simple in construction and costs but little to build and attach it. An alarm bell in connection with it gives warning immediately whenever there is a change of speed.

Foreign Items.

FIFTY Spanish bakers were recently arrested, tried and fined, in Madrid, for selling bread short in weight.

THE import duty on breadstuffs, in Morocco, has been reduced by the Sultan.

L. C. PORTER, of Winona, Minn., has arrived safely in London and is now enjoying himself in Paris.

It is said that out of a total of 2,000,000,000 acres of land in Australia fit for tillage but about 9,000,000 have been brought under it.

MILLING TRADE OF GERMANY .- At a meeting of millers at Erfurt, Mr. Wyngaert said there was a positive crisis in the milling trade of Germany. In spite of the protective duties many millers had failed, and the effective value of the mills was lower. In Westphalia, for example, a mill that was formerly let at £180 only brought £110 now; one purchased for £5,150 was sold for £2,510, and another was offered for £3,500, the bare cost of the building. These and similar cases were to be found in all Germany, particularly in the west. What was the cause of this? It could not be denied that the improved systems were to blame for it, for instead of their being used to improve the production, they were frequently only used to produce the largest quantity possible, resulting in overproduction. The credit system was another curse of the trade. They had brought things York, called on us while making a flying visit to so far as to give a baker credit without knowing within what period they would get their money, and although many millers granted nominally only three months' credit, this term was often lengthened to retain the customer. He should like to know how many thousands of bakers there were who were carrying on other business with the millers' capital. He considered the system an evil one and urged them to follow the example of the Nuremburg millers, and restrict the credit to two months at the utmost, and abolishing forward sales. He remarked how easy it was for a baker to start in business. All he had to do was to rent a shop, get an oven tention of going abroad for a year or more built on credit, and the miller would at once furnish him with capital, i. e., with flour, congratulating himself on having secured a cus

"BEST IN THE WORLD."

GARDEN CITY

WHEAT BRUSH!



Gathmann's patent "inclined bristles prevents all clogging when the brushes are run close together. This is the

ONLY DOUBLE BRUSH

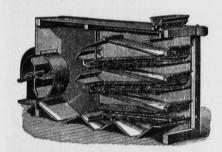
Which can be set up close so that it will

Thoroughly Brush Wheat. Guaranteed to IMPROVE COLOR of the FLOUR.

It don't break or scratch the grain. Removes all the dust. Very light running Send for circular and prices.

Prices Reduced! **Improved Garden City**

Middlings Purifier!



With Travelling Cloth Cleaners

Our improved Purifier has every device requisite to make it perfect, and every one in use is giving the greatest satisfaction to the users. The Cloth Cleaners are guaranteed to clean the cloth better than is done on any other purifier. Send for our new

Over 4000 Garden City Purifiers in use, nearly 500 of which are the Improved Machine.

The Best and now the Cheapest. Write for circulars and price list.

We are agents for the

BODMER

Bolting Cloth!

Which has long been acknowledged as the best made, and which has lately been further improved, making it now beyond competition. We make it up in the best style at short notice. Send for prices and samples.

Garden City Mill Furnishing Company, CHICAGO, ILL.

[Mention this paper when you write us

An Angler's Greeting

True anglers, true anglers, for many miles 'round, Wherever I've sought them, good fellows I've found, And let them be neighbors or let them be brothers, To me a true bobber's more welcome than others. With my rod while I roam, or my tackle put up, Each weary piscator shall share my ale cup. Then fill up each glass, and be blithe while you may, To-morrow let's fish, but be merry to-day.

[Written for the UNITED STATES MILLER.]

Plain Talks About Milling.

By RICHARD BIRKHOLZ, M. E.

(Continued from June number.)

In regard to obtaining the best possible grinding results, yields and separations, I once more will compare the rolls and mill-

For granulating wheat, the rolls give far better results than millstones. The bran is not pulverized so much by a series of reductions on rolls as it is by a single grinding with millstones.

Corrugated rolls of any dress, dull orsharp, will yield a larger percentage of middlings than can be obtained by stones, and what the millers of to-day care for principally are middlings; middlings of such a shape that they will admit of easy and perfect purification. As the wheat is handled from five to seven times on corrugated rolls, it becomes an absolute necessity to avoid the over-production of first flour, and it is evident that the sharper the corrugations of the rolls are, the less flour will be produced. Extreme sharpness of the rolls however may not be desirable, for when sharp dressed rolls are new and the corrugations "knife-sharp," the bran is cut up smaller than it should be and to some extent it is pulverized at the same instant and mixed with whatever small amount of first flour is produced. This undue sharpness, however, very quickly disappears. Three or four weeks are sufficient to remove this keen edge.

Dull dressed rolls will produce far more first flour, and consequently less and smaller middlings than sharp rolls. They will not produce sharp, square middlings and especially not the amount of coarse middlings, from 000 to 0, obtained by sharp rolls, even from the softest wheat.

The over production of first flour and fine middlings by dull dressed rolls is quite evident when the speed of the roller surfaces is taken into consideration. Dull rolls must run at least fifty per cent. faster than sharp rolls, in order to granulate the same amount of wheat. The grinding resembles a pounding or hammering on the wheat kernels and results in an unwished for yield of finest flour dust, depreciating the first flour and this result is still increased by the centrifugal force, increasing in proportion to the square of the velocity, by which much more dust is thrown off than by sharp rolls. This dust will, to a certain extent, escape through the crevices of the roller mill enclosures and contaminate the air breathed by the operatives, which is unquestionably prejudicial to health.

The bran reductions can never be made economically with dull dressed rolls. This seems to be an universally acknowledged fact. For grinding corn with rolls, they must be provided with sharp corrugations. I have tried it and have found the corn would flatten and leave the rolls caked, flattened ready to crumble apart. I also became aware of the greater power needed for I could scarcely turn the hand roll with which I made my experiments. Coarse middlings must not be ground, they must be crushed, therefore a millstone will never do for reducing coarse middlings. Smooth chilled iron rollers are best adapted for sizing or crushing coarse middlings. The oily germs will become flattened and pass over the tails of suitably clothed reels. Middlings up to No. 6 cloth may be crushed on smooth iron rolls, although porcelain rolls will flour better on those middlings and produce less dust middlings-returns, to be contended with.

Fine middlings (from No. 6 to No. 9 cloth) and dust middlings, (from No. 9 cloth to flour cloth), are best ground on porcelain rolls, not so well on stones, and poorly on smooth iron rolls. The advantage gained by grinding on porcelain rolls is cool grinding; the flour feels sharper and looks richer than flour ground on stones from the same stock. Porcelain rolls can be used right along while stones must lay idle every fifth day to be re-sharpened. In new process mills we cannot afford to have any tools idle, hindering the carrying on of the various things necessary to be done

ought to be provided for, if one stone or more salary of the stone dressers, the readers will understand, and,-here comes in a little story about porcelain rolls-

Some millers near Milwaukee bought a single Wegmann porcelain roller mill for second dust middlings. They were well satisfied with the work but not with the capacity to suit their requirements. The machine was sent back and a double one ordered. During a few days they ground the stock on a spare stone. It happened to be dull and almost every bag of bakers flour was returned to the mill. When the double porcelain roll arrived the difference of work was very cheerfully noticed.

One day the proprietors found the head miller and second miller standing at the roll cursing and swearing, and not mildly either. The air was full of blasphemy. "Let us send back this roll," was the cry of the miller, "it is not worth a continental!" The proprietors found it did not grind. They left the place in disgust and held a council to determine what the matter was. Soon they approached the roll again and saw the second miller looking pleased. He explained; the source of his delight was that the rolls were working all right. "What did you do?" 'Well, I turned back the screw hand-wheels and at once I perceived the hissing of differential motion." Reason: The back-belts had become slack and the mill was "on a strike" it flattened the stock but did not grind it. The proprietors told me about this and said that a stone was an indiscriminating worker grinding whatever was entered, caring nothing about the product, while the rolls had a certain instinct, they would "strike" when badly cared for, but they would never spoil the flour as the stone did some little time

Scratched rolls will never perform the work of porcelain rolls. They will soon become dull and worthless. Porcelain rolls will stay sharp; they will work better than iron rolls on soft middlings, fine tailings and low grade

To cheapen the roller machines some manufacturers resort to the use of long bodied rolls. A roll ought not to be more than 9 inches in diameter and 18 inches long; thus they are heavy enough for handling and self-adjustable enough for grinding. The stream of feed will become uneven sometimes, and a short roll will obey the unevenness more readily than a long one; a long feed gate is also hard to control. Suppose the rolls have to be pressed together per inch of length with 100 lbs; then the bearing of the 18 inch roll is pressed with 900, the one of the 36 inch roll with 1800. The least crowding of feed, say a nail should pass, and the pressure instantaneously increased, the sudden blow will be on a 36 inch roll increased to double the amount of the increase of pressure on an 18 inch roll. So much harder on the-nail!

As more middlings are made by new process milling, more purifiers become necessary. The best rolls cannot make a good yield if they are not helped by the purifiers. Also the breaks must be aspirated in purifier the first flour will thus become more or less specky. The rolls must be aspirated, for the first soft flour dust sucked away does more good in the low grade flour bag than in the miller's lungs; the better flours also will present a sharper touch if the soft dust is eliminated. Dust catchers add to yield as shown above and are necessary in any good mill.

Centrifugal reels are indispensible for bolting the light and soft low grades.

The meal has not gravity enough to bolt well and would require several hexagonal reels for perfect separation, where one small centrifugal reel is sufficient. The beaters throw the meal gently against the revolving cloth, thus increasing the gravity of it artificially. But the centrifugal reel has another virtue. It works as a fan, sucking in air at the head end and working it towards the tail, the fine fuzz in the meal, stuff which would dash through the silk of an ordinary reel, is suspended in the air and carried over the tail into the feed. Elevator bolts or dash reels, the old French "Chasseurs" can never do the work of centrifugal reels; these elevator bolts, such as have been brought upon the market of late, consist of a in regular rotation and automatically. In winged spider and a cloth frame, the cloth order to suit the American automatical sys- standing slanting after the fashion of bold tem of milling, which we have worked so gathers. The meal is thrown against the hard to learn and establish, a spare stone cloth and thus bolted. These machines are on his head."

noisy, as the cloth frames must be knocked are needed to grind certain stock. Here frequently by a certain apparatus, also the comes in extra capital invested and the cloth wears out very quickly. They do for bolting fourth and fifth middlings, provided those are attempted to be ground on iron rolls and leave the rolls caked. The elevator bolts will detach, this is indisputable, but they will not carry off low grade fuzz as they throw the meal with too much force against

> Business and trade is ruled and regulated by honest competition. One man succeeds by assiduity and perseverance in climbing up the pole that leads to success against great opposition. When up on top, pausing to enjoy a remuneration for his pluck and energy, hundreds of others, well aware that there are "millions in it" try to climb up the same pole with the view of pushing off the one ahead. They do the climbing, so to speak, with such irons on their feet as the telegraph men use; climbing is made easy for them. I am aware they even contrive to persuade Uncle Sam to issue patents on their pe-cu-li-ar foot-rigging in spite of what has been in use for years. They all tell the world that their tools work better than those of the man on top; if it was not for their confounded ill luck, they themselves, every one of them, ought to be above the one on top. They resort to misrepresentations often against their own persuasion, but mundus vult decipi! in plain English, "the millers must be deceived!" Millers, keep your eyes open and use your common sense. Honest competition at first laughed at the introduction of rolls, produced stones all the way down to six inches in diameter; all claimed to be better than rolls of course. When this claim had to be surrendered they got up chilled disks and dull dress rolls. "Sharp rolls would never do." When the millers became clamorous for noiseless rolls, honest competition struck the key-note by affronting the millers with the assertion that belts were never positive, gears were "the thing." Alas, they could not hold this point; they let go and adopted the belts, and at once honest competition pledged its honesty by advertising that belts were all right. Honest competition now cowhides its own rolls, for at first it claimed dull rolls made 95 per cent. of patent flour with but 5 reductions and now it advocates 7 reductions in order to make a still better yield and a proportion of the 95 per cent. of patent, a still better patent flour. The dull roll's work, like a woman's work, is never done. Honest competition first encouraged the millers seeking cheap work, by telling them that but few middlings were made; all that was necessary was to place 5 dull dress rolls and keep the stones for the middlings. Not any more purifiers or reels were wanted, etc. Now the same honest competition claims that more middlings were made by dull rolls than sharp ones. Funny, sharp rolls were used in Hungary years ago and every sharp tool becomes dull. What would you do if you found your knife worked better when it was dull? Would you re-sharpen it?

I must say that I am greatly pleased when hearing of important inventions made by fellow citizens. As a matter of course the entire nation will eventually be benefited by the credit granted to the shrewd inventor and fashion to remove light bran, otherwise the we can, as fellow citizens, be proud of our bran will be liable to be cut up and powdered success. But our inventions of dull, centrito some extent by the next granulating roll; fugal and scratched rolls and rolls with surfaces impregnated, impressed with corundum flour, have yet to be proved more economical and practical than the foreign inventions of sharp corrugated and of porcelain rolls. I am afraid in this direction we stand but little show for laurels.

The Nation (N. Y.) tersely says: "Not one man in a thousand can be induced to economize merely for the public good. Whatever he desires, or the party in power in his domestic administration demands, that he will have if he has the cash or credit to procure it. Whether the objective matter be a summer tour, a champagne supper or a a sealskin sacque, he will determine the feasibility of obtaining it by consulting, not the comparative statement of imports and exports for the nine months last preceding, but the condition of his own pocketbook or the figures of his bank account. If the result of this examination is clearly adverse to his wishes, he will probably, being a a prudent and just man, deny himself the coveted indulgence. If there is a sufficient balance in his favor, he will delight his soul, pamper his palate and propitiate his wife and daughters, though another Black Friday should loom in the dim mists of the future, and the whole fabric of commerce be preparing to tumble

Technical Education.

Technical education is a subject that is just now attracting a good deal of attention in this country, not only among the teachers, whose special business it is to look after the training of the young, but among that larger and more numerous class of persons who are interested in the rising generation, as parents, philanthropists and reformers. Three things conspire just now to make this question prominent: (1) the necessity that is acknowledged to exist in the United States for training boys Journal. to become skilled workmen; (2) the selfish and stubborn disposition among the leaders of the different trade-unions to allow but a comparative few boys the privilege of apprenticing themselves to learn a trade, and (3) the influx of the immense number of foreign immigrants now flocking to our shore from the Old World, many of whom are skillful and experienced artisans and perfect masters of their pursuits, who are crowding the new beginners out of position.

These are the three branches of the question. The resident portion of our population who would like to see their children engaged in agricultural pursuits, begin to entertain well-grounded fears, if this large and ever-increasing volume of immigration continues, that there will soon be no good land to be obtained at a cheap rate, and certainly none in a few years to be had at Government price. So they are obliged to look about for other occupation for their boys beside the honorable, healthful and honest one of farming. They find all the so-called learned a rise imperils the home comfort of millions professions already full and running over, the supply far exceeding the demand, and yet all the colleges and universities contain thousands of others who are preparing to become lawyers, doctors or ministers. If a man would like to have his boys learn trades, he is confronted with opposition at the start. not from the proprietors of the manufacturing establishments, but from their workmen, whose societies limit the number of apprentices, and from their arbitrary decision there is no appeal. Hence it is that in sheer despair the American parent turns to the public schools for relief, and asks if that beneficient institution, which has done so much for his children already, cannot be made to help him in this emergency also, and establish a department for the technical education of his boys and girls at the taxpayers' expense.

The original intention of the common school system was to provide every child in the State, free of cost, with the opportunity of obtaining the rudiments of a good English education, and nothing beyond that. The old odd years, and very few of his "a's" got into "saw" expressed the idea exactly, with the three R's-"Reading', 'Ritin' and 'Rithmetic." After a little there was an innovation, and a pleasant "good morning." The boys nothe higher branches began to be taught in the | ticed his hand trembled somewhat, and that common school. Still later, the High School his voice was husky and uncertain, but they system grafted upon the parent stalk, with its normal departments for training teachers, the old man had been acting rather strangely and its classical courses, to prepare young for the last few days, and they attributed men to enter college. All this advancement these failings to a gradually weakening conhas been strenuously resisted by some taxpayers and wealthy capitalists, who insist hour throwing in, and had distributed nearly that it is done in violation of the fundamental all his matter, when of a sudden and without principles upon which the common school any previous warning, his composing stick system of this country rests. The most of fell from his hand to the floor, and he himthe money that is raised for the support of self tottered and would have fallen had not the public schools comes from the pockets the boys sprung to his side and supported of the wealthy classes of the community, who do not send their own children to the common schools, but educate them elsewhere, after paying their full share towards the fund that defrays the expense of educating their neighbor's children. But these men should see the duty and propriety of helping those who cannot help themselves. They can afford to contribute of their wealth for the amelioration and elevation of the condition of the masses, for the general good and with to a thousand pieces. This effort seemed to a view to ultimate public economy.

Resistance to the proposed establishment of technical departments in the public schools will be opposed by the same class of men who oppose the High School and the foreman, in a low voice, and then said aloud be distributed as required. There seems to teaching of the higher branches in the district schools. But technical education and the proper training of the young of both sexes, are undoubtedly among the most important and really necessary undertakings that now confront the present generation. Knowledge is power, and morality and intelligence go hand in hand. It would be a great thing if all our boys could be taught the use of tools and the arts of mechanism, as well as literature and science; and the claim of the girls, to be taught something relating to cooking the motion of travelling over the case in apt to be when laid by the usual rule of and housekeeping, or to be trained in a way that will aid them in obtaining an honest and

ought to be heeded with as much respect as is paid to the demand of their brothers. The opponents of the education of our girls and boys in the practical arts and mechanical trades at public expense reason from a superficial standpoint and from a mistaken notion of economy. The best economy, as far as society and Government are concerned, is that which educates the masses in knowledge and trains them to self-supporting industry. No proposition in social or political economy is more demonstrable than that.-Chicago

The Food Speculation.

While hundreds of thousands of workingmen throughout this country are on "strike" because their wages, though nominally larger than those of corresponding laborers in other countries, yet are practically smaller, because their purchasing power is less in relation to social needs, the Chicago market reports relate "a remarkable rise in the prices of grain and provisions" yesterday-"the more remarkable in view of the existing high prices." For the details we refer readers to our market columns. "Corn," they say "struck the highest price for years," and extraordinary speculative rises are also specified in oats, pork and lard.

When Wall street stock speculators win or lose we have no words either of congratulation for winners or pity for losers. That is an acknowledged gambling forum. But when indred methods of speculation are applied to the necessaries of human life the effect of of innocent families and endangers the public peace. The gamblers in meats and breadstuffs are adding what it is by no means impossible may be the last element needful to consolidate the discontent of workingmen into a political demonstration capable of confusing all the calculations of these party managers at Washington who are preparing for the coming political campaign in the old fashioned humdrum way.-New York Herald, July 8, 1882.

An Old Man's Fancies.

It is remarkable how the habits of life cling to a person, even during his last moments. The boys in the Inter-Ocean office hardly expected to find the old man at his case when they came to work in the morning, for when he had gone home the night be fore they had noticed his steps were very fee ble. For over forty years he has held a case; first on a metropolitan daily, then on a country weekly, and then on a religious monthly. His hand was steady yet, despite his sixty his "r" box. This bright sunshiny morning he came in and greeted his fellow-typos with paid no particular attention to these things; stitution. He stood at his case for almost an him to a chair in front of the fire. His head dropped forward on his breast, and his breathing became more and more rapid. returning held it to his lips. As the water touched his parched tongue a spasm of pain shot across his face, and his frame was convulsed with agony. With an effort which seemed almost superhuman, he dashed the glass upon the floor, and it was splintered inhim with a bewildering stare.

"Boys," he said, "boys, are the cases all full?" "His mind wanders," whispered the as he bent over the old man, "Yes, Dick, old fellow, everything is thrown in."

"That's it, that's it," exclaimed the feeble galleys and stones all cleaned off," and he seemed to brighten up considerably, and made an effort to stir the fire with a warped side-stick, which the boys used as a poker."

haven't enough to space out this poetry," he search of the requisite metal.

one of the boys in a sympathetic voice.

"Ah, Charley," said the old man, "that reminds me of the old Caseyville Herald days, when we used to drop out a dead "ad," and lock up the planer in the forms to fill out with. Fat times those," he continued; "they will never come back to the old man," and he leaned his head on both hands and swayed to and fro. The boys gathered around him more closely to prevent his falling.

One of the boys, in coming to the old man's side, stumbled over a chase which was leaning against a composing stand, and it fell to the floor with a loud crash. The old man sprang to his feet, and it was all the boys could do to restrain him. "You've pied the form," he shouted, "and it is time to go to press. What shall we do, what shall we do?'

"Sit down, Dick, old fellow; it's nothing but an empty chase," and he gently placed the old man in the chair.

"You can't deceive me, Mac," and the tears stood in the veteran's eyes. "The form is pied and we ought to have been to press an hour ago. The folios are all wrong, Mac. See, here is page 102, backing up page 27," and the old man snatched a proof from the revise hook, and began folding it in a helpless manner. "It's all wrong, but it is too late," he gasped. "The press waits." Here his head sunk again upon his breast, and his breathing was thick and fast. "Yes, boys lock up the forms and look out-look out for loose spaces."

The boys stood silently around the old compositor, and the scene was an impressive one in the extreme.

"The pages are all proved up, everthing all right," he murmured in broken accents. "Now, then, careful boys, lift off the forms, and clean off the stones, and before, before you start up the press-let us-jeff for the

He fell with a heavy thud to the floor, and the foreman, with the aid of the pressman, lifted him up and laid him tenderly on a pile of mail bags, under the cutter, and one by one the boys returned to their cases and left him to-sober up.—Denver Inter-Ocean.

Capacity of Dry Grain for Moisture.

The claim that grain absorbs moisture enough on a sea voyage to pay the freight charges has been verified by some test experiments made at the California Agricultural College. Various kinds of grain were placed in a moist atmosphere and the increase in weight was noted.

The greatest increase was during the first twenty-four hours, absorption being nearly 33 per cent. of the total absorbed during the fifteen days' exposure. The following table shows the figures.

First. 24 hours.
Oats 27 pper cent.
Barley 1.45 per cent.
Wheat 2.45 per cent.

From the results obtained it was computed that perfectly dry grain at 64 degrees Fah. would absorb as follows: Oats, 29.08 per cent. barley, 28.17 per cent.; wheat, 25.02 per cent. Under ordinary conditions the percentage is perhaps not so high, 15 to 16 per cent. probably being the average.

Utilizing Wave Power.

La Nature describes an apparatus to util-M. Gauchez. It has a float weighing from thirty-five to ninety-five tons, as may be re-The pressman ran for a glass of water, and quired, connected with a bell-shaped compressor by means of ropes or chains which pass over suitably arranged pulleys. The float of course, rises and falls with the action of the waves. When the float falls it raises the bell, which had been previously below the surface of the water, and as it empties itself of water the air rushes into it through arouse him somewhat, and he gazed about openings in the top. As the float rises again the bell sinks, the water rises in it and, com pressing the air, drives it out into pipes which conduct it to reservoirs on shore, where it can be a very general effort at the present time to utilize all sources of mechanical power. The discovery of the Faure accumulator has old man, "there is nothing like having the done much to stimulate this. There is no doubt that soon there will be many better attempts than this of Gauchez's to capture 'waste" force.

Spreading of rails under high temperature "I've run short on em quads boys, and is a source of danger of the magnitude of which travellers know little. When the ends said, and his faltering fingers went through of the rails are too close, as they are very thumb way in cold weather, they are certain the United States and to foreign countries. "That's all right, Dick, we'll throw in some to press against each other and bulge out the independent living, is as imperative and quoins and that will bring it all right," said track into a sort of double wave line in sum- son, is very favorable the present one.

mer. Spikes will not cure the difficulty. Indeed, the less strain placed upon spikes the better for everybody. Here is the remedy for spreading which one now forever silent was about to put into practical shape and patent, but which may be here given free: No track for a railroad should be laid without a constant consultation of the thermometer and the application of gauges properly regulated for temperature. That is the general idea, the force of which will at once be seen by every railroad engineer. Inventors may find in this hint something valuable. A reliance on spikes against spreading might be shown to be nonsense by a little boy who had received his first lesson in "expansion" of bodies. The absence of spikes, though, may show that the rails had spread and that the inspection was negligent.-New York

Few of the young mechanics of the present time appreciate the many advantages by which they are surrounded, making comparison with the situation as it was a generation ago. The young mechanic, who thinks it is harder to take the front rank at the present time than it was for his father to achieve excellence in the same pursuit in his time, should be reminded of the many advantages he enjoys that his father knew nothing about. In his fathers time there were no technical schools. Text books on mechanical subjects were almost unknown. No mechanical papers were published. Mechanical dictionaries were unheard-of things; large factories never dreamed of maintaining circulating libraries for the benefit of the mechanics employed. Popular lectures on mechanical topics were not thought of. Free night schools for instruction in drawing had never been attempted. And these are only a few of the many advantages that surround the young mechanic of the present time, the intelligent improvement of which will lead him on to success. It is with him, however, as with children who have too many toys; they soon learn to think so little of them as to fail to appreciate their actual value. So many advantages are crowded upon the young man of the present day as to leave him little opportunity of considering their value, or of learning to appreciate their worth. It is for this reason, with others, that so few of the mechanics who are surrounded with exceptional advantages reach eminence in their trades. A qualification that the mechanics of 40 or 50 years ago possessed, and which is sadly lacking in the youth of the present day is self-reliance and enterprise. Our boys have so many helps, and things are so generally prepared for them, both in the public schools and in other departments of our educational system, that they acquire the habit of abject dependence. They fail to acquire the habit of asserting themselves and investigating upon their own account. To this difference is to be ascribed, in many cases, the failure of the mechanics of the present day to profit by the unusual opportunities by which they are surrounded .- The Artisan.

Southern Waterpower.

The Santee river is the largest and most important of the southern streams, and its tributaries offer an enormous amount of excellent available power. On the Wateree river above Camden there is a fall of 8,000 horse power available. The Catawba river has the most remarkable power in the south, and at its great falls there is not less than 24,-000 horse power, mostly available. The total power of the four falls of the Catawba river amount to 40,000 horse. At Columbia, S. C., the Congaree river has between 6,000 and 7,000 horse power available. The estimates of the power given refer only to the gross power available continuously, day and night, and in the driest seasons. For comparison, it may be added that the power at Lowell, Lawrence and Holyoke, Mass., is 10,000 horse at each place; at Manchester, N. H., it is also 10,000; at Paterson, N. J., it is only 1,100; and at Cohoes, N. Y., 14,000 horse power. The time cannot be very distant when many of these great natural forces of the south will be turning the busy wheels which will develop the boundless resources of a country so munificently endowed by nature.

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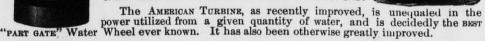
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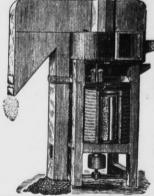
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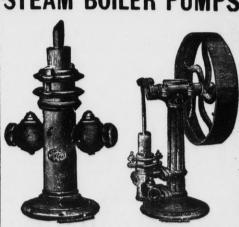
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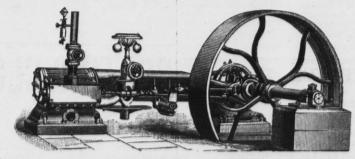
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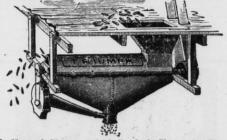
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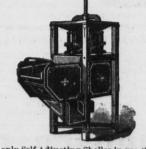
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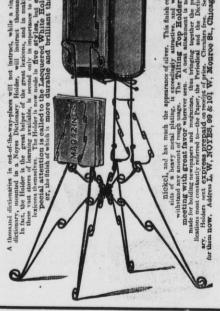
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A FACT

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(AN OPINION.)

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Electric Lighting in Mills.

BY A. HEMPEL, MANAGER OF HAUZEUR'S FLOUR MILLS, LIEGE.

[Translated from the "Ungarischen Muhlen Zeitung" for the Corn Trade Journal.]

Every miller will acknowledge that fires in mills are extraordinarily frequent. The high premiums asked by good insurance companies proves this, besides which it is often difficult to save anything, the mill being full of easily inflammable material. There are two causes from which fires often spring: first, the empty running of the stones and the ignition of the flour dust; secondly, in the means by which a mill is lighted, such as by rape-oil, petroleum or gas. When an open flame comes in contact with an inflammable body there is always danger, which can be reduced by precaution or limitation of the flames, but never quite prevented. The mill the rolls should be held with absolute accurmanaged by me used to be a "stone" mill. acy and solidity, as no oscillating movement but few people were required to work it, especially as after 6 p. m. neither stonemen

nor ordinary workmen were occupied in the mill; but few oil lamps were therefore suffi- will not run together while in motion. This cient. The introduction of rollers, and with them the increase of machinery for cleaning, sifting and purifying, made a more extended lighting of the mill necessary. Oil and gas would have been very expensive, the mill being far outside the town, besides being, like cheap petroleum, dangerous. Many recent fires in theatres have been caused by gas. I therefore adopted the electric "glow" light. As is known, Edison's, Maxim's, or Swan's lamps mostly give the violet-white light, which generally comes from a strong current, dazzles the eye and throws deep shadows, and therefore cannot be used in a mill, where it is necessary to light up all machinery and corners. The light of an incandescent lamp is not stronger than that of a large petroleum burner, and has just the color and steadiness of petroleum or gas. The lighting substance is a piece of carbon about 30 m. m. high and 1 m. m. broad, in the form of a horseshoe or an M, or like Swan's, of the shape of an S. It is enclosed in an almost absolutely airtight glass ball of 50 to 60 m. m. diameter. It can be put on any stand at the wall of the mill, or fixed on gas burners or hanging lamps, and brought in connection with the electric current. The following is the plan pursued in our mill. The electric current is produced by a dynamo-electric machine, Gramme's system, the so-called normal size, 1,200 revolutions and 4 h. p. The lamps are Maxim's, they have 70 ohm resistance, which must be as equal as possible; lamps of 55 to 60 or 70 ohm must not be used, otherwise they will "red," because the quickness of the current would not be uniform. The current, with unequal lamps, would be just as irregular and inefficacious as a stream of water running through continually widening and narrowing. Two thick cables form the principal current, which is branched off through medium wires, and then is led to the lamps through still thinner wires. The current must be well and correctly calculated in their strength. Wherever the workmen have to solved. Ellis Briggs continues. work there is a lamp; as, however, the lamps have a limited duration, I fix to each a current interruptor, in order to burn it as long only as necessary. When well applied, a Gramme machine is sufficient for 30 Maxim lamps of 70 ohm resistance. I now put half of the lamps, that is those which burn uninterrupted, from the night till the morning, upon one series, and the other half, only for temporary purposes, upon the other series. In the latter are included the grain stores, the offices, and my dwelling rooms. The lamps at present constitute the chief outlay; they burn about 1,000 hours, cost 10fr. each, and cannot be repaired. Therefore they should only be used when necessary till the price of them has gone down, which will probably be the case shortly. With a more general introduction of this system of lighting these lamps could very well be supplied for 2 marks. Even now the electric light does not cost much more than petroleum. The establishing of this light, including 50 lamps with the necessary supports, costs about 2,500 marks, (£125); 25 lamps, which would burn on an average 12 hours daily, would cost about 800 marks (£40) per year. The other charges may be calculated by the above items, not forgetting the decreased premium for insurance which every insurance company, taking its own interest into consideration will allow. The security against fire is absolute; the lamps are air-tight, therefore hermetically closed, and can be used in the most dangerous parts of the mill—that is, in the mixing and stive rooms. They do not get very hot, and if by accident the glass should be broken, the oxygen will consume at once the thin piece of carbon and the light goes out. Therefore I consider these lamps the ideal of mill lighting, and think that shortly they will be generally introduced. As soon as they can be produced cheaper, which the larger consumption must soon bring about, this manner of lighting will vanquish all other methods. There remains only to remark that another great advantage of these lamps is that they need no attention, cleaning, or put-ting in order. The belt of the dynamo-elec-tric machine is simply put on, and the whole mill is illuminated. The use of matches is entirely done away with. New lamps can be put on with the same ease as a simple

chine than the above named a larger number of lamps could be used.

Creased Rolls.

Messrs. R. G. Shuler & Co., of Minneap olis, in a recent communication say:

"We are using all creased rolls. This we find gives the best results in all cases. The possibility of the extraction of the germ would be the most questioned by those not familiar with the process, but corrugated rolls will extract the germ equally as well as smooth, and leave the flour in a better granulated condition to bolt and producing a better final result. The sizing of the middlings is as important in its place as any other step. This the creased rolls perform with better results than the smooth. Now while we are advocating the creased roll it must be well understood that good results can not be obtained without the proper corrugation and can granulate evenly. This point is largely embodied in the adjusting arrangement of the rolls. The adjustment should be such proves the condition of the rolls while operating on the middlings, showing that their revolutions are accurate and without any oscillatory movement. Impurities contained in middlings going to the rolls to reduce to flour can be separated from the flour better than middlings in the same condition reduced to flour by a stone. The system of bolting with rolls should be different from that used with stones. Mills of a capacity of one hundred barrels per day can be built with a sum that will warrant the expense. Light powers that have been valueless with stones can be made profitable with rolls, as they take much less power. The durability of these rolls will not stand in the way of their use.

NEWS.

Jones & Son, Alton, Mich., have sold out. W. Percival, Bloomfield, Cal., has gone out

WM. Johnson, of Johnson Bros., Chelsea, Penn., is dead.

Peter Mann, New Albany, Ind., has sold out

to J. M. Haines. Renner & Reed, Altamont, Kansas dissolved. Renner succeeds.

ROGERS & BICKNELL, Colusa Cal., has dissolved partnership.

Corl & Rank, Canton, Ohio, burnt out. Loss \$15 000; insurance, \$3,000.

Vogel & Son, Toledo, Ohio, burnt out. Loss, \$37,500; insurance, \$22,600.

GEO. T. CHESTER & Co., Lockport, N. Y.; firm style changed to Geo. T. Chester

McAfee & McConnell, Canton, Ga., burnt out. Loss, \$7,000. No insurance.

Moody & Bro., San Jose, Cal., have dissolved. D. B. Moody continues.

W. M. Beagle, Pendleton, Oregon, has sold out to Thompson & Barnhart.

E. Briggs & Co., Roodhouse, Ill., have dis-

McFarland & Erickson, Genesee, Idhaye dissolved. W. A. McFarland retires.

PALMER, HOUSE & Co., Lockland. O., have dissolved. G. G. Palmer and J. W. Dunn re-

J. L. Allard, Paducah, Ky., has put in six pairs of rolls in Gray's Noiseless Belt Roller Frames.

L. SCRAMLING, of Victor, N. Y., has ordered of E. P. Allis & Co., one of their gradual reduction machines with sharp corrugated rolls. JONES, BALLARD & BALLARD, Louisville, Kv.

have put in two pairs of 9x24 smooth rolls in Gray's Patent Noiseless Roller Frame.

WILFORD & NORTHWAY, Minneapolis, have ordered 4 pairs of porcelain rolls in Gray's Patent Noiseless Roller Frame.

Messrs. E. P. Allis & Co., have recently shipped six pairs of their porcelain rolls to the mill at Stockton, Cal.

J. L. ALLARD, Paducah, Ky., has put in three pairs of Wegmann rolls from the works of E. P. Allis & Co., Milwaukee, Wis.

Johnson & Jarrett, Des Moines, Iowa, have ordered from E. P. Allis & Co., 8 pairs of rolls in Gray's Patent Noiseless Frame.

Messes. Harris Bros., Mt. Pleasant, Mich. have put in a double set of Allis Rolls in Gray's Noiseless Frame.

R. Stelling, Port Washington, Wis., has ordered from E. P. Allis & Co., eight pairs of rolls in Gray's Patent Noiseless Roller Frames.

Messes. Edw. P. Allis & Co., are having a leavy trade from Ohio in their celebrated rolls in Gray's Patent Noiseless Frames.

SMITH & GIDDINGS, Danville, Ill., are putting in a line of smooth and porcelain rolls in Gray's Noiseless Belt Roller Frames.

AT Dallas City, Ill., F. J. Mauck is putting in six pairs of Allis Rolls in Gray's Patent Noiseless Frames.

The Topeka Mill Co., Topeka, Kan., are putting in twenty-six pairs of rolls from Edw. P. Allis & Co., fitted in Gray's Noiseless Belt Roller Frames.

F. J. MAUCK, Dallas City, Ill., has put in a full line of Allis Rolls, including two pairs of porcelain rolls in Gray's Patent Noiseless Roller Frames.

Chisholm Bros. & Gunn, have recently placed orders with Messrs. E. P. Allis & Co., for rolls aggregating thirty pairs to run in Gray's Noiseless Roller Frames

MESSRS. EDW. P. ALLIS & Co., Milwaukee, Wis., have just received an order for a 125 horse-power Reynolds-Corliss Engine for the new mill of T. J. Cox, Bloomington, Ill. lamp chimney. Gramme's machine, as also those of Siemen's Halske, Berlin, are built in different sizes, therefore with a larger ma-

ROBERT S. WILLIAMS, late head miller of the Empire Mills, Milwaukee, has gone to Michigan to start up a new roller mill.

C. A. ROBERTS, Fargo, D. T., has recently ordered from E. P. Allis & Co., 12 pairs of rolls in Gray's Patent Noiseless Belt Roller Frames.

Messrs. E. P. Allis & Co., have shipped three pair of their porcelain rolls in Gray's Noiseless Frames for the mill at Franklin, Pa.

E. MIDLETON & Son, Greenville, Mich., have ordered from E. P. Allis & Co., a pair of Weg mann porcelain rolls in Gray's Patent Noise-

Messrs. Iglehart Bros., and the Melrose Milling Co., both of Evansville, Ind., have or-dered Allis Rolls in Gray's Patent Noiseless Frame.

Messrs. E. P. Allis & Co., Milwaukee, Wis., have furnished the Salem Flour Mill Co., Ore-gon, with a full line of porcelain rolls in Gray's Patent Frame

The new mill of the Goodlander Mill and Elevator Co., at Fort Scott, Kan., will have a full line of the Alis Porcelain Rolls in Gray's Noiseless Roller Frames. Messrs. Keynes & Willman, Logan, O., have put in a full line of Allis Rolls in Gray's Patent

Noiseless Frame including 8 pairs of the Allis Porcelain Rolls.

L. M. Kellogg, of Missouri Valley, Iowa, has recently ordered from Messrs E. P. Allis & Co., two of their gradual reduction machines, each making two breaks and separations.

The Camp Spring Mill Co., St. Louis, have added to their equipment 12 pairs of rolls in Gray's Noiseless Belt Roller Frames from Edw. P. Allis & Co's works.

MESSRS. J. C HOFFMAYER & Co., Council Bluffs, Iowa, have given Messrs. Edw. P. Allis & Co, their order for fourteen pairs of rolls in Gray's Patent Noiseless Belt Roller Frames.

DURING the first half of 1882, track was laid, in this country on nearly 4,500 miles of new railroad, against 1,972 in the corresponding period of 1881.

Misses. Edw. P. Allis & Co., have shipped sixty pairs of rolls in Gray's Patent Noiseless Roller Frames for Sperry & Co's mill at Stock-

Messes. Johnson & Co., of Franklin, Penn, have put in three of the Allis Gradual Reduction machines and six pairs of Allis Rolls in Grays Noiseless Frames, thus making their mill a full gradual reduction roller mill.

JOHNSON & Co., Franklin, Penn., have ordered from Edw. P. Allis & Co., three of their gradual reduction machines, each making two breaks reduction machines, each making two breaks and separations, and six pairs of porcelain rolls in Gray's Noiseless Roller Frames.

MESSRS. ORDWAY & SON, of Beaver Dam, Wis. have just ordered of E. P. Allis & Co., eight pairs of rolls for the mill at Columbus, Wis., and eight pairs for the mill at Mayville, Wis., all in Gray's Noiseless Frames.

Messrs. D. L. Wing & Co., of St. Louis, Mo. have recently put in 12 pairs of Allis Rolls in Gray's Noiseless Belt Roller Frame furnished by Edw. P. Allis & Co., Reliance Works. Milwaukee, Wis.

THE Salem Flour Mill Co., Salem, Oregon, has recently put in a full line Gray's Patent Noiseless Belt Roller Mills from the well-known Reliance Works of Messrs. Edw. P. Allis & Co., Milwaukee, Wis.

THE Great Western Manufacturing Co., Leavenworth, Kan., have recently ordered from E. P. Allis & Co., Milwaukee, Wis. 10 pairs of smooth rollers in Gray's Patent Noiseless Roller Mill Frames.

Messrs. Dow, Gillman & Hancock, Daven-Allis & Co., Reliance Works, Milwaukee, Wis., for the erection of a 350 barrel roller mill. It will contain 36 pairs of Allis Rolls in Gray's Patent Noiseless Roller.

Messes. E. P. Allis & Co., have the contract for remodeling the mill at Independence, Iowa, owned by the Independence Mill Co. When completed, the mill will have a full outfit of sharp corrugated, smooth and porcelain rolls, running in Gray's Patent Noiseless Belt Roller

Messrs E. P. Allis & Co., are overhauling the mill at Canton, O., owned by Corl & Rank; the work is in charge of M. Shook, and is being pushed with his accustomed energy. The mill will contain 11 pairs of Allis rolls in Gray's Noiseless Frame.

Messrs. Edw. P. Allis & Co., of Milwaukee, have recently sold Andrew Bowling, of Staun-ton, Va., 10 pairs of rolls in Gray's Patent Noiseless Belt Roller Frames and also two of Gray's Gradual Reduction Machines, each making two reductions.

Messes. Herzog & Roberts, of Racine, Wis., whose mill was burned at the time of the big Milwaukee, Wis., to build them a 150 barrel roller mill. Twenty pairs of rolls in Gray's Noiseless Belts will be used.

Messrs. E. P. Allis & Co., Reliance Works, Milwaukee, Wis., have just taken the contract to change the mill owned by the Centennial Mill Co., Avoca, Iowa, to the roller system. When finished, the mill will be of 150 barrels daily capacity and will contain 12 pairs of rolls, corrugated, smooth and porcelain, all in Gray's Patent Noiseless Frame.

The change in opinion among millers is be-coming more and more decided in favor of por-celain rolls for use where smooth and scratch rolls have been employed. Messrs. Edw. P. Allis & Co., who are the sole manufacturers of porcelain rolls in this country under the Wegmann patents, have so far this year sold a large number of their rolls in Gray's Noiseless Frames and the orders are coming in faster all the time

THE new Phoenix mill at Davenport, started or the first time a couple of weeks ago, to give the machinery a trial. A few necessary changes have yet to be made, before everything is in smooth running order. The new mill is a beauty, and it is fully worth anybody's time to look through it. None of Davenport's business men more deserve success than the plucky proprietors of the Phonix and we sincerely have prietors of the Phoenix, and we sincerely hope they have met and conquered their last misfor-

C. R. Knickerbocker, Esq., President of the Geo. T. Smith Middlings Purifier Co., of Jackson, Mich., has purchased the fine mill property at Albion, Mich. His son Wm. B. will aid him in looking after it.

POSTMASTER MCKAY, of Cedar Bluffs, Kan., desiring to build up his town, has, together with Mr. Jenkins, commenced the erection of a three-run flouring mill, the machinery for same being furnished by Nordyke & Marmon Co., of Indianapolis, Ind.

There is a project on foot to build a \$50,000 flouring mill in Abilene. It is expected to be run by water, and for that purpose the feasability of putting in a dam at Sand Springs and running a waterway or ditch down to the city is being considered.

BACON & EINSEL, of Tiffin, O., have just started up their new mill on the Case Gradual Reduction System. Their mill is full of machinery made by the Case Co. E. Corbett, head millwright of the Case Mfg Co., planned the job.

Mr. Knickerbocker does not by any means withdraw from active service with the Purifier Company, but will endeavor, if possible, to obtain a little more rest and relaxation than he has been able to enjoy in past years.

Messrs, Edw. P. Allis & Co., Reliance Works, Milwaukee, Wis., have the order for one dred and twenty pairs of rolls for the Zeidler-Zimmerman mill at Minneapolis, these rolls will all run in Gray's Patent Noiseless Roller

The C. A. Gambrill Mfg Co., of Baltimore, Md., are putting in a large line of machinery made by the Case Mfg. Co., Columbus, O. Including Double Purifiers, Reduction Machines, Scalping Reels, &c., &c. The same Company also have just made them cloths covering 22 reels.

The value of winter wheat grown in Illinois standard whiter wheat grown in Thinos during the past five years, shows an average of \$4.97 greater profit per acre than spring wheat, and the limited profit attending the growing of spring wheat may in part account for the decreased acreage from year to year, which is less this season than for some years past this season than for some years past.

A 125-barrel gradual reduction mill is being built by Helmer & Cook, of Fond du Lac, Wis. The motive power will be a Cummér automatic engine and Nordyke & Marmon Co.'s belted roller mills will be used. The balance of ma-chinery will be made by Nordyke & Marmon Co. of Indianashia Indianashia Co., of Indianapolis, Ind.

THE following parties have bought the well-THE following parties have bought the well-known Cone Shape Becker Wheat Brush in the past few days, made by the Eureka Manufacturing Co., of Rock Falls, Ill.: Jos. Kratochwell, Dayton Ohio; Chas. B. Slater & Co., Blanchester, Ohio; Geo W. Moredock, Pomeroy, Ohio; Beckley & Phipps, Paynesville, Minn.; Hamilton Bros., Salem Ill.; Adolph Dehner & Co., St. Louis, Mo.; Jas. McWilliams, Dundas Ill.; Richmond City Mill Works, Richmond Ind.

The Goodlander Mill and Elevator Co., at Fort Scott, Kan., are remodeling and enlarging their mill at that place, making it into a complete roller mill of from 250 to 275 barrels capacity. Messrs. Edw. P. Allis & Co., Reliance Works, Milwaukee, Wis., have the contract and will fit the mill with a complete line of their corrugated, smooth and porcelain rolls, all in Gray's Patent Noiseless Belt Roller Frames. The mill will be ready to start in about sixty days. The mill will be driven by an 18x24 Reynolds-Corliss Engine manufactured by Messrs. Allis & Co. THE Goodlander Mill and Elevator Co., at Messrs. Allıs & Co.

Great excitement was produced in St. Louis recently by the announcement that the board of trade of East St. Louis had appointed a grain inspector with the instructions to inspect all grain that arrives by railroad in East St. Louis, Ill., and all that goes out by barges from eleva-tors. Heretofore, all grain that has arrived on either side of the Mississippi river has been inspected by inspectors appointed by mer-chants on 'Change in this city, and the inspec-tors have been uniform and according to St. Louis standards; but should the new order of things prevail, grain arrivals at St. Louis will be inspected by Chicago standards. Endless confusion will ensue, and great damage be done to the grain trade of St. Louis.

In the suit recently decided between Ganz & Co., of Buda Pest and the firm of L. Nemelka, of Vienna, original manufacturer of the round corrugated roll (in use since 1871), and who has been of late infringing upon the Ganz patents for a sharp cuttling roll, an injunction was granted against Nemelka who will return to the manufacture of the properties roll. The the manufacture of the non-cutting roll. The patent of Ganz & Co., issued in 1875 is a very broad one, claiming the use of chilled cast iron as a material for the con truction of rolls, the spiral grooving of the same, and the differential motion.

R. H. Knox, an old Minnesota miller, died re-R. H. Knox, an old Minnesota miller, died recently of consumption, aged 71. He went to Minnesota in 1851, and built a flouring mill for James M. Winslow, on Trout Brook, near St. Paul. In 1856 he built the Oronoco Mill in Olmstead County; in 1857 he built for R. C. Knox the first flouring mill built in Cannon Extla and in 1858 he as elected a machine. Falls; and in 1858 he was elected a member of the Second Minnesota Legislature. He had charge of the Spring Creek Mills for a number of years, while owned by W. W. Phelps, after which he returned to Cannon Falls where he had resided for six years past. He was highly esteemed among his associates.

At the breaking out of the war there were no flouring mills in Nashville, Tenn; now there are eight. Noel' Mill and Elevator Company have two large mills, at which 75,000 barrels of flour 500,000 bushels of corn. 200,000 bushels of oats, 200,000 bushels of wheat, 1,000 tons of hay are handled annually besides all the wheat used at the Jackson Mills amounting to 375,000 bushels. The Riverside flouring mill a large brick structure, with a capacity of 130 barrels of brick structure, with a capacity of 130 barrels of flour per day, or 30,00 per year, employs twelve hands. The Reservoir Mill is a large four-story brick building owned by Sax Bros., but not in operation. The New Era Mill Company do a business estimated at \$400,000 and employ thirty-five men. They have connected with their mill a large warehouse. Lanier's Mill, with a capacity of 400 barrels of flour per day, is valued at \$100,000. The City Mills have a capacity of 100 barrels of flour per day, employ fifteen hands and carry a stock valued at \$12,000. The Shamrock Mills have a capacity of 100 barrels of flour per day.

Crop Report for July, 1882.

[From the report of the Department of Agriculture of the United States, compiled from accurate returns by telegraph, July 12, from 1,600 counties.]

MAIZE.—The July returns indicate an increase of area planted in corn exceeding 4 per cent. or fully 2,500,000 acres. In Ohio, Indiana and Illinois there has been a loss of acreage, but in all other states of any prominence in but in all other states of any prominence in corn-growing there is some increase. In the Gulf States the advance has been heavy, in obedince to the instinct of self-preservation. The usual result of high price of a crop, an immediate extension of its breadth of cultivation, was prevented in the Ohio Valley only by excessive rains and a tem perature that made early planting impossible.

mediate extension of its breadth of cultivation, was prevented in the Ohio Valley only by excessive rains and a tem perature that made early planting impossible.

The States and Territories reporting a decreased area are: Maine, 1 per cent.; Ohio, California, Utah, 2; Nevada, 3; Indiana, 3; Illinois, 2; Washington, 9. New York, Rhode Island and Oregon report the same area as last year. New Hampshire, Pennsylvania and Delaware make 1 per cent. increase; Vermont, New Jersey, Maryland, Wisconsin, Missouri and Colorado, 2; Massachusetts, North Carolina, West Virginia, Michigan, and Iowa, 3; New Mexico, 4; Connecticut and Virginia, 5; Louisiana and Tennessee, 6; Mississippi, 7; South Carolina, Florida, Arkansas, and Kentucky, 9; Kansas, 11; Nebraska, 12; Georgia and Alabama, 13; Texas, 17; Minnesota, 26; Dakota, 46 Though the percentage of Minnesota seems large, the corn area of that state has until recently been less than that of two counties of Illinois.

The condition of corn is marked low from late planting, cold and wet weather, and replanting after floods, but has been improving during June, and is generally in fair vigor and active growth, promising far better condition in August, should the season continue as favorable as at this date. The general average is 85, against 90 in July last year, before the disastrous drought set in. It is above 100 in all the sea-coast states from South Carolina to Texas, in Tennessee, Kansas and Kentucky; Oregon and Nevada stand at 100; Arkansas, 97; New Hampshire, Connecticut, New Mexico, 96; North Carolina, California, Utah, 95; Maryland, Virginia, Colorado, 94; Massachusetts, Missouri, West Virginia, 92; Vermont, Dakota, 92; New Jersey, Delaware, Nebraska, Washington, 91; Maine, New York, Michigan, 86; Ohio, 84; Minnesota, 83; Pennsylania, 82; Rhode Island, Wisconsin, 80; Indiana, 79; Iowa, 72; Illinois, 68. The State of largest acreage stands lowest of all in condition.

WHEAT.—The condition of winter wheat averages 104, which is a higher figure than at

in condition.

Whear.—The condition of winter wheat averages 104, which is a higher figure than at any previous July since 1874. In that year spring wheat averaged 96 in July, but before harvest condition was much reduced by drought, grasshoppers and chinches, so that the average yield of the entire wheat area of the country was little above the average. or 12.3 bushels per acre. In 1877 and 1878 the winter wheat average was 103, and the yield, with a better season prior to harvesting and a better condition of spring wheat, was 13.9 bushels in 1877 and 13.1 in 1878. Now, with the spring wheat breadth at 100, with a favorable season until harvest, the yield ought to average 13 bushels, probably, 13.5 at least, which would give a crop of 5 0,000,000 bushels. Should the excessive growth of straw be deceptive, and the outcome in thrashing be less than is expected at the time of harvesting, there might be some falling off from such an aggregate; and should the condition of spring wheat be reduced before the harvest a similar reduction would follow. If both contingencies should occur together, the yield would not probably be reduced below 12 bushels, the should the condition of the contingencies should occur together, the yield would not probably be reduced below 12 bushels. grasshoppers and chinches, so that the average would not probably be reduced below 12 bushels, which is about the usual average for any consecutive series of years, and this would give a crop of about 450,000,000 bushels, or nearly as much as in the census year, the year of the largest aggregate production, with one except tion

tion.

In July, 1881, the average for winter wheat was 80, and of winter wheat 89, and the result as estimated was 10-1 bushels per acre, the lowest yield ever reported by the department. The next lowest was 10-4 bushels in 1876, when the July condition of winter wheat was 94 and of spring only 81, a worse failure of this variety than in 1881, on account of grasshoppers and chinches. The winter wheat was afterwards injured by unfavorable weather and insect ravages in July. No other season of the past ten ages in July. No other season of the past ten years has produced less than 11 bushels per acre. The following is a statement of the crops of the last ten years, showing the coincidence of July condition and ultimate yield, modified only by the various character of July and of August upon spring wheat:

	July condition.		Yield	Product.	
Years.	Winter.	Spring.	per acre	Troduct.	
1878	94 103 103 97	104 96 96 81 99 103 92	Bushels. 12.7 12.3 11.0 10.4 13.9 13.1 13.8 13.1	Bushels. 281,254,700 308,102,700 292,136 000 289,356,500 364,194,146 420,122,400 448,756,639 498,549,868	
1881 1882	80	89 100	10.1	380,828,009	

For the condition of winter and spring wheat at the present time reference is made to the table. Among the principal winter wheat states Ohio averages 101; Kentucky, 104; Michigan, 106; Indiana, 1'4; Illinois, 1'5; Missouri, 111; Kansas, 116; Pennsylvania and the Southern States stand without exception at 100 or

ern States stand without exception at 100 or above; California at ^{9,1}; Oregon, 105.

The spring wheat States' averages are: Wisconsin, 95; Minnesota, 94; Iowa, 98; Nebraska, 105; Dakota, 98; Colorado, 98; Maine, 101; New Hampshire, 102; Vermont, 99.

The harvest of winter wheat, on the first of July, was completed in the South, was in active progress in Kentucky, and commencing north of the Ohio River. At this date it has reached the latitude of 40 degrees, and will soon be completed. completed.

The local changes in condition were generally favorable during the month of June. In New York marked improvement was reported; the figures are changed from 84 to 99. In New Jer-In New Jer-June. From ngures are changed from 84 to 99. In New Jersey they are 97 now against 92 in June. From Pennsylvania, where the condition is indicated by 106, to Texas, inclusive, whose figures are 100, the figures are high almost beyond precedent, and the previous favorable record is con-

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3. David Hunt, a novel, by Mrs. Ann S. Stephens;

4. Reaping the Wirlwind, a novel, by Mary Cecil Hay.

5. Dudley Carleon, a novel, by Miss M. E. Braddon;

- 6. Essica, or ehe Mystery of the Headlands, a novel, by Etta W. Pierce;
- A Golden Dawn, a novel, by the author of "Dora Thorne;"
- Valerie's Fate, a novel, by Mrs. Alexander;
- 9. Sister Rose. a novel, by Wilkie Collins;
- Anne, a novel, bo Mrs. Henry Wood.

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tinued without drawback to the harvest. tinued without drawback to the harvest. Alabama stands at 105; North Carolina, 106; Virginia, 109; Delaware and Maryland, 110; South Carolina, Tennessee, and Arkansas. 113; Mississippi, 114; while Georgia leads the list at 122. Still there are localities where rust, the old enemy of wheat in the South, put in an appearance. In Montgomery, Virginia, it "blasted the best prospect in twenty years," and its presence is mentioned in North Carolina, Tennessee, West Virginia, Kentucky, Indiana, Illinois and Nebraska, but almost invariably without indication of serious damage to the grain. cation of serious damage to the grain.

The grain aphis is numerous in some of the Middle and Southern States. Insect injuries cannot be considered very serious in any portion of the wheat breadth.

portion of the wheat breadth.

RYE.—The condition of rye is very similar to that of wheat. Nearly all the States are represented by an average not less than 100. Only Maine, New Hampshire, New York, New Jersey, Alabama, Texas, California and Arizona Territory fall slightly below that figure.

The other States range from 100 upwards.

The other States range from 100 upwards.
OATS.—This crop is in high condition, represented by the percentage 103. The Eastern and Middle States fail by a point or two to reach 100; the South and West and the Pacific coast and Rocky Mountain Region are above the standard of medium vitality. A few local peculiarities are noted. In Maryland and Virginia the attacks of various foes—army-worm, aphis, and "midgets" (the latter described as a small insect found at the roots)—have proved nearly fatal; spring-sown fields, especially, are almost totally destroyed. Too much rain fell in Wayne and McKean counties, Pennsylvania; the Aphis was in Adams County in large numthe Aphis was in Adams County in large num-

in Wayne and McKean counties, Pennsylvania; the Aphis was in Adams County in large numbers. An unusually large crop was harvested in the sea-coast States, especially in South Carolina and Georgia. In the latter "the best crop for years" is the burden of every report from the State, except that dry weather hurt the spring-sown in Carroll county.

Rust made its appearance in North Carolina, Mississippi, Texas, Kentucky, Iowa and Tennessee. In some counties the injury was severe, thirteen counties in Tennessee reporting an utter failure of late-sown oats. In West Virginia, the "milk weevil" in Berkeley, Grant and Morgan counties, the army-worm in Hampshire and Hardy, and a small green bug in Monongalia, Pocahontas, and Fayette, have committed some depredations. The Ohio prospects are good; fears are felt in Mahoning that the heavy growth may cause them to fall; in Fairfield county the blight is on some fields. This is also the case in Monroe county, Indiana, although elsewhere in that State there are no drawb cks. In Illinois the harvest is about no drawb cks. In Illinois the harvest is about to begin of a crop that encountered no adverse to begin of a crop that encountered no adverse circumstances save the overflow in Henderson county. "Never better," and "could not be better" are repeated phrases. Wisconsin, Minnesota, Iowa, Missouri and Kansas each tell a similar story; danger of overgrowth and lodging is felt in some localities and the work of chinch-bugs seen in Laclede and Gentry counters Miscouri

chinch-bugs seen in Laciede and Gentry counties. Missouri.

Barley.—New York alone of the three chief barley-producing States averages 100, Wisconsin standing at 96 and California at 88. The general average in May, indicated by 85, has, by reason of favorable skies, gone to 95. Nebraska is the only State in which the standard is ex-

ceeded, her figures being 109; Iowa and Pennsylvania, 99; Minnesota, 94; Ohio, 76. In the latter State the army-worm destroyed one-third the crop in Greene county, and prevented the cutting of thousands of acres in Warren and Montgomery. In Racine and Walworth counties Wisconsin, it never looked better. From California, San Luis Obispo and Placer counties report an average crop. In Amador and Fresno, cold and dry winds have done serious injury. A rapidly improving condition is marked in Madison county, New York.

Additional Items.

STOUGH BROS. & MIKESELL, of Ponca, Neb., are putting in a full line of the Stevens rolls.

FREDERICK STARK & Son, of Delevan, Ill., are putting the Stevens rolls into their mill. B. P. Barnes, of Middleport, N. Y., is put-ting in a full line of the Stevens roller mills.

Day Bros. & Co's mill, at Wampum, Pa., burned July 14. Loss, \$18,000; insurance, \$5,000. IRONMONGER & TIBBETZ, of Mason City, Ill., have recently ordered a full line of the Stevens roller mills of the Noye Mfg. Co.

Messrs. S. H. Seamans & Son, of Milwaukee, are putting in two pairs of porcelain rolls furnished by E. P. Allis & Co.

F. W. Stock, Hillsdale Mich., has ordered two pairs of Allis rolls, sharp corrugations, in Gray's Noiseless Frame.

JOHN HOFFER, of Harrisburg, Pa., one of Pennsylvania's most experienced millers, is putting in several Stevens rolls to grind mid-

Messrs. Dow, Gillman & Hancock, Davenport, Iowa, will use Allis rolls exclusively in their new mill, this will include eight pairs of porcelain rolls.

Messes. E. P. Allis & Co., of Milwaukee, have now facilities for the manufacture of over 7,000 pairs of rolls per year and are working night and day to keep up with their orders.

The new 93-horse power Harris Corliss engine at the Whiting Paper Mill No. 1 at Holyoke, Mass., has been successfully started, and is likely to give good satisfaction.

GEO. E. HARMON, of Menford, N. Y., has decided to change from stones to rollers, and through Mr. Joseph Cowles has placed an order with the Noye Mfg. Co. for a full line of Stevens rolls.

The Spalding mill, at Lockport, N. Y., is being rapidly rebuilt under the personal supervision of Geo. Chester. It will contain twenty-seven pairs of the Stevens rolls, as well as all the recent advanced ideas in milling.

THE Edward Harrison Estate, manufacturers of the celebrated Harrison Portable Mills has been finally closed and the business will hereafter be enlarged and continued under the style of The Edward Harrison Mill Co.

The Edward Harrison Min Co.

The roller mill trade is now very brisk, judging from the Nordyke & Marmon Co's report, who state that they are making rapid progress with the machinery for the following mills: 500-barrel mill at Portland, Oregon; 200-barrel mill at Chattanooga, Tenn.; 200-barrel mill at Fond du Lac, Wis.; 200-barrel mill at Rich Hill, Mo.; 100-barrel mill at Indianapolis, Ind.; 250-

barrel mill at Charleston, Ill.; 75-barrel mill a Wursaw, Ill.; 100-barrel mill at Bozeman, Mon.; 125-barrel mill at Lafayette, Ind, besides large number of orders calling for from one t three 4-roller machines.

THE Atlanta, (Georgia) Constitution says more wheat reapers have been purchased in Georgia this year than the entire cotton belt possessed one year ago. This means more grain and less cotton, and is a step in the right direction.

George Barnes a prominent miller and successful business man, died at Janesville, Wis., July 24, at the age of 64. He lived in Milwankee from 1842 to 1843, and then went to Janes. ville, and was an extensive contractor and builder for thirty years. Since 1873 he had been engaged in milling, and operated one of the largest flour mills in Janesville.

A WATER wheel has been invented by Mr. H. S. Holder, of Macon, which, it is claimed, will revolutionize water wheels. It can be placed in a river and will run as well twenty feet under water as only half way out, and can also be with its angle of the stream. run in any size stream.

CAPT. E. W. PRIDE, state agent for the John T. Noye Mfg. Co., has the order for a complete Cosgrove Stevens Roller Mill, from Messrs. May, Webber & Co., of Watertown, Wis.

The Captain has also contracted with the Oconomoc Milling Co., for a full and complete line of Stevens rolls that will be placed in the mills of this firm in time for the coming crop and also has the order of Mr. J. Nelson, Amhurst, Wis., for a complete line of Stevens rolls.

THE Atlas Engine Works, of Indianapolis, Ind., are to furnish the steam power for running the machinery at the Louisville Industrial Exposition; also for the National State Fair, to be held at Jackson, Mich. For the Louisville Exposition they furnish one of their new Atlas-Corliss engines and for the Michigan State Fair one of their new Semi-Fixed engines and boiler complete.

boiler complete.

Among the orders on the books of the Atlas Engine Works of Indianapolis, Ind., are the building of an 18x24 engine with three 54x16-4 tubular boilers with complete accessories. A 14x20 engine with boilers and complete outfit for the Ashland Mfg. Co., of Ashland, Wis.; Muddrum Fire Front and complete trimmings for the new shops connected with the Rose Polytechnical Institute, Terre Haute, Ind., also a 75-horse power Locomotive Boiler for the Cincinnati Gas Light and Coke Co., Cincinnati, O.

THE once handsome 4-story brick mill situated on the banks of the River at Pendleton, Ind., was recently visited by the fire fiend. As now viewed from the windows of passing cars on the Bee Line railway nothing is seen but a mass of ashes and dismantled walls. The mill had but recently been altered to manufacture flour on the latest principles. With their characteristic enterprise, the proprietors, Messrs. Potts & Parker, had visited their mill furnishers, Nordyke & Marmon Co., Indianapolis, Ind., before the ruins had ceased smoking, and ordered machinery for a much better and larger

W. SEYKE & Co, of Kewaunee, Wis, have recently placed an order with E. P. Allis & Co. for a 16x42 Reynold's Corliss Engine

E. P. Allis & Co., of Milwaukee, are in receipt of an order from Wilford & Northway, of Minneapolis, for 22 pair of rolls in Gray's Patent Noiseless Frame.

THE following millers have recently placed orders for Gray's Patent Noiseless Roller Mills with E P. Allis & Co., Milwaukee, Wis:

F. Tiedeman & Co., St. Louis, Mo.; C. B. Slater & Co., Blanchester, Ohio; Richard & Butler, Indianapolis, Ind.; R. Gent & Co., Columbus, Ohio; John Getty & Co., Ellsworth, Kas.; Sidle, Fletcher, Holmes & Co., Minneapolis, Minn.; B. F. Gump, Chicago, Ill.; Jessie Ames & Son, Northfield, Minn.; Iglehardt Bros., Evansville, Ind. Melrose, Milling Co., Evansville, Ind.; Reamer & Williams, Chetopa, Kas.; H. W. Merrill, Richmond, Utah; J. Q. Haltmann & Co.; St. Louis, Mo.; G. W. Bird & Co., Oswego, Kas.; Wright Bros. & Co, Greenville, Mich.; Burrough & Pierson, Flint, Mich.; The Bradford Mill Co., Cincinnati, Ohio; J. T Burkett, Waterloo, Iowa; W M. Globe & Bro., Dunkirk, Ohio; Black Bros., Beatrice, Neb.; Richmond City Mill Works, Richmond, Ind.; Homer Baldwin, Youngstown, Ohio; The. Hudnuts, Pekin, Ill.: Williams & Orton Mfg. Co., Sterling, Ill.; Williams & Co., Libertyville, Mo.; Henry Meyers, West Salem, Oregon; Wood Maude Milling Co., St. Louis, Mo.; E. Middleton & Son, Greenville, Mich.

ANOTHER RING.—In view of the probable sus pension of many of the factories throughout the country, it has been decided by the Glucose and Grape Sugar Association to consolidate the numerous factories. This will limit the supply, reduce the expenses, and admit of better profits from better prices.

A USEFUL SOLDER .- A soft alloy, which will adhere so firmly to metallic, glass, and porcelain surface that it can be used as a solder, and which is invaluable when the articles to be soldered are of such a nature that they cannot bear a high degree of temperature, consists of finely pulverized copper or copper dust, and is obtained by precipitation from sulphate of copper solution by means of metallic zinc. Twenty, thirty or thirty-six parts of this copper dust, according to the hardness desired, are placed in a cast-iron or porcelain-lined mortar, and well mixed with some sulphuric acid having a specific gravity of 1.85. Add to the paste thus formed seventy parts (by weight) of mercury, constantly stirring. When thoroughly mixed the amalgam must be carefully rinsed in warm water to remove the acid, and then laid aside to cool. In ten or twelve hours it will be hard enough to scratch tin. When it is to be used it should be heated to a temperature of 375 degrees C., when it becomes soft as wax by kneading it in an iron mortar. In this ductile state it can be spread upon any surface, to which, as it cools and hardens, it adheres

GLAD TIDINGS REAT JOY!

IMPORTANT PROBLEM SOLVED AT

Taking care of the dust laden air from Middlings Purifiers and other machines, using air to carry off the dust, has been thoroughly met and conquered in the highest degree by the

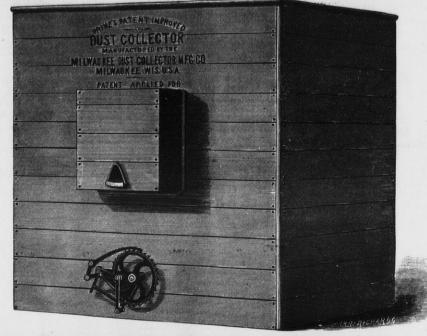
ST COLLECTOR

After years of study and experiment success has crowned the labor of F. Prinz. He produced a machine, that will give satisfaction in such a manner that no miller would ask for anything better.

Simplicity is a Leading Feature in this Machine.

No Dead Air Chamber.-The dead air chamber, which has been a source of much trouble in other machines by wearing out and allowing the air to get in, thereby injuring the power of the cleaning mechanism on the cloth, which results in the cloth filling up, is entirely overcome in this machine, as it has NO DEAD AIR CHAMBERS.

Less Power is used with this machine than any other as there is no back press-



ure on the fan; the motion of the fan has to be reduced whenever this machine is applied.

It does away with the cumbersome dusty, dirty old-fashioned dust room, entirely and the numerous spouts leading to them, which fill up the Mill, leaving no room to get around.

It Retains the Dust in the Mill, thus allowing no waste of stock by being blown out into the air as is the case with the old-fashioned dust room.

It does away with the liability of dust explosions as the air coming from the machine is entirely free from dust, which is not the case with the air coming from any other Dust Collector offered to the milling public heretofore.

We the undersigned manufacturers CUARANTEE ENTIRE SATISFACTION in the use of this machine. Onr machine does not infringe on any patent, which we fully guarantee; on the other hand we caution parties in purchasing infringing machines.

LOW PRICES FOR EXCELLENT MACHINES.

TESTIMONIALS.

WHAT THE SECRETARY OF THE MILLERS' NATIONAL ASSOCIATION SAYS:
Milwaukee, July 24th, 1882.

MILWAUKEE DUST COLLECTOR MFG. CO.

chinery. They intend to break graded wheat on the machine.

Dear Sirs:—In reply to your inquiry with regard to the working of the "Prinz Dust Collector," put into our mill, would say: We have had it in operation about three weeks, taking the suction from all our millstones and break rolls. During this time it worked to our entire satisfaction without being aided or interfered with in any manner, in short, the machine was not opened until it had been in operation three weeks, when we found that it was entirely free from any accumulation of flour or dust, and apparently as clean as when it made the first revolution. You have evidently struck the correct principle. We have waited long for a successful machine of this kind, and shall want more of them as fast as we can place them in our mill,

Yours truly,

S. H. SEAMANS & CO. S. H. SEAMANS & CO.

MILWAUKEE DUST COLLECTOR MFG. CO.

Milwaukee, June 18th, 1882,

Gentlemen:- The Dust Collector you have put in on trial in our Mill is giving the same satisfaction as when first started, over two months ago. We have therefore concluded to adopt your machine for all our Purifiers, Roller Exhausts and Cleaning Machinery. You will please make as many Machines for us as are necessary.

Yours truly,

NEW ERA MILLING CO.

More testimonials are given in our circular, for which please address

[Please mention the United States Miller when you write to us.]

THE Case Mfg. Co., of Columbus, O., are furnishing Messrs. Frank & Bentzin, of New Ulur, Minn., with a lot of machinery. ANEW DEPARTU THE Independence Mill Co., of Independence, Ia., have ordered from the Case Mfg. Co., of Columbus, O., some gradual reduction machinery. They intend to break three sizes of

Milwaukee Dust Collector Mfg. Co. MILWAUKEE, WIS.

We are the Sole and Exclusive Licensees for this Country under the

MORRTIZ MARTIN PATENTS

The last half of the Pillsbury "A" Mill started up July 17 and it is reported that all the machinery moved harmoniously and that the great work gives satisfaction. Manitoba wheat will be used principally for the next few weeks. D. DE WAR & Co., of Kansas City, Mo., are putting in rolls of the Case Mfg. Co's pattern.

J. B. FICKLIN, of Fredericksburg, Va., is putting in some of the Little Giant break machines, of the Case Mfg. Co.. of Columbus, O. Messes. Diercks & Co., of Marietta, O., are just about starting up on the gradual reduction system of the Case Mfg. Co., of Columbus, O. They will have a complete mill when all is ready.

And we are now prepared to fill orders for machines with latest improvements, which include

OUR NEW DOUBLE CONVEYORS.

NEW CLOTH FIXING AND STRETCHING DEVICE. NEW AND SIMPLIFIED MANNER OF DRIVING.

THE CENTRIFUGAL has more than FOUR TIMES the capacity of the ordinary reel, and will mae clear flour and clean finish on stock that cannot be treated in the common reel without loss, no matter how much sil it is passed over. IT IS SPECIALLY ADAPTED to handling soft, reground material, full of light impurities, whether from rolls or stone. IT IS INDISPENSABLE to a CLOSE FINISH in any system of gradual reduction milling, and will improve the quality of the tow grade flour at the same time it makes the offal cleaner

IT MAKES A CLEAN SEPARATION on caked and flaky meal from smooth rolls, which no other style of reel can do IT IS VASTLY SUPERIOR to the common reel for dusting middlings.

THEY CAN BE USED TO ADVANTAGE as a complete system of bolting, to the exclusion of the ordinary reel

Over one Hundred sold in six weeks.

REFERENCE TO LEADING MILLERS IN THE UNITED STATES.

Write for descriptive circular and price list to

GEO. T. SMITH MIDDLINGS PURIFIER CO., - Jackson, Michigan.

[Mention the United States Miller when you write.]

NORDYKE & MARMON Co., of Indianapolis, Ind., are manufacturing a flouring mill outfit for French & Nye, of Beloit, Kan. Hinton & Bro., of Marco, Ind., are remodeling their mill to the new process.

The first miller to adopt the roller system in Pennsylvania was H. Julius Klinger, of Butler, Pa. A short time ago he put in a Case break machine to go in front of his rolls. He was so well pleased with it that he has just ordered a machine for his second break from the Case Mfg. Co., of Columbus, O.

A. G. Mowbray, Superintendent of the Winona Mill Co., of Winona, Minn., has ordered a first break machine of the Case Mfg. Co., for his mill at Stockton, Minn.

I. C. Mansfield, of Athens, Tenn., has ordered a first break machine of the Case Mfg. Co., of Columbus, O.

Messrs. Voisener & Co., of Elkhart, Ind., have ordered a full gradual reduction mill of the Case Mfg. Co. The machinery will all be running inside of two weeks.

A NEW three run flouring mill is being built at Bridgeport, W. Va., for Jas. B. Sandusky.

W. A. & C. S. SCHOFIELD, of Indianapolis Ind., are remodeling their mill to operate on the gradual reduction system. Nordyke & Mar-mon Co., of the same place, furnish the neces-sary machinery.

A custom mill outfit is being built at New Maysville, Ind., for Noah Bateman & Bro.

A three-run mill is being built at Oak, Neb., for Jas, Moore & Co.

BOUGHNER & TALLEY, of Gaylord, Kan., are commencing the erection of a three-run new process mill.

HARVEY & Son's mill, at Marion, Ind., which our readers will remember as being recently destroyed by fire is about to be rebuilt.

NORDYKE & MARMON Co., of Indianapolis, Ind., received a cablegram from South Australia, ordering an outfit of rolls for manufacturing patent roller flour. The capacity of the mill is one thousand barrels of flour per day.

WARD & WYRICK, of Gardner, Kan., have contracted with Nordyke & Marmon Co., of Indianapolis, Ind., for a new process flouring mill outfit which will be operated in connection with the elevator now owned by the first-named

POSTMASTER McKay, of Cedar Bluffs, Kan., desiring to build up his town, has, together with Mr. Jenkins, commenced the erection of a three-run flouring mill.

L. R. Brown & Co., formerly of Stevensville, Mich., have found a desirable location at Spring Station, Ind., and will transfer their business to the latter place. The machinery for the new flouring mill is of the Nordyke & Co's make, at Indianapolis Ind.

A 125-barrel gradual reduction mill is being built by Helmer & Cook, of Fond du Lac, Wis. The motive power will be a Cummer automatic

P. O. Henry's mill, at Vandalia, Ill.. is being remodeled to the new process system, using rolls for finishing up.

CHANDLER & Co., Bushnell, Ill., have recently ordered from E. P. Allis & Co., one pair of porcelain and one pair of sharp corrugated rolls in Gray's Noiseless Frame.

Messrs. Allis & Co., have received an order from John Damp, Ashland, O., for two pairs of porcelain rolls in Gray's Noiseless Frame.

Balard, Isom & Co., Albany, Oregon, have recently ordered from E. P. Allis & Co., one pair of porcelain and one pair of sharp corrugated rolls in Gray's Noiseless Frame.

The Little Giant Break Machines.



Single Machine capacity, 5 to 60 bushels per hour.

Are now on the market and winning golden opinions from all quarters. Roller Mills, everywhere, are putting them in front of their Rolls, and New and Old Mills are adopting them for full reductions.

WRITE FOR PARTICULARS AND OUR

Very Low Price List

AS COMPARED TO ROLLS.



Double Machine capacity, 120 bushels per hour.

HE CASE MIDDLINGS PURIFIER,

STANDS TO-DAY WITHOUT A RIVAL, doing More and Better Work than any other, giving double the capacity; each Riddle on No. 3 Machine is 14 feet in length, 90 square feet of cloth, costing less and runs without jar or noise. Warranted equal in capacity to any two Machines made.

E CASE PURIFIER . Nº 1.

dered.

A—The Fan spear, is reversible and can be made to blow toward either end of Purifier.

The Fan can be placed on top or end of Purifier-when on end it increases the length 39 inches, and diminishes the height 22

B-Air-valve upper Riddle.

C-Cut-off for upper Riddle, sliding one-half the length of Riddle.

D-Air-valve, lower Riddle.

E-Upper Riddle tails off here.

F-Lower Riddle tails off here. G-Cut-off for lower Riddle, slid-

ing one-half the length of Riddle.

H-Feed Box for upper Riddle.

I-Bolting Cloth for upper Riddle.

K-Purified Middlings from upper Riddle.

L-Cut-off from upper Riddle.

M-Feed Box for lower Riddle. N-Bolting Cloth for lower Riddle.

O-Purified Middlings from lower Riddle.

P-Cut-off from lower Riddle.

The upper and lower halves are each a complete machine, and can be run together, or separately, as desired.

Address

COMPANY.

OFFICE AND FACTORY, 5th Street, North of Naughten.

COLUMBUS, OHIO.

The Purifier is driven from this end

DOUBLE, COLUMBUS.

of Fan Shaft, unless otherwise or-

BOLTING CLOTH



Let it not be forgotten that we keep a very large stock of the genuine Dufour Bolting Cloth always on hand, and those who order that brand [Parties corresponding will please state where they saw this advertisement.] from us will always be sure to get the genuine article. In John H. Miller, BIRGE & SMITH, addition to this we keep con-

stantly on hand a large stock of Dutch Anchor Cloth, which we import direct from the manufacturers, in Switzerland, and is not sold by any other dealers in Bolting Cloths in this country. This we warrant to be equal to, and even superior, to any other brand in the market, except Dufour. We know what we say in this regard. Cloths made up ready for the reel in the best manner possible, by the use of The Best, Cheapest, and Most Durable Rubber in the Market, USED DRY. Will outwear any Rubber made in the world, and retain its cutting qualities until entirely worn out.

Ticking and Silk Twist. Please write us for prices, discounts, and samples of cloth and making, before purchasing elsewhere.

Address,

HOWES, BABCOCK & EWELL,

The Best, Cheapest, and Most Durable Rubber in the Market, USED DRY. Will outwear any Rubber made in the world, and retain its cutting qualities until entirely worn out.

FACE RUBBER, 12x6x3 inches, weight 12 lbs; price, \$3,00. FURROW RUBBER, 12x6x3/1/4, 1½/4, 1½/4 and 2 inches, sequired, \$2.50; or both for \$5,00, by Express Furrow Gauges and Staff \$1/25 per set, by mail send for circulars, testimonials &c. Address all orders as above.

N. B.—This Rubber will not wear a pair of Buhrs out of existence in 15 minutes. But if used in connection with the Pick and Red Staff will leave the face and Furrows in the best possible condition for making good work. For cleansing the face of Glazing it has no equal. Try it and be convinced. Money refunded if not satisfactory.

**The Best, Cheapest, and Most Durable Rubber in the Market, USED DRY. Will outwear any Rubber made in the world, and retain its cutting qualities until entirely worn out.

FACE RUBBER, 12x6x3 inches, weight 12 lbs; price, \$3,00. FURROW RUBBER, 12x6x1/4, 1½, 1½ and 2 inches, weight 12 lbs; price, \$3,00. FURROW RUBBER, 12x6x3 inches, weight 12 lbs; price, \$3,00. FURROW RUBBER, 12x6x3 inches, weight 12 lbs; price, \$3,00. FURROW RUBBER, 12x6x3 inches, weight 12 lbs; price, \$3,00. FURROW RUBBER, 12x6x3 inches, weight 12 lbs; price, \$3,00. FURROW RUBBER, 12x6x3 inches, weight 12 lbs; price, \$3,00. FURROW RUBBER, 12x6x3 inches, weight 12 lbs; price, \$3,00. FURROW RUBBER, 12x6x3 inches, weight 12 lbs; price, \$3,00. FURROW RUBBER, 12x6x3 inches, weight 12 lbs; price, \$3,00. FURROW RUBBER, 12x6x3 inches, weight 12 lbs; price, \$3,00. FURROW RUBBER, 12x6x3 inches, weight 12 lbs; price, \$3,00. FURROW RUBBER, 12x6x3 inches, weight 12 lbs; p

[Pease mention the United States Miller, when you write to us.]

Vorks, CHESTER, PA.
[Mention this paper when you write us.]

Silver Creek, .N Y.

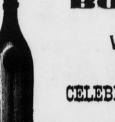
FROM 1-4 to 10,000 LBS. WEIGHT. True to pattern, sound and solid, of unequaled strength, toughness and durability.

An invaluable substitute for forgings or cast iron requiring threefold strength.

strength.
Gearing of all kinds, Shoes, Dies, Hammer-Heads, Cross-Heads, for Locomotives, etc.
15,000 Crank Shafts and 10,000 Gear Wheels of this steel now running prove its superlority over all other steel castings.
CRANK SHAFTS, CROSS-HEADS and GEARING, specialties.
Circulars and price list free. Address,

CHESTER STEEL CASTINGS CO.,

407 LIBERTY ST., PHILADELPHIA, U.S. A



BOTTLED BEGR.

VOECHTING, SHAPE & CO.,

SOLE BOTTLERS OF

JOSEPH SCHLITZ BREWING COMPANY'S

CELEBRATED MILWAUKEE LAGER BEER

Cor. Second and Galena Streets,

MILWAUKEE,

WISCONSIN, BOTTLERS' SUPPLIES CONSTANTLY ON HAND.

MANUFACTURER OF

MILLER'S COMPOSITION



PETERSBURGH, HUNTINGDON CO., PA.

Do You Want a Head Miller.

offer my services to any millowner desiring to employ a miller to take charge of a New Process Mill—Roller Mill preferred. Can furnish the best of references from some of the best Mills in the country, having occupied the position of Head Miller for twelve years.

Address for further correspondence: XYZ. Care of United States Miller,

PRACTICAL

PLANS, SPECIFICATIONS & ESTIMATES

MADE FOR ALL KINDS OF

MILLWORK, MACHINERY, ETC. Flour, Sawmill, Tanners' and Brewers' Ma-

chinery, and General Mill Furnishers, Corner of East Water and Knapp Sts,

MILWAUKEE, - - WISCONSIN.

 \lceil Mention this paper when you write to us \rceil

Situation Wanted.

A practical Miller of large experience and acquainted with new process milling either roller or stones is desirous of obtaining a situation. Parties desiring a miller either in the city or country will please address

MILLER, No 368 First Avenue, Milwaukee, Wis.

C. F. MILLER.

MANSFIELD, OHIO.

Materials and Plans for Stone or Roller Mills. Roller Mills on the Stevens System a Specialty. The Cosgrove System just the thing for small mills. Plans and Specifications furnished of any desired capacity. Genuine Zurich Silk Bolting Cloths direct from the Manufacturers. Warranted Best Quality.

Milwaukee, Wis. [Mention U. S. Miller when you write to us]

EDW. P. ALLIS & CO.

MILWAUKEE, WISCONSIN,

MILL BUILDERS AND FURNISHERS,

AND SOLE MANUFACTURERS OF

GRAY'S PATENT NOISELESS

ROLLER WILLS

CORRUGATED AND SMOOTH CHILLED IRON ROLLS,

WEGMANN'S PATENT PORCELAIN ROLLS.

We shall be Pleased to hear from Millers contemplating an improvement in their Mills, or Building new ones, and can furnish Estimates and Plans of our system of GRADUAL REDUCTION ROLLER MILLING. We have built and Changed over hundreds of Mills, in all parts of the Country, and using all classes of wheat, BOTH HARD AND SOFT, and can furnish References on application. The Largest and Best Mills of this Country are using our System and Roller Machines. Messrs. C. A. Pillsbury & Co., of Minneapolis, have over 400 PAIRS OF OUR ROLLS AND HAVE RECENTLY PLACED AN ORDER WITH US FOR ABOUT ONE HUNDRED AND TWENTY MORE. We have had a longer and larger experience in Roller Mill Building than any other manufacturers of this country. There is no EXPERIMENT ABOUT OUR SYSTEM and rolls, so expensive to millers, and when the mills that we build or change over are ready to start, THEY DO SO AND WITH PERFECT SUCCESS, and there is no further changing, additions, stopping or expense. We manufactured and sold during the year 1881 over TWO THOUSAND FIVE HUNDRED pairs of rolls.

We can send competent men to consult with any millers who contemplate an improvement, and whom they can depend upon as being RELIABLE AND THOROUGHLY COMPETENT to advise them as to the number and kind of machines required, best method of placing them and the change required, if any, in the bolting and purifying system. WE DO NOT URGE A GENERAL CLEANING OUT OF ALL OLD MACHINERY unless we clearly see such would be the ONLY COURSE TO PURSUE to make a SATISFACTORY AND RELIABLE MILL. In nearly all instances we can use all the Old Machinery, leaving it in its original position, or with as slight a change as possible. We aim to make the Improvement so that it will be a Profitable one to the Miller, and at the least expense possible.

Our System is THOROUGH and RELIABLE, and our Roller Machine Perfected by Long Experience, and the Miller Takes no Chances in using them, as HE DOES with the New Fangled Notions of Drive and Adjustment on many other machines now TRY-ING TO FOLLOW OUR IMPROVEMENTS and still avoid our Patents, in BOTH of which THEY FAIL. We were the first to advocate the Entire Belt Drive, and were opposed by every other maker, who claimed it was not positive, etc., etc., and now that our Belt Drive is an ACKNOWLEDGED SUCCESS, and will SUPERSEDE EVERY OTHER STYLE, these advocates of Gear Drive have suddenly learned that Belts are the Thing. The same may be said of our Spreading Device, Feed Gates, and Adjustable Swing Boxes. Other Makers are now copying these. ALL these Features, including BELT DRIVE with ADJUSTABLE COUNTERSHAFT and TIGHTENER, the SPREADING DEVICE, FEED GATES, Adjustable Swing Boxes and Leveling Devices, Self-Oiling Boxes, etc., are secured to us by several Strong Patents, and we CAUTION MILLERS in regard to these Infringements of Our Patents and Rights, for we shall look to THEM for Redress. The matter is in the hands of our Attorneys, who will soon take VIGOROUS ACTION against the Makers and USERS OF MACHINES infringing Our Patents.

Several machines are already on the market which Broadly Infringe, and we are informed that other makers are now changing their Old Style Machines, and adopting in a large measure Our Improvements. BEWARE OF THEM.

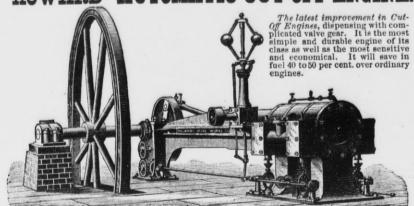
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"HOWARD" AUTOMATIC CUT-OFF ENGINE.



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DON'T BUILD A MILL until you write for Prices and Samples to the BODINE ROOFING COMPANY, MANSFIELD, OHIO.

HARRIS-CORLISS ENGINE.

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Built under their original patents until their expiration. Improvements since added: "STOP MOTION ON REGULATOR," prevents engine from running away; "SELF-PACKING VALVE STEMS" (two patents), dispenses with four stuffing boxes; "RECESSED VALVE SEATS" prevent the wearing of shoulders on seats, and remedying a troublesome defect in other Corliss Engines, "BABBITT & HARRIS' PISTON PACKING" (two patents). "DRIP COLLECTING DEVICES" (one patent). Also in "General Construction" and "Superior Workmanship."

The BEST and MOST WORKMANLIKE form of the Corliss Engine now in the market, substantially built, of the best materials, and in both Condensing and Non-Condensing forms.

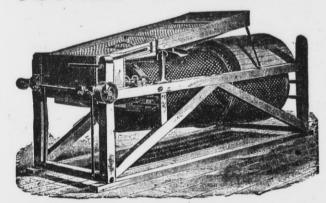
The Condensing Engine will save from 25 to 35 per cent. of fuel, or add a like amount to the power and consume no more fuel. Small parts are made in quantities and inter-changeable, and kept in stock, for the convenience of repairs and to be placed on new work ordered at short notice.

NO OTHER engine builder has authority to state that he can furnish this engine.

The ONLY WORKS where this engine can be obtained are at PROVIDENCE, R. I., no outside continuous discussed.

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COCKLE SEPARATOR MANUFACTURING COMPANY, MILWAUKEE.



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GENERAL MILL FURNISHERS

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Also Sole Manufacturer of BEARDSLEE'S PAT. GRAIN CLEANER. We will contract to furnish entire Wheat Cleaning Machinery for mills, and guarantee

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WE GUARANTEE GREAT CAPACITY combined with GOOD QUALITY OF WORK. Any common Sieve will separate the cockle from wheat but to separate it WITHOUT WASTE is the GREATEST FEATURE of our Machine. A WASTEFUL machine is a DAILY LOSS OF MONEY in a mill. There is NO MACHINE IN THE MARKET which can stand comparison with ours. Minneapolis, Minn. Aug. 22, 1881. time with very satisfactory results. We cannot see that it breaks the wheat or

BEARDSLEE'S WHEAT CLEANER.

WILLIAM LISTMAN. Milwaukee, Wis., Aug. 23, 1881.

Gentlemen:-The Beardslee's Grain apolis.

Yours truly,
CAHILL, FLETCHER & CO.
La Crosse, Wis., July 30, 1881.
Cockle Separator Mfg. Co., Milwaukee.
Gentlemen: — The Beardslee Grain Cleaner sent me about the middle of June has been in operation since that

R MILLS, PURIFIERS, and other machines requiring a recolor.

The machine from you for our New Era and Milwaukee wills give us the best of satisfaction. Experienced millers having seen the work done by the machine at liberty to use our names as a reference, and to any party calling on us we will be pleased to show the machine in operation, Yours truly,

NEW ERA MILLING CO

LOSS OF MONEY in a mill. There is NO MACHINE IN THE MARKET which can stand comparing to your late favor, would say that we can cheerfully commend your Cockle Separator as doing all that you claim for it. We have tested ours throughly by this time and know whereof we speak. We would not think of doing without it, having tried it once, and can conscientiously vouch for its good work. Yours respectfully, BROWN & WINFREY. Perrysville, Ind., Nov. 24, 1881. Cockle Separator Mfg. Co., Milwaukee. Sirs:—The combined machine I bought of you has been running about three weeks. It certainly does all you claim for it, and is the most perfect Separator that I have any knowledge of. Yours respectfully, B. O. CARPENTER.

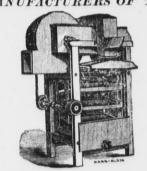
Pott's Patent Automatic Feeder

Hixton, Jackson Co., Wis., Dec. 30, '81 (Cockle Separator Mfg. Co., Milwaukee. Gents:—In answer to your inquiry of Gents:—In answer to your inquiry of Gents:—In answer to your inquiry of the 28th inst., I would say that the 28th inst., I would We have been using two of Beards- requires an unusual amount of power to run it. Yours truly, lees's wheat cleaners, a scourer and to run it. per hour through them, one third more Cockle Separator Mfg. Co. any other cleaners, and consider our Cleaners which we have purchased

Pott's Patent Automatic Feeder! The best device for regulating the FEED ON ROLLER MILLS, PURIFIERS, and other machines requiring a regular feed, spread out the full width, Very cheap and Simple. Sent on trial upon application. Write for circulars with illustrations. Perforated Zinc of all sizes at low rates. Send for Illustrated Catalogue.

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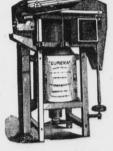
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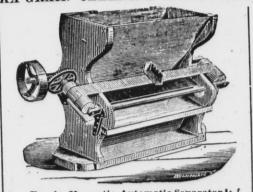


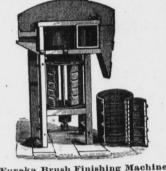
The Eureka Smut and Separating Machine,



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Removes all metallic particles from a flowing stream of grain, requiring no attention from the miller. 5 sizes.

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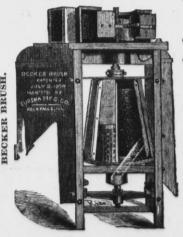
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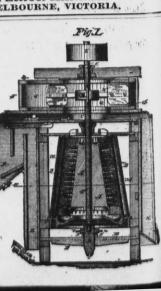
ADJUSTABLE WHILE IN MOTION.

Nearly 1,000 of these Machines in Use.

In the United States and foreign countries, and so far as we know all that use them are pleased. Millers, millwrights, and milling experts claim the Cone Shape Solid Cylinder Brush is the true principle to properly clean grain. All machines sent on trial, the users to be the judges of the work. For price and terms apply to

EUREKA MANF'G CO., Rock Falls, Ill., U. S. A.

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Published by KER. Vol. 13, No. 5.)

MILWAUKEE. SEPTEMBER, 1882.

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Remove all Germs without Breaking or Crushing them, and Hull the Black Cockle and Remove the Hulls, Clean Bran thoroughly, and make a Higher Grade of Flour than any other Mill known.

OVER 2000 PAIRS NOW IN USE!

Having Secured the BEST BELT MOVEMENT ever offered

We are prepared to furnish mills to be run entirely by belt, obtaining the nearest approach to a Positive Motion Without Gears We also manufacture the

Celebrated Concentrated Mill

Which is the Most Compact and Convenient Arrangement of Break Rolls and Separators.

READ THE FOLLOWING LETTER FROM A WELL-KNOWN FIRM:

MESSRS. JOHN T. NOYE & SONS, Buffalo, New York-Brooklyn, New York, February 20, 1882.

Gentlemen: We take pleasure in addressing you in regard to the introduction of the "Cosgrove Roller System" in our Mills at Brooklyn. By removing four pairs of our Millstones and putting in their place the two sets of the Cosgrove System, purchased from you, we find that with our former bolting and purifying arrangements, we can turn out flour, all roller ground, in quality from 50 to 75 cents per barrel superior to that made from the same wheat by Millstones. We are now grinding no wheat with stones. In making the change, our Mill was shut down but 4½ days to make connections with Elevators, Conveyors, etc. We drive the Cosgrove Machines from the same shaft that we formerly drove the Millstones. The work of the change was done by our own Millwrights, everything being so favorably located. The advantages that we find are principally, viz.: Saving from ½ to ½ power required to make the same amount of flour by stones; uniformity of work of the Rolls, and the ease with which they are managed, one man being fully able to give proper attention to two or more sets if we had them; the separations made by the cylinders are perfect; any miller can quickly adjust them exactly to suit the wheat he wishes to grind and the work required; the capacity of our machines we find fully 50 per cent. above the amount you guaranteed (200 barrels). In conclusion, we will say, that the result generally of the system is entirely satisfactory to us for the best of reasons, our customers are thoroughly pleased and satisfied with our flour.

Yours truly,

F. E. SMITH & CO. Brooklyn, New York, February 20, 1882.

Among Recent Orders We Name the Following from Prominent Millers:

Lexington Mill Co., Lexington, O., 12 pairs, Pollock & Co., Vincennes, Ind., 12 pairs,

James Norris, St. Catherines, Ont., 28 pairs,

E. O. Stanard & Co., St. Louis, Mo., 28 pairs, Penfield, Lyon & Co.. Oswego, N. Y., 2 Cosgroves., Ont., 28 pairs,

McNeil & Baldwin, Akron, O., Cosgrove and 10 pairs.

E. T. Archibald & Co., Dundas, Minn., 12 pairs, Crocker, Fisk & Co., Minneapolis, Minn., 54 pairs.

Jno T. Noye Manufacturing Company, Buffalo, N. Y. E. W. PRIDE, Agent, Neenah, Wis.

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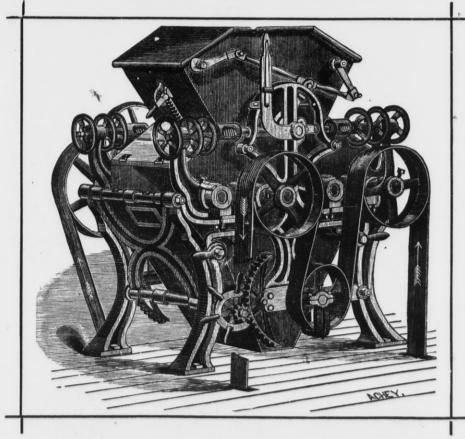
stablished Success.

We invite particular attention to the following

POINTS OF SUPERIORITY.

possessed by the Odell Roller Mill over all competitors, all of which are covered by Letters Patent, and cannot be used on any other machine.

- 1. It is driven entirely with belts, which are so arranged as to be equivalent to giving each of the four rolls a separate driving belt from the power-shaft, thus obtaining a positive differential motion, which can not be had with short belts.
- 2. It is the only Roller Mill in market which can be instantly stopped without throwing off the driving belt, or that has adequate tightener devices for taking up the stretch of the driving-belts.



- 3. It is the only Roller Mill in which one movement of a hand-lever spreads the rolls apart and shuts off the feed at the same time. The reverse movement of this lever brings the rolls back again exactly into working position and at the same time turns on the feed.
- 4. It is the only Roller Mill in which the movable roll-bearings may be adjusted to and from the stationary roll-bearings without disturbing the tension-spring.
- 5. Our corrugation is a decided advance over all others. It produces a more even granulation, more middlings of uniform shape and size, and cleans the bran better.

WE USE NONE BUT THE BEST

References and letters of introduction to parties using Odell Rolls will be furnished on application, to all who desire to investigate the actual work of these splendid machines. Circular and Prices on Application to Sole Manufacturer,

STILWELL & BIERCE MANUFACTURING CO.,

[Mention this Paper when you write to us.]

DAYTON, OHIO, U.S. A.

Facts Worth Remembering

Millers who desire to avoid troublesome litigation, will do well to remember the following facts:

That Gray's Patent Noiseless Roller Mill, of which we are the sole manufacturers, was the First Positive Drive Belted Roller Mill invented and placed upon the market in this country or Europe.

That the construction of these Celebrated Roller Mills is Fully Covered by the Foundation Patents issued to W. D. Gray, and of which we have sole control. These patents are Nos. 222,895; 228,525; 235,761; 238,677; 251,217; dated December 23d, 1879; June 8th, 1880; December 21st, 1880; March 8th, 1881; December 20th, 1881. From the dates it will be seen that these patents are the earliest ones issued for improvements in Roller Mills, and a careful investigation will convince any miller that they cover every feature of value in a belted Roller Mills.

That several belted Roller Mills lately put upon the market by other manufacturers are simply imitations of **Gray's Patent Noiseless Roller Mills**, imitations in every way inferior to the original, in merit and design, and **Palpable Infringements** of our patents.

That we are fully **determined to Protect our Rights**, and have taken action to begin suits against infringers. While we regret the necessity of this step, it has been forced upon us by the unscrupulous conduct of other manufacturers.

We are thus explicit, in order that millers may have fair warning, and that they need not, by Purchasing Infringing Machines. involve themselves in Troublesome and Expensive Litigation, which must eventually result adversely to them. We have no disposition to deal harshly or unjustly, and only ask for a fair and candid investigation of our claims. Millers who are using Roller Mills which infringe our patents and who wish to avoid trouble by settling with us before incurring the expense of a suit, will be liberally dealt with, as it is not our design to oppress millers, but rather to force infringers to respect our rights.

Gray's Patent Noiseless Roller Mills

Most Successful Roller Mills in the market, there being more of them in use than of all other makes together. Millers Run no Risk in buying these Machines, and in purchasing of us will get the Best Machine, without any expensive accompaniments in the shape of suits for infringements.

EDW. P. ALLIS & CO.,

Sole Manufacturers of Gray's Patent Noiseless Roller Mills,

MILWAUKEE, WIS

E. HARRISON CAWKER. [Vol. 13, No. 5.]

MILWAUKEE. SEPTEMBER, 1882.

Terms: \$1.00 a Year in Advance Single Copies, 10 Cents.

What Sam. Chisholm has to say about the wheat, is that the cells of the bran coatings Milling.

No cereal is so intimately associated with the history of civilisation as wheat. At the very dawn of historical times the plant is found in cultivation in the far eastern lands and the berry itself held in the highest esteem as food. It is a noteworthy fact that all nations of the world that have distinguished themselves as intellectually great and progressive have been large consumers of wheat. The extent to which races have consumed wheat may be taken as a measure of their civilisation. In Egypt, Greece and Rome. the three lights of antiquiti, wheat was the chief staple of consumption. The island of Sicily and the countries around the Black Sea were partial sources of supply to Rome and Athens, and the expenditure of treasure and blood in order to obtain and hold possession of these provinces never lacked for justification in the eyes of the people, for the wheat supply then was of as much importance as it is now in modern Europe. What is true of the anicent world is true of the world of today. A brief review of the peoples of the globe will demonstrate that the wheat-eating nations are the strong and mighty nations. Compare, if you please, the wheat-eating races of Great Britain, France, and the United States with the rice-eating inhabitants of India and China. Of course such a comparison does not prove that the consumption of wheat is productive of civilisation, but it does show conclusively that the higher the type of civilisation the greater the estimation with which wheat is regarded as a food staple. We may very properly pass without consideration the much discussed question where wheat originated; suffice it to say that we are told the Chinese records speak of its cultivation in the Flowery Kingdom 2,700 years B.C., and it was certainly known to the Egyptains 4,000 years ago.

An enumeration of the different varieties or kinds of wheat would be almost impossible. One French experimenter, I believe, succeeded in producing over 300 varieties. For general purposes the subdivisions into winter and spring wheat, coupled with the attributes "hard" and "soft," are sufficiently definite for our purpose.

A grain of wheat is not a seed, as might be supposed at first sight, but a fruit, perfect in itself and bearing within itself its own seed, which is the germ. Beginning on the outside of the wheat berry, we find first three fruit coats, which are known as the first, second, and third fruit coats. Next comes two seed coats, which are called the first and second seed coats. These five coatings altogether have a thickness of abouth one-four-hundredth | Milling. By low or flat grinding is underpart of an inch. Next comes a single coat or layer as thick as the outer five together, surrounding the interior portion of the berry and containing nitrogenous substances (gluten) technically called perisperm. The interior portion of the berry comes next, consisting principally of starch, &c., endosperm, and lastly, the germ or embryo at the base of the

What is known as "bran" in milling, comprises the first six of these layers, and to free these and the germ from the perisperm and endosperm is the aim of scientific milling. From the standpoint of the scientist, the perisperm, or the single layer of gluten cells which lies directly inside the bran, is the most valuable part of the wheat, and the flour will be stronger or weaker as it contains more or less of this layer of gluten cells. "Well cleaned bran" is therefore not only desirable from an economic point of view, but also from motives of giving strength and nutritious element to the flour. One point should be remarked here, and which contains system consists, as the name implies, in a which have been employed by mankind in tion of detail which is amazing. Though the a hint towards the best methods of reducing systematic reduction of the wheat berry into different ages of the world, and in diverse gradual reduction practised by American

have their gratest length with that of the berry, and that the gluten and starch cells are and systematic separations of the products disposed in such a manner that they are least listurbed by breaking the kernel lengthwise, and are disintegrated most easily by breaking at an angle to the crease. This disposition of the cells of the bran, and those of the interior of the wheat grain, points out a rational method of procedure in separating the flour particles from the bran and germ, to which I shall allude further on.

Essentially the constituents of the wheat berry may be said to be gluten, starch, water, and woody fibre. It need hardly be remarked here that wheat or flour is more valuable just in proportion to the quantity of gluten it contains. In some varieties of wheat the gluten is more elastic, as well as more abundant than in others. The germ consists principally of oil and starch, and the best scientists as well as the best millers, are now agreed that it should have no place in the flour, as its yell wish cast not only discolors the flour, but the oil it contains is a hindrance to breadmaking. To this, however, I will call your attention in another connection,

The relative proportion in which the constituents above mentioned are contained in wheat varies greatly with locality, season, weather, &c. Wheat ordinarily contains from 12 to 15 per cent. of water. The proportion of gluten varies even more greatly, running as low as 7½ per cent. in some wheats, and as high as 22 per cent, in others. Hard wheats have uniformly more gluten than soft wheats. Damaged wheat contains less gluten than that in a sound condition, and the gluten is generally of a less elastic nature. We might also remark that wheat grown on new soil generally has more gluten than that grown on exhausted soils. Owing to the fact that it is not possible to separate the perisperm entirely from the bran, "straight flour, contains usually a larger proportion of starch compared with the gluten than would be shown by an analysis of the wheat from which it was made. Having briefly examined the raw material with which the miller has to deal, we will pass on to note some of the

SYSTEMS OF REDUCTION.

Milling at the present time presents so many complex and varied forms, that anything more than general classification of the systems now used would be tedious as well as profitless. For all practical purposes we may reduce the various processes, so far as the reduction of the wheat is concerned, to four systems of milling. 1st, Low or Flat Milling; 2nd, New Process Milling; 3rd, Half-High Grinding; and 4th, Gradual reduction stood the old style of milling, in which the wheat is sent to the millstones, ground close, and the chop bolted; in short, the system universally followed in most countries up to within a dozen years, and still largely in vogue in this country, France, and many parts of America, particularly in custom mills. New Process Milling consists in grinding high with burrs, so as to make as much semolina or middlings as possible, and as little flour; separating the middlings and flour thus made, purifying the middlings and regrinding them; bolting this product, and so obtaining "patent" or "new process" flour. Half-High-Grinding may be described as a modification of the new process by the introduction of other steps, such as splitting the wheat, then grinding very high, regrinding the bran, breaking down the coarse middlings, &c. Half-High Milling is therefore a rather elastic and convenient designation of the process of milling, intermediate between the New Process and Gradual Reduction. This in the construction of the wheat berry which last and, to this country and America, newest to mention in detail all the various means should be remarked here, and which contains system consists, as the name implies, in a

smaller particles, the operations by which this is effected being attended with various (flour, middlings, bran, &c.,) the purification of the middlings, and the final reduction of ing as the system is more or less elaborated, and also according to the means employed. In the reduction of wheat proper, from five t) seven reductions are generally employed. though with the Jonathan Mills machines the first two reductions are hardly such, but are more properly wheat-cleaning operations.

While this classification of systems may seem more or less arbitrary, and merely groups together differences, in practice you will observe that a progressive elaboration has been going on by which the simple milling of a few years ago has become transformed into the more complex process of the present day. The change in America, however, has been gradual. American millers have not jumped from one reduction to ten or twelve; experience and economic necessities have led to one modification and another, until, to-day Gradual Reduction is pre-eminently the American system of milling. It is the scientific and practical aspect of this system to which I shall direct your attention. As I have just stated, Gradual Reduction Milling was, and is, a development, a growth in America. It was not an importation from abroad nor a sudden revolution at home. If you will but trace the steps which the scientific, commercial, and practical views of milling have gradually compelled millers to take, you will have the best practical knowledge of what the true principles of gradual reduction are; and this knowledge will be of great assistance to you in determining the all important question, viz., what machines are best for this purpose? Let me be fully understood. What I intend to convey is that a careful consideration of all the requirements of milling at the present time-scientific, commercial, and practical-will form the best data for judging of the merits of the different systems of Gradual Reduction Milling. In other words, let your reasoning be from the requirements of milling to the system, and not endeavor to make the necessities of milling fit some preconceived system. It is certainly a rational method first to find out what we want to do and then examine the means and appliances which are offered for accomplishing it, instead of selecting machinery haphazard and then attempting to discover what we can do with it. The first method has the merit of being not only the most logical, but the least expensive also.

DEVELOPMENT OF GRADUAL REDUCTION.

It would be most interesting, if our limited time would permit, to trace the gradual development of the art. Gradual Reduction is a system that has been forced upon millers rather than reasoned out by them. Men have not sat serenely down and made all this improvement by a simple process of reasoning. The first step of progress has been taken as a rule, first from necessity, and once taken other improvements have suggested themselves, or else forced themselves to be adopted.

History does not go back so far but that we find men employing some means of reducing wheat to meal flour. Even in the time of Abraham wheat was reduced to meal before being eaten, and from the passage where the visit of the strangers is recounted, it is evident that there were at least two ways of preparing the wheat for use, showing that even at that early date some improvement over the universal primitive fashion of pounding the grain in a mortar had been made.

It is hardly necessary, in this connection,

stages of civilisation. The whole history o early milling may be summed up by stating that for ages the pestle and mortar, the quern and the conical millstones, formed the means of reducing wheat. The chief point to be the middlings to flour, &c. The number of noticed, and one form which an important reductions employed may vary greatly accord- fact may be learned is, that even in the earliest times men sought to separate the bran entirely and obtain as white a flour as possible. The Romans and the Greeks must have attained to some considerable perfection in this matter, for it is certain that they had the means of making five or six kinds of flour from wheat, the difference between the grades consisting, in all probability, chiefly in the extent to which the separations were carried by means of their hair and linen bolting cloths.

Although much skill in milling, as in most other arts, was lost by the irruption of the northern barbarians, it was not long before men again sought to devise means to make a white and better flour.

In the sixteenth and seventeenth centuries several grindings and boltings were resorted to in France and Germany with this purpose in view, resulting finally in the famous mouture economique (or "economical milling") and mouture Lyonnaise.

These systems, or rather this system (for the Lyonnaise milling was only the mouture economiqu: long drawn out), is chiefly notable because it was an attempt not only to increase the quantity but also the quality of the flour -a rather ambitious aim, considering the crude appliances of those times; for it would be wrong to look for improvements in process while the mechanical appliances of the mills were still in so primitive a condition.

To us who received automatic mills as a bequest from our fathers, it seems strange that no greater advances were made in the methods of milling through all the past ages. But we forget how very primitive were the means of milling until the mechanical revival in the last century.

There was so much room for progress in everything that improvements in process naturally came last.

This is why we find little or no change for the better in milling methods until what is comparatively a recent date. So long as a rumbling millstone, propelled by unsteady power, and with little or no dress, and absolutely no balance, ground the grain, and a hand-sieve performed the bolting, it would be folly to expect elaborated systems to be followed.

Progress naturally took the obvious line of mechanical improvement, resulting in the automatic mill of Oliver Evans, and the wonderful improvements in mill machinery made in his and more recent times. Besides the mouture economique in France, the fir: t attempt at gradual reduction in modern times was made in the Austro-Hungarian Empire. Milling had advanced to just that point where economy in the use of material had become a necessity. The Hungarian wheats of eighty years ago were hard and flinty, as they are to-day. So long as the public were not fastidious in the matter of their bread the reduction of this wheat to flour was a matter of no special difficulty. But the taste of the consuming public has been growing more and more refined, and the Austro-Hungarian millers found themselves obliged to grind very high, in order to make a white flour; and though they attempted economy in the use of material by working up the products of this high grinding as well as they knew how and the means at their disposal would permit, the problem of profitable milling with high grinding was not solved until Paur invented his air purifier. Thence the gradual reduction system has been developed in Austrian and Hungarian mills with astonishing rapidity, and carried out with an elabora-

millers is sometimes called the Hungarian system, it is called so erroneously. There is not in that country a single mill which follows out the scheme of milling practised in Hungarian mills. No American mill could afford to do it. The number of reductions and separations is infinite, and any American mill that adopted this system would be obliged to curtail its capacity at least one-half. Besides, a rigid adherence to this method results in the production of a large percentage of low grade flour, which would not be saleable in any markets at their command. They have visely taken the kernel of the gradual reduction system and left the husk. This, in truth, they were obliged to do, in order to meet the exigencies of the case.

Hungarian milling is profitable only because all of the flour, even the blackest, can be sold, and because the three highest of the nine or ten grades fetch a price which is out of all proportion to the price of standard

Twelve years ago Low Grinding in America was the only possible system, because any attempt to grind otherwise was necessarily accompanied with the production of a still larger amount of the then almost worthless middlings.

The shrewd miller of those days attempted to make as few middlings as possible; because the profitable disposition of them was the pre-eminent problem in the milling of that time. A low grade of flour or the feedbin received them, and the miller aimed to put as little valuable material in these unprofitable places as he could, consistently with the colour of his flour. The invention and introduction of the purifier changed this. It became possible to grind high without being troubled with a nightmare, as to the disposition to be made of the middlings. It not only saved so much stock, but enabled the miller to make a whiter flour by grinding higher.

It required but a short time for the millel to discover that is was profitable to make middlings even if he did not clean the bran, as the "patent" or middlings flour sold at such high prices that he could afford to ignore the quantity of wheat it took to make a barrel of flour. Of course such a state of affairs could not continue long. Every miller who had a purifier launched into making middlings flour, regardless of close yields, and then "came the deluge." The price of patent flour was pulled down, and the question of close yields forced itself upon the miller's attention. It was here that the New Process, as the new system was called, was found to be inherently weak. It could in no way reconcile a close yield with a good percentage of "patent." Besides all this, the growing public taste demanded a good article of wheat flour, and to produce this the miller was obliged to sacrifice a portion of his percentage of patent.

Then came the modifications of the New Process, which we have previously classed as Half-High Milling. Millers ground high, and ground the rich bran on millstones, or cleaned on bran machines. Two reductions of the wheat were resorted to, with results which showed possibilities rather than actual results. All the experiments which have been made in modifying the new process show by their results that the limits of progress in that system are narrow, and that the only practical me- brethren of the craft reduce their wheat, but thod of reducing the wheat and obtaining have only to ask what your own markets on the latter system graduate with wonderful uniformity into gradual reduction. It is only a question of a shorter or longer experience with either of the first-named systems. Sooner or later the conviction forces itself upon the miller that the most money can be got out of the wheat only by adopting gradual reduction. Every step taken in advance on the old system of milling is a missionary for gradual reduction.

The question of fact aside, there is no way of accounting for the wonderful strides which the system of gradual reduction has made, and the vast number of mills which have been refitted, especially in the United States, than on this very supposition. That the introduction of this system has not always been attended with the happiest results has no bearing on the main argument. Many millers have gone into the movement hastily, withouth fully understanding their own needs. Many have been too prone to believe that whatever calls itself Hungarian, or comes to them with a foreign precedent, must be all right. The error is obvious. What may be much strength from the flour. As a case in have not now the time to dwell. The imporadapted to the slow and endless millings pro-

cesses of Hungary, is not, in my opinion, suited to English wants and English markets. A careful study of what is needed in an English gradual reduction mill will save you from drawing hasty conclusions, and reaping the results in leisurely repentance, as many have already done.

PRINCIPLES OF GRADUAL REDUCTION.

Primarily the aim of milling is to get the most money possible from the wheat. Any system of milling must propose this end in order to find adherents among millers. Discussions, therefore, of the relative merits of different systems from scientific and sanitary points of view, are quite unnecessary, as they have no real bearing on the question. It matters little to the miller whether his flour is a scientific and healthful flour or not, so long as it meets the popular taste and the public pays the highest price for it. He need not therefore stop to discuss the comparative merits of different kinds of flours from a ask what the public demands and will pay the most for.

The answer to such a question rises at once to the lips of every one at all acquainted with our markets. The popular demand is for white, strong flours, and these command the highest price irrespective of their sanitary merits. Fortunately, however, public taste is in accord with science. All the latest researches of scientific men on this subject have proved that white, strong flour from which every particle of bran and germ has been removed, is the best and most nutritious for man's use. This point has been so well established that it does not need enlarging upon. It may be remarked, however, that at a recent gathering of scientists at Vienna, Professor Vogl congratulated his hearers that improvements in milling have enabled millers to produce an article of flour more or less free from bran and germ. So popular taste proves, as it so often does, to have its source in science. The production of strong, white flours, such as the public requires, is scientific milling, and it is as well the most profitable kind of milling, as recent experiences have fully demonstrated. Millers everywhere are bending their energies to enlarge their percentage of such flour, and market quotations furnish proof that in seeking for a profitable system of milling we can safely ignore all processes which do not aim to make the largest amount possible of strong, white flour with a minimum of low grade. For this reason alone, if there were no others, English millers may ignore the Hungarian system of milling as unsuited to their wants. A French writer, Mr. Felix Hardoun, recently wrote a pamphlet to prove that the Hungarian system was not adapted to the mills of France for the reason that there was sale in that country for only two or three grades of flour, and these neither the best nor the worst; but a golden mean between them. The writer took the ground that a simpler systemmaking fewer grades of flour-was the only one appropriate for republican France, basing his argument solely on the public demand in that country for flour, and reasoning therefrom that French millers must make their own system of milling.

A somewhat analogous argument can, with propriety, be urged in the case of English millers. You need not enquire how foreign possess is whiteness; the absence of all disdiscolorations arise from three causes; is lodged in the crease of the berry or on the outside and is not removed before the wheat is ground. Second, from the pulverising or the germ or chit which, when ground up, give a saffron cast to the flour.

The strength of flour, the second qualification, depends first upon the quality and upon the first-named characteristic. It has the wheat of the class of impurities I have been repeatedly proved that every speck and mentioned. every particle of bran and germ takes just so

tains a much larger quantity and ordinarily a better quality of gluten than white flour, and which nevertheless rises with difficulty and makes a heavy bread. Considerations of the strength, therefore, furnish an additional argument why the flour should be as free as possible from germ, dust and bran.

The system of milling employed has no influence upon the quantity of gluten which the flour contains, but affects, in a very decided manner, its quality. Great pressure may break up the gluten cells and thus de stroy, in a large measure, their power of absorbing water-the only measure of strength in bread-making. This is a point of the utmost importance, and while care is taken to enhance the flour's strength by removing all bran and germ particles, it must not be forgotten that its strength may be seriously impaired by bringing to bear upon the middlings a degree of pressure so great as to destroy the delicate organization of the gluten hygienic standpoint; it is only sufficient to cells. No miller who wishes his flour to be as white and strong as mechanical means will make it, can afford to slight or overlook the importance of any of the points named. Each of them, has its effect upon the character of the mill's product.

The best flour is that from which the impurities have been most completely separated, and which has not been injured in reduction; and as the observance of each of the points given will approximate the product to a perfect flour, so the neglect of them will detract so much from its high quality. It will not do, for instance, to ignore the fact that all wheat contains dirt or dust lodged in the crease. It is there, and no smutter or brush can remove Yet if the wheat is ground up before this dust is removed in some way, every miller knows that it cannot be taken out by bolting. This dust, which is undeniably present in all wheat to a greater or less extent, is therefore incorporated in the flour, and adds so much discoloring matter and detracts so much from the strength. When the importance of removing the crease dust was first pressed tion designed to make the best quality of upon the milling public in America by our flour possible; in other words, they embrace firm, interested parties attempted to poohpooh it; but the attempt was not successful as a proper breaking of the wheat to release this dirt showed both the quantity of the dis-

coloring matter present and its quality. As to the desirability of removing the germ there is, I believe, but one opinion now; but in regard to the nature of the bran and the steps which should be taken to guard against pulverising it, some false views are still maintained. The bran is very thin compared with the diameter of the wheat kernel. It is also brittle and easily broken up, particularly the outer coatings. How to so treat the wheat that the bran will not become so weakened as to break up and become pulverized in the reducing operations is one of the problems of milling. The fuzz and adhering dust must be taken off surely, for otherwise they would sadly discolor the flour; but how can this be done without weakening the bran coatings which are already too weak and brittle. It will not do to weaken the bran coverings so as to render them liable to be pulverised when the wheat is reduced; the bran must be kept intact so as to better withstand abrasion while the berry is in the course of reduction. To solve this problem satisfactorily, many millers will be obliged to reconstruct some of their preconceived notions of wheat cleaning. The action of the wheat scourer, while effectual satisfactory results is by a system which will require and then see by what processes and in removing the fuzz and adhering dust, is so reduce the wheat berry gradually. Those means this public demand may be satisfied; harsh as to impair the strength of the bran who have followed the new process soon for success in every department of life con- coats. Any one who will examine wheat to newer and more modern machines? Permodify it to half-high milling, and the millers sists in meeting some demand, natural, bran with a microscope will see this at a moral, or intellectual, of the world about us. glance; indeed, it is not necessary to use a First, let us analyse what the flour is that the microscope to see the scratches which a no question possesses more vital importance public seeks and will pay the most for. The scourer of any kind makes upon the bran. first qualification which this flour must No treatment for an article so brittle as bran could be worse than that which it receives coloring matter in the flour. Specks and from a smutter or scourer; for, having its strength already impaired by the operation, First, from fuzz and extraneous matter which the moment reduction is attempted the crease breaks up, and the fine, filmy pieces, already scrubbed thin, are soon pulverised by the reducing apparatus, whatever the comminution of the bran-coating in the pro- latter may be. Millers who have given the cess of reducing the wheat; and, third, from attention to the matter which its importance deserves, have discarded all smutters, scourers, and ending stones, and now rely entirely upon brush machines, retaining separators, of course, to take out impurities quantity of the gluten; and, second, upon not adhering to or forming part of the wheat, the removal of the impurities just mentioned. like the fuzz: The action of brush machines It is often, though very erroneously, supposed is gentle, injuring the bran in no way, and at that the strength of flour is wholly dependent the same time it is effectual enough to rid

On the subject of bolting and purifying I

more than many other operations in milling and I shall therefore confine myself to the reduction of the wheat only. Suffice it to say that in every system of gradual reduction the bolting or separating should follow each step in the reduction before the product is next reduced; but such operations should not and need not be so hopelessly complicated as an attempt to follow the Hungarian system leads to. The object of making proper separations in bolting and purifying is twofold; and if this object is not lost sight of they need not occasion any embarrassment; first, to remove impurities as fast as they are made, and, second, to classify or grade the

products, so that this work may be automatic. We have, then, as a rational system of gradual reduction, one which embraces the following points:-

1st. The cleaning of the wheat in such a manner as to remove from the exterior of the wheat berry the fuzz and adhering dust or impurities, and yet in such a way as not to weaken or abrade the brittle bran coatings.

2nd. The removal of the impurities lodged in the crease between the lobes of the berry, which no cleaning machinery, as the term is ordinarily used, can reach.

3rd. The removal of the germ at the base of the berry, which cannot be scoured off except from an infinitesimally small proportion of the wheat, and even then cannot be done without inflicting irreparable injury on the bran coatings

4th. The gradual reduction of the wheat in such a way as not to abrade or pulverise the bran, and so incorporate these minute bran impurities in the "break" or "clear flour," and also in such a manner as to produce the largest possible quantity of middlings in the best condition for purification.

5th. The final purification of the middlings and their reduction to flour, by such means that the strength or life of the latter is not impaired. These would be the points embraced in a rational system of gradual reducpoints relating to quality alone. Subsidiary to them, and giving the economic side of the question, we may add:-

6th. The production of the largest profitable amount of middlings, or "patent flour." 7th. The minimum quantity of low grade;

8th. The most thorough working up of all the by-products, such as bran, etc.

It may not always be politic for the miller to pack out the largest possible yield of patent" flour, since beyond a certain point quantity in the "patent" is obtained at the expense of quality in the other grades; but a perfect system of gradual reduction would have an elasticity in this matter which would allow a miller to guage this production and sack them according to the market demands and quotations. We may add here that the break or wheat flour made under all the conditions I have given would naturally be of excellent quality, and equal, if not superior, to the ordinary "straight grade."

Having these self-evident axioms for our guides, we can now proceed to examine in detail the apparatus at the disposal for millers for gradual reduction purposes, and, keeping in view the ends to be attained by a gradual reduction system, we can intelligently judge of their merits and demerits.

THE MILLSTONE.

We may first enquire has the millstone outlived its usefulness, and must it give place haps no question is directing itself to English millers with greater force than this. Surely to them than what disposition is to be made, in the milling of the future, of the old familiar millstone. For it is not habit, not experience alone that causes millers to cling somewhat too tenaciously to the burr. It must be remembered that the majority of your ten or twelve thousand mills have been constructed with the millstone as a basis. In these mills it has done all kinds of work, good, bad, and indifferent; and now that it is apparent that gradual reduction is to be the system of milling, the question naturally arises, "What will we do with it?

Some ultra advocates from Hungarian ideas have openly counselled the utter ejection of the millstone as unsuited to the requirements of modern milling. Not to mention the immense loss which the throwing out of the burrs would entail upon the milling industry, the suggestion itself smacks altogether too much of the impulsive zeal of the new convert, which repudiates too much on one side and extenuates too much on the other. The point we may cite Graham flour, which con-tance of both is doubtless appreci ted far millstone has been entirely displaced in only

a limited number of mills, either in Europe and America, and some of the largest and best which have been built in the past year have either included millstones in their equipment, or made provision for them. I do not believe the mind of the milling public has become reconciled to part with the millstone for good; and the public place in this. as in most other cases, has substantial reasons for its course. It is very much worn but a very true statement as well, that millstones have always been abused in practice, and that we do not really understand their capabilities. While this is true, there must be some reason to account for the growing disaffection on the part of millers from the exclusive use of the millstone. Just as there is a widespread conviction on the part of millers, that the millstone has not been "given a fair show," and this conviction it still more unsuited for the purposes of machine to perform all the reducing makes millers cling to it, so there must be some good reason why the millstone has been displaced so largely as it has been. If we will but examine the work of the millstone candidly, in the light of the principles of milling just enumerated, we will easily discover the cause of its displacement as well as its retention in our milling, and we will also be able to ascertain its rightful place in a correct gradual reduction system.

With the grinding, biting or abrading action of millstones all are acquainted. It was this quality which gave burrstone precedence over other kinds of stone for milling purposes in the past, when such a grinding action was exactly what millers wanted. For the purpose of getting the most flour out of the wheat at a single grinding, nothing could, or can be, found better than French burr. But the aims of milling have charged. It is not now sought so grind the wheat; the desire is to granulate it and grind only the middlings. Is the stone, which was so well suited for grinding, suitable also for granulating wheat, in which it is so desirable to avoid grinding? This could hardly be the case; for the very qualities which made the millstone so perfectly adapted to the old style of milling would militate just so much against it under our present system. Let us look at the matter a little closer. The points to be observed in granulating wheat are as before stated, the removal of the germ and the impurities in the crease, and the reduction of the grain in such a manner that the bran shall not be comminuted, abraded, or pulverized. To accomplish the first of these objects the miller with the millstone is helpless. There is but one way to remove the dirt from the crease of the wheat kernel, and that is by splitting the berry lengthwise along the crease and then separating the dust by means of a wire cylinder. That a millstone might crack the wheat in this manner, to some extent, I will not stop to argue or deny. It is very certain, however, that those who have attempted to break the wheat in this way have uniformly sought for some better instrumentality than the millstone. In cracking the wheat lengthwise the germ is usually released, and granting this might be done on a millstone, at least a partial grinding or reduction of the germ by the biting and abrading action of the burr is unavoidable. Here is the secret of the whole difficulty with millstones. Strive as we will to destroy their grinding action, it still remains in the stone; as this gritty nature was, and is, its highest recommendation for grinding, it is also the greatest objection to its use for granulating purposes; for, clumsy as the millstone is, or rather would be, as a machine for breaking wheat in order to release the dirt and germ, the most serious obstacle in the way of using it to granulate wheat is the very fact that it is a grinding machine. And being such it cannot help grinding off the bran into powdery impurities which cannot be bolted out of the flour. Gradual reduction as a system is founded on a knowledge of the fact that the wheat berry must be treated gently, and that to prevent the incorporation of minute bran particles in the flour several reductions must be employed. Now anyone knows that even one reduction of the wheat on the millstones and grinding high at that will yield a wheat flour full of this pulverised bran. This being the case, three, four, and five reductions on the millstone are not to be thought of, as each reduction would reinforce the amount of this discolouring matter already in the

Nor must it be overlooked that the very fact of the millstone being a grinding instead of a granulating machine, operates not only to produce impurities, but also to make a large percentage of break or wheat flour.

"wheat flour" and low grade large and of very mediocre quality.

Another thing must be borne in mind. Those who believe in the capability of the millstone to adjust itself to the needs of this assumption is entirely gratuitous. With all the care and study that has been bestowed machine in its operations. It is true in some few instances, where really first-class millers are at the helm, the millstone may approach uniform action, but in the majority of instances it does not; and every imperfection displaced the rolls. It may be noted here granulation, as they make its grinding action operations of milling has proved abortive. more pronounced. It is true that these imperfections may in time be obtained, but the millstone can never be used to reduce wheat to middlings until it is stripped of its gritty, abrasive nature, and to get rid of this is to may ask whether the conclusion of the foregoing is that the place of the millstone no means. The millstone can be very properly and profitably used for reducing middlings into flour. The very qualities which render it valuable for grinding the middlings after they have been produced and thoroughy purified. On the contrary, a grinding action, a quick reduction, is exactly what the middlings need to produce a live, strong flour. Our American millers have quite generally perceived this fact, and even in many mills where attempts are made to conform as nearly as possible to the Hungarian system, millstones are yet retained for grinding middlings, and it is exceedingly unlikely that any device will ever entirely supplant them in that function; and here is where the millstone finds its proper place in gradual re-

ROLLS AND ROLLER MILLING.

I will next call your attention to rolls and roller milling, which I assure you deserve more than a passing notice. As to the date of their invention it is well known to those who have looked into the matter, that experi ments were made with rolls as far back as 1820. Whether they were a French, Swiss. or German invention cannot be conclusively proved now. In the year named, over 60 years ago, three mills were built-one at Vienna, one at Paris, and one in Switzerland -in which rolls were chiefly used in place of millstones. An eminent French engineer, M. Touaillon, states that Cambray was the inventor of rolls, while other authorities refer their invention to Collier, a Frenchman, and still others to Bollinger, an Austrian. All three of these first roller mills proved failures of a decided kind; but experiments with rolls continueed, and ten years later a Mr. Sulzberger, of Frauenfeld, in Switzerland, announced that he had built a roller machine which avoided all the objectionable features of the earlier ones. An extraordinary furore was occasioned by the introduction of this machine. Large roller mills were erected throughout Germany, Italy and Austria. Everyone believed that the day of millstones was over. The mechanical publications of fifty years ago were lavish in their praise of things better than the millstones, they upon the complete success of the roller fact, there was something to justify all these anticipations. The rolls made good flour, and the mills prospered; and yet, with one solitary exception, before the year 1840 every one of these roller mills had thrown out the rolls and put back the millstones. The revolution certainly went backward. Experiments continued to be made with rolls as before, but it was thirty years before anyone ventured to build another roller mill.

Many explanations of these earlier failures of the roller system have been given, the chief of which is that the machines were not well constructed. Facts, however, disprove completely this assumption, for Sulzberger's roller mill was, to say the least, equal, if not superior, to some of the types of roller mills now in use. Another explanation, which is nearer the truth, is that the roller system be handled intellectually or economically. subject of roller mills and gradual reduction, seems to bear him out. and is a consistent advocate of rolls under This, we believe, has been the experience of certain conditions, states that the main cause

reduction with millstones. The "patent" application of the roller system to all kinds has been only moderate in quantity though of wheat. Mr. Oexle holds that only very excellent in quality, and the percentage of hard wheats can be treated by a system of all rolls successfully, and that for soft and medium wheats rolls can only be used for certain operations with advantage.

These explanations have more or less force, and to them may be added another which gradual reduction assume that the millstone has often been urged with great force as the is a perfect machine. Everybody knows that true reason why rolls sank almost out of sight for thirty years after the fiasco of 1830-33. That is, that the application of the rolls in upon it, the burr is far from being a perfect these earlier mills was too extensive. They tried to use them for everything, and failed. They attributed the failure, very naturally, to the system; and the result was that it was only a question of time when the millstone of hanging, balancing, and operating, makes that every attempt hitherto to invent a If candid and thorough investigation had preceded these attempts, it would have been apparent that no one machine could be constructed so as to satisfy all the requirements of a gradual reduction of wheat to flour; but get rid of the millstone itself. Perhaps you inventors have gone on attempting to comprise in one appliance principles of operation essential antagonistic, and the result has been in gradual reduction is outside the mill? By disastrous in every case. Anyone who brings an unbiassed judgment to bear upon the matter can hardly fail to see that in milling, as in everything else, eclecticism is best. it worse than useless for granulating render The candid miller cannot close his eyes to the merits of burr stone, nor to the value of the principle embodied in roller mills, for certain operations in milling; but just so soon as the attempt is made to exclude everything but rolls, failure must eventually result. If the early roller millers, instead of discarding rolls entirely and going back to millstones, had recognized the value of rolls for a part of the reducing process, and had used both in conjunction, striving to remedy by new appliances the radical defects of both for certain operations in milling, rolls would not have fallen into such complete obscurity for so long a time.

The revival which rolls and roller milling has experienced in the past few years has perpetuated in some forms the fatal mistake which led to the abondonment of rolls forty years ago. And there is the same reason for it. When Collier and Sulzberger introduced their roller systems, it was with the conviction that the millstone was not fitted to reduce wheat to flour. We have just seen that if they had not made the fatal error of supposing that, therefore, the millstone was useless and some other machine could be constructed which would do everything, all would have been well. In the same manner millers of late years, both in Europe and America, have found that the millstone could not be used for all operations of gradual reduction. In many cases they have hastily assumed that, therefore, the millstone was useless, and have hailed the rolls because they were claimed by the vendors to do everything that millstones could do, and do it better. The same error of a generation ago is being committed by many millers of to-day, who are adopting rolls for every purpose in milling and for all kinds of wheat. Ultimate failure can be the only outcome of this refusal to profit by experience. Because the millstone is not fitted for reducing wheat, it does not fo !low that it cannot reduce middlings; nor does it follow that because rolls can do some the roll, just as they are to day, and looked should supplant millstones entirely. The attempt to make a coachman act as cook of these mills, it is true, do not show an incoachman. Rolls are good enough in their place, but their legitimate place is not to absorb all functions of reduction.

On exceedingly hard wheats like those of Minnesota and Hungary, a complete roller system, employing rolls for all reducing purposes, will doubtless succeed better than if millstones only were used. With millers who use such hard and uniform wheat exclusively, the error of using rolls for breaking their wheat is not so serious a one; it is only a question whether they could not obtain better results by other instrumentalities; but with the miller who uses soft or medium wheats, or mixed wheat, the mistake of using rolls to reduce it is a serious one. The opinions of expert and practical men is not wanting in support of this statement. Mr. Oexle, the gentleman before quoted, who was himself was found to be so complex that it could not the agent for a roller mill, has said that rolls could not (in wisdom) be used for reducing Oscar Oexle, who has given much time to the anything but hard wheats, and experience

It would hardly be fair not to judge the roll by the same criterion that we did the every miller that has attempted gradual of the failure of roller mills was the reckless millstone. It would be tedious to define the

difference in rolls occasioned by the use of gear or belt for driving purposes, or to define the differences of action between rolls of smooth and corrugated face, and the differences of work when the corrugation is sharp and smooth. The theoretical action of the rolls modified by the differential speed, though the extent of this modification is overestimated by interested parties. The rounding of the corrugation and the giving of a differential speed to rolls are merely attempts to disguise in a measure the action which all rolls must have.

The claims made by advocates of roller mills for the reduction of wheat, that they require a third less power than millstones and do not, as millstones, require dressing at frequent intervals, may be granted without the admission settling the matter by any means. Because rolls are superior to burr stones in some respects, does not establish their claim to be considered the best means for reducing wheat; for if we examine the action of rolls we shall find them deficient in many important particular, so far as the reduction of wheat to middlings is concerned, and this is, after all, the chief question in gradual reduction, to which all other considerations are subordinate.

If anyone will reflect a moment, or, what is better, test the matter in a practical way. he will readily see that whatever the character of the rolls' corrugation may be, it is impossible that a pair of rolls should split a grain of wheat through the crease. When I say impossible, I do not mean to imply that a wheat kernel is never so split by rolls, but simply to assert that every such instance is the result of an accidental relative position of the wheat berry to the corrugations. Noroll has been, or probably ever will be, devised which can split the berry in the manner described with anything like regularity. All rolls now in use break the wheat not in the manner which has been shown to be desirable, but in a hap-hazard manner, the only result of which is to reduce the size of the particles to be handled, and not to take out the discolouring dust when it is found in the crease.

If you will examine minutely the product of a first break on rolls, you will fail to observe evidence of any particular intention in breaking the wheat beyond reducing the size of the particles to be handled as mentioned before. You will find the wheat broken in every conceivable shape, and only in a few instancesbroken longitudinally. Of course this is a step towards gradual reduction, as the size of the material is thus reduced; but no good end is subserved farther than this, for the dirt of the crease is still in the particles of broken. wheat. That this is literally true, is shown. by the fact that the break flour of the first reduction with rolls is quite white and clear. That the action of fluted rollers is less injurious than the millstone, and comminutes the bran in a less degree is an undeniable fact, but that they are not perfectly or even well adapted to the gradual reduction of wheat is proved by the no less undeniable fact, that the "break flour" produced by each successive reduction grows poorer and poorer.

Nor can it be denied that the breaking of the wheat into ragged, irregular shapes by a first reduction on corrugated rolls, facilitates the comminution of the bran coatings in subsequent reductions. This, coupled with the incorporation of the dirt with the break flour, will account for the inferior color of the break flour produced by roller mills. Some system as a foregone conclusion; and, in and porter, can only result in spoiling a good ferior article of what is called wheat or break flour, but it will be found that these same mills do not make the regulation amount of 'patent" or semolina flour, for at a certain point it is politic to sacrifice a percentage of the "patent" in order to be mixed with and thus hold the wheat flour up to a good marketable grade. And it may be hereadded that the reports of the percentageof "patent flours" obtained by roller systems. of reduction are generally pleasant fictions. Satisfactory proof of roller mills and roller systems making a large percentage of "patent," and a good article of clear flour, with close yields, as their every-day work, is lamentable deficient. Few if any roller millers that make great claims will afford any opp ortunity of verifying their assertions in this particular.

What I have said of the action of corrugated rolls in comminuting the bran ismeasurably true of the germ, the importance of removing which is now universally conceded. Nature points out, in the very location of the chit or germ, the manner it should be removed. The only effectual

(Continued on page 75.)

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.

OFFICE, No. 118 GRAND AVENUE, MILWAUKEE, WIS. SUBSCRIPTION PRICE.—PER YEAR, IN ADVANCE.

To American subscribers, postage prepaid To Canadian subscribers, postage prepaid. Foreign Subscriptions.....

All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker. Bills for advertising will be sent monthly, unless other wise agreed upon,

For estimates for advertising, address the United State Miller.

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

MILWAUKEE, SEPTEMBER. 1882.

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.

Flour Mill Directory.

CAWKER'S AMERICAN FLOUR MILL DIRECTORY for 1882 was completed, ready for delivery February i, 1882.

It shows that there are in the United States 21,346 flour mills and in the Dominion of Canada 1,488. The mills in the United States are distributed as follows:

Alabama, 388; Arizona, 17; Arkansas, 234, California 209; Colorado, 52; Connecticut, 309; Dakota, 44; Delaware, 96; District of Columbia, 7; Florida, 81; Georgia, 514; Idaho, 18; Illinois, 1258; Indiana, 1163; Indian Territory, 3; Iowa, 872; Kansas, 437; Kentucky, 642; Louisi ana, 41; Maine, 220; Maryland, 349; Massachusetts, 363 Michigan, 831; Minnesota, 472; Mississippi, 297; Missouri, 942; Montana, 20; Nebraska, 205; Nevada, 10; New Hampshire, 202; New Jersey, 445; New Mexico, 28; New York, 1942; North Carolina, 556; Ohio, 1462; Oregon, 129; Pennsylvania, 2786; Rhode Island, 47; South Carolina 205; Tennesee, 620; Texas, 548; Utah, 129; Vermont, 231; Virginia, 689; Washington Territory, 45; West Virginia 404: Wisconsin, 780; Wyoming, 3; Total, 21,356.

The directory is printed from new Burgeois type on heavy tinted paper and is substantially bound. It makes a book of 200 large pages. The post offices are alphabetically arranged in each state, territory or province. The name of the mill, the kind of power used and the capacity of barrels of flour per day of 24 hours are given wherever obtained which is in thousands of instances This work is indispensible to all business men desiring to

reach the American Milling Trade. Price Ten Dollars per copy on receipt of which it will be sent post paid to any address. Remit by registered letter, post-office money order or draft on Chicago or New York made payable to the order of E. Harrison Cawker, publisher of THE UNITED STATES MILLER, Milwaukee, Wis.

THE Dominion Millers Association met Aug. 7, at Toronto, Canada, and considered

HUNGARY reports the best harvest for twenty years. The estimated yield for 1882 is, of wheat 125,000,000 bushels; rye 45,000,-000; corn 110,000,000; barley 40,000,000.

MINNEAPOLIS millers say that they will grind 20,000,000 bushels of wheat in the coming year. Milwaukee millers will grind 12,000,000, and St. Louis millers about 15,000,000 bushels.

THERE was never such a time for building grain elevators. At almost every railroad station in the West new elevators are being built, or old ones enlarged. The bounteous harvest will give the elevator men a "boom."

THE bottlers of mineral waters, beer, etc., have an official newspaper styled The National than any other land ever has done. It is perance, and the subscription price is \$2.00 per year.

WE welcome to our table The Roller Milb a monthly Journal, published at Buffalo. N. Y., by A. B. Kellogg. Subscription price, \$2.00 per year. Buffalo is the only city in this country that can boast of two milling papers published in the English language.

Personal.

MR. M. WALSH, President of the Minmeapolis City Common Council and manager of the Cataract Mills, has returned from a visit to Ireland, his old home.

WE recently had a call from Caleb Harrison, C. E., who lately graduated at the Wisconsin State University at Madison with high honors. Mr. Harrison has accepted a position further record that as our train rolled away with the engineering corps of the Milwaukee from their depot our hearty cheers for the & St. Paul Railway.

Col. Collins, of the Garden City Mill Furnishing Co., of Chicago, is now on a visit to of Dakota. We returned from Grand Forks Colorado, to look after his extensive mining to St. Paul via Fergus Falls & Lake Osakis.

A TRIP TO THE "LAND OF THE DAKOTAS."

In accordance with the custom of the editors in the State of Wisconsin they met August 8th to observe their twenty-sixth anniversary in the beautiful city of Hudson on the picturesque banks of the river St. Croix. The reception committee appointed by the good citizens of Hudson met our party numbering not far from 200 gentleman and ladies and escorted them in carriages to their hotels and elegant dwellings and provided for their comfort and amusement in a most hospitable manner during our stay of twenty-four hours. The routine business of the Association was speedily completed and the President, Leut. Gov. Sam. Fifield of Ashland and Secretary Hon. Ed. Coe of Whitewater, were re-elected to fill the same positions during the ensuing year. After this business was transacted the party were driven about the beautiful city and subsequently treated to a steamboat excursion on Lake St. Croix. On the morning of the 9th the party started by special train on the Chicago, St. Paul, Minneapolis & Omaha R. R. and St. Paul, Minneapolis & Manitoba R. R to Lake Minnetonka, where the day was spent in serene enjoyment on board the magnificent passenger steamer, the Belle of Minnetonka. The scenery that can be viewed during a days excursion on this boat is positively bewitching. It is worth going thousands of miles to see, and no American should spend time and money in going to Europe to view natures beauties until he has first seen this one at least of the gems of the Great Northwest. It is easily accessible from St. Paul or Minneapolis by the St. Paul, Minneapolis & Manitoba R. R. After taking supper and spending a couple of hours at the Hotel La Fayette, which is a fine hotel and would be deserving of great patronage if its charges were more reasonable the party left on the St. Paul, Minneapolis & Manitoba for the West.

We reached Moorhead Minn., early the following morning and the morning daily papers were placed in our hands, which amongst many other good things told us that 250 spring chickens had been slaughtered for our breakfast. Upon investigation at the breakfast table, we were confident that the local scribe had simply told the unvarnished truth.

The Grand Pacific Hotel at Moorhead is a wonder considering that the country out there has been settled but a comparatively short matters of especial interest to Canadian mil- time. The people of Western Minnesota and Dakota, call their country "Wonder-land" and it is indeed appropriate, for wonders met our eyes every where as we passed through the country. After breakfast we crossed over to Fargo, in Dakota and after some very interesting exercises including speeches, and music, both instrumental and vocal we drove out to see the city and then out into the country a few miles to inspect the wheat fields.

> Gaze where you would, it was wheat, wheat, WHEAT. FORTY BUSHELS TO THE ACRE OF

> That is what they claim and the writer believes that this year they will in many sections of that country realize their expectations.

The backbone of that whole country is hard spring wheat, and so long as good crops are secured and reasonable prices can be obtained that country is bound to develop more rapidly Bottlers Gazette. It is published by W. B. feetly wonderful to see such thriving cities as Keller, in New York, is handsome in appear- Moorhead, Fargo and Grand Forks in a land which a decade ago was almost unknown. This great wheat section is rapidly filling up with a sturdy enterprising class of citizens from all parts of the world. It is claimed that wheat can be raised there at a cost of only 36 cents per bushel. Flouring mills on the most modern systems, of large capacity are being erected at many points in Dakota which have a home market at good prices for a very large share of their produce.

At GRAND FORKS the citizens met us with bands of music and escorted us in carriages to the City Hall, where the ladies of the city spread before us a royal banquet and waited upon us with their own fair and willing hands and we must confess we enjoyed the hospita lities of the citizens of Grand Forks immensely Had we space to spare we would tell of the many good things said on this occasion, things long to be remembered, but we will only enterprising Grand Forks people rose high and clear over the broad and fertile prairies

In conclusion we beg leave to return thanks learning a trade; but he who wants to learn. Turbine, manufactured at Dayton, Ohio.

Haleyon Days for Wisconsin Editors. for curtesies shown to us by the Milwaukee & and is willing to waive immediate large re-St. Paul Railway; the Chicago & North-Western R. R. Co; the St. Paul, Minneapolis & Manitoba R. R. Co; the Chicago and St. Paul, Minneapolis & Omaha Railway Co; to the Captain and owners of the steamer Belle of designers and inventors. Minnetonka and to citizens of Hudson, Moorhead, Fargo & Grand Forks.

We would further say to the business men of Milwaukee, Chicago and all points further East, that if they have not been out to see this Great Northwestern wheat field, that they can not imagine what a country it is until they visit it. They may read, and read and half believe what the read, but they must see it to realize its immensity. We have seen it. "Go THEN AND DO LIKEWISE".

FENNIMORE & COOPER'S mill at Palmerston. Ont., burned July 29th. Loss, \$20,000. Insurance,

A. Swawson & Son's mill at North Branch Minn., burned recently. Loss, \$,8000. Insurance,

Burned-V. W. Dorwin's mill at Durand Wis. Loss, \$10,000. Insurance, \$5,000.

GEO. V. HECKER & Co.'s Cherry Street Mills in New York City, were destroyed by fire July 31. Two men were killed. Loss \$400,000 on mill, fairly well covered by insurance. The mill will be rebuilt at once.

Burned-Aug. 4, J. G. Mold & Co.'s flour mill at Sunrise City, Minn. Two men perished in the flames. Their names were John Lock and John Holmquest. Loss on mill, \$10,000.

Burned, Aug. 18, Smith & Burleson's elevator and mill at Villisca, Ia. Loss, \$35,000. Insur ance, 25,000.

Burned, Aug. 19, Cole & Beeler's flour mill near Jeffersonville, Ind. There were stored in the mill 3,000 bushels of wheat which were burned. Loss, about \$12,000. Insurance, \$5,000.

How Boys May Learn the Trades .- The New York Herald says that its recent article on the "Scarcity of good workmen," elicits considerable commendation: One writer attributes the lack of opportunities for apprentices to the subdivision of labor which has been brought about by the introduction of machinery and the tendency to do almost all kinds of manufacturing on a large scale. Another insists that the trades unions protect the apprentices, although they limit the number; he also makes the excellent suggestion that the unions should insist that every apprentice kept at the simpler kinds of work, in which boys can be most profitable to their employers. Two others complain that as soon as boys learn enough to make them of any value they desert their employers in search of higher wages. In answer to these last we need only say that apprentices are never taken haphazard from among boys, and that an apprenticeship contract, made between an employer and a boy's parents or guardian, can be enforced by law. The change of means and methods in some trades is unto learn these trades, particularly in large cities; but there still remains a wide range for young men with a taste for mechanics. For instance, a boy who would be a cabinet-maker might work seven years in a large factory without learning much. If, on the other hand, he were to spend only three or four years with a repairer who has only a little shop, he would learn so much about construction, materials, styles and finish that, if he had any taste, he could in a small shop of his own sell at a handsome profit whatever he might design and make, for the revolt against machine-made furniture increases as time goes Thousands of boys want to learn the printing business, believing it a stepping-stone of a newspaper, but in New York they cannot do it, even by paying for the privilege, for no single establishment, however large, covers the business in all particulars. The boy's only method is to become a good typesetter, and then go to a country office where, by sacrificing a portion of his time, he may slowly acquire the other details of the profession. No large machine shop is the proper place for a bright boy; he can learn more in a village blacksmith shop, were many kinds of machinery are brought for repairs. We have already suggested the only way in which boys can become competent builders, and the method outlined, like those indicated above, hints at the only proper way to study any comprehensive mechanical business at the present day. Success depends more upon the spirit of the boy than that of the employer. The boy who cares only to earn large

turns for the sake of good chances to learn, will in the end become a competent journeyman, and, what is more, an expert of the class from which come all the foremen, "bosses,"

The Wheat Tester.

BY S. C. BARTON, PRESTON, MINN. Is not, as is often supposed, intended to

defraund the farmer, but to ascertain the specific gravity of the wheat upon which its commercial value largely depends, thereby to mete out equal and exact justice to both buyer and seller. It is used in all large commercial transactions between dealers throughout the country, without the slightest protest, or thought, that it is an instrument of fraud. It does not, in any degree determine the actual value of the wheat, but only its relative value. It detects at once any defects not readily apparent to casual observation, such as moisture, imperfection in the berry, improper cleaning, etc. Now these are all proper objects of search in the buyer, to which it would seem that no reasonable honest seller could object, but such is the prejudice existing against this innocent instrument that ts use is quite often objected to, the mean objection being that the buyer is so very careful in the filling. Now upon this very care depends the uniformity of the test, and consequent utility of the instrument. A reasonable expedition in the filling is expected, and if each buyer is equally careful, almost exact uniformity is attained, which is the object sought. I venture the opinion that if a sample of reasonable clean wheat be tested here by a competent person, then inclosed in a tin case, so as to preserve a uniform humidity, it may be sent successively to all the large commercial wheat centers in the country there to be retested without the variation of one-fourth of a pound in the test. Now I ask could this be done were the lest carelessness tolerated in filling the tester? I may add that, as a rule, the poorer the quality of the wheat the more strenuous the objection to the use of the tester, no objection being made when the crop is uniformly good. To illustrate: Say it requires four bushels and fifty pounds of No. 2 wheat to make a barrel of flour of a certain grade, according to the present and universally accepted method of testing. Now is it not plain that if we fill the tester more compacity to suit the views of the seller, that the same wheat which before tested No. 2 will now test above No. 2, or that an inferior grade of wheat will test No. 2, so that we cannot make a barrel of flour of four bushels and fifty pounds of wheat according to the latter test, but that it will take say five bushels, and even with that amount at shall be properly instructed instead of being the expense of the grade of flour. Now when we consider that the mill is the final test to which all wheat of every grade, whether soild to the miller or to the shipper, must ultimately be subjected, also that the flour and feed are the final results, and that the price obtainable for this flour and feed, less the cost of manufacturing, must regulate both the price and grade of the wheat bought, it follows, therefore, that neither the farmer or seller can hope to contravene the laws of trade, which are as unchangeable as the laws of the Medes and Persians, by making an unwarrantable war upon the use of the tester. It is true our legislators have interdoubtedly disadvantageous to boys who wish dicted its use. They might with equal propriety have made it penal to put on glasses when examining goods for purchase, lest they reveal latent defects, or prohibit the probing of a jar of butter or a barrel of flour, lest the seller thereby lose a sale. But we may tolerate them in this innocent amusement, charitably remembering that where little is given, little is required.

Wanted an Understanding.

An Illinois merchant who was taking baking powder in bulk from a Chicago firm, called at neadquarters the other day to say that there was something wrong with the goods.

'I don't think so, was the reply; we make the best article sold in the west."

"I think we ought to have a more perfect understanding," continued the dealer. then, you adulterate before you send to me, then I adulterate before I ship, then the retailer adulterates before he sells, and the consumer can't be blamed for growling. I wanted to see if we couldn't agree on some schedule to be followed."

"What do you mean?"

"Why, suppose you put in 10 per cent. of chalk, then I put in 20 per cent. of whiting, then the retailer puts in 3" per cent. of flour; that gives the consumer 40 per cent. of baking powder, and unless he's a born hog he'll be perfectly satisfied. You see, if you adulterate 50 per cent. on the start, and I adulterate as much more, and the retailer adulterates as much as both together, it's mighty hard for the consumer to tell whether he's investing in baking powder or putty; we must give him something for his money, if it's only chalk.

THE large brick works at Deconshire, Engpay, and do it quickly, cannot succeed in land, are to be run by the celebrated Victor

"BEST IN THE WORLD."

GARDEN CITY



Gathmann's patent "inclined bristles" prevents all clogging when the brushes are run close together. This is the

ONLY DOUBLE BRUSH

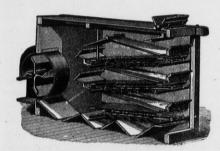
Which can be set up close so that it will

Thoroughly Brush Wheat. Guaranteed to IMPROVE COLOR of the FLOUR.

It don't break or scratch the grain. Removes all the dust. Very light running. Send for circular and prices.

Prices Reduced! Improved Garden City

Middlings Purifier



With Travelling Cloth Cleaners

Our improved Purifier has every device requisite to make it perfect, and every one in use is giving the greatest satisfaction to the users. The Cloth Cleaners are guaranteed to clean the cloth better than is done on any other purifier. Send for our new

Over 4000 Garden City Purifiers in use, nearly 500 of which are the Improved quickly attains a temperature of 1,500, 1,800 there arises in the flour, under the action of the cylinder drain cocks are closed. Do not Machine.

The Best and now the Cheapest. Write for circulars and price list.

We are agents for the

BODMER

Bolting Cloth!

Which has long been acknowledged as the best made, and which has lately been further improved, making it now beyond competition. We make it up in the best style at short notice. Send for prices and samples.

Garden City Mill Furnishing Company,

CHICAGO, ILL.

[Mention this paper when you write us.

The Electric Light in Flour Mills.

Mr K. W. Kunis, editor of Die Muehle, writes as follows concerning the article on the above

"The article of Mr. Haempel, recently published in the Ungarische Muehlen Zeitung, has excited much interest. Having been occupied for a considerable time with the question of the electric lighting of mills and having studied the exhibition at Paris, I have to say that for the present there exists no particular system which can be recommended without hesitation, but that unquestionably the electric light will be adopted for mills some time in the future. The incandescent light is indeed less rational than other systems, which give more light at a lower price, but it is preferable in so far as it enables the application in mills of a much greater, and so to say unlimited number of separate lamps within a given electric current. For it is the small divisibility of the electric current which is against the application in mills of the other systems. This drawback is happily avoided by the incandescent light. Concerning the creation of the electric current a letter from Messrs. Siemens & Halske, in Berlin, of the March 71 this year. remarks as follows:—"For electric lighting a action, which sets the electric machines in motion. These machines are always used in creates a continuous current, which is conducted into the larger or secondary machine, and creates in the latter powerful electromagnetical effects. Between these electromagnets of the secondary machine, a ring, fitted with wire coils, rotates, in which strong electric currents are induced, which are conducted to the lamp". Now in those lamps whose light is created by the electric 'arc' the current is conducted to thin carbon sticks, whose points are at a certain distance from each other, and here the sparks dart from one point to the other and thus create the electric arc. The differential electric lamps of Messrs. Siemens & Halske regulate by means of the current the distance of the carbons, and thus cause the electric light to be in a high degree equable and quiet. Messrs. Siemens & Halske apply the lights in three degrees of strength of say about 15, 35 and 120 gas flames, each equal to ten sperm candle lights. By surrounding the light with one or more opaque glass globes it is properly subdued, so as not to dazzle too much and make the shadows too strong. The cost of the installation amounts on the average, with moderate lights (equal to 15 gas flames each) with 8 lamps, to 5,100 marks (£255), with ten lamps to 5,900 marks (£295), with 12 lamps 7,300 marks (£365), with 14 lamps 8,100 marks (£405), with 16 lamps 9,200 marks (£460), with 20 lamps 10,800 marks (£540), including a total length of conducting wire of 50 meters for each lamp and 1,000 metres for connection with the motor. The carbons burn five hours, after which they must be renewed. The power required for a lamp is 0.75-h.p. indicated. The incandesent lights are lamps in which

a piece of wire, or a carbon filament, is heated to a white heat and thus gives light. It may be sufficiently known that the electric current, when it goes through a metallic conductor, current goes from a large conductor to a this reasoning :small one it becomes contracted or compressed and there arises a considerable friction withand 2,000 deg. C, and thus spreads a strong the air, a kind of fermentation, or rather light (the incandescent light). This light is oxidation, and it must therefore be heavier less dazzling than that produced between two than that which grinds absolutely cool. This carbon points. As the oxygen of the air would very quickly consume the white glowing wire of the carbon filament, it must be fermentation of the flour. enclosed in air-tight evacuated globes, and would require no renewal if the action of the electric stream did not gradually dissolve infinitely small particles of the carbon. This dissolution of the wire or carbon filament, occurs slower or quicker according to the substance employed, and, therefore, this substance, and the shape of the filament, whether horseshoe, or loop, etc., constitutes the main flour products thus obtained gave bread of differences of the various electric lighting systems. The incandescent light is nothing new, but it had, on the contrary, long been contemplated to utilise it for lighting, but it was held to be disadvantageous because the electric arc gives light at a smaller expense: in practice, however, it had been generally and no more. A lesson follows from this, overlooked that it is more important to have which we were unable to learn under the sole the light distributed in different places, than

occurs much more frequently than the second, the incandescent light which fulfils the first of these requirements may probably in future be found the best for most purposes, unless subject which appeared in our August number. the divisibility of the electric current should succeed much better than hitherto. With regard to the special lighting of mills by electric light, the incandescent light appears to be far more adapted than the arc light, in consequence of the many objects in mills which throw shadows. The power required for incandescent lamps will probably be nearly equal to the amount named above for arc lights, and as a motor with equable action is necessary, the views expressed by some correspondents that the installation of electric light in a mill hardly costs anything, is too optimistic. Not every mill has the necessary power for driving a dynamo-electric machine, and not every mill is so arranged that its driving gear can be easily disengaged whilst the motor continues in action. Generally the suspension of the work is effected by the stopping of the motor, and Mr. Van den Wyngaert has already explained in his paper, what then happens with the electric lighting.

Electric lighting in a mill either requires an independent motor or an independent driving gear; and at the same time an arrangement motor is required, having a regular and equal for stopping the mill while its motor continues work. Therefore, in the latter case it also requires a suitable governor for regulating pairs; the smaller, or primary machine, the great difference of power required after stopping.

From these short explanations it follows that the electric light, no doubt, merits that increasing attention from millers, which I have devoted to it for some years, but it has not yet reached a stage at which it can be unreservedly recommended to millers; as, however, daily progress is made in electric lighting it is very probable that in a short

time it will be rendered free from the above named imperfections.

Cold or Warm Grinding.

A Buda Pesth miller wrote recently to the Ungarische Muehlen Zeitung, as follows in reference to warm and cold grinding:

A customer of my mill, one of the best known bakers of the capital, informed me recently that some lots of flour, in spite of the great reputation, yielded a bread which flour he added to the dough a small quantity of solution of sugar, which remedied this was caused by reduction on rolls. I had occasionally noticed the tasteless bread, but had attributed it to the baker and the faults in his process, but now the fault was laid at the door of roller mills. I determined to investigate for myself, and did so with satisfactory results.

I allowed part of a lot of middlings to to be floured by a roller mill and part between stones, and set aside a sack of each for test. The baker was right; the roller flour gave the well-known tasteless bread, while that from the stones did not possess this bad quality. I was confronted by a fact the explanation of which took me several days. Then I measured off exactly equal quantities of the flours. Weighing showed that from the stones was heavier than the other. My conclusion was warms this conductor. When the electric then confirmed—a conclusion based upon

> If the stone grinds hot it consumes a large part of the "fermentability" of the flour, same reason shows that the cause of the tastelessness of the bread lay in the lack of

The baker had noticed this tastelessness only occasionally, but in my mill the reduction had been carried on for several years by rolls. These, therefore, could not be the cause of the trouble. I rigged up an exhauster which had long since been thrown aside and connected it with a run of buhrs. On the other side the rollers were set to run faster. The equally good taste. The stone could not grind cool enough, in spite of the exhauster, although it was run slowly, to avoid a fermentation arising in the flour, while the rollers, although running swifter than before, produced just the requisite temperature for this fermentation, rule of the millstone—that absolutely cold one point only, and as the former desideratum as hot grinding, the latter being impossible

on rolls. Accordingly in times of business depression, when work is not pressing, one should rather use fewer rolls, run rapidly, than all, run slowly. As regards the difference in specific gravity between fermented and unfermented flour, an exact investigation would be very interesting. I cannot explain it, but I believe after the matter is agitated, it a solution will be found.

If, now, complaints are made about the too warm grinding of roller mills and machines are sought which will grind cooler, this is simply an error. The roller mill cannot grind too warm, and the temperature which is obtained by rapid motion, is just that which is necessary to set up that sweet fermentation in the flour which gives bread its peculiar nutty flavour, and which is wanting in flour, that, owing to slow grinding, does not reach the necessary temperature for the transformation of any of its elements into sugar.

Another question touches the probable greater durability of the unfermented flour; still, this is only of theoretic interest, as dry flour made upon stones has proved to be of excellent keeping qualities, and does not spoil easily. Finally a chemical examination of fermented and unfermented flour would be productive of interesting results. It seems unquestionable, that in the further processes of fermentation the dough must differ in the two cases, and produce a different result. To the superficial observer this difference would only become evident in the taste of the bread, but scientifc investigation would certainly disclose much that is new, and might give many valuable hints for the treatment of flour made on rollers.

Duties of an Engineer.

Above all other things the boiler should be kept clean; the manner of doing this will depend on the construction and kind of boiler used. Before blowing out the water to clean the boiler, see that there is not over ten pounds of steam, and that the fire has all died out in the furnace. After blowing out, let the boiler cool; then take out the hand hole and with a force pump and hose wash out all the loose mud. It may then be necessary to take the scaling tools and remove all the scales that can be got at. It is a good idea to raise the safety valve while possessed a kind of tastelessness which no filling the boiler, as it provides a way for the addition of salt could remove. If he had such air to escape while the water is going in. Before firing up in the morning, or at any other time, see that there is plenty of water fault. He also advanced the opinion that it in the boiler: if it is low, fill up before placing the fire in the furnace. To kindle your fire, put a thin layer of coal over the grates, then place the kindling and wood on this; after the fire has commenced to burn, put in another layer of coal, and you soon will have a bright fire. Do not fire up too fast when the boiler has stood a few days, as forced firing is injurious to both the boiler and masonry. Keeping the water at the proper height is of considerable importance to easy firing. The practice of turning on the water and letting it run up, and then shutting it off and allowing it to run down, is a poor one. Feed the water just fast enough to supply the demand. Oil the engine before starting it and keep the oil wiped off where it is not needed. Spend a few minutes every day in cleaning up the engine, removing all extra oil, wiping off the dust and dirt, and see that everything is in good working order. Always open the cylinder and drain cocks when you stop your engine, and close them after the engine has in the conductor, and the warmth is increased besides the difficulty of bolting properly. If started. In oiling the cylinder do not admit to such a degree that the thin conductor it only grinds warm, as opposed to cold, then the tallow till the engine is under way and start your engine too fast but let it come up to speed gradually. Be sure that you keep your eyes open and tend to your business .-Wood and Iron. (Minneapolis.)

A Sight Rarely Seen.

Moorhead News, Dakota: Looking south from the windows of the Grand Pacific hotel nowadays it is possible to see a sight that no part of the civilized world can equal. Stretching away into the horizon is a boundless field of grain. It extends fully thirty-five miles; it is mostly wheat and partly oats and barley. In all that distance which can easily be seen over the level prairie there is not a single rod of fence to obstruct the way, and a harvester might be started on the farm of the millionaire farmer, E. C. Sprague, and journey nearly two days without meeting such a thing as a fence. In all that extent of country, horses and cattle are picketed or watched by herders, and the farmer saves the incalculable cost of building fences. This is a grand country with its prodigal soil, but it is grander still in to have an extraordinary mass developed in grinding is as injurious to the quality of flour the intelligence and thrift of its level-headed

Increasing Demand for Machinery.

The Machinist remarks that a few weeks ago the press of orders for machinery and tools was declining, and many of the manu facturers were apprehensive of actual dullness before the opening of fall trade in other branches of business. Those who had steadily been refusing orders were many of them willing to re-open correspondence with prospective purchasers, and in some cases extreme prices were moderately shaded to secure a few desirable customers. The past three weeks have shown a decided change in the situation. Purchasers who were awaiting events are becoming anxious, and are hastening to place their orders for fulfillment at the earliest practicable moment. Reports that reach us from different quarters, both East and West, as well as our own observations among the shops, agree that a renewed activity has sprung up this month, which was hardly to have been expected in midsummer. If we look for causes, we can, perhaps, discover nothing more potent in bringing about this accelerated movement than the prospect of bountiful crops, especially of breadstuffs, which are likely to be in good demand abroad. The activity in railroad building and equipment will be greatly strengthened by the now almost certain prospect of good crops; and upon the railroad industry more than any other single business depends the demand for machinery and tools. No more rapid progress in railroad construction could be desired than already exists. All that is needed to sustain and push forward the work on so large a scale is a reasonable assurance that enough transportation business can be obtained to make both new and old lines pay expenses. Profits are usually left to the developments of the future. Several railroad enterprises are undoubtedly in advance of public requirements, but the rapid growth of the country-more rapid than ever before-will in time-render the lines valuable that are now unnecessary. Locomotive building has not experienced any such check as was reported in daily papers a few weeks ago, and is not likely to be retarded for months come.

Overloading Safety Valves.

The practice, which prevails extensively, of loading the safety valves of steam boilers beyond the proper limit, is a most dangerous one, and cannot be too strongly condemned. Cases are very frequent where, by this means, old boilers, worn and thinned by corrosion, are regularly worked at a much higher pressure than they were originally intended for when new. There can be but one result of such a course, and that points unerringly toward disaster. The wear and tear of a boiler so overloaded and overworked is vastly increased, so that little if any economy results from the practice. It is true, that, in times of great business prosperity, when every department of a manufacturer's establishment is driven to its utmost capacity, the temptation to overwork a steam boiler is very strong; still the practice is, under any circumstances, wholly inexcusable. With most kinds of machinery, the only result of overwork is simply the failure of the machinery and the four pounds. When a thousand nails weigh consequent pecuniary loss; but with steam boilers the case is different. Here the damage, in case of accident, is not confined to the boiler itself, or even destruction of adjacent property, but human lives are almost invariably sacrificed. We think every one will agree with us when we say under no circumstances is the imperilment of people's lives justifiable. Everything should be done that human knowlelge renders possible to make the use of steam perfectly safe.

Dalrymple's Great Farm

Bismarck Tribune, Dakota: Dalrymple, the great bonanza farmer, is cropping this year 57,000 acres of land. This vast tract is divided into farms of 6,000 acres each. Over each of these is placed a superintendent. These farms are subdivided into the divisions of two thousand acres each, which are in the charge of a foreman. Each subdivision of two thousand acres has its set of buildings. comprising boarding houses, stables, granary, machinery hall and blacksmith shop, and are connected with the superintendent's headquarters by telephone. Each 5,000 acres has its superintendent, bookkeeper storehouse for supplies, from which goods are taken on requisition to the different divisions. Wages for the past year have been \$20 a month until get \$20 and inferior ones \$25 for fall work.

demand of Minneapolis, the other, Buffalo and ordinary seasons for about 36 cents a busnel, and it costs from 25 to 27 cents a bushel to ship it to New York. The average yield is twenty bushels.

Items of Interest.

YEAST mixed with about one-eighth of pure glycerine will keep well for a long time if placed in a cool cellar or camber.

THE Supreme Court of Michigan, in a recent decision, held that damages for the non-performance of a contract to deliver mill machinery can not be measured by prospective profits, unless the same can be estimated with absolute certainty.

THE question of industrial teaching in the public schools is not yet a settled one, in spite of many loud proclamations. It may well be considered if it be worth while to add anything to the already crowded course of instruction. It is hardly wise to promote superficiality. Special technical schools, however, cannot be advocated to heartily.-New York Tribune.

A BELGIAN engineer is said to have invented a process by which he can weld steel at a red neat. He keeps an essential portion of his method a secret. It seems, however, that he carefully polishes the surfaces to be united, smears them over with some sort of liquid raises the temperature of the metal to redness, and then joins the pieces. After severe tests, bars welded in this way were in no instance broken at the point of juncture.

A BOAT to be used for the purpose of a floating sawmill has been built on the river at Nashville, Tenn., for operation on the upper Cumberland. The design of its projectors is to buy pine, cedar and walnut timber on the banks of the river, and to convert it into lumber for market on the vessel, at the rate of several thousand feet per day. The vessel is novel structure, 100 feet in length and twenty-two feet wide, and has a full sawmill equipment.

MAORI MILLERS .- An instance, says an Auckland (New Zealand) correspondent, of the advancement of the native race at Raglan, is to be found in their enterprise in milling. A second flour mill is to be erected for Hone to One, at Pauwewe, Kawhia. It will be built by subscriptions raised among the Maoris living in Kaphia and Aotea, and a boat is also to be built for them to transport the flour to the various settlements on the shores of the harbor.

Nails.—Many persons are puzzled to under stand what the terms fourpenny, sixpenny, tenpenny, mean as applied to nails. Fourpenny means four pounds to the thousand nails, sixpenny six pounds to the thousand nails, and so on. It is an old English term, meaning at first tenpound nails (the thousand being understood); but the old Englishman clipped it to tenpenny, and from that it degenerated until penny was substituted for pounds. So when you ask for fourpenny nowadays you want those which will weigh less than a pound they are called tacks, etc., and are reckoned by ounces.

THE great Gothard tunnel, which was opened on the 1st of January of the current year, is nine miles and 564 yards in length. In the construction of "this wonderful hole through the mountains," an average of 2,347 men was engaged per diem, and work was carried on day and night. During the entire period of the construction about 1,000 tons of dynamite were used for blasting, and 1,700 tons of oil for illuminating purposes. The entire amount of rock removed in making the tunnel was about 1,200,000 cubic yards, and the lining of the inside, which has an area of 258,000 square yards, took up about 220,000 cubic yards of masonry. The average cost of building the tunnel per lineal foot was about \$73.85. The time occupied at the work was exactly 3,330 days

LEATHEROID is a new article which is being made of paper. It consists of a number of thicknesses of cotton paper wound one upon another over a cylinder. The remarkable qualities of strength and adhesion it possesses are derived from a chemical bath, through which the paper is drawn on its way to the cylinder. The effect of the chemical bath on the paper is said to be wonderful. Leatheorid, for the purposes it now serves, consists harvest and \$2 a day through harvest and \$30 of about 20 thicknesses of paper; it is shaped a month for fall plowing. The best hands upon or around molds, while wet, into the soon made up by the return of the odd ball form it is to represent, and will hold that The farmer has the choice of two outlets for form perpetually when dry. When dried,

A company has been formed at Kennebunk, New York markets by way of Duluth. Wheat Me., for the manufacture of this article, and can be raised and delivered at the railroad in will at once build a large mill there for that purpose. This company is making, for introduction into the mills, roving cans, boxes, etc., to take the place of tin cans and wooden boxes. Cans made from this material are about one-fourth the weight of tin cans of equal size; while tin cans are liable to get bent, cans made from leatheroid are entirely free from this objection. They have the elasticity of thin steel, and no amount of kicking or hauling will break them. Orders have already been received from several large mills for their roving cans and boxes, which are made seamless. This substance is also used for covering pulleys to a large extent, making one of the smoothest and most lasting coverings which can be obtained.

> WHEAT AND CORN STATEMENT FOR NINE YEARS.—S. W. Talmage, of Milwaukee, sends the following statement of the wheat and corn production in this country from 1872 to 1881 inclusive, also the average annual production and the estimated production for 1872:

Year.	wneat, bu.	Corn, Du.
1872	249,997,100	1,092,719,000
1873	281,254,700	932,274 000
1874		850,158,500
1875	292,136,000	1,331,069,900
1876		1,283,827,000
1877	364,194,100	1,342,558,000
1878	420,122,400	1,388.218,700
1879	448,755,118	1,547,901,800
1880	498,549,723	1,717,434,500
1881		1,194,916,000
Average production	1:	
Wheat, bu		352,604,844
Corn. bu		1,267,106,650
Estimated production	on for 1882:	
Wheat, bu		525,000,000
Corn, bu		1,300,000,000

Two months ago Mr. Keely, the inventor of the celebrated Keely motor, began, by order of court, to reveal to Mr. Boekel, the secret of his invention. After seven weeks constant revelation, Mr. Boekel declares that he does not yet understand it, and is inclined to think that "recognized mechanical sciences cannot reach the thing." This must be very disappointing not only to the stockholders, but to Mr. Keely himself, who has announced his intention of taking out a patent. It would obviously be impossible to patent a process or invention which could not be explained or described, for the law requires description for the purpose of identification. Mr. Keely may raise the point that the constitution of Mr. Boekel's mind makes successful revelation to him impossible, and might insist on the appointment of some new person as the depositary of the secret. But the probability is that the Keely secret will long remain one of the mysteries of science.

WOODEN BOLTS IN HOUSE BUILDING.—The Exeter, England, Flying Post offers the following: "Why do you make so lavish a use of nails in the carpenter's work of our houses. to the exclusion of the honest old oaken pin? Pull down any building, if it be merely a barn, of more than 200 years old, and you rafters and joists were all bolted together so stoutly as almost to defy the tools of the destroyer. Many an old manor barn, when pulled down of late years—as unfortunately itself to have been better built than most palaces are now. There are arguments in the way of economy of time and so on in favor of the use of nails in house building, but they are as nothing compared with the solid advantages of using wooden bolts. The iron nails in time canker and rot rafters and floors, but bolts hold them together 'like grim death,' and render a house practically indestructible.

ALMOST PERPETUAL MOTION.—A New York paper reports that there is on exhibition in a small apartment in Chambers street, what is claimed to be the nearest approach to a perpetual motion ever devised. The contrivance consists of two wheels, nearly concentric, which are rotated by means of nine four pound balls, which run in the grooved radie of the wheels. When the machine is at rest, four of the balls are placed in the grooves of each of the wheels, one to each of the four grooves, there being seven in all. To give motion to the machine a ninth ball is placed in a vacant groove. The equilibrium being disturbed, the first wheel begins to revolve, and the movement of its axis, which is cogged with the axis of the other, and sets that in motion. On reaching a certain point the odd ball instead of continuing its motion from the center of the wheel to the circumference, rolls through an opening into a groove belonging to the companion wheel and imparts additional motion to that one, the loss of force in the first being on reaching a given point on the other side.

The machine does not generate much marketing his grain: one the immense milling it is as difficult as rawhide to cut with a knife. power, but it certainly develops enough by feet of it.

simple gravitation to give motion to itself until the material of which it is made is worn out. It is the invention of Albert Pietrowski, a Polish engineer, who labored for more than eighteen years before he succeeded in perfecting a model that would satisfactorily demonstrate the theory which had been the dream of his life.

MEASUREMENTS OF THE GREAT LAKES .- The following measurements of the great lakes have been taken by government surveyors: The greatest length of Lake Superior is 335 miles; its greatest breadth is 160 miles; mean depth, 688 feet; elevation, 827 feet; area 82,000 square miles. The greatest length of Lake Michigan is 300 miles; its gratest breadth, 108 miles; mean depth, 690 feet; elevation, 506 feet; area, 23,000 square miles. The greatest length of Lake Huron is 300 miles: its greatest breadth is 60 miles; mean depth, 600 feet; elevation, 274 feet; area, 20,000 square miles. The greatest length of Lake Erie is 250 miles; its greatest breadth is 80 miles; its mean depth is 84 feet; elevation, 261 feet; area, 6,000 square miles. The greatest length of Lake Ontario is 180 miles; its greatest breadth is 65 miles; its mean depth is 500 feet; elevation, 261 feet; area, 6,000 square miles. The total of all five is, 1,265 miles, covering an area of upward of 135,000 square miles.

"COAL BY WIRE."-An article is going the rounds of the press with the very taking title of "Coal by Wire." It is an outgrowth of speculation upon the possibilities of the dynamo of the future. The gist of the article is this: That, by utilizing the immense water powers of various parts of the globe in driving dynamos, the power may be sent as electricity over comparatively small copper conductors to any point where it is desired to use it. This of course, will do away with the necessity for the transportation of coal. It would also be possible to utilize the coal at the mines in driving engines, the profit, in that case, coming from cheap coal and the saving in its transportation. The possibilities of new combinations which the dynamo presents are so great, and our knowledge of its limitations so comparatively small, that the imagination is prone to run riot. At present we must wait for improved forms of dynamos, for there is too great a percentage of loss to allow us to introduce them, into any and every situation where transmission of power may be desirable. $-Iron\ Age.$

A Broken Shaft.—There was a loud report at 11 A. M. on August 13, the top story of one of the New York Central railway grain elevators at the foot of West sixty-fifth street, New York City. The building shook to its foundations, and fire flew from the floors at the holes through which the big belt that runs the machinery passes. The elevator is the will not find a single nail in the original work; one known as A. It is 350 feet long and 145 feet high. Two powerful engines in the basement turn a large driving wheel, over which passes a rubber belt that also passes around a shafting wheel in the top story nearly 150 only too many of them have been-has shown feet above. The belt is 350 feet long, and weighs three tons. The shafting wheel which it turns weighs four tons, and connects with a horizontal shaft of cast steel, seven inches in diameter, that runs from one end of the big building to the other. It was the snapping of this shaft that caused the commotion of Tuesday. The shaft broke off at the hub of the shafting wheel, which was thrown off its center with a violence that made the building tremble. The shaft itself nearly all along its length was bent and twisted. Fortunately, the belt slipped from the displaced wheel, and further motion was stopped. Had the belt remained in place the wheel would have been torn off, in which case it would have crushed through the floors to the basement. The great velocity with which the machinery was moving is shown by the fact that when the snapping of the shaft caused the belt to touch the side of the opening in the several floors through which it passed, the friction produced flame. Had the heavy wheel fallen through the building, great loss of life would have resulted, in addition to the damage to property. As it was, it will require an expense of several thousands of dollars and a fortnight time, which means the loss of thousands more, to repair the shaft.

THE branch office of the Link Belt Machinery Company have recently booked a \$5,000 order from the South St. Louis Elevator Company; an \$800 order from N. O. Nelson, city; a large order from the Anchor Milling Company, and one from the Osborne Machinery Company for 800,000 feet of belting. The Link Belt Machinery Company since the first introduction of their belting to the public, have sold, all told, between 28,000,000 and 30,000,000



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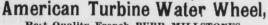
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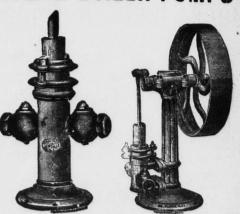
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Wby these Purifiers are Such Favorites Wherever

Introduced.

7. Are furnished for less money than others.
8. Last, but not least, by any means, they elevate their own middlings any height and distance necessary, thereby saving an expense, in setting up and starting, of from \$50 to \$150. Right to use fully protected and guarantee given.

For circulars giving prices and full particulars, address

Buckwheat Refiners & Portable

Buckwheat Refiner

Is the only Machine whereby the greatest yields of PURE, WHITE, SHARP FLOUR can be obtained.

The only reliable, practical and durable Machine

IN THE WORLD.

Satisfaction Guaranteed on all our Goods. Send for descriptive Circular, giving Prices, Sizes, Terms,

WOODBURY, BOOTH & PRYOR

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Manufacturers or

Automatic Cut-Off, Fixed Cut-Off. and Slide Valve

Are more simple in construction, less subject to get out of order, and require less

Are more durable, as they have fewer journals and wearing parts.

Require less power.

Sieves do not choke up, as soft substances in middlings are not permitted to come in

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BREWSTER'S CELEBRATED | The Positive Adjustment

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Middings Mil

Is strictly Self Protecting,
The BEST ADJUSTMENT
IN THE WORLD,
And the only
PERFECT GRANULATOR,
GRINDS COOL, SELF OILING,
GREAT SAVING OF POWER,
SIMPLICITY AND

SIMPLICITY AND

Durability Combined.

Adapted to all Systems

Of Milling, and every Grade and Condition of Middlings.

FOURTEEN SIZES

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Durable, Light Running,

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CONSIGNMENTS OF FLOUR SOLICITED.

ONE MAN with it can easily move a loaded car. Will not slip on ice or grease.

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John H. Miller.

MANUFACTURER OF

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PETERSBURGH, HUNTINGLON CO., PA.

The Best, Cheapest, and Most Durable Rubber in the Market, USED DRY. Will outwear any Rubber made in the world, and retain its cutting qualities until entirely worn out.

in the world, and retain its cutting qualities until entirely worn out.

FACE RUBBER, 12x6x3 inches, weight 12 lbs; price, \$3,00. FURROW RUBBER, 12x6x1½, 1½, 1½ and 2 inches, as required, \$2.50; or both for \$5,00, by Express Furrow Gauges and Staff \$1.25 per set, by mail Send for circulars, testimonials &c. Address all orders as above.

N. B.—This Rubber will not wear a pair of Buhrs out of existence in 15 minutes. But if used in connection with the Pick and Red Staff will leave the face and Furrows in the best possible condition for making good work. For cleansing the face of Glazing thas no equal. Try it and be convinced. Money refunded if not satisfactory.

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I offer my services to any millowner desiring to employ a miller to take charge of a New Process Mill—Roller Mill pre-ferred. Can furnish the best of references from some of the best Mills in the country, having occupied the position of Head Miller for twelve years.

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ESTABLISHED 1850.

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J. J. BELL, 41 S. William St., New York, Manufacturer and Importer of

MILLSTONES,

BOLTING CLOTHS.

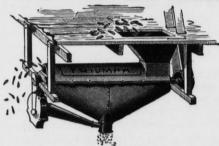
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Having been engaged in the manufacture of ESO-PUS MILLSTONES, CHASERS, &c., for the past 30 years, I am prepared to fill all orders not only at the lowest price, but the best qualities for the purpose intended.

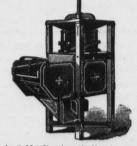
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FAST AND WELL

Easy of access to all parts liable to clog. Thoroughly made. Sold as cheap as the cheapest. Send for circulars to

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CHOICE BEVELLED EDGE

For two dollars and upwards. Also RUBBER STAMPS, BUKNING BRANDS, SEALS, STEEL NAME STAMPS, LETTERS AND FIGURES, Etc. Orders promptly attended to CHAS. H. CLARKE, 82 Wisconsin St., Milwaukee.

Steam Engines, Tubular Boilers. [Mention this paper when you write.]

And that will clean it THOROUGHLY.

of Marshall's Rotary Force Pump. Improved Jonval Turbine Water Wheel, etc.

Kilbourn City, Wis. [Mention this paper when you write to us.]

(Continued from page 69.)

method is to split the berry through the crease, which action therefore performs the double function of freeing the dust and loosening the germ. As we have shown, rolls cannot be made to break the wheat in this desirable manner, but that their action in the first reduction breaks it into pieces of irregular shape, thus permitting the germ to adhere to much of these groats or kernel pieces. The result is that the germ is liable, like the bran, to be partially comminuted, and to make its appearance among the midd lings and break flour at every stage of the reduction instead of being removed at the start, as it should be. There is no better or safer principle to be followed in milling than that impurities should be removed as quickly as possible. The reason for such a principle is simple enough and need not be dwelt upon; and it is certain that this principle will ever be a guiding one to thoughtful millers until some better means than bolting cloth for separating impurities is discovered. So long as separations are made according to the size of particles, and no means exist of removing dust or impurities of the same size as the flour particles, just so long must the miller prevent, as far as possible, the reduction of impurities and their mingling with the flour. On this ground it is safe to reject rolls entirely for the reduction of the wheat. Their action interferes with principles in milling which are recognized as sound. It was not denied until recently but that rollers could not remove the dust in the crease. One firm of roll-makers in America went so far as to deny that there was dirt in the crease at all. This denial, so utterly at variance with what every miller knew to be the case, met with such a reception that these same rollmakers soon after claimed that their rolls would take out the dirt whose existence they had firmly denied.

The very nature of the roll's action which renders it objectionable as a means of reducing wheat to middlings, renders it invaluable for another purpose. The squeezing action of the smooth roll is the best means that has yet been discovered of flattening the germ in middlings. So, too, rolls may be appropriately used for breaking down coarse middlings. and for cleaning bran a finely corrugated roll is one of the best means yet devised. Nor are rolls of porcelain objectionable for grinding coarse of medium middlings, though the millstone, properly dressed and driven, is claimed by many to be better for this purpose than either porcelain or chilled iron rolls Still, it is not so great a mistake to use rolls for reducing middlings as it is to employ them for reducing wheat. Properly used, and applied with reference to its true capabilities, the roll is a valuable accession to the machinery of the modern mill; but a true perception of its character as a machine would never apply corrugated rolls to the reduction of wheat. One of your most prominent and experienced milling engineers, and a strong advocate of roller mills for reducing wheat, stated publicly a few evenings since, that "the breaking of wheat by fluted rollers is not yet done perfectly." And why, let me ask, after being in use for so many years, are they not made to do perfect work? Surely there can be but one answer, and that is that they are not adapted to such work.

It has been repeatedly urged that a mill running on a complete roller system can never "finish up;" and it must be confessed that the objection is a valid and true one. There is always a residuum of material or tailings, "ueberschlag," as the Germans call it, made by the corrugated rolls themselves, which the miller barely knows what to do with. The perplexity in which he finds himself leads him, as a rule, to expand his "system," adding more breaks and reductions, in the hope of finishing up better. In the end the miller generally resorts to some of his disused millstones for the finer stuff, and possibly wishes that there was some apparent finishing point in a system of reduction by rollers alone.

And now, gentlemen, I will call your attention specifically to

THE JONATHAN MILLS REDUCTION SYSTEM,

which is pre-eminently an American invention and founded on scientific principles, and simple and practical in all its details. The Degerminator and Reduction Machine, invented by Mr. Jonathan Mills, are of all gradual reduction appliances yet brought out, the only machines which were designed for 176 oysters in a bushel, and at the rate given a single specific purpose.

While millstones and rolls have been

were designed specially to reduce wheat to and the wages earned are \$9,000,000 in round horse power, as in the example here given: middlings, with the further purpose of accom- numbers. The pack of salmon on the Pacific plishing this without incorporating either seam impurities, germ or pulverised bran in the pounds. break or wheat flour made in the operation. I think it must be acknowledged that this is an ample amount of work for one class of machines to do. The inventor might, by certain modifications, have adapted his machines to flour and cleansing the bran; at least he might have employed them for further purposes with as much success and fitness as is found in cases where either rolls or millstones are used alone for these three widely different objects. But he did not make any such attempt, contenting himself with adapting his machines to the specific purpose of reducing wheat to middlings. This fact renders a judgment as to the merits of these machines a comparatively easy matter; for we have only to judge of the adaptability of the means to one end, instead of half a dozen.

We have already seen that the objects to be sought in reducing wheat to middlings are substantially: First. The largest possible production of middlings. 2nd. The removal of seam impurities and the germ at the earliest possible stage in the operation so that they will not discolor the break flour; and, 3rd. The avoidance of pulverising the bran at each and every stage in the transforming of the wheat into middlings.

We have seen that if these conditions are complied with, the wheat flour must necessarily be of a high quality, and but little inferior to the "patent." A machine or system which can make a large percentage of middlings and at the same time keep all the crease-dust, germ and fine particles of bran out of the break or wheat flour, is exactly the machine or system which meets all the requirements of the case. It may be noted in this connection that a machine which will not grind up or comminute the bran and germ must, from the very nature of the case, other things being equal, make the largest percentage of middlings; for the very qualities in the machine which would reduce bran and germ would also reduce the interior p rt of the wheat kernel to flour.

(To be continued.)

Prepared Foods.

The following facts are taken from a recent number of Bradstreet's Journal: The use of prepared foods has become universal. A half a century condensed foods may be broadly classified thus: 1. Hermetically sealed, or canned foods. 2. Desicated and dried foods. 3. Steamcooked condensed foods. 4. Extracts of beef, mutton, vegetables and fruits-or concentrated foods. This grouping also indicates the relative consumption, beginning with canned goods as the highest. Practically, all things edible in the animal and vegetable kingdoms are now canned. Desicated and artificially-dried vegetables and fruits are in great variety, and embrace equally the products of temperate and torrid zones. Condensed foods cover the cereals fit for table use, and milk, eggs, coffee and chocolate. Extracts of beef and mutton, oftentimes in combination with fruits, are principally used in hospitals and by invalids, although a well-known extract of beef is largely used in hotels and restaurants for making choice soups. It will readily be seen that the commercial value of the preparations contained in the four classes named is very great.

The United States, with its vast productiveness, is foremost as the world's supplier of prepared foods, and goods of American origin may be found at the remotest points of the two hemispheres. In the Western States and on the Pacific coast the trade in canned goods is enormous. The bulk of the food supply of a prospector, a miner or a train comprises bacon flour or canned goods, the latter usually exceeding in value the two former. The trade in prepared foods with the Pacific coast is an exchangeable one, there being several extensive canneries there, and great quantities of canned fruits and salmon are shipped from there. The home supply on the Pacific coast is lacking in oysters, fowls, condensed milk, pineapples, meats and oups. Peaches, tomatoes and other lines fall short at times.

Unfortunately no reliable statistics exist, nor can a just approximation be made of goods in the United Staates. Taking as examples four of the most notable products canned, and of which an approximately correct exhibit is attainable, an idea may be formed of the immensity of the trade. Over 8,500,000 bushels of oysters are annually canned. Of this, 5,000,000 bushels are packed raw, and 3,500,000 bushels cooked and hermetically sealed. There are there are canned each year 30 oysters for every inhabitant of the United States. This requires and as no wheel will produce 100 per cent., the applied promiscuously for every purpose in 10,500 vessels and employs 50,000 persons. The percentage the wheel in question is known to

coast for 1881 was 861,393 cases, or 43,000,000

The annual pack of tomatoes is a large one reaching a total in the United States of 1,500,000 cases, or 63,000,000 pounds, valued at \$3,300,000. The table below gives the pack by States:

	Cases
New Jersey	500.000
Maryland	300.000
Delaware	.180.000
New York	.155.000
Massachusetts	100 000
Ohio	75 000
Jaillornia	50.000
John ecticut	40.000
Pennsylvania, Virginia and Western States	100,000
Total1	500,000

There is a large trade in corn, and the yearly ack quite curiously is estimated at the same igures as tomatoes, or 1,500,000 cases.

The profit to the packer for putting up and marketing his goods is from three cents to five cents a can; the grocer has a fair margin of ready for the table as cheaply as he can buy raw and prepare them. Therefore it may be said that the industry is in only the first throes of its expansion.

Steam-cooked condensed foods, products cooked by steam and by subjecting to great pressure, or by evaporating, feed from all traces of water, are yet in the era of development. Enthusiastic exploiters in this new field of industry state that in the near future all kinds of watery foods will be sold in a condensed form, and to a great extent supersede other preparations. Eggs and milk have already been successfully reduced to a powder, and the different cereals to a minimum bulk. By simply adding hot water to condensed foods, they are returned to a state approaching nature, and are ready for use in cooking or for the table. In the transportation and storage of these goods, the reduction in bulk caused by condensation is of great advantage and profit to the dealer. Their advantage to the housekeeper are obvious. That in time a family's provisions for a week may be carried in a bandbox is not an extravagant prediction.

The commercial value of concentrated foods largely depends upon their value to pharmacology. Valentine's meat juice and the various English meat juices are extracted by pressure, no chemi al manipulation being used. Their components are: Ninety parts water, seven parts albumen and compounds, three parts organic salts, soluble and insoluble. Borden's beef preparation is extracted by superheated steam and evaporated to dryness. It contains all the elements of beef tissue. It shows fifty-five parts water, thirty parts animal gelatine, ten parts albumen and its compounds, five parts organic salts, soluble and insoluble.

The above extracts are classed as nutriments. Liebig's extract of beef contains inosin, inosinic acid, musculin, osurazome and various organic salts, embracing common salt, a trace; potassium, a trace, left by using potash for maceration, and magnesia in combination with phosphoric acid. Its components are sixty parts water, thirty-six parts organic and soluble matter, and four parts insoluble matter. It is extracted by chemical manipulation in vacuum, and is classed as a stimulant.

From an economical view, the use of prepared foods is a saving to the farmer, merchant and consumer. It enables the former to dispose of his entire crop at one deal and at a fair price, thus preventing the loss of produce and time which accrues when crops are handled and sold in small lots. The merchant saves storeroom, freightage, packing and clerk hire. The consumer saves time, fuel and help. The refuse of meats, vegetables and fruits is all utilized at the canneries, even to the cherry-pits; whereas had the same food been prepared by families, the refuse would have been wasted in the ash-heaps. And this saving costs the merchant and consumer nothing, because the buying of produce and the work of preparation can be done cheaper by well-ordered labor combinations than by individuals. Old cans are even turned into use; the trunk manufactures pay a good price for them, and stamp them into ornaments for their wares. - Manufacturer's Gazette.

The Horse Power of Turbines.

The power of water is its weight multiplied by the velocity, and in order to illustrate we will suppose a turbine wheel, working under 15 feet head, will discharge 3,168 cubic feet of water per minute, and utilize 80 per cent. of the full power of the water. Multiply the cubic feet discharged per minute by 621, which is the number of pounds each cubic foot of water weighs at the average temperature, and this product by height of head under which the wheels are working, and that product divided by 33,000 pounds, this number of pounds raised one foot high in one minute being one horse power, which will give the full horse power of 3,168 cubic feet per minute, under 15 feet head;

3168 cubic feet per minute. 621/3 weight of 1 cubic foot 1056 6336 197472 full weight of water. 15 feet head. 33000)2962080(89.76 full value of water 80 per cent. utilized. or 80 per cent.
of the full
power of water

It will be seen that the effective horse power at 80 pr cent. of the full value of the water is 71.80. We will now suppose the wheel had only utilized 60 per cent., then multiply the full value, 89.76, by 60, and the horse power would be 54.55. If the wheel would utilize 75 pr cent., profit, yet the consumer can buy canned goods the effective horse power would be 67.32. From the explanation and example given it can easily be ascertained what number of horse power any weeel will produce, with a given number of cubic feet of water per minute, on any head, provided the percentage the wheel in question will utilize is known.

Late Items.

Frank M. Luckhart, of Xenia, Ohio, is putting n a Victor Turbine

L. Meeker, Evansville, Minn., has ordered a 25 inch Victor Turbine.

THE Mauline Paper Co., of Mauline, N. Y., are now using the Victor Turbine.

THE Andrew Coggin Pulp Co., of Portland, Maine, have ordered a 25 inch Victor Turbine.

THE Mt. Holly Paper Co., of Mt. Holly Springs, Pa., have just put in a Victor Turbine

THE S. & B. Mfg. Co. are building two 44-inch Victor Turbines for Sidney Brown, Ogdensburg, N. Y. Ackley Stone & Parks have just ordered two

large Victors to run their flouring mill at Ocono-

mowoc, Wis. A 10-inch Victor Turbine furnishes the entire power (over 100 horse-power) for the pulp mill at Naples, N. Y.

W. H. & D. F. Peuse, Germantown, Ky., have ordered a 35 inch Victor Water Wheel of the S. & B. Mfg. Co.

The S. & B. Mfg. Co., Dayton, O., are building a 25 inch Victor Turbine for C. E. Spencer & Co., Ashton, D. T.

THE new water works at Appleton, Wis., will be furnished power by the Victor Turbine 25 and 30 inches in diameter. THE Victor Turbine and a full line of Odell

Rolls are to be placed in the mill of Coombs & Greenwald, Coldwater, Mich. THE S. & B. Mfg. Co, have orders for 5 Victor

Turbines to go into the new paper mills of the Patten Paper Co., at Neenah, Wis. W. H. Dorwin, Durand. Wis., has placed his

order with the Stilwell & Bierce Mfg. Co. for a Victor Turbine and Odell Roller Mills.

THE Springdale Paper Co., Springfield, Mass., are putting in Victor Turbine 10 inches in diameter, which is to give 100 horse-power. THE Ottawa File Works, at Ottawa, Ill., are

so well pleased with the Victor Turbine they are now using, that they have just ordered another. THE S. & B. Mfg. Co., of Dayton, Ohio, are

now building 3 of their largest sized Victor Turbines, to drive the pulp mill of A. W. Priest. Kaukauka, Wis. The S. & B. Mfg. Co. have just shipped a 30 inch Victor Turbine to John Russell, Valley

City, Dakota. The mill of Hiram O. Walker of the same place, is driven by the Victor. THE Merreton Cotton Mill Co., of Merretton, Ont., desiring to get the best, have placed their

order with the S. & B. Mfg. Co., Dayton, O., for 3 large sized Victor Turbines for their new THE Sebago Wood Board Co., of Portland,

Maine, have 5 Victor Turbines now in use, and are so highly pleased with them that they have ordered 5 more of the builders, Stilwell & Bierce Mfg. Co., Dayton, Ohio.

THE Victor Turbine is in successfull operation in many foreign countries, and its fame is spreading. The makers, Stilwell & Bierce Mfg. Co., Dayton, Ohio, have just shipped wheels to England, France, New Zealand and other countries.

Among the recent orders for the celebrated Turbine Water Wheels are the following, viz. The Wiley Construction Co., Greenfield, Mass.; Chisholm Bros. & Gunn, Minneapolis, Minn. Fred. Nell, London, England; Richmond City Mill Works, Richmond, Ind.; Alfred Dodge Dodgeville. N. Y.; Aron Mfg. Co., Lewiston, Maine; The. John T. Noye Co., Buffalo, N. Y.; A. Plamondon Mfg. Co., Chicago, Ill.; Mt. Vernon Mills Co., New York City; Pelham Mills Co. Greenville, S. C.; J. S. Graham & Co., Rochester N. Y.; Hanover Mfg. Co., Hanover, Ill.; Har-Gradual Reduction Milling, these machines Total amount of capital invested is \$10,000,000, produce or utilize, must be taken as the actual desty Bros., Canal Doree, O., and many others.

Setting of Eternally Fired Cylinder Boilers.

A very common and cheap mode of setting Height of horizontal, externally ared cylinder boilers employs straight walls only at the end, the back end having a horizontal cast-iron plate or bracket riveted to it, by which it is upheld by the rear wall of the brick setting. The plate arrangement is better than arching over the rear ends, as in the case of tubular boilers the rear ends of the tubes are quickly and readily accessible and seen under good light for examination of repairs. Still the arch offers the best passage for the gases of combustion. Bricks are better than stone for foundations. Brick walls are much better hollow (that is, of two single thicknesses with an air space between them) at the back end, and this should be so placed than solid. The walls are carried up straight to as to drain the boiler dry if needed. Long the level of the top of the shell, and filled in boilers should not be hung from three points; with some good non-conducting material, either solid or filled with air spaces, the latter being on the top, they will be expanded more on the far preferable. A mixture of sawdust, coal bottom than on the top, and the ends will be ashes (not wood) and plaster of Paris, makes a good insultator. It should not touch the iron upon the middle support. - Killer, Milliwright boiler shell, but be separated from it by a and Millfurnisher. wooden lagging, made by kerfing out strips an inch thick, four inches wide, and long enough to reach over and around the upper semi-circumference of the shell, and building up the arch (by narrow board strips) laid on these arches which latter are about three or four feet apart, and hold the boards off from the shell and leave an air space. It would, perhaps, be about as well to cut these longitudinal strips into lengths equal to the distance between centres of the arched bearers, so that sections of three or four feet in length of the board lagging may be removed at will. Every precaution which facilitates ready examination is valuable and desirable. To carry out this idea more completely, the writer has devised a mode of making the non-conducting covering or plaster, in readily removable secti ns. This is to lay on top of the board lagging, before "grouting" with the plaster, some lengths of wire which hug the lagging closely, their ends coming up at the sides, so that when the plaster begins to set, these wires may be used to cut it into blocks, any one of which may be removed without disturbing the others. All the lengthwise wire may be laid down first, and then all the cross wires; they being removed in the reverse order. Sand should never be used, either wholly or in part, for this filling. It is best to cover the top of it with a stout canvas, which will prevent the percolation of water through the joints and consequent rusting of the outer surface of the plates. Where a brick arch is used, it should not be allowed to touch the boiler shell, especially if the joints be made of Edw. P. Allis & Co. with lime mortar. But the use of lime mortar in boiler setting cannot be too strongly condemned. In the furnace proper, fire-clay should be used to make the joints of the first brick there necessary. Some shells are upheld by cast-iron lugs rivited to the shell at its medium line. They should correspond accurately to the curve of the shell, and be of suitable braced shape in order that they may not crack or give way. In a twelve-foot boiler four are necessary, two on each side, they should be placed three feet from each end. Sometimes, to allow for expansion and contraction in length, the rear end is left to be supported on rollers, instead of being hung by the lugs. The same object would be attained by setting a plate in the brick work under each rear lug and putting a roller between it and the lug. The plate should extend a little further back than the lug, and there should be a brick abutment at each end to keep the roller in place. A crop end of one-half-inch shafting would make an excellent roller. It must be remembered that the expansion and contraction of a boiler, unless allowed for (no earthly arrangement will prevent it), will surely break up and destroy any setting. When a muddrum is used (and it is generally desirable to have one, say one-third the diameter of the boiler shell, and fitted with a man-hole as well as with blow-offs), it may extend either across the under side of the boiler, forming a support for the rear end, or it may run lengthwise and its head project through the rear wall. The walls heretofore referred to are for supporting the shell. There are others built across to form furnace and ash pit. The first from the front end is the bridge wall, which is peculiarly subject to destruction by the fierce heat playing around it. It should be of special thickness (preferably hollow), and faced with fire bricks. The fire-brick furnace walls should be brought up to the water line. The grates have a rest of about an inch in the bridge wall plate, and on a bearing bar fastened in the fire brick. They are generally slightly the lowest at the rear end, to facilitate stoking. As regards distance from the under side of the boiler, it should be regulated strictly by the kind of fuel. Many a time a new lot of good coal has been unjustly condemned as poor for steaming purposes, when it was simply unadapted for the grate, or the fire-box too high

twelve-foot boiler, forty-eight inches in diameter, good usage sanctions the following dimensions and distances:

Ì	Height of lower end of grate from groundvaries
ì	Length of grate, net
Ì	Distance from top of grate to bottom of boiler varies
	Thickness of boiler wall and mud-drum wall(if solid) 18 From centre of bridge wall to centre of mud-drum
	wall 61
	Thickness of back cross wall bottom
	bottom 19
	Distance of centre of rear wall from centre of back cross wall
	Thickness of rear wall 18 Height of rear cross wall 51
	Height of mud-drum wallvaries
	Depth foundation walls below ground level 44
	Thickness of side wal's, if solid
N	
	Side walls, out to out

The boiler should be slightly inclined (say one inch in ten feet) toward the blow-off pipe for, as they are heated more at the bottom than thrown up, thus putting most of the weight

NEWS.

THE mill at Iuka, Ill., owned by Collins Bros., is being remodeled.

A 25,000 bushel elevator is being built at Lapelle, Ind., for J. T. Ford & Co.

A new mill is being erected at Pike's Peak, Ind., by Soffel & Bartholemew. A three-run water mill is being built at

Athens, Ala., for James Owens.

A flouring mill is being built on Kent Island, off the coast of Maryland, for John Phillips.

THE Minneapolis Board of Trade have selected a site and will erect at once a \$150,000 building. S. A. Ellis, of Grafton, Neb., is commencing the erection of a 125-barrel gradual reduction

MESSES. E. P. Allis & Co. have the order for rolls from Messes. Bierbauer & Co., Fillmore, Minn.

Isaac Johnson, of Randolph, Iowa, is remodeling his mill so as to embace late improvements in milling.

Messrs. Griggs, McCormick & Grosvenor have just completed their new roller mill at Grand Forks, Dak.

Dr. Barrett, of Harrisonville, Mo., is altering his mill to the roller system. The capacity will be 125 barrels.

A new mill is being built at Old Town N.C., for L. J. Him, by Nordyke & Marmon Co., of Indianapolis, Ind.

C. A. Hege, of Salem, N. C., has ordered a two-run mill of Nordyke & Marmon Co., of Indianapolis, Ind.

ME SRS. Plank Bros., Wooster, O. have ordered a double roller mill with Gray's Patent Frame

C. A. Smith, Lebanon, Mo. has ordered a double Gray's Patent Roller Mill of E. P. Allis & Co., Milwaukee, Wis.

Stephen Appel, Theilmanton, Minn., is putting in a line of rolls and other machinery from E. P. Allis & Co., Milwaukee, Wis.

Perry Hutchinson's new mill at Marysville, Kas., has started up on the new crop. It is one of the best mills in Kansas.

A 200-barrel mill intended for the manufacture of hominy, pearl grits and corn flour is being elected at Henderson, Ky.

Messes. Edw. P. Allis & Co. have recently shipped one of Gray's double roller mills to D. B. Sears & Son, Rock Island, Ills.

John Kull, of Stanton, Ill., is repairing his mill and has bought a Becker Wheat Brush of the Eureka Mfg. Co., of Rock Falls, Ill.

E. F. Porter & Bro., of Table Grove, Ill., just sent in their order to the Eureka Mfg. Co., of Rock Falls, Ill., for a Becker Brush.

D. S. Lowe, of Sullivan, Ill., has just placed his orders for a Becker Wheat Brush made by the Eureka Mfg. Co., of Rock Falls, Ill.

The Yeager Mill Co., of Kane, Ill., are putting in a first and second reduction of the Case Little Giant Break Machines.

Currie & Watson, Ada. Mich., have put in one of Gray's Noiseless Belted Roller Mills, manufactured by E. P. Allis & Co., Milwaukee, Wis.

Messrs. Lukens & North, Atchison, Kas., are putting in a double porcelain roller mill furnished by E. P. Allis & Co., Milwaukee, Wis.

A. M. Robinson, of Fillmore, Ind., is building a three-run mill, using machinery made by Nordyke & Mormon Co., of Indianapolis, Ind.

Valentine Miller, Iowa City, Iowa, has recently added to his milling outfit one of Gray's Patent Belted Noiseless Roller Mills with two pairs of Allis' Rolls.

Messrs. Chisholm Bres. & Gunn, Chicago, have just ordered of Mess. Edw. P. Allis & Co., sixteen pairs of Allis Rolls in Gray's Noiseless Belted Frames.

Messas. Wilford & Northway, Minneapolis, have placed their orders with Messas, E. P. Allis & Co. for 4 pairs of Allis Rolls in Gray's Patent Belted Frames.

THE Brass Foundry & Machine Works, Fort Wayne, Ind, are placing a large number of Gray's Patent Belted Roller Mills, furnished by E. P. Allis & Co.

Messes. Stratton, Merrill & Co., Concord, N. H., have ordered nine pairs of Porcelain Rolls in Gray's Patent Noiseless Frames for their new mill at Fisherville.

LICKING, Mo., will soon oe furnished with a

The Lenoir Manfg. Co., Lenoir, Tenn., have ordered a double porcelain roller mill with Gray's Patent Frames of Messrs. Edw. P. Allis

Messes. Smith, Stratton, Gifford & Co., Nashville, Tenn, are putting in a full line of rolls in Gray's Patent Frames of Messes. Edw. P. Allis

Henry Darnell, of Masonville, N. J., wanted a Becker Brush so badly that he sends cash with the order, and says he wants a Becker Brush or

May, Weber & Co., Watertown, Wis., have recently ordered another double roller mill in Gray's Patent Belted Frame of Messrs. Edw. P.

A. G. Mowbray, Supt. of the Union Mill Co., Winona, Miun., has ordered the second break machine of the Case Mfg. Co. for their new mill at Stockton.

THOMAS ARMOUR, of Emporia, Kansas, and Lukens, of North Atchison, Kansas, have each ordered a break machine, "Little Giants", of the Case Mfg. Co.

THE Case Mfg. Co., of Columbus, O., have just shipped C. F. Hobart, Spearfish. Dakota, a line of their goods consisting of break machines, rolls, purifier. reels, etc.

KALAHAN & HUDGERS will built a two-run mill at Whitesboro, Tex. in which they will use machinery manufactured by Nordyke & Marmon Co., of Indianapolis, Ind.

Messrs. John Stolz & Co., Pekin, Ills., will remodel their mill to the roller system an 1 have placed their order for rolls, etc., with Messrs. E. P. Allis & Co., Milwaukee, Wis.

MESSRS. E. P. Allis & Co. have the order for all the special machinery including rolls, bolting chests, etc., for remodeling the mill of Messrs. Coons & Co., at Winchester, Ills.

Scott & Haskell, of Jacksonville, Ill., want to make as white flour as they can, and ordered a Becker Brush from the Eureka Mfg. Co., of Rock Falls, Ill., and it suits them.

Mr. A. Syme, the well known miller of Menasha, Wis., has ordered two pairs of porcelain and two pairs of iron rolls in Gray's Patent Be ted Frames from E. P. Allis & Co.

M. W. Jarboe, of Carrolton, Mo., is putting up a first-class mill, and has just placed his order for an additional Becker Brush bought of the Eureka Mfg. Co, of Rock Falls, Ill. PYETT & EVANS are erecting a mill at Tahle-

quah, Ind., containing four-run of buhrs. The contract for machinery has been awarded Nordyke & Marmon Co, of Indianapolis, Ind.

Thurston & Sons will erect a new flouring mill

containing the new improvements at Milo, Ia., in which machinery made by Nordyke & Marmon Co.. of Indianapolis, Ind., will be used.

B. SAVAGE & Son, of Forreston, Ill., have ordered a full line of reduction machines of the Case Mfg. Co., of Columbus, O., to be put in their new mili they are building in Nebraska.

NOEL Mill & Elevator Co., of Nashville, Tenn. send draft for Becker Brush made by the Eureka Mfg. Co., of Rock Falls, Ill., and say well pleased, "it works beautifully nothing could do better."

JOHN MARSHALL & Co. are commencing the erection of a three-run merchant mill at Sand Lake, Mich., in which machinery manufactured by Nordyke & Marmon Co., of Indianapolis, Ind., will be used.

M. & J. Pollock, of Wheeling, W. Va., are overhauling their mill, and have added a Becker Brush to their cleaning machinery, made by the Eureka Mfg. Co., of Rock Falls, Illinois.

Kentucky milers hear how the Becker Brush improves the color of their flour, and G. B. Louis, of Elkton, Ky., and many others have sent in their orders to the Eureka Mfg. Co., of Rock Falls, Ill., for machines.

Loreg & Weber, of La Porte, Ind., are putting in two pairs of double rolls, made by the Case Mfg. Co., of Columbus, O., preparation for following up with the rest of the Case Gradual Reduction System being made.

MESSES. Hoover & Weimer, West Milton, O., seeing the excellent work done by the Case Breaks and Rolls in the mill of Jos. Gebhard Hanzel & Novak, of Schuyler, Neb. are well & Son, Dayton, have ordered a set for their mill. pleased with the Becker Brush bought of the Eureka Mfg. Co., of Rock Falls, Ill.

New flouring mills are being built in West

New flouring mills are being built in West Virginia at the following places: Philippi, Weston, Flamington and Hampton. The ma-chinery for all these mills is being furnished by Nordyke & Marmon Co., of Indianapolis, Ind.

In remodelling their mill, the Independence, Iowa, Mill Company will use ten pairs of Allis' Rolls including a double porcelain roller mill, all in Gray's Patent Noiseless Belted Frames. E. P. Allis & Co. are furnishing this machinery.

Messrs. E. P. Allis & Co. have the contract for remodelling the mill of Messrs. Hinman & Ward, Battle Creek, Mich., making it a complete roller mill. Messrs. E. P. Allis & Co. furnish a full line of iron and porc lain rolls, purifiers, bolt chests,

E. P. Allis & Co. are rebuilding Stratton, Merrill & Co.'s mill at Fisherville, N. H., near Concord. The mill, when completed, will be of 250 barrels daily capacity, and will use twenty-four pairs of Allis' Rolls in Gray's Patent Noiseless Frames.

E. E. Wisner, of Lowell, Mich., who is putting in a full line of the Case Mfg Co.'s Breaks and Rolls, will have his mill running in about ten days more. This is very rapid work. The machinery was furnished promptly, and the change made in an unusually short space of time.

Messes. Huntington & Koch. of Barton, Wis., have introduced the Case Break Roller System into their mills and are highly pleased with the results obtained. They think that the Case System cannot be beaten by any other. The local paper in speaking of the innovation, is very enthusiastic and claims as great a yield with as good a quality, as is obtained in the best Milwaukee and Minneapolis mills.

Mr. S. Lighten, of Hazel Green Wis.

waukee and Minneapolis mills.

MR S. Lightcap, of Hazel Green, Wis., who has been milling in Wisconsin for nearly forty years, visited Milwaukee one day recently and left his order with Edw. P. Allis & Co. for a full line of the Gray's Combined Roller and separating machines and Gray's Belted Roller Mills. He is about to remodel his mill to the complete relies agratam, and wisely placed his order with or too low—generally too high. For hard anthracite, eighteen inches is sufficient fire-box height, twenty-four inches for semi-bituminous, and thirty inches for bituminous coal proper. In a

The following well known millers East and West, after hearing of the merits of the Galt Combined Brush and Smutter, made by the Eureka Mfg. Co., of Rock Falls, Ill., have sent in their orders for machines to be shipped at once: David Russel, Sweedsboro, N. J.; Webster Bros., Freeport, Ill.; J. O. Allen & Co., Fayette, Ohio; Wm. Wollkamper, Turner, Neb.; G. W. Staley, Centreville, Ill.; F. H. Gilliam & Co., Gilliam, Mo.; Wm. Crouch, St. Edward, Neb.; B. B, Boardman, Clifton Springs, N. Y.; Abram Bristline, Andersonburg, Pa.; J. B. Kuykendall, Vienna, Ill.; A. F. Straw, Straw's Mills, Texas; C. T. Dodge. Lapeer, Mich.

W. M. SHOOK, Millwright and Contractor

Dealer in all kinds of Mill Furnishings. PRACTICAL ROLLER MILL BUILDER, Office and Shops 172 and 174 South Market Street, CANTON, OHIO.

WALKER BROS. & CO.

FLOUR AND GRAIN .

Commission Merchants

TRINITY SQUARE,

London, E. C., England.

WILLIAM MITCHELL, Flour and Grain Merchant.

Londonderry, Ireland.

Consignments and offers solicited.

CHAS, B. SLATER & CO.

SLATER REEL,

Mill Builders and Furnishers,

BLANCHESTER.

OHIO

A Question for Experts!

We have in our shop a chest with one reel 32 inch diameter and without any pitch, as level as it can be made; we have a head on each end of this reel; we put an equal quantity of material, either flour or chop, into each end. The cloth is uniform from end to end, there is not a seam in it except where it is joined to the ticking. In running this reel we find that one-half of it bolts sixty pounds while the other half bolts only forty-six and fourteen oz., making a difference of 28 per cent. in capacity. Now if anybody can suggest any method by which a fairer test can be made, we will follow their suggestion and publish the result for the benefit of the trade at large.

Very Respectfully,

C. B. SLATER & CO.

A. PLOUVIER, Agent for Flour,

ANTWERP, (Belgium.)

Advances on Consignments.

BIRGE & SMITH. PRACTICAL

MADE FOR ALL KINDS OF

MILLWORK, MACHINERY, ETC. Flour, Sawmill, Tanners' and Brewers' Machinery, and General Mill Furnishers,

Corner of East Water and Knapp Sts, MILWAUKEE, - - - WISCONSIN.

[Mention this paper when you write to us]

GLAD TIDINGS OF GREAT JOY!

TO OWNERS WITH DUSTY MILLS AND CLOUDY BROWS.

IMPORTANT PROBLEM SOLVED AT LAST!

Taking care of the dust laden air from Middlings Purifiers and other machines, using air to carry off the dust, has been thoroughly met and conquered in the highest degree by the

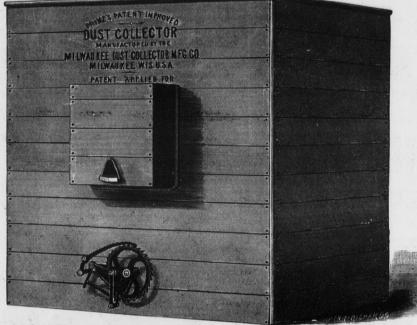
PRINZ DUST GOLLEGTOR.

After years of study and experiment success has crowned the labor of F. Prinz. He produced a machine, that will give satisfaction in such a manner that no miller would ask for anything better.

Simplicity is a Leading Feature in this Machine.

No Dead Air Chamber .- The dead air chamber, which has been a source of much trouble in other machines by wearing out and allowing the air to get in, thereby injuring the power of the cleaning mechanism on the cloth, which results in the cloth filling up, is entirely overcome in this machine, as it has NO DEAD AIR CHAMBERS.

Less Power is used with this machine than any other as there is no back press-



ure on the fan; the motion of the fan has to be reduced whenever this machine is applied.

It does away with the cumbersome dusty, dirty old-fashioned dust room, entirely, and the numerous spouts leading to them, which fill up the Mill, leaving no room to get around.

It Retains the Dust in the Mill, thus allowing no waste of stock by being blown out into the air as is the case with the old-fashioned dust room.

It does away with the liability of dust explosions, as the air coming from the machine is entirely free from dust, which is not the case with the air coming from any other Dust Collector offered to the milling public heretofore.

We the undersigned manufacturers CUARANTEE ENTIRE SATISFACTION in the use of this machine. Onr machine does not infringe on any patent, which we fully guarantee; on the other hand we caution parties in purchasing infringing machines.

LOW PRICES FOR EXCELLENT MACHINES.

TESTIMONIALS.

WHAT THE SECRETARY OF THE MILLERS' NATIONAL ASSOCIATION SAYS:
Milwaukee, July 24th, 1882.

MILWAUKEE DUST COLLECTOR MFG. CO.

Dear Sirs:—In reply to your inquiry with regard to the working of the "Prinz Dust Collector," put into our mill, would say: We have had it in operation about three weeks, taking the suction from all our millstones and break rolls. During this time it worked to our entire satisfaction without being aided or interferred with in any manner, in short, the machine was not opened until it had been in operation three weeks, when we found that it was entirely free from any accumulation of flour or dust, and apparently as clean as when it made the first revolution. You have evidently struck the correct principle. We have waited long for a successful machine of this kind, and shall want more of them as fast as we can place them in our mill,

S. H. SEAMANS & CO.

S. H. SEAMANS & CO.

MILWAUKEE DUST COLLECTOR MFG. CO.

Milwaukee, Jule 18th, 1882.

Gentlemen:-The Dust Collector you have put in on trial in our Mill is giving the same satisfaction as when first started, over two months ago. We have therefore concluded to adopt your machine for all our Purifiers, Roller Exhausts and Cleaning Machinery. You will please make as many Machines for us as are necessary.

Yours truly,

NEW ERA MILLING CO.

More testimonials are given in our circular, for which please address

Milwaukee Dust Collector Mfg. Co. MILWAUKEE, WIS.

[Please mention the United States Miller when you write to us.]

THE CASE MIDDLINGS PURIFIER,

A-The Fan opeur, is reversible and can be made to blow toward either end of Purifier.

> The Fan can be placed on top or end of Purifier—when on end it increases the length 39 inches, and diminishes the height 22 inches.

B-Air-valve upper Riddle.

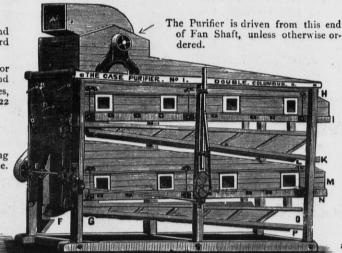
C—Cut-off for upper Riddle, sliding one-half the length of Riddle.

D-Air-valve, lower Riddle.

E-Upper Riddle tails off here.

F-Lower Riddle tails off here.

G-Cut-off for lower Riddle, sliding one-half the length of Riddle.



H-Feed Box for upper Riddle.

I-Bolting Cloth for upper Riddle.

K-Purified Middlings from upper Riddle.

L-Cut-off from upper Riddle.

M-Feed Box for lower Riddle.

N-Bolting Cloth for lower Riddle. O-Purified Middlings from lower

Riddle.

P-Cut-off from lower Riddle.

The upper and lower halves are each complete machine, and can be run together, or separately, as desired.

STANDS TO-DAY WITHOUT A RIVAL, doing More and Better Work than any other; giving double capacity; costing less and runs without jar or noise. Our No. 3 Machine has 90 square feet of Bolting Surface.

MANUFACTURING CO.,

OFFICE AND FACTORY: 5th Street, North of Naughter.

(Please mention the United States Miller when you write to us.)

COLUMBUS, OHIO.

eks, CHESTER, PA. Iention this paper when you write us.

FROM 1-4 to 10,000 LBS. WEIGHT.

True to pattern, sound and solid, of unequaled strength, toughness and durability.

An invaluable substitute for forgings or cast iron requiring threefold

strength. Gearing of all kinds, Shoes, Dies, Hammer-Heads, Cross-Heads, for Locomotives, etc.

15,000 Crank Shafts and 10,000 Gear Wheels of this steel now running prove its superiority over all other steel castings.

CRANK SHAFTS, CROSS-HEADS and GEARING, specialities.

Circulars and price list free. Address,

CHESTER STEEL CASTINGS CO.. 407 LIBERTY ST., PHILADELPHIA, U. S. A.



BOWNDED BOOK.

VOECHTING, SHAPE & CO.,

SOLE BOTTLERS OF

JOSEPH SCHLITZ BREWING COMPANY'S

CELEBRATED MILWAUKEE LAGER BEER

MILWAUKEE, WISCONSIN

BOTTLERS' SUPPLIES CONSTANTLY ON HAND. Parti s corresponding will please state where they saw this advertisement.]



The Little Giant Break Machines.



60 bushels per hour.

The rapid increase of our orders and wide inquiry for our Machines prove that the Case Reduction Machines are fast becoming the favorite system of Milling.

It is not an experiment.

Азньеч, Оню, Јилу 24тн, 1882.

THE CASE MANUFACTURING CO., COLUMBUS, OHIO:

GENTS:—We have been running your full system of Gradual Reduction for 90 days, and the result has been a fine one. It has been the cause of raising our flour \$1.00 per bbl., and increased our trade to such an extent that we are now way behind our orders. The Little Giant runs with little attention, and a better break can't be made from wheat. No fluff and but little break flour and a very even quality of middlings. We have made three tests on three different kinds of wheat. On Lancaster wheat we made a barrel of flour out of 420-60; on Fultz and White wheat we used 4 30-60. Were we to fit up another mill we would certainly buy the Little Giant. to fit up another mill we would certainly buy the Little Giant.

Respectfully yours,

J. B. MILLER & CO.



Double Break Machine, capacity 120 bushels per hour.

CO., COLUMBUS, OHIO.

MANUFACTURING CASE

OFFICE AND FACTORY, 5th Street, North of Naughten.

[Please mention the United States Miller, when you write to us.]

BEST OFFER EVER MADE.

Office of the UNITED STATES MILLER, Milwaukee, Wis

Gentlemen:—The United States Miller is now in its seventeenth year and is recognized by the trade everywhere as a valuable authority on milling subjects. Some of the ablest writers on milling and mechanical subjects in general, residing in Europe as well as America, contribute to its columns. You will find it of value to you to take the paper regularly and to read it carefully. We want you to subscribe now, and we hereby make you the following offer, which we believe you will find it to your advantage to accept by return mail. For One Dollar we will send you the UNITED STATES MILLER for one year and

TEN VALUABLE BOOKS.

The books have just been printed in Pamphlet Shape, from clear type and on good paper. The following is a list of the ten books:

The Lady of the Lake, a romance in verse, by Sir Walter Scott;

2. Grimm's Fairy Tales for the Young, the best collection of fairy stories ever published.

- 3. David Hunt, a novel, by Mrs. Ann S. Stephens.
 4. Reaping the Wirlwind, a novel, by Mary Cecil Hay.
 5. Dudley Carleon, a novel, by Miss M. E. Braddon.
- Essica, or the Mystery of the Headlands, a novel, by Etta W. Pierce. A Golden Dawn, a novel, by the author of "Dora Thorne."
- 8. Valerie's Fate, a novel, by Mrs. Alexander.
 9. Sister Rose, a novel, by Wilkie Collins.
 10. Anne, a novel, by Mrs. Henry Wood.

Remember, we will send all the above books by mail, post paid, and the UNITED STATES MILLER, regularly for one year, upon receipt of One Dollar, in cash. This will furnish you information of the highest character to your trade, and entertaining and instructive miscellaneous reading for yourself and family for a whole year.

Address all orders to

UNITED STATES MILLER.

E. HARRISON CAWKER, Publisher. Nos. 116 and 118 Grand Avenue, MILWAUKEE, WIS.

N. B. - "MILLS FOR SALE" advertisements occupying 1 inch space or less - one dollar for each insertion; cash with order. "SITUATIONS WANTED" advertisements fifty cents each insertion;

cash with order.

BOLTING CLOTH



Let it not be forgotten that we keep a very large stock of the genuine Dufour Bolting Cloth always on hand, and those who order that brand from us will always be sure to get the genuine article. In addition to this we keep con-

stantly on hand a large stock of Dutch Anchor Cloth, which we import direct from the manufacturers, in Switzerland, and is not sold by any other dealers in Bolting Cloths in this This we warrant to be equal to, and even superior, to any other brand in the market, except Dufour. We know what we say in this regard. Cloths made up ready for the reel in the best manner possible, by the use of our Patent Attachments, using the best of Ticking and Silk Twist. Please write us for prices, discounts, and samples of cloth and making, before purchasing elsewhere.

Address,

HOWES, BABCOCK & EWELL.

[Pease mention the United States Miller, when you write to us.]

Silver Creek, .N Y.

A NEW DEPARTURE

We are the Sole and Exclusive Licensees for this Country under the

PATENTS

ON S

And we are now prepared to fill orders for machines with latest improvements, which include

OUR NEW DOUBLE CONVEYORS. NEW CLOTH FIXING AND STRETCHING DEVICE, NEW AND SIMPLIFIED MANNER OF DRIVING.

THE CENTRIFUGAL has more than FOUR TIMES the capacity of the ordinary reel, and will make clear flour and a clean finish on stock that cannot be treated in the common reel without loss, no matter how much silk it is passed over. IT ISSPECIALLY ADAPTED to handling soft, reground material, full of light impurities, whether from rolls or stone. IT IS INDISPENSABLE to a CLOSE FINISH in any system of gradual reduction milling, and will improve the qualtiy of the low grade flour at the same time it makes the offal cleaner.

IT MAKES A CLEAN SEPARATION on caked and flaky meal from smooth rolls, which no other style of reel can do IT IS VASTLY SUPERIOR to the common reel for dusting middlings.

THEY CAN BE USED TO ADVANTAGE as a complete system of bolting, to the exclusion of the ordinary reel.

Over one Hundred sold in six weeks.

REFERENCE TO LEADING MILLERS IN THE UNITED STATES.

Write for descriptive circular and price list to

GEO. T. SMITH MIDDLINGS PURIFIER CO., - Jackson, Michigan. [Please mention the Mnited States Miller when you write to us.]

ted States Miller when your write to us.] from \$1.000 to \$3.000.
to Insurance should be a WISCONSIN SCHUETTE, on all approved members to Manitowoc, it to

-MILLERS

The Company has nakes on any one Mill f

received

EDW. P. ALLIS & CQ.

MILWAUKEE, WISCONSIN.

MILL BUILDERS AND FURNISHERS,

AND SOLE MANUFACTURERS OF

GRAY'S PATENT NOISELESS

ROLLER WILLS

CORRUGATED AND SMOOTH CHILLED IRON ROLLS,

WEGMANN'S PATENT PORCELAIN ROLLER.

We shall be Pleased to hear from Millers contemplating an improvement in their Mills, or Building new ones, and can furnish Estimates and Plans of our system of GRADUAL REDUCTION ROLLER MILLING. We have built and Changed over hundreds of Mills, in all parts of the Country, and using all classes of wheat, BOTH HARD AND SOFT, and can furnish References on application. The Largest and Best Mills of this Country are using our System and Roller Machines. Messrs. C. A. Pillsbury & Co., of Minneapolis, have over 400 PAIRS OF OUR ROLLS AND HAVE RECENTLY PLACED AN ORDER WITH US FOR ABOUT ONE HUNDRED AND TWENTY MORE. We have had a longer and larger experience in Roller Mill Building than any other manufacturers of this country. There is no EXPERIMENT ABOUT OUR SYSTEM and rolls, so expensive to millers, and when the mills that we build or change over are ready to start, THEY DO SO AND WITH PERFECT SUCCESS, and there is no further changing, additions, stopping or expense. We manufactured and sold during the year 1881 over TWO THOUSAND FIVE HUNDRED pairs of rolls.

We can send competent men to consult with any millers who contemplate an improvement, and whom they can depend upon as being RELIABLE AND THOROUGHLY COMPETENT to advise them as to the number and kind of machines required, best method of placing them and the change required, if any, in the bolting and purifying system. WE DO NOT URGE A GENERAL CLEANING OUT OF ALL OLD MACHINERY unless we clearly see such would be the ONLY COURSE TO PURSUE to make a SATISFACTORY AND RELIABLE MILL. In nearly all instances we can use all the Old Machinery, leaving it in its original position, or with as slight a change as possible. We aim to make the Improvement so that it will be a Profitable one to the Miller, and at the least expense possible.

Our System is THOROUGH and RELJABLE, and our Roller Machine Perfected by Long Experience, and the Miller Takes no chances in using them, as HE DOES with the New Fangled Notions of Drive and Adjustment on many other machines now TRY-ING TO FOLLOW OUR IMPROVEMENTS and still avoid our Patents, in BOTH of which THEY FAIL. We were the first to advocate the Entire Belt Drive, and were opposed by every other maker, who claimed it was not positive, etc., etc., and now that our Belt Drive is an ACKNOWLEDGED SUCCESS, and will SUPERSEDE EVERY OTHER STYLE, these advocates of Gear Drive have suddenly learned that Belts are the Thing. The same may be said of our Spreading Device, Feed Gates, and Adjustable Swing Boxes. Other Makers are now copying these. ALL these Features, including BELT DRIVE with ADJUSTABLE COUNTERSHAFT and TIGHTENER, the SPREADING DEVICE, FEED GATES, Adjustable Swing Boxes and Leveling Devices, Self-Oiling Boxes, etc., are secured to us by several Strong Patents, and we CAUTION MILLERS in regard to these Infringements of Our Patents and Rights, for we shall look to THEM for Redress. The matter is in the hands of our Attorneys, who will soon take VIGORIOUS ACTON against the Makers and USERS OF MACHINES infringing Our Patents.

Several machines are already on the market which Broadly Infringe, and we are informed that other makers are now changing their Old Style Machines, and adopting in a large measure Our Improvements. BEWARE OF THEM.

Send for New Illustrated Catalogue, Giving full Information, to

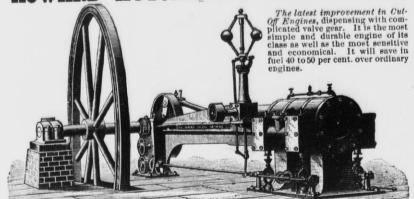
EDW. P. ALLIS & CO.,

MILWAUKEE, WIS

Branch Office 318 Pine Street, Benson Block, SAN FRANCISCO, CAL.

J. R. CROSS, Manager.

"HOWARD" AUTOMATIC CUT-OFF ENGINE.



Built only by the MURRAY IRON WORKS CO., BURLINGTON, IOWA,

BUILDERS OF ALL KINDS OF ENGINES AND MACHINERY.

Mention this Paper when you write to us.]

WANTED TO RENT WITH PRIVILEGE of BUYING, a Water Power Mill in good condition and in a good wheat section. Wisconsin or Minnesota preferred.

Care of UNITED STATES MILLER, Milwaukee, Wis.

DON'T BUILD A MILL until you write for Prices and Samples to the BODINE ROOFING COMPANY, MANSFIELD, OHIO.

HARRIS-CORLISS ENGINE.

WM. A. HARRIS, Providence, R. I.

Built under their original patents until their expiration. Improvements since added: "STOP MOTION ON REGULATOR," prevents engine from running away; "SELF-PACKING VALVE STEMS" (two patents), dispenses with tour stuffing boxes; "RECESSED VALVE SEATS" prevent the wearing of shoulders on seats, and remedying a troublesome defect in other Corliss Engines, "BABBITT & HARRIS' PISTON PACKING" (two patents). "DRIP COLLECTING DEVICES" (one patent). Also in "General Construction" and "Superior Workmanship."

The BEST and MOST WORKMANLIKE form of the Corliss Engine now in the market, substantially built, of the best materials, and in both Condensing and Non-Condensing forms.

The Condensing Engine will save from 25 to 35 per cent. of fuel, or add a like amount to the power and consume no more fuel. Small parts are made in quantities and inter-changeable, and kept in stock, for the convenience of repairs and to be placed on new work ord red at short notice.

NO OTHER engine builder has authority to state that he can furnish this engine

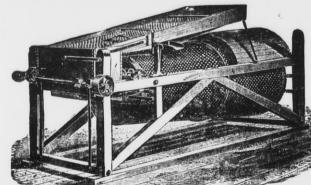
The ONLY WORKS where this engine can be obtained are at PROVIDENCE, R. I., no outside parties being licensed.

parties being licensed.

WM. A. HARRIS, Proprietor.

[Mention this paper when you write to us.]

COCKLE SEPARATOR MANUFACTURING



PLAIN COCKLE MACHINE.

GENERAL MILL FURNISHERS

SEPARATORS IMPROVED

Richardson's Dustless Wheat Separators!

Also Sole Manufacturer of BEARDSLEE'S PAT. GRAIN CLEANER.

We will contract to furnish entire Wheat Cleaning Machinery for mills, and guarantee the best results.

Send for Illustrated Catalogue.

WE GUARANTEE GREAT CAPACITY combined with GOOD QUALITY OF WORK. Any common Sieve will separate the cockle from wheat, but to separate it WITHOUT WASTE is the GREATEST FEATURE of our Machine. A WASTEFUL machine is a DAILY LOSS OF MONEY in a mill. There is NO MACHINE IN THE MARKET which can stand comparison with ours. LOSS OF MONEY in a mill. There is NO MACHINE IN THE MARKET which can stand comparison with ours.

Carbondale, Ill., Dec. 2, 1881.
Cockle Separator Mfg. Co., Milwaukee.
Gentlement-Replying to your late favor, would say that we can cheerfully the 28th inst., I would say that we can cheerfully by this time and know whereof we speak. We would not think of doing without it, having tried it once, and can conscientiously vouch for its good work.

Yours respectfully, Perrysville, Ind., Nov. 24, 1881.
Cockle Separator Mfg. Co., Milwaukee.
Sirsi-The combined machine I bought of you has been running about three of you has been running about three works. It certainly does all you column.

Yours respectfully,
BROWN & WINFREY.
Perrysville, Ind., Nov. 24, 1881.
Cockle Separator Mfg. Co., Milwaukee.
Sirs:—The combined machine I bought of you has been running about three weeks. It certainly does all you claim for it, and is the most perfect Separator that I have any knowledge of.
Yours respectfully,
B. O. CARPENTER.

seen anything that will equal yours in wheat as wen cleaned as any in Milwaukea apolis.

Yours truly,
CAHILL, FLETCHER & CO.
La Crosse, Wis., July 30, 1881.
Cockle Separator Mfg. Co., Milwaukee.
Gentlemen: —The Beardslee Grain Cleaner sent me about the middle of June has been in operation since that Yours, etc.

D. G. THOMAS.

Wheat as wen cleaned as any in Milwaukeapolis.
Yours truly,
CAHILL, FLETCHER & CO.
La Crosse, Wis., July 30, 1881.
Cockle Separator Mfg. Co., Milwaukee.
Gentlemen: —The Beardslee Grain Cleaner sent me about the middle of June has been in operation since that

BEARDSLEE'S WHEAT CLEANER.

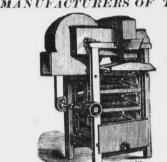
kee Mills give us the best of satisfaction. Experienced millers having seen the work done by the machine agree with us, that it cannot be beat. You are at liberty to use our names as a reference, and to any party calling on us we will be pleased to show the machine in operation, Yours truly,

NEW ERA MILLING CO.

Pott's Patent Automatic Feeder! The best device for regulating the FEED ON ROLLER MILLS, PURIFIERS, and other machines requiring a regular feed, spread out the full width. Very cheap and simple. Sent on trial upon application. Write for circulars with illustrations. Perforated Zinc of all sizes at low rates. Send for Illustrated Catalogue.

HOWES, BABCOCK & EWE

Silver Creek, Chautauqua County, New York, U.S.A. Established 1856. MANUFACTURERS OF THE WORLD-RENOWNED EUREKA GRAIN CLEANING MACHINERY AND SPECIALTIES HEREWITH ILLUSTRATED





The Eureka Smut and Separating

occupies but little space, does its work in an effectual manner. Is also built for use in Elevators and Warehouses, with a capacity of from 100 to 1,000 bushels per hour.

Machine,

Eureka Magnetic Automatic Separator.

Removes all metallic particles from a flowing stream of these Machines are now in use.



Recognized as the leading one of this class of machines. Universally recommended for finishing the process of cleaning.

Will pack whole and half barrels, and half, quarter, eighth and sixteenth barrel sacks. Provided with labor-saving patent creveling steel coil spring regulating the packing to perfection.



Silver Creek Flour Packer.

GENUINE DUFOUR AND ANCHOR BRAND BOLTING CLOTHS. FULL STOCK ALWAYS ON HAND, MADE UP BY THE AID OF OUR OWN PATENTED ATTACHMENTS, IN A SUPERIOR MANNER.

Office and Warehouse in England, 16 MARK LANE, LONDON. E. C. Gen. Agency for Australian Colonies & New Zealand, THOS. TYSON, MELBOURNE, VICTORIA.

Abernethey's New Book.

PRACTICAL HINTS

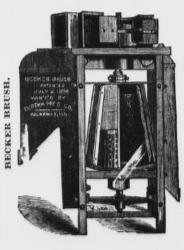
Mill Building.

The Latest, Best and Only Exclusively Flour Mill Work in Print. Every Miller, Millwright and Millwright's Apprentice

should have a copy. THE UNITED STATES MILLER for one year and a copy of this book will be sent for \$4.00, Address,

UNITED STATES MILLER,

Milwaukee, Wis.



EUREKA MANUFACTURING CO.,

Manufacturers and Sole Proprietors of the

BECKER BRUSH,

Galt's Combined Smut and Brush Machine. The Only Practical Cone-Shaped Machines in the Market, and for that Reason the Best.

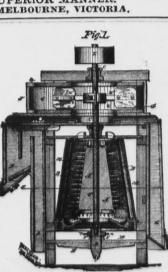
ADJUSTABLE WHILE IN MOTION.

Nearly 1,000 of these Machines in Use.

In the United States and foreign countries, and so far as we know all that use them are pleased. Millers, millwrights, and milling experts claim the Cone Shape Solid Cylinder Brush is the true principle to properly clean grain. All machines sent on trial, the users to be the judges of the work. For price and terms apply to

EUREKA MANF'G CO., ROCK FALLS, ILL., U. S. A.

[Mention this paper when you write.]



E. HARRISON CAWKER. Vol. 13, No. 6.

MILWAUKEE, OCTOBER, 1882.

{Terms: \$1.00 a Year in Advance. Single Copies, 10 Cents.

BUBISEONDENINS

Remove all Germs without Breaking or Crushing them, and Hull the Black Cockle and Remove the Hulls, Clean Bran thoroughly, and make a Higher Grade of Flour than any other Mill known.

VER 2000 PAIRS

Having Secured the BEST BELT MOVEMENT ever offered

We are prepared to furnish mills to be run entirely by belt, obtaining the nearest approach to a Positive Motion Without Gears. We also manufacture the

Celebrated

Which is the Most Compact and Convenient Arrangement of Break Rolls and Separators.

READ THE FOLLOWING LETTER FROM A WELL-KNOWN FIRM:

Messrs. John T. Nove & Sons, Buffalo, New York—

Gentlemen: We take pleasure in addressing you in regard to the introduction of the "Cosgrove Roller System" in our Mills at Brooklyn. By removing four pairs of our Millstones and putting in their place the two sets of the Cosgrove System, purchased from you, we find that with our former bolting and purifying arrangements, we can turn out flour, all roller ground, in quality from 50 to 75 cents per barrel superior to that made from the same wheat by Millstones. We are now grinding no wheat with stones. In making the change, our Mill was shut down but 4½ days to make connections with Elevators, Conveyors, etc. We drive the Cosgrove Machines from the same shaft that we formerly drove the Millstones. The work of the change was done by our own Millwrights, everything being so favorably located. The advantages that we find are principally, viz.: Saving from ½ to ½ power required to make the same amount of flour by stones; uniformity of work of the Rolls, and the ease with which they are managed, one man being fully able to give proper attention to two or more sets if we had them; the separations made by the cylinders are perfect; any miller can quickly adjust them exactly to suit the wheat he wishes to grind and the work required; the capacity of our machines we find fully 50 per cent. above the amount you guaranteed (200 barrels). In conclusion, we will say, that the result generally of the system is entirely satisfactory to us for the best of reasons, our customers are thoroughly pleased and satisfied with our flour.

Yours truly,

F. E. SMITH & CO. Brooklyn, New York, February 20, 1882. MESSRS. JOHN T. NOYE & SONS, Buffalo, New York-

Among Recent Orders We Name the Following from Prominent Millers:

Lexington Mill Co., Lexington, O., 12 pairs,
Pollock & Co., Vincennes, Ind., 12 pairs,
James Norris, St. Catherines, Ont., 28 pairs,

E. O. Stanard & Co., St. Louis, Mo., 28 pairs,
Penfield, Lyon & Co., Oswego, N. Y., 2 Cosgroves.,
McNeil & Baldwin, Akron, O., Cosgrove and 10 pairs.

Jno. T. Noye Manufacturing Company, Buffalo, N. Y. mention the United States Miller when you write to us.] E. W. PRIDE, Agent, Neenah, Wis.

Please mention the United States Miller when you write to us.]

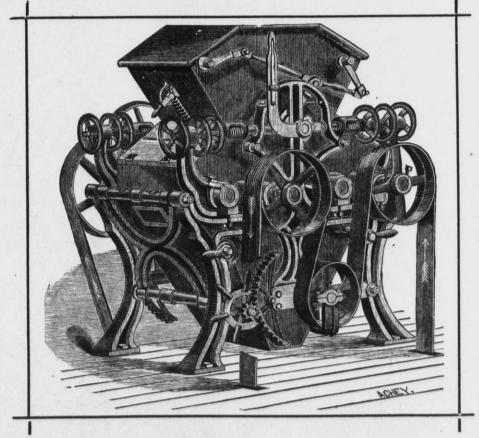
ELL'S R OLLER

We invite particular attention to the following

POINTS OF SUPERIORITY,

possessed by the Odell Roller Mill over all competitors, all of which are covered by Letters Patent, and cannot be used on any other machine.

- 1. It is driven entirely with belts, which are so arranged as to be equivalent to giving each of the four rolls a separate driving belt from the power-shaft, thus obtaining a positive differential motion, which can not be had with short
- 2. It is the only Roller Mill in market which can be instantly stopped without throwing off the driving belt, or that has adequate tightener devices for taking up the stretch of the driving-belts.



- 3. It is the only Roller Mill in which one movement of a hand-lever spreads the rolls apart and shuts off the feed at the same time The reverse movement of this lever brings the rolls back again exactly into working position and at the same time turns on the feed.
- 4. It is the only Roller Mill in which the movable roll-bearings may be adjusted to and from the stationary roll-bearings without disturbing the tension-spring.
- 5. Our corrugation is a decided advance over all others. It produces a more even granulation, more middlings of uniform shape and size, and cleans the bran better.

WE USE NONE BUT THE BEST

References and letters of introduction to parties using Odell Rolls will be furnished on application, to all who desire to investigate the actual work of these splendid machines. Circular and Prices on Application to Sole Manufacturer,

STILWELL & BIERCE MANUFACTURING CO.,

DAYTON, OHIO, U. S. A.

THE LARGEST MILL FURNISHING ESTABLISHMENT IN THE WORLD.

RELIANCE

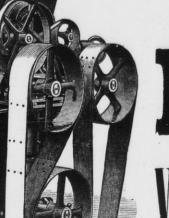
WORKS.

EDW.P.ALLIS&CO.Prop's.

MILWAUKEE, WIS. U. S. A.

SOLE MANUFACTURERS OF

Gray's Patent Noiseless Belt



ROLLER MILLS

Unexcelled for reducing Middlings to Flour.

Far ahead of Smooth Iron or Scratch Rolls and entirely superceding the Mill Stones for this purpose.

Read the Following Letters.

Terre Haute, Ind., Aug 22nd, 1882. Messrs. E. P. Allis & Co., Milwaukee, Wis.

Gentlemen:—We are very much pleased with the whole eight set of Porcelain Rolls you put in our Mill. The two double set sent us soon after starting up our mill last fall, we put in place of two run of stones for grinding our coarse

We find the Flour from the Porcelain Rolls much more evenly granulated and much sharper and cleaner than that we got from the stones, besides the second or fine Middlings are much better, being almost entirely free from germs and not

Yours Truly,

[Mention this Paper when you write to us.]

KIDDER BROS.

Kings County Flour Mills, Brooklyn, N. Y., Aug. 15th, 1882. Messrs E. P. Allis & Co.

Gentlemen:—You ask how I like the Porcelain Rolls as compared with Mill Stones. I have been using the original Porcelain Gear Machines for five years and became convinced a long time ago that Mill Stones could not produce as satisfactory results.

I am now operating your Improved Machine of increased size with nice adjustments, working without noise with Gray's Patent Belt Drive. The Flour it produces is beautifully grainy and strong and its capacity two or three times more than the old Gear Machine.

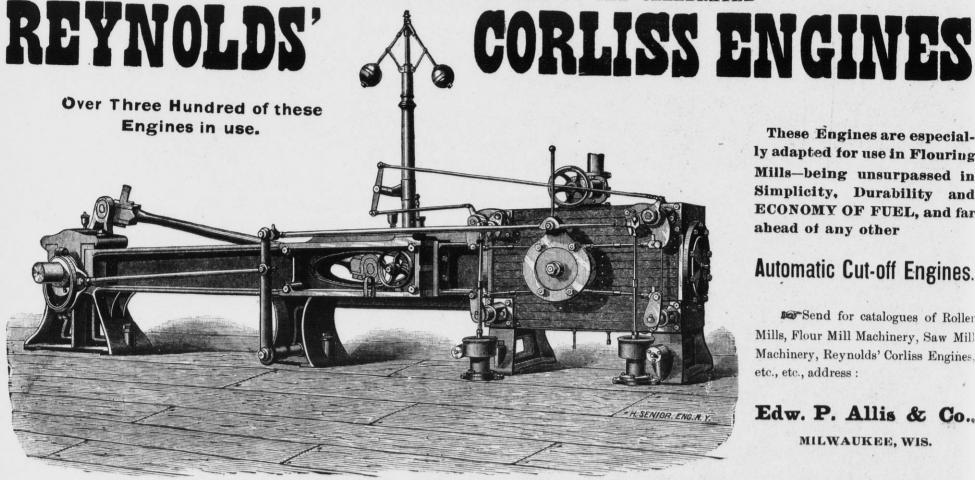
It runs splendidly, gives no trouble, consumes less power than Mill Stones, dispenses with costly stone dressing and for reducing Middlings and soft branny residuums and tailings is unequaled by any Machine, Iron or stone, at least this is my opinion after five years of practical experience.

Yours truly.

JOHN HARVEY,

Head Miller Kings Co. Mills, Brooklyn, E. D.

ALSO SOLE MANUFACTURERS OF THE CELEBRATED



These Engines are especially adapted for use in Flouring Mills-being unsurpassed in Simplicity, Durability and ECONOMY OF FUEL, and far ahead of any other

Automatic Cut-off Engines.

Send for catalogues of Roller Mills, Flour Mill Machinery, Saw Mill Machinery, Reynolds' Corliss Engines. etc., etc., address:

Edw. P. Allis & Co.,

MILWAUKEE, WIS.

The following is a partial list of Flouring Mill owners who are using the Revnolds' Corliss Engine

The following is	a partial libe o
J. B. A. Kern	
LaGrange Mill Co	Red Wing, Minn.
New Era Mills	
Daisy Flour Mills	Milwaukee, Wis.
Winona Mill Co	Winona Minn.
W. D. Washburn & Co	Anoka, Minn.
Archibald, Schurmeier & Smith	St. Paul, Minn.
White, Listman & Co	La Crosse, Wis.
Milwaukee Milling Co	Milwaukee, Wis.
Stuart & Douglass	Chicago, Ill.
Stillwater Milling Co	
Otto Troost	Winona, Minn.
E. T. Archibald & Co	Dundas, Minn.
C. McCreary & Co	Sacramento, Cal.
Gardner & Mairs	
J. Schuette & Bro	Manitowoc, Wis.
Minnetonka Mill Co	
J. D. Greene & Co	
F. Goodnow & Co	
A. L. Hill	
Beynon & Maes	
Eagle Mill Co	New Ulm, Minn.

I lourning with owners	will ale doing
Albert'Wehausen	Two Rivers. Wis.
Green & Gold	Faribault, Minn.
Meridan Mill Co	Meridan, Minn.
Townshend & Proctor	Stillwater, Minn.
Sooy & Brinkman	Great Bend, Kansas.
Frank Clark	Hamilton, Mo.
N. J. Sisson	Mankato, Minn.
Jas. Campbell	Mannannah, Minn.
C. J. Coggin	Wauconda, Ill.
J. J. Wilson	Algona, Iowa.
Ames & Hurlbut	Hutchinson, Minn.
Lincoln Bros	Olivia, Minn.
Northey Bros	Columbus Junction, Iowa.
Bryant Mill Co	Bryant, Iowa.
David Kepford	
Waterbury & Wagner	Janesville Minn.
W. A. Weatherhead	South Lyons, Mich.
Geo. Bierline	Waconia, Minn.
James McCafferty	Burton, Mo.
Geo P. Kehr	Menomonee Falls, Wis.
Winona Mill Co. compounding their	present 24x60 Winona. M.
Forest Mills Co	Forest, Minn.

the Reynolds' Coriiss	Engines.
L. H. Lanier & Son	Nashville, Tenn.
Wells & Nieman	Schuvler, Neb.
Grundy Centre Milling Co	Grundy Centre. Iowa.
B. D. Sprague	Rushford, Minn.
The Eisenmeyer Co	Little Rock, Ark.
A. W. Ogilvie & Co	Montreal, Canada.
Geo. Urban & Son	Buffalo. N. Y.
A. A. Taylor	Toledo, O.
Pindell Bros. Co	Hannibal, Mo.
Kehlor Milling Co	East St. Louis, Ill.
Walsh, DeRoo & Co	
Goodlander Mill and Elevator Co	
W, Seyk & Co	Kewaunee, Wis.
Topeka Mill and Elevator Co	Topeka. Kan.
Strong Bros	Graceville, Minn.
C. A. Roberts	Fargo, D. T.
Coman & Morrison	
J. G. Schaapp	Grand Island, Neb.
Fred Schumacher	Akron, Ohio.
Warren Mfg. Co	Warren, Minn.

E. HARRISON CAWKER. (VOl. 13, No. 6.)

MILWAUKEE, OCTOBER, 1882.

Terms: \$1.00 a Year in Advance. Single Copies, 10 Cents.

The Phoenix Foundry and Machine Works at Terre Haute, Indiana.

A MODEL MILL-BUILDING ESTABLISHMENT.

The engraving which we herewith present for the inspection of our readers, represents the PHENIX FOUNDRY AND MACHINE WORKS, Manufacturers and Mill-builders of Terre Haute, Indiana.

The works of this company are located near the center of the city, and in close proximity to the Union Depot, and are connected by track with nine railroads centering there. In 1865 Mr. McElfresh, who is the President of the Company, founded what is now known

cupolas, and large travelling cranes, capable of handling the largest castings used in the The core-oven stock-house and rattler-rooms are conveniently situated outside of the foundry. The offices are conveniently arranged and fitted up for the transaction of business and entertainment of customers. The draughting room, occupying the second story of the offices is splendidly lighted and equipped, making it the most complete and convenient in the country.

The men employed in every branch of the business are mechanics—and it reaches from as the Phoenix Foundry and Machine Works. foundry, machine-shop and work-shop. The establishments of the country.

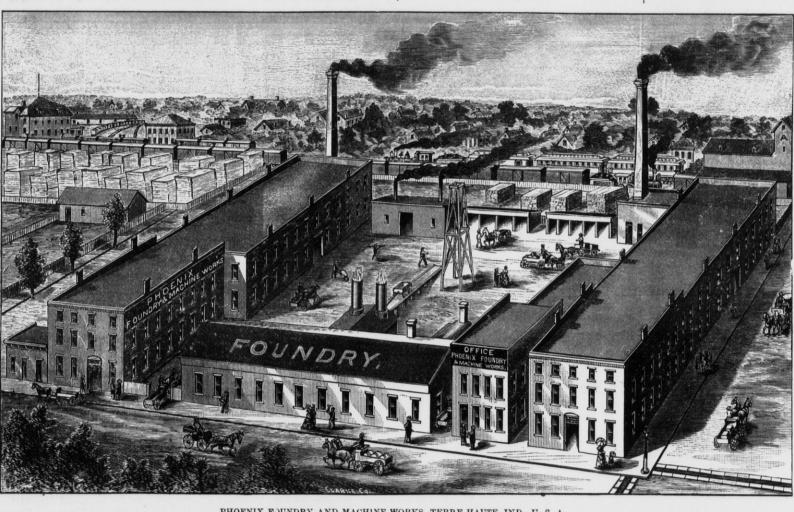
The company, in addition to mill building. will continue their established general machine business. The engines and general iron work for mill purposes, made by the company for the past seventeen years, have a reputation second to none in their line, for finish, pattern and economical construction.

All the persons who are connected with the company are men of business experience and are wide awake and go ahead, and with all fact. these special machines, with their extensive shops in which they have mechanics who cannot be excelled in their respective trades, the draughtsman who makes the plan to the they intend to make their institution occupy millwright who puts up the work-through the front rank among the best mill-building

but many millers are beginning to express the opinion that they can make better flour and more money with good winter wheat than they can with such spring wheat as they have have been using during late years. With the modern system of milling, nearly if not quite as good results can be obtained from winter as from spring wheat, both as regards to quality and quantity. This may be considered a

Economy of Steam Engines.

Editor U. S. Miller:
Will you kindly inform me what is the best record of performance of an automatic cut-off steam engine. Also how they compare with common slide-valve



PHOENIX FOUNDRY AND MACHINE WORKS, TERRE HAUTE, IND., U. S. A

In 1879 the Company was incorporated. The man who works each tool is a mechanic in the present officers, F. H. McElfresh, President; Jonathan Mills, General Manager; Edward Gilbert, Vice President; H. C. Gilbert, Secretary; and John W. Davis, Treasurer. Their business growing and by experience learning, they concluded to enter extensively into the mill building business-that branch of industry having grown to great proportions and demanding something of the kind. In this the Phœnix Foundry and Machine Works have succeeded. From the small beginning made by Mr. Elfresh they have reached out until they have their present substantial and extensive shops as shown in the cut. The machine shop is 52 x 156 feet, with boiler and engine room in basement, the building being two stories high. The wood-working shop is 50 x 156 feet, two stories high. The foundry is 50 x 140 feet, and an office 30 x 48 feet The machine shop, as well as foundry and wood-working shop, is equipped with the best iron and wood-working machinery that can be purchased. It consists of all the new est patterns in iron and wood working machinery, such as planers, engine lathes, pulley lathes, drills and radial-drills, screwcutters, shapers of every variety and style, universal wood-workers, planes, sufacers, band-saws, jig-saws, cut-off-saws, rip-saws, mortising and boring machines; and all these fitted with a thousand-and-one attachments and connections necessary to carry on the business to the greatest advantage. The foundry is thoroughly equipped with two tems on which to build mills.

largest sense, and unexcelled.

They have associated with them Mr. Jonathan Mills, who is well known by the millers all over the country as one who has devoted himself to the wants of the milling trade, and to whom the millers are indebted for many inventions which have lightened their labors and filled their pockets.

Mr. Mills has now three new machines which the company are manufacturing—a new six break reduction machine, with scalping reels combined, which will be built in one frame. and is intended to meet the wants of small mills. This machine, it is believed, will enable the small mills to produce as good results as the largest mill in the country, and at a cost in proportion to the capacity; a new roller mill which exceeds in simplicity of construction all other machines, and which we think, if one can judge from a picture, and we have a photograph before us, will certainly be a favorite mill machine as far as roller machines go; a "centrifugal bolting reel," triple, double and single, which is claimed to be far ahead of anything ever put on the market in these days of centrifugal bolting machines.

With these three machines, and the arrangments the company have made with Mr. Mills for the handling of his "Disc Reduction | considerable quantity of Winter Wheat Patent Machine," which has an established reputation by its use in some of the largest mills in the country, the company will have the advantage of three different and complete sys-

It is the object in presenting this cut simply to call the attention of the millers who do or may stand in need of anything in the way of improvements, or who contemplate building, to the fact that this company is now fully equipped, and propose to be able to compare favorably with and not be behind any in first class work and machinery, and to keep up with the progressive spirit of the age. They solicit correspondence, and advise all who have the main chance in view, that they will consult their own interests by consulting them.

Winter vs. Spring Wheat for Flour.

THE observing miller will not have failed to notice that a change of public taste has been taking place during the past year or two, favorable to winter wheat. The original cause of this, undoubtedly may be laid to the farmers in the Northwest, who persistently sowed soft varieties of spring wheat, and also to the unfavorable quality of most of the spring wheat during late years in Wisconsin, Minnesota and portions of Dakota. To-day some of the best mills in Milwaukee are running on Kansas winter wheat, and the flour produced therefrom sells at a most desirable price. The steward of one of the finest hotels in the West, after repeated tests, has given his order for a to take the place of Spring Wheat Patents used heretofore. If millers could always obtain No. 1, Hard Spring Wheat for milling purposes, at a reasonable price, there is little many if not in most instances it will save onedoubt but that they would greatly prefer it; half, or even more.

engines in point of economy and cost of

Answer:-There are numerous designs of automatic cut-off engines. The Corliss type, although among the first, if not the first, to be put in successful use, is still conceded by engineers to be superior to all others in the points mentioned. We do not know about the best recorded performance of engines of this class, but in his report on the trial of an 8" x 24" Reynolds' Corliss engine, (manufactured by E. P. Allis & Co.,) Mr. Jno. W. Hill, an acknowledged authority on steam engineering, says: "this economy of 21 pounds of coal per indicated horse-power per hour, in an 8" unjacketed engine has to my knowledge never been equalled." This is for a small engine. It may be noted that the Daisy Roller Mills, in Milwaukee, using a compound Reynolds-Corliss engine has repeatedly made a barrel of flour with less than 25 ths. of coal, and in several instances with less than 20 tbs. If any other engines have a better record than this we shall be pleased to publish it. The comparative economy of slide-valve and automatic cut-off engines depends largely upon the efficiency of the slide-valve engine. If it is in good order and properly designed for its work, a slide-valve engine will give about three-fourths the power from the same expenditure offuel, or, in other words, an automatic cut-off engine will save about one-third the fuel used by the slide-valve engine. But

UNITED STATES MILLER.

PUBLISHED MONTHLY. OFFICE NO. 118 GRAND AVENUE, MILWAUKEE, WIS.

MILWAUKEE, OCTOBER, 1882.

THE Milwaukee Industrial Exposition opened September 25, and will close Oct. 21. The display is large and excellently arranged. The number of visitors so far has been much larger than last year. All persons visiting Milwaukee before October 21, should make it a point to visit the Exposition. The display of steam engines by Edw. P. Allis & Co., and Weisel & Vilter, is fine. Roller Mills are exhibited by Edw. P. Allis & Co., and Centrifugal Flour Dressing Machines by the Geo. T. Smith Middlings Purifier Co., of Jackson, Mich., and F. Andree & Co, of Chicago, Ill.

Wages in the United States.

THE advance sheets of the census of 1880 present many facts that are new even to the best informed persons. One which touches on the labor question as regards wages, gives the average amount of wages earned per year by each individual laborer (including all ages and both sexes) in 20 of the leading cities of the United States. The highest average is in Washington, \$547, and the lowest in Milwaukee, \$321. Next to Washington stands San Francisco, \$536, and next to the latter Brooklyn,\$466. Notwithstanding the fact that Washington stands at the head of the list for liberal wages paid, it should be remembered that many of the workers in that city are in the employ of the government at high remunerative wages, while the second city on the list-San Francisco-has very few citizens in government employ. From this it is plain that wages are higher in San Francisco than in any other city in the United States, if we exclude government employes and their wages from our calculation.

[Correspondence of the United States MILLER] Edward P. Allis on the Tariff.

HOW IT BENEFITS AMERICAN MECHANICS, &C.

A Letter Written Eleven Years Ago.

Office Northwestern Tariff Bureau, Milwaukee, Wis., Sept. 18, 1882. Editor United States Miller.

A few days since, while riding in the street

I noticed a sneer on the faces of two or three persons in the car at the remark of Mr. A., and one said that the assertion was then made because the tariff question was now agitated.

The injustice of the criticism will be fully apparent after perusing the annexed letter, written by Mr. Allis upwards of eleven years since, and published in the Milwaukee Daily News at that time.

Allow me to add that after considerable reading and publishing on the tariff question, and I trust I may say, some knowledge on the subject, that I have never seen a letter of more interest to the Working Classes of Milwaukee, particularly at this time, than the one appended, and because of the interests that all classes of labor have in the tariff, I ask you to publish it as those interests are plainly and carefully set forth.

I am, very respectfully, Yours,

JOHN W. HINTON. RELIANCE WORKS, Milwaukee, May 17, 1871. To the Editor of The Daily News.

I have read the report of Mr. Hagerman's lecture at Bay View, and also your comments upon it. It is not necessary for me to attempt to defend Mr. H. in his positions, as he is fully competent to maintain them if he can spare time to do so. Neither am I able nor willing to maintain an argument with you, and I shall not attempt it, but as the tariff is treated as being purely in the inte est of manufacturers, to which class I belong, there is one fact, or series of facts, which I would like to have you bear in mind in your discussion with Mr. Hagerman or others. Manufacturers must exist somewhere, either here or in Europe. If you labor for their overthrow here, then to the same extent you labor for their building up there. The iron manufacturers of Europe are vastly richer and more powerful than the same interest in this country, and I question the patriotism of adding to their already full grown strength at the expense of our still infant industry.

Our country is large, comparatively sparsely settled. We have vast tracts of agricultural land, uncultivated, and vast mines of gold and silver, copper, iron, coal, etc., etc., still undeveloped. It is the acknowledged policy of our government and people to induce immigration from foreign lands, for the purpose of developing our agricultural, mineral and other resources, and we, therefore, hold out inducements for their people to come to us. We offer to all a free government and a voice in its conduct, and hold out to them hopes of bettering their conditions to an extent impossible in their own countries. To the agriculturist we offer better pay for his labor, by giving him good land almost without cost, a market for his surplus products, and the means of transporting them to the principal points of demand. To the manufacturer we offer abundant water powers, exhaustless mines and a market for his products, and ask him to come with his money and artisans and improve his opportunities here. To the mechanic and artisan we offer better wages than he gets at home, and the consequent ability for him or his children to become themselves proprietors.

The tariff is simply a means by which we carry out these promises. Without it we might possibly carry out the promises to the farmer and the manufacturer, but cannot to the artisan, and it is in his interest that the tariff is especially valuable. The ordinary manufacturers of this country are largely made up of skilled laborers, and it is not possible for a manufacturer to pay his artisans the ruling wages of this country and compete with the low wages of Europe. As a Republican and a citizen of our democratic government, I should always protest against the adoption in this country of the low scale of wages which prevails abroad, and think the perpetuity of our republican institutions depends greatly upon having our artisans and laborers better paid than the same class abroad; but this does not influence me as a manufacturer. If American manufacturers can have mechanics and laborers at the same scale of wages as is paid them in Europe, measured by the same standard of food and clothing, and have the same market for their products, they will need no protection as manufacturers; and if you will procure for them this cheap labor, etc., I, for one, will cease to advocate protection as a manufacturer, and only advocate it as a means of perpetuating our republican institutions by elevating our laboring population.

EDW. P. ALLIS.

Flour and Grain Trade Notes.

The San Francisco Journal of Commerce gives the following report of exports of wheat and flour during the month of August:

car, I entered into conversation with Mr. Edward P. Allis on the subject now uppermost in the public mind, viz: A Tariff for Protection of American Labor.

Mr. Allis said: "I tell my men, if they will work for me for the same wages that are paid in Europe for like services, I would not ask for protection under a tariff."

MHEAT.—The total exports of wheat for the month of August were 1,295,729 ctls, valued at \$2,240,167, against \$71,204 ctls for the shipments for the past month 679,373 ctls cleared for Cork, for orders; 577,494 ctls for Liverpool; 37,107 ctls for Havre; 16,400 ctls for Capetown; 2 966 ctls for Central America; 2,028 ctls for Sydney; 204 ctls for the Hawaiian Islands; and 154 ctls for Bri ish Coiumbia

FLOUR.—The total exports of flour by sea during the month of August were 97,325 bbls, valring the month of August were 97,325 bbls, valued at \$501,234 50; against 73,832 bbls, valued at \$382,023 00 for the month of July—an increase of 23,493 bbls, valued at \$119,211 50. Destination of the August exports: 32,853 bbls went to China; 25,973 bbls to England; 19,050 bbls to Ireland; 8,653 bbls to Central America; 3 390 bbls to Japan; 3,032 bbls to the Hawaiian Islands; 1,569 bbls to Australia; 1,487 bbls to Panama; 595 bbls to Br. Columbia; 500 bbls to Saigon; 183 bbls to Mexico; 118 bbls to South America; 85 bbls to Tahiti; and 25 bbls to Manilla. 85 bbls to Tahiti; and 25 bbls to Manilla.

SAN FRANCISCO is slightly agitated by the fear that New Orleans will ultimately become a great export market for Southern California wheat. The Southern Pacific Railroad is charged with working in the interests of New Orleans, and the charge does not appear without foundation. This road charges only \$20 a ton for carrying breadstuffs from California to New Orleans, a very low rate indeed.

It is rare to find in the United States a number one article of barley. It has been grown, however, in Colorado, and is grown to a limited extent in Canada. But it has been left for Burleigh and Kidder counties, North Dakota, to produce the finest crop of this grain ever known in this country. It is so pronounced by John F. Betz, the Philadelphia brewer and millionaire, who is now in Burleigh county for the purpose of buying lands and opening farms for its culture on a Dalrymple scale. The barley on Geo. Elder's farm yielded 54 bushels to the acre, the grain weighing 60 pounds per bushel. It is plump and bright, and is not discolored in the slightest degree. On the Steele farm the yield of barley is even greater than on that of Mr. Elder's; it will surely prove to be 60 bushels per acre, and it is estimated at even more than that.

ABOUT WHEAT .- 1. The best soil for wheat is rich clay loam. 2. Wheat likes a good, deep, soft bed. 3. Clover turned under makes just such a bed. 4. The best seed is oily, heavy, plump and clean. 5. About two inches

broadcasting. 7. From the middle of September to the last of October is the best time for sowing. 8. Drilled, one bushel per acre; if sown broadcast, two bushels per acre. 9. One heavy rolling after sowing does much good, 10. For flour cut when the grain begins to harden; for seed, not until it has hardened.

WHEAT.

The result of the spring wheat harvest is in close accordance with the indications of the August report. The quality is good, and the rield above an average. The general condition of winter and spring wheat, when harvested, is represented by 100, an average rarely attained. In parts of the winter wheat region, especially in Michigan and Indiana, some millions of bushels have been lost by sprouting in the stack. There has also been some loss of spring wheat from the same cause in Wisconsin and other States.

The Ohio Valley has nearly as large a product as in 1879. Ohio, Indiana and Illinois have apparently secured about 142,000,000 bushels. The South has increased both her acreage and yield per acre. The aggregate of winter wheat, as indicated by the September returns, is about 380,000,000 bushels; of spring wheat, about 140,000,000, or 520,000,000 in all. thrashing test may slightly modify these figures. The first thrashing generally exceeded expectations; the latter thrashing has in many sections been disappointing. It is quite certain that the per capita supply of wheat will not be quite so large as in 1879 or 1880.

Wheat growers and consumers may rest assured that the reports of 600,000,000 bushels and 370,000,000 surplus are gross exaggerations. The surplus cannot much exceed 200,000,000, and one-sixth of that will be required to restore to average fullness the local stocks and farmer's surplus, which were reduced at the close of the crop year as never before. Growers may suffer loss by holding for higher prices; they are still more likely to lose by accepting prices founded on a belief that 60 per cent. of the crop can be exported, when scarcely more than 35 can well

The Ohio statistical agent says that returns from some 2000 thrashers show 7,066,554 bushels of wheat thrashed from 424,417 acres, making the average yield per acre 16½ bushels. He reports the area of wheat in Ohio at 2,745,507 acres, and estimates the aggregate product of the State to be 45,143,546 bushels.

THE EUROPEAN HARVEST.

The English harvest was quite as early as usual, and was facilitated by the use of "string binding reapers." Harvesting machinery was employed more extensively than formerly. By the middle of August a considerable area in Southern and Middle England had been cut. The English harvest had been completed, except in the north, and in generally good condition, notwithstanding the rainy weather of the latter half of August. Home barns are coming more in favor for housing unthrashed grain. As yet there is little sprouting of exposed stacks. little mildew is reported in the lowlands. On farms in high cultivation 40 bushels per acre is reported. In Scotland the harvest will not be complete till the 20th of September. A fair crop of good quality is expected. The Irish crop is not so good as last year, though it will not be seriously short. The total wheat crop in Great Britain is estimated at 93,579,400 bushels.

Kufeke's Circular, bearing date Liverpool, Sept. 13, 1882, says: The weather during the past week has been all that can be desired, and enabled farmers to carry a great bulk of the wheat crop in comparatively fair condition. Farmers have been free sellers of their new wheats, and millers have been able to buy at constantly declining prices. The deliveries of last week amount to the important total of about 169,000 ors. at the average price of 45s. 9d. 169,000 qrs., at the average price of 45s. 9d., against 54s. 5d. at the same time last year.

There has been but a poor demand for foreign

flour during the last week, and values must be quoted 1s. per 280 lbs. lower on the week. Though we are now at a moderate level of prices, buyers continue to hold off, apparently expecting still lower prices later on in the season. For forward delivery very little business is practicable at the moment.

Wheat also experienced a further decline of 3d. to 4d. per cental on new red winter, and 1d. to 2d. on white descriptions.

Of American Oatmeal our stocks in first hands

are quite exhausted, and value quite nominal. The above estimate, from a buyer's standpoint, may possibly be too high. It is probable, with prices not too high, that the British demand will considerably exceed 100,000,000; that France will require from 40,000,000 to 50,000,000; Spain possibly 10,000,000. The Netherlands and Switzerland are always purchasers.

The complaints of delay of the German harvest by rain and a deterioration of quality as thrashing progresses have given a decided firmness to prices, leading to the conviction that the result is somewhat disappointing.

The storms of August were very severe. The damage in Wurtemburg by hail-storms (not to crops alone, but in breakage of glass, injury to trees, &c.) is estimated at £600,000.

The crops of Holland have been injured by recent rains. From Russia there is little that is new regard-

ing the crops, which in some sections are good, is the best depth for sowing the seed. 6. The but in others distinctly inferior. From northern drill puts in the seed better and cheaper than and southern ports the shipments of wheat have grade flour, than millstones.

fallen off and are now quite moderate. In the west the harvest is good; but the extreme heat in the south, and from Odessa to Taganrog, along the Black Sea coast, and inland as far north as Kieff, reduced the yield very heavily. In Central Russia the yield is better.

A full average is understood to have been harvested in Roumania, Servia, Bulgaria and European Turkey.

From India the shipments are proceeding on a comparatively small scale, the total quantity on passage being 145,709 quarters against 284,033 quarters last year.

GROWN WHEAT FOR SEED.

A letter from Michigan suggests that "grown" wheat may be used advantageously for seed. While it is a safe rule to use the most mature, the perfect seed of all plants for planting, the suggestion is presented for consideration.

Take the very worst samples you can pick out of a crop of wheat and thoroughly dry it, then sow it in your garden, and you will note, with perhaps some surprise, but far more pleasure, that the previous growth of the kernel will not interfere with a second, third, or fourth germination. The theory upon which this depends is this: that a wheat kernel contains, instead of a germ, a nucleus of them. This we can see at any time hereafter by watching the growth from a single kernel. First we will notice a single blade or leaf, resembling grass, though heavier. Then we see another and another added which soon produce a "stool of wheat," as it is familiarly called by the farmer. These facts being proved to the satisfaction of wheat growers, and there is no loss at all on the wheat used for seed. Take the very worst samples you can pick out

Recent Milling Patents.

AUGUST 29

Machine for purifying middlings—Francis M. Brown, Jnion City, Tenu.

Grinding apparatus-Thomas Lowry, St. Louis, Mo. Middlings purifier-Niels Nielson, Copenhagen, Den-

Binding wire-cloth for flour bolts—Carlton E. Sage, Elkhart, Ind.

Spring for middlings-shakers--Thomas M. Wilson, Indianapolis, Ind.

Blast governor for grain cleaners--O. G. Vanderhoof, Knoxville, Tenn. Roller-mill--Noah W. Holt, Buffalo, N. Y

Machine for cleaning grain--Augustus B. Kellogg, Buf-Elevator bucket attachment—George L. Lord, Waupaca, Wis.

Roller flour mill--Wm. A. Mahaffy, Rushford, Minn. Machine for disintegrating bran and middlings--Frank Miller, and L. S. Hogeboom, Three Rivers, Mich. Reduction mill--Benjamin Nichols and G. E. Watson, Tennedy, N. Y.

Corn sheller--Harvey Packer, Rock Falls, Ill. Millstone driver-Luther H. Read, New York, N. Y.

SEPTEMBER 12,

Millstone paint-staff--Thomas E. Davis, Range, Ohio. Apparatus for dressing flour, middlings, &c.--Thos. Hind and R. Lund, Preston, County of Lancashire, Eng. Flour bolting machine--Ammi R. Smith, Marola, Ill. Grinding mill--Turner Strobridge, New Brighton, Pa.

SEPTEMBER 19. Grain cleaning apparatus--Daniel Best, Albany, Oregon Grain separator and cleaner—Daniel Best, Albany, Ore. Oatmeal cutter--Joseph F. Fahs, Akron, Ohio.

Flour bolt or dresser--Louis B. Fiechter, Minneapolis Minn.

Bolting reel--John M. Finch, assignor to Geo. T. Smith Middling Purifier Co., Jackson, Mich. Test-plate for roller grinding-mills--Wm. D. Gray, Mil-vaukee, Wis.

Grinding mill--Joseph E. Holmes, Washington D. C. Roller reducing and separating mill--Udolpho H. Odell, Dayton, O.

Advantages of Rolls over Millstones.

BY U. H. ODELL.

As demonstrated in actual practice:

1. The millstone or any other device working on that principle, necessarily retains the wheat under severe pressure for some time before it s discharged, which tends to pulverize it, thus making a chop composed of a large amount of flour and a small quantity of middlings; whereas the rolls do not retain the grain under pressure but for an instant, and if properly corrugated, do not pulverize it, but make a chop composed principally of middlings in proper shape and condition for being easily separated and purified, and a small quantity of flour.

2. The millstone, if grinding close enough to clean the bran reasonably well, breaks or splinters the bran to some extent, and rubs off many fine particles of bran which are ground in with the flour, and cannot afterwards be separated again from the flour, thus lowering its color and grade. This is not true of the work of properly corrugated rolls.

3. If very high milling is done, and the bran is reground on a millstone, the product is a very low grade of flour; while properly corrugated rolls clean the bran more perfectly and make a higher grade of flour from the same than can possibly be done with a millstone or any other known device. Even where no other changes in a "millstone" mill are made, the use of smooth rolls on tailings, and fine corrugated rolls on bran are indispensable to even tolerably economical milling.

4. Rolls entirely dispense with the expense and annoyance of stone-dressing.

5. Rolls will do at least one-third more work than millstones will with the same power.

6. Rolls make a very much larger amount of "patent" and much less "red-dog," or low

THE CASE



Reduction Machines and Rolls.

READ WHAT MILLERS SAY OF THEM! PURIFIERS.

Chamberlin & Finly, Higginsville, Mo., write: "We thought if your Purifier was half as good as your circulars made it out to be it would be the one we wanted, but gentlemen you have not half stated the merits of your own machine. It is to-day without a rival in this country; it is far ahead of all others on the market and it gives us pleasure to tell you of it," etc., etc.

MORMAN & Co., Shelbyville, Tenn., write: "We are ecstatic over the results. We do not believe there is a Purifier in the whole domain of America that can surpass it. You are a success."

H. Watters, Mechanical Engineer, St. Paul, Minn., writes: "I am well satisfied with the results and working of the machine in all its details. It will do more work for the room it occupies than any machine I know of."

GEO. H. Bennett, Allegan, Mich., writes: "We like your Purifier extremely well; it is a much better machine than the Smith Purifier, we can govern it perfectly and the feed and shaking device cannot be surpassed."

David Snively & Son, Wiliamsburg, Pa., write: "The Feed Boxes ordered for our Smith machines work like a charm, doing excellent work. If you want them back you will have to buy the machines to which they are attached."

BREAKS AND ROLLS.

J. B. MILLER & Co., Ashley, O., write: "During a long experience in milling we have often seen the time when we had to hunt up customers for our flour, put since we but in your system of Breaks and Rolls we have never been able to keep up with our orders. Send any one you please to see your system in our mill; we will give it a good name for it deserves it."

W. Mellon & Sons, Beaver Falls, Pa., write: They have equipped their entire new mill with our line of Reduction Machines, Rolls, Purifiers, Reels, etc., and say "They are all right, can't be any better. We have made a thorough investigation of the different Roller systems but have not as yet seen any for which we would make an even exchange."

W. S. BACON, Tiffin, O., writes: "The machines are working beautifully. My flour is good and I am making 49 bbls. of flour out of 200 bushels and 18 lbs. of wheat. I am answering numerous letters of inquiry about your system; send any to us or tell them to write, and we will do you lots o' good."

G. DE WAR & Co., Kansas City, Mo., write: "We must say your Rolls are doing splendid work and are no trouble to run at all, they have saved us already \$1000, we estimate."

Many Others write: "I do not believe a more perfect Break could be made." "They will beat any Roll made." "They have raised our flour \$1.00 per bbl." "We are glad you have come to the relief of the Custom Miller." etc., etc.

Millers wanting a Purifier, Single Roll Break Machine, or full Reduction Mill, will do well to confer with us before ordering.

Case Manufacturing Co.,

OFFICE AND FACTORY, 5th Street, North of Naughten. Columbus, Ohio, U.S. A.

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.

OFFICE, No. 118 GRAND AVENUE, MILWAUKEE, WIS. SUBSCRIPTION PRICE.—PER YEAR, IN ADVANCE.

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

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

MILWAUKEE, OCTOBER, 1882.

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

Flour Mill Directory.

CAWKER'S AMERICAN FLOUR MILL DIRECTORY for 1882, was completed, ready for delivery February 1, 1882.

It shows that there are in the United States 21,346 flour mills and in the Dominion of Canada 1,488. The mills in the United States are distributed as follows:

Alabama, 388; Arizona, 17; Arkansas, 234, California 209; Colorado, 52; Connecticut, 309; Dakota, 44; Delaware, 96; District of Columbia, 7; Florida, 81; Georgia, 514; Idaho, 18; Illinois, 1258; Indiana, 1163; Indian Territory, 3; Iowa, 872; Kansas, 437; Kentucky, 642; Louisiana, 41; Maine, 220; Maryland, 349; Massachusetts, 363; Michigan, 831; Minnesota, 472; Mississippi, 297; Missouri; 942; Montana, 20; Nebraska, 205; Nevada, 10; New Hampshire, 202; New Jersey, 445; New Mexico, 28; New York, 1942; North Carolina, 556; Ohio, 1462; Oregon, 129; Pennsylvania, 2786; Rhode Island, 47; South Carolina, 205; Tennesee, 620; Texas, 548; Utah, 129; Vermont, 231; Virginia, 689; Washington Territory, 45; West Virginia, 404; Wisconsin, 780; Wyoming, 3; Total, 21,356.

The directory is printed from new Burgeois type on heavy tinted paper and is substantially bound. It makes a book of 200 large pages. The post offices are alphabetically arranged in each state, territory or province. The name of the mill, the kind of power used and the capacity of barrels of flour per day of 24 hours are given wherever obtained which is in thousands of instances This work is indispensible to all business men desiring to reach the American Milling Trade.

Price Ten Dollars per copy on receipt of which it will be sent post paid to any address. Remit by registered letter, post-office money order or draft on Chicago or New York made payable to the order of E. Harrison Cawker, publisher of The United States Miller, Milwaukee, Wis.

THE new Russian tariff imposes an import duty of 24 cents per hundred weight on flour.

WE cordially invite manufacturers of flour milling machinery, millers and mill-furnishers to send us items of news for publication in this journal. We make no charge for publishing

The Pennsylvania Millers Association will meet at the Lochiel House, in Harrisburg, Pa., at 10 a. m., Tuesday, October 10. All Pennsylvania millers are urgently requested to be present at that time.

Messrs. Howes, Babcock & Ewell of Silver Creek, N. Y. have recently been making an extensive addition to their machine shops and with a large number of additional workmen will be able to meet the immense demand for their specialties.

WE have just received a handsome new catalogue from the Stilwell & Bierce Manu-Mill manufactured by the company. Any system, should write for a copy immediately.

A subscriber residing at Akyab, India about our machinery and methods for milling rice in the United States. If any of our subscribers among American rice millers will favor us with a description of our most approved processes we will take it as an especial favor.

FROG HUNTING .- Mr. Albert Hoppin, late publisher of the Northwestern Miller, but now a peaceful and quiet citizen of Milwaukee, recently went out to Delafield Lake for the and purchased a small parlor rifle, with 1000 found a very large frog of the masculine genlost his balance and dropped over into shallow were faithfully carried out.

water. Upon taking the frog out it was found that he had swallowed 26 of the bullets, catching them in his mouth, supposing them to be flies. When he went to move the weight of the lead carried him overboard, and when taken out he was not dead, but awfully sullen.

The Prairie Farmer, of Chicago, Ill., one of the oldest and most valuable agricultural journals in the United States has recently changed its title to the Illustrated Peoples Weekly and Prairie Farmer. It is under new manage ment, has a new form, is handsomely illustrated, able edited and of more value than ever before to its hosts of readers. We wish this journal, an era of good fortune.

ONE of the effects of a great crop of wheat and consequently good and cheap flour will be that the laboring classes of Europe will quickly learn the pleasant qualities of good, the taste for good flour and the knowledge of its nutritious qualities, they will no longer be contented to put up with the miserable low grades that have been so long their chief sustenance. They will, like the American laboring man demand good flour and a greater supply than ever before will be called for from American flour millers.

BRADSTREET'S estimates the wheat yield of the United States for 1882 at 526,400,000 bushels, and places the estimate for the various states and territories as follows:

WHEAT VIELD OF THE UNITED STATES 1889

WHEAT TIELD OF THE UNITED STATES, 1002.	
Ohio	40,500,000
Michigan	29,000,000
Indiana	46,000,000
Kentucky	16,000,000
Illinois	51,500,000
Wisconsin	23,800,000
Minnesota	41,500,000
Dakota	12,000,000
Nebraska	18,000,000
Kansas	33,000,000
Iowa	32,000,000
Missouri	30,000,000
California	49,000,000
Oregon & Washington Territory	10,000,000
Southern states	48,500,000
Middle states	39,500,000
New England states	1,100,000
Colorado & Territories	5,000,000

Total yield of wheat 526,400,000

The Herald says the railway situation is rapidly becoming interesting for Los Angeles and Southern California. A few days since the long deferred connection between the California Southern and the Southern Pacific was chronicled at Colton. Just now only a gap of twelve hours staging intervenes between the overland connections of the Southern Pacific, building eastward, and the sunset route, building from New Orleans. In other words, we ought very early in September to have a through rail route between New Orleans and Los Angeles and San Francisco, under one management. It has long been the declared intention of the controllers of the Southern Pacific to put on a line of steamers between New Orleans and one or more European ports as an incident of their sunset route, with the double purpose of carrying wheat in bulk to Europe via New Orleans and of bringing as a part of return cargo immigrants from the old country to this Coast at a very low rate of fare. In addition, the Atlantic and Pacific Railway is being pushed to the Colorado river, at the "Needles," while an equal expedition is being shown in building the branch of the Southern Pacific eastward from Mojave, to meet the Atlantic & Pacific at that point.

A TECHNICAL SCHOOL FOR MILLERS. Anyfacturing Co., of Dayton, O., which describes one, who is tolerably well posted in milling the best milling engineers of this country and and illustrates completely the ODELL Roller matters, after glancing through the "Question Europe, however much some furnishers, for and Answer" columns of milling papers and their own selfish policy may cry up other miller contemplating changing to the roller noting the character of many of the questions propounded will readily concede two things First, that many of the questioners do not understand even the rudiments of the trade, writes us requesting to learn something and second, that there ought to be a place where these men if they intend to follow the trade may go to school and learn how the business should be conducted.

Either the Millers' National Association should take up this matter and solicit funds for the establishment of such a place of instruction or influential millers should bring their influence to bear on some well established institution of learning to add such a de-

Funds could readily be raised from the purpose of fishing and frog hunting. Before twenty odd thousand mill owners of this going he sent to the Great Western gun works country to establish such a shool but it will never be done until some organization goes cartridges of the smallest size, the bullets to work at it systematically and persistently. being about the size of a duck shot. He went We believe the most appropriate manner over to Buck's millpond frog hunting, and to get the school organized would be for the Millers' National Association to appoint a der sitting on a stump just above the water. committee to solicit subscriptions, make He shot 27 times at him, when his frogship plans for the enterprise and see that they

Personal.

THE United States Miller acknowledged calls during the past months from the following gentlemen connected with the trade:

A. P. Kastler, representing the Andree Centrifugal Flour Dressing Machine, Chicago, Ill.

W. D. Gray, M. E. of Edw. P. Allis & Co. C. A. Wenborne, publisher of The Milling World, Buffalo, N. Y.

C. M. Gilbert, representing The Richmond Manufacturing Co., of Lockport, N. Y.

Mr. Sessinghaus, of Sessinghaus Bros., St Louis, Mo.

Charles Booth, of Red Wing, Minn.

[Written for the United States Miller] The Question of Change in Small Mills.

In the every-day experience of every milling engineer, especially if by his energy and skill he has earned something more than a local reputation, inquiries like the following are more white, wheat flour. Having once acquired than frequent, the never-ending repetition having just enough variety in details to render it necessary to fit the answer to each par ticular case. One man writes: "My mill has' [such and such machinery.] "What will I need in addition to make it a first-class mill?" Another says: "I am crowded for power, and want to make as much flour as possible. What machinery will make the most flour with the least power?" Another more briefly will ask: "How much will it cost to make my mill into a first-class roller mill with a capacity of 100 barrels daily?" forgetting to give the first item of information regarding the present condition of his mill, or the conditions under which it must work. It is impossible to frame any general answer which will suit all the various queries which are continually being made. Millers, as a rule are a thinking class of men, but are too prone to rely on the advice of those whom they consider better posted than themselves, without considering that mills are a good deal like men -each one has its individuality of character, and its owner should of all men be the one who is best posted as to its immediate requirements. He must know, as a matter of course, the conditions under which it must be operated, the wheat it has to grind, the market it is working for, the machinery it has to work with, and the means which are available to increase its equipment. If he cannot tell what he needs, it is manifestly next to an impossibility for one to tell, who has never seen his mill and who is given but the most meager information on which to base his reasoning and form his judgment.

Among the larger mills the uncertainty as to what machinery to employ and what it will do, does not exist to such an extent as among the smaller mills, which are now being forced by close competition into the adoption of new systems. Such may well plead the constantly recurring changes of the last ten years, as valid reasons for their being unsettled as to what they really require, and how they can best go about the improvements which can no longer be delayed. Fortunately the experience of the last few years has demonstrated some few points, such as that rolls are much superior to millstones; that they will make more flour with an equal expenditure of power; that they enable a miller to grade of flour; that sharp corrugated rolls are best for making the reductions; that smooth rolls have their appointed place; and that porcelain rolls are unexcelled for the flour- ity of instances will be even approximately ing process. These are conceded facts among here it may be pertinent to remark that the milling engineer, when applied to for informquerist has been for any length of time a careful reader of the best milling papers, Such as are, are well posted and know what facts have been demonstrated, and how few the steps are which have been taken to make milling an exact science, and how impossible it is for the best engineer to tell what is best fullest information as to the facts bearing upon it.

The roller system, has supplanted the "New Process" much more quickly and completely than the latter did the old style of milling. But comparatively few new process mills now the complete roller system as fast as the means of their owners will allow. It may the one and two run custom mills, many of fair-and not an exorbitant-price for it.

which are destitute even of that necessary part of a modern mill, the purifier. And most of these inquiries are made in good faith, and not merely out of curiosity. To those who are giving this matter thoughtful study, it may be said that, it is not necessary for them to make the complete change at once, although if it can be afforded, such a change would undoubtedly make a profitable return on the investment much sooner than if rolls are adopted gradually. Considering the case of the smallest mill, and presuming that the owner has already found out the advantage of the purifier, and has one in his mill and knows something of its use, he can adopt rolls to his benefit and pecuniary well being, first to clean bran and crush the coarse germy middlings and tailings from the purifier. If he is able to go still farther in the system, he can put in porcelain rolls for reducing the finer middlings to flour. Still further, he can put in rolls on the successive breaks or reductions of the wheat. By using rolls on the bran he can grind higher with the millstones and thus obtain a whiter and clearer flour; by using rolls on the tailings and germy middlingsof which he will have more the higher he grinds the wheat between the stones-he will save a good deal of flour which would otherwise be lost, and what he saves will be of the best flour. By using rolls for the breaks he will make many more middlings, susceptible of purification, thus improving the color and quality of flour. He will need more purifying capacity, more bolting surface, and from one step to another he will find that it will lead to the complete changing of his mill. It will cost less to make this change all at once, but if the miller goes only as fast as he able to master the theory and practice upon which his mill should be operated, he will lose nothing by mistakes. Of one thing he should beware, and that is the ill-informed, self-sufficient and generally ignorant millwright, who tells him he can make as good flour without modern machinery as with it. There may be locations in sparsely settled districts and on the extreme frontier, where the custom naturally tributary will not now, and may never pay for putting in anything beyond the simplest out-fit, but in any locality where the mill, no matter how small it is, has to compete with larger rivals for its home trade, it will not pay to make it any less than complete. If the owner has the means to make the change he will gain nothing by delay, and he will gain much if he consults only the best milling engineers he can find, even if he does have to pay something for the privilege. The trouble has all along been, that the changing of the larger mills has kept all the larger mill-furnishing establishments busy to the practical exclusion of the custom mill. This is now changed, and there is no reason why the latter should not command all that the experience and skill of the best mill builders can suggest. To this end the owner of the small mill should give as full information as possible regarding what he wishes to do, what he has to work with, what results he must obtain, how good flour he must make, etc. His inquiries will then be to some purpose.

The cost of changing a mill, whether large or small, depends so much upon the condition make a closer yield with a better resulting it is in and the work it has to do, and these conditions vary so widely that no one, no matter how extensive his experience, can give an infallible answer, or one which in the majorcorrect. There has grown up an evil, for which mill-furnishers as well as millers are responsible, which works greatly to the detriment of the mill owner who really wishes to particular methods and machinery. Right have a good mill. This is the bidding on each little job, without reference to the machinery to be put in, or the results to be attained. In ation, can almost invariably tell whether his a recent case a mill owner who had received a very low bid for the remodeling of his mill, was asked what guaranty of results he had, and replied that he had nothing except a verbal assurance that it would be all right. What all right means is very indefinite, and if the cheap bid be accepted, as it most likely will, a cheap mill will be built, and the owner will to be done in any particular case without the find when he puts his flour on the market, that he has paid dearly for his economy. A cheap mill is like a cheap anything else, no matter how showy it may be or how well it may promise, it will show its cheapness as soon as it is put to actual use. It will cost more at first without question to have a firstremain without at least a partial addition of class mill, but if it is first-class it will pay in rolls, and these latter are being changed to the end. And one thing is certain, a first-class mill cannot be had for a second-class price. Fortunately for the owner of the small mill, seem strange, but it is a fact, that by far the he can now obtain good machinery of responslargest number of inquiries about rolls and ible furnishers, and can have his mill well cost of adopting them, are now coming from planned and built, if he is willing to pay a

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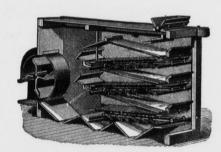
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Roller Milling.

BY G. MEISSNER.

(Translated from the "Austro-Hungarian Miller," for the Corn Trade Journal and Millers' Gazette, (London.)

I. PURPOSE AND ADVANTAGE OF ROLLER MILLING.

The proper purpose of roller milling consists in gaining as much fine white flour as possible out of a given quantity of wheat.

As is well known, millstones used in the general way, do not produce so large a quantity of white flour (in comparison with the amount of such flour contained in the grain,) because the bran (the outer tough coating of the wheat berry) has been rubbed partially into a fine powder between the stones, and has in consequence of its brown particles, imparted to the flour a more or less dark color.

These brown bran-particles cannot be separated from the flour, because they are of the same size as the flour particles, and have also nearly the same specific weight. A separation of these two particles by means of wind is therefore, for such small size, no longer possible. In larger pieces the bran is indeed intended to be really useful. specifically lighter than the flour particles or the middlings, and the former can therefore easily be separated by means of suction or blast. The separation of the fine pulverized bran from the flour itself is, however, impossible.

In order to avoid the pulverization of bran on millstones it was found necessary to moisten the grain before grinding, because the hard brittle bran becomes more tough by taking up moisture, and it therefore keeps better together. This moistening, however, also causes the resulting flour to be moist; this latter therefore does not keep and must be used up quickly, or else it will turn grey and musty and be spoiled altogether.

The distinguishing feature of roller milling now consists in working the thoroughly dry grain in such a manner that the grain is not pulverized, and thus the whole white contents of the grain is obtained free or nearly free

In consequence, as is proved by practical experience, from eight to ten per cent more white grades of flour are obtained (there are about ten distinct grades in Austria and Germany,) and generally much finer and whiter flour is produced than can be made by millstones.

There are millers who believe that in roller milling so-called dead flours (crushed to impalpable powder) are obtained.

This idea is based on a faulty knowledge of the mode of grinding which is used in

We shall find later on that roller mill flours are just as granular as those made by millstones.

Indeed it is even possible to make more granular flour by means of roller mills than by stones, if the proper attention is bestowed on this point and the mill is arranged accordingly.

II. THE NATIONAL ECONOMICAL VALUE OF ROLLER MILLING.

It might appear from superficial examination of the subject, that it is economically wrong to produce so much white flour (free from bran) because bran contains so much more nutritious parts (about 25 per cent more,) like gluten, etc., than the other parts of the wheat berry.

However, these nutritious parts of the tough remains as a soft spongy mass. bran are contained in such a form that they great difficulty, and but few men really assimilate these nutritious parts in the blood.

The value af an article of food does not merely depend on its contents of nutritive parts, but it depends essentially on the state or form in which it contains this matter, whether it suits our human organism, that is whether our stomach can easily digest and

This latter is not the case with the bran, and it is therefore certainly better to feed the cattle with our bran (they have stronger digestive organs, and for them bran is good food,) and afterwards to eat the meat and the milk of these animals, thereby receiving the nutritious parts of the bran in another form which is specially adapted for our organism

A national economical disadvantage is not therefore combined with roller milling; this would only be the case if the bran were entirely thrown away, which is nowhere

It cannot be denied that bread made from white flour, although it may contain less nutritious parts, is far better adapted for the digestive apparatus of the human organism, than bread from dark flour.

that white bread remains spongy when in- bran. contact with water, whereas the brown (dark) (without taking account of the bran) it is very indigestible.

It is a fact that not only rich people like working lower classes prefer it to the brown bread.

A national economical disadvantage cannot therefore be found in roller milling.

It is another fact that everybody would prefer to take a quantity of white bread than a similar quantity of brown bread, provided he could get it for the same money. It ought therefore to be the aim of every miller to produce as much white flour as possible from a given quantity of grain. The best means for this purpose is roller milling.

It must not however be thought that it is sufficient to put merely roller mills in the place of millstones; the mode of grinding must be arranged according to quite another system if the introduction of roller mills is

III. THE GRINDING SYSTEM OF ROLLER MILLING.

If grain is passed between fluted iron rollers it is not so much torn to pieces, but rather crushed into several pieces, whereby at the same time the bran is detached in flakes without being rubbed into powder.

be separated from the other parts of the grain by means of suction or blast, because the bran when not pulverized, is specifically lighter than the berry.

In order to make this separation of bran perfect it is only necessary to take care that the bran is never rubbed into powder, but that it always forms pieces of not too small a size. The separation of the bran will be so much easier accomplished, the more gradual the reduction of the grain takes place, whereby the coating of the grain severs its connection from the white particles more easily.

This is the working method of roller milling. The grain is first passed, in a perfectly dry state, through a pair of coarse fluted rolls set at such a distance that the grains are only slightly cracked, and the bran does not lose its integrity.

The inside of the grain, which is more or less brittle, is thereby of course divided into the coating.

The less broken particles of the reduced grains are then separated in wire dressing then passed through a second pair of rollers, set a little closer and fluted a little finer, which will reduce the broken grains into somewhat smaller particles, without however reducing the bran much.

After the finer particles have again been separated in a wire cylinder, the coarser set closer and fluted finer, which continues the reduction without reducing the bran.

separated from the coating, so that after the grain has been passed from four to six times through the rolls, in the described manner between rolls set successively closer and have been detached from the coating, which all been solved but only further complicated.

can only be digested and assimilated with particles (which have been so to say picked ful to the world. The question is a very flakes, and then grinding them, a fine white spectacles. flour, free from bran, is obtained. In reality separated by means of wind, from the inner parts of the grain.

Special care must be taken not to allow the clean bran particles, which have already been detached, to pass between the succeeding rollers, because they would there only be is necessary to dress the meal after each passage through the rolls, to separate the duction in the succeeding rollers.

A certain number of different stages of rethat which remains as bran after the different | the rollers is effected. passages through the rollers, only forms the offal of the main product.

This may be accounted for, in addition to reductions, but only to divide the grain into the above mentioned reasons, by the fact small pieces (middlings) and to separate the

This property of the fluted rolls, to probread forms dough-balls, and in this state duce not flour but middlings, forms their essential advantage, without which they would be nearly valueless.

Of course some flour is produced during white bread, but that particularly the hard the described operations, but only very little; the bulk of the products are different sorts of middlings and bran.

> IV. THE DIFFERENCE IN THE WORKING MODE OF ROLLERS AND MILLSTONES.

> Roller mills not only have the advantage of working in a better manner than millstones, but also treat the grain after quite a different method.

Millstones are undoubtedly excellently adapted to rub a substance to a fine powder, but this is not intended to be done, in grinding grain, until all bran (or at least the largest part of it) has been separated from the meal. As soon, however, as the separation of the bran has been once achieved in a perfect manner, the pure parts of the grains can be very well ground on millstones, because a pulverization of bran cannot in this case take place. Indeed millstones are probably much better for such a grinding process than the rollers themselves. For if pure middlings are passed between smooth rollers, however strongly they may be pressed together, there will always be after such passage through the rollers, a larger amount of unreduced tailings These detached bran flakes can then easily than would occur after a reduction by stones,

V. CHILLED IRON ROLLS AND PORCELAIN ROLLS.

It must be mentioned that rollers working under great pressure, require much motive power, whereas on the other hand the ordinary fluted rollers require but little power to drive them.

As a natural consequence the entire pulverization of a grain requires a certain amount of working surface, which roller mills do not possess, although in millstones sufficient surface is available for such pur-

From this it follows that the preparatory treatment of the grain, the so-called granulation, that is the reduction of the grain into small pieces, without thereby pulverizing the bran, can best be achieved by means of fluted chilled iron rollers, or fluted rollers of any other material of great resistance, whereas the grinding of the purified (freed from bran) pieces of different size which will fall out of middlings and semolina can best be treated by means of millstones.

Rollers should not be used for everything, for millstones have very many advantages cylinders from the finer particles. The still for grinding middlings into flour, whereas on larger particles (containing the bran) are the other hand rollers have an inestimable value for granulating and reducing middlings.

Rollers and millstones are not in opposition to each other, but they complete each

The practice has throughly confirmed this fact, for in all newly erected mills-for instance, Buda Pesth and other places-the parts are passed through a third pair of rollers, granulation and the reduction of middlings is done by fluted chilled iron rollers, whereas the final reduction of middlings and semolina The inner parts of the grain are thereby to flour is done without exception on mill-

About the question whether chilled iron or porcelain ought to be used in roller milling, whole books have been written by interested fluted finer, the whole contents of the grain gentlemen, whereby the question has not at

It might be asked with the same reason, By separating from these broken grain whether the man or the woman is more useout of the coating) the small detached bran simple one, if not looked at through partial

If grain is passed between the smooth however, the separating process does not rollers, made from any material, it will thereprogress so undisturbed as here described, by be crushed, but the crushed mass is not During the passage through the rollers many divided into pieces. In order to obtain the bran particles are detached, but as long as latter effect it is necessary that one of the they are not too fine they can be easily rollers moves quicker than the other one. If both rollers in this operation are perfectly smooth and if they are set close together they will not draw in the grain intended to be passed through them.

In order to accomplish this drawing in, it is necessary for the treatment of whole grains further reduced. This is the reason why it and large pieces of the same, to flute the rollers. It is not important, for this object, whether the flutes are straight (parallel with finer particles from the coarser ones in order the axis) or whether they form an angle with to submit only these latter to a further re- the axis, but the shape of the flutes has an essential influence on the facility and certainty with which the drawing in of the grindduction is therefore unavoidable, because ing material (whole grains or breaks) between

Those flutes, which are arranged so that one roller advances before the other one, As will be seen from the above, it is not have proved themselves to be most efficient. intended to make flour during the described | The rollers, the flutes of which are shaped like the teeth of a saw, then cut so to say, against each other, that is as if the one roller where standing still and the other roller moved against it. These flutes are also better adapted for wear than the symmetrical flutes. For even if the sharp edges of these flutes have been worn away, they will still draw in well and indeed better than the straight flutes.

It is self-evident that these fluted rollers must be made from a hard material of great resistance, and that porcelain is unsuitable for this purpose, that is for fluted rollers, need hardly be mentioned.

Porcelain, of the proper quality used for smooth rollers, may be excellent, but they cannot be fluted, and they cannot therefore be used with advantage for granulating and reducing coarse middlings.

Steel and chilled iron have proved themselves most suitable for fluted rollers; the latter is cast iron which has been converted into steel by reducing its surplus contents of carbon. These materials have been used in roller milling for more than twenty years, and they have proved superior to all other experimentally tried materials, and there is indeed no other material but steel and chilled iron which is hard and at the same time tough. This is why in engineering these two materials are used everywhere where resistance and durability are of the greatest importance.

Nobody would be foolish enough to make a drill, a chisel, a roller mill and similar things from any other material but steel and chilled iron, and therefore, it is also undoubtedly the best material for fluted roller mills.

Experience has proved this to be true. It must not, however, be understood from this, that porcelain rolls cannot be used advantageously in milling, but as fluted rollers, which are necessary for the granulation of grain, they cannot be employed. Very useful on the other hand are porcelain rolls for reducing middlings and for finishing the reduced middlings and semolina. For in the best arranged mills the middlings which have been produced by fluted rollers are not at once ground to flour, but before finishing them, they are in from two to five passages further reduced, not into flour but into small pieces, to semolina-called "Dunst" in Austria and Germany.

The middlings produced during the granulating or breaking process, contain still a large amount of pieces broken from the grain to which parts of the bran coating are still adhering, so that it is not possible to separate the latter by means of blast or suction. If it is therefore intended to separate also these adhering small bran particles, as is necessary for the production of fine white flours, it becomes necessary to reduce these middlings still further, that is to divide them into finer middlings and then to purify them by means of blast or suction, that is to separate the small bran particles before grinding them to flour. In smaller mills middlings are reduced once or twice; in larger mills from two to three times, and in very large commercial mills up to five times. These fine reductions are called semolina-"Dunst."

This reduction of coarse middlings into finer middlings and semolina must be done on smooth rollers, because the particles are already too small for fluted rollers, which they would pass without being reduced.

For the first reduction of coarse middlings however, or where only one reduction is in use, very fine fluted rollers can be used with advantage; for all subsequent reductions, however, smooth rollers are required

Porcelain rollers may be employed with great advantage for this purpose, although the reductions can also be accomplished very well by means of smooth chilled iron rollers. The porcelain rolls draw in a little easier than smooth chilled iron on account of the fine natural grit of their surface, although experience also shows the chilled iron to have its advantages. It is really very difficult to decide which is the most advantageous for this purpose, and probably both are of equal value.

porcelain and so do the manufacturers of chilled iron rolls for chilled iron.

tions to chilled iron.

Austrian mills, and especially the Buda Pesth | their appurtenances.

mills, use chilled iron without excetion.

With regard to grinding or finishing the purified middlings and the semolina to flour, rollers cannot be recommended. Of course such grinding may be forcibly accomplished by means of rollers, but millstones are undoubtedly much better adapted for this purpose. The working surface of rollers is too small, and even if the rollers are very strongly pressed against each other, be they of porcelain or chilled iron, there is always a proportion of middlings and semolina in the tailings which must at last be treated on a millstone.

As already mentioned, however, the grinding can be forcibly accomplished by means of rollers alone, although with an amount of power quite out of proportion. This point has also been decided by experience, and all well-equipped mills in Switzerland and Austria (in Buda Pesth without exception), finish by means of millstones.

Should it, however, be intended to finish by means of rollers, it would be preferable, for this purpose, to use porcelain instead of chilled iron, because the former is better adapted for grinding, on account of its fine grain and the natural roughness of its surface. It would produce more flour and not so much semolina-"Dunst"-and tailings.

For in the finishing process it is intended to grind and rub the material into fine powder (flour) and not to further sub-divide it into smaller pieces.

Therefore, if the porcelain rolls are more advantageous for the finishing or grinding process, they are less advantageous for the reduction of middlings and semolina, because during those reductions the production of flour is not yet desired.

During the reduction of middlings it is not intended to produce flour, but to produce very fine middlings or semolina, from which the bran can be separated on special purifiers by means of blast or suction.

One and the same roller mill cannot therefore possibly be used for both processes, because it cannot be equally well adapted for reducing as it is for grinding. That which is desired in the first ope ation must be avoided in the second.

A firm which makes only porcelain roller mills occupies a peculiar position in regard to these facts, because their manufacture is unsuitable for granulating.

These firms therefore, in order not to make room for chilled rollers for granulating, try to suppress the granulating process as much as possible, which they represent as not essential and easily to be accomplished by mill-

This manner of advancing their interests is, of course favorable for their own prospects, but the milling interest is not much benefited thereby, because the granulating process is the backbone of modern milling, it is a most important process, and what is spoiled in this, the beginning of the whole milling process, cannot afterwards be remedied.

VI. THE CONVERSION OF OLD MILLS AND THE ARRANGEMENT OF NEW MILLS FOR ROLLER MILLING.

It will therefore be found advisable, when planning a new mill, not to be wholly influenced by the prospectus of milling machinery manufacturers and their agents, but to take regard of the lessons which experience has taught about the main principles. That is, to adopt a similar arrangement to that which has been found to answer best in the larger mills, especially in Austria-Hungary and Germany-particularly in Buda Pesth.

This arrangement consists of the following main features :-

- 1. To accomplish the granulating (middlings producing) process by means of fluted chilled iron rollers.
- 2. To reduce the middlings by means of smooth chilled iron rollers or porcelain roll-
- 3. To grind or finish the purified middlings and purified semolina by means of millstones or porcelain rollers.

This milling method is specially suitable for The manufacturers of porcelain rollers of the conversion of existing mills to the roller course claim superior advantages for the milling system, because the whole existing plant can be incorporated with a few slight alterations. It is only necessary to erect the It is however, true that in porcelain, roller required number of breaks and reducing rollmills the rollers will sometimes burst, and ers in a suitable place, available in most mills. also that sometimes small pieces break from The conversion of an existing mill becomes their surface; such mishaps do not occur thus a much less expensive affair than it with chilled iron, and as it is necessary to use would be if it were attempted to accomplish chilled iron for granulating, it seems only also the grinding or finishing process by natural to give the preference also for reduc- means of rollers, in which latter case it would become necessary to remove nearly all the It may be further mentioned that all great entire existing arrangement of millstones and

roller milling with the retention of existing machinery, much facilitates the conversion of old mills into modern milling plants, because, besides this, in these latter, a larger number of dressing machines, elevators and worms are required than old millers are accustoned to see.

There are very many millers who are strongly prejudiced against conveying apparatuses, because they know from experience that worms and elevators are the chief causes of undesirable stoppages in the regular working of a mill. But it must not be omitted to state that in the newer milling plants fewer stoppages take place, notwithstanding their greater complication, than in the older mills, and and mainly because much more care is bestowed on the construction and driving of conveying apparatus than was generally formerly the case. Therefore in modern roller milling plants the use of conveyors is not so carefully avoided, although, of course, their number is always reduced to the lowest possible limit.

What Sam. Chisholm has to say about Milling.

[Continued from September.]

Mr. Jonathan Mills, the inventor of the machines which bear his name, had a full knowledge of the difficulties in the way of using either millstones or rolls for reducing wheat to middlings, and he has combined in his invention the qualities of both burrs and rolls which were suitable for the purpose, and avoided those qualities which were disadvantageous. For instance, the objection to the use of the ordinary millstones for the reduction of wheat is threefold:-1st, the inherent quality of the burrstone itself, which necessarily comminutes or abrades the bran; 2d, the unwieldy size of the ordinary millstone; and 3d, the impossibility of perfect and exact adjustment—a matter of the supremest importance in the delicate operation of splitting the wheat, and in the equally delicate one of reducing the wheat equally and uniformly at each stage. Of course the size and adjustment may be overcome at large expense and with great care but the number of mills where the millstone would receive adequate attention is too small to be taken into account. The advantages of the millstone for gradual reduction, on the other hand, providing its abrasive quality could be overcome, are 1st, its form and simplicity of mechanism, and 2d, its motion, or rather the motion which it imparts to the material which is conducive to the end in view, viz.: the disintegration of the material into its component round middlings particles without, their pulverization into flour.

The disadvantage of rolls for reducing wheat to middlings consists chiefly in the principle of their operation, which renders it impossible for them to split the wheat as before described, and the unavoidable comminution of the bran; besides, I might mention the large number of bearings, the difficulty of adjusting the rolls and keeping them true to each other, in order to accomplish regular and even work.

In employing a chilled iron disc of small diameter (16 inches), and capable of positive and perfect adjustment, the inventor combined all the desirable qualities of both millstones and rolls, and at the same time avoided the disadvantages of both. The features of these gradual reduction machines are probahave yet appeared, will not be out of place.

treated as one.

In general appearance the Mills machine is that of a splendidly constructed portable mill of medium size. It is made wholly of essentially of two discs, each sixteen inches in diameter, with rounded, margined corrugations, having perfectly smooth faces. Both discs are depressed in the face from the centre to within about four inches of the periphery, so as to leave space for the pessage of the grain in a horizontal position. The upper disc is stationary, while the lower disc runs. The entire surface of both these discs is polished perfectly smooth, and all sharp or cutand their angles rounded off. Each of the ridges is about five-eighths of an inch wide at

This modification of the installation of the periphery of the disc, and their inner ends slope with a gentle inclination to the level of the depressed bosom before mentioned. A series of furrows lead the material out to the ridges or corrugations, where the work of the machine is done. In mechanical construction the machine is perfect in all its details.

> By the united action of centrifugal force and the bosom furrows or leaders, grain fed to the machine is gradually led into the depressions between the ridges, where, by reason of the shallowness of these depressions, it is received in a horizontal In this attitude it is made to rise the easy incline of the ridges by the motion of the surface on which it rests, and in rising it is rotated on its own axis until it bears with its creased side on one or the other of the opposite disc-faces. Since the smallest transverse diameter of the berry lies through the crease, the kernel is held in this relation to the proximating surfaces of the corrugations, and is thereafter slid along one or the other, or both, of these surfaces, until split apart and allowed to escape in half-kernels from the machine.

That a slight pressure, applied by opposite smooth surfaces to a kernel in this positionthat is to to say, in a position such that one smooth surface bears on the grain at the central point of the arch opposite the crease, and the other surface bears upon the two points of prominence separated by the crease-will serve to force the lobes apart, or to split the berry longitudinally through the crease, is obvious.

It is also obvious that it is necessary both to the slipping movement of the grain upon the disc-surfaces, and to the spreading action upon the disc-surfaces upon the lobes of the grain, that said surfaces shall be extremely smooth; for otherwise they would, in the first instance, rotate the grain out of the position required and described; and in the second, even if that position were accidentally assumed by the berry at the instant of rupture, the lobes would be held together, and the rupture would be parallel with the disc-surfaces, instead of vertical thereto, as in the operation described. It is still further plain that neither in the slipping or gliding movement of the grain upon the polished disc-surfaces, nor in the pressing action by which the berry is longitudinally split, can there be any comminution of the bran.

But little of the interior grain substance is dislodged in the operation of degerminating by splitting through the crease, as described, for the reason that each half of the berry so split is still largely enveloped by the bran shell, and also for the reason that only slight pressure, from which disintegration can result, need be applied to the berry to effect the splitting.

Such, in brief, is the operation of the machine as a degerminator, or upon the first break" of the wheat. It will be seen that in thus liberating the germ and dust at the very outset of the operation, the Jonathan Mills system conforms to what we have seen to be one of the principal requirements of scientific milling, and at the very outset removes a class of impurities which are left to be contended against in future reductions when rolls or millstones are used.

The second reduction by this system is a sort of repetition of the degerming process, and only slightly reduces the split wheat, loosening the germs from any kernels which were not affected by the first operation. The bly familiar to some of my hearers; but as first two reductions are essentially cleaning some may not be acquainted with their dis- operations, although a little flour and midinguishing characteristics, a resume of those dlings are scalped out by a wire reel after points which make them pre-eminently the each of them. Their purpose is not so much best appliances for gradual reduction that to reduce the wheat as to clear it of impurities and put it in a good condition for reduc-The degerminator is but a modification of tion. At the end of the second reduction, after the reduction machine in the dress of the the broken wheat has been sent to a short discs, and so these two machines may be scalping reel for separation, and the coarse middlings and germs sent to smooth rolls to flatten out the latter, there remains what might properly be called a quantity of coarse groats, perfectly clean and only needing the iron and steel, and the working parts consist separation of the bran. These coarse groats will be found to have been made by breaking the wheat to a very large extent in the direction in which the cells of the bran coatings have their greatest length, and therefore their greatest strength, while the gluten and starch cells have been disturbed in a very slight degree, as is evidenced by the very small amount of flour that has been detached and mixed with the seam impurities.

With such material to work on, we have ting angles are rounded off. The skirt of the found three additional reductions sufficient disc is divided into ridges or corrugations to complete the reduction of the wheat to which, like the rest of the face, are smooth, middlings, although a greater number of reductions could be employed were it found

(Continued on page 91.)



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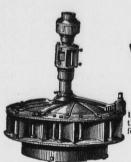
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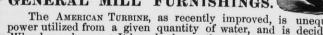


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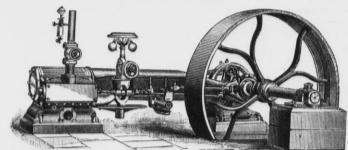
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(Continued from page 88.)

desirable. But these reductions have been found sufficient in practice, and these are accomplished in machines essentially similar to the degerminator. The broken wheat from the scalping reel of the second reduction machine, freed from impurities as above stated, goes succeedingly through the three machines, the flour and middlings being taken out after each reduction by a scalper, and the residuum being sent to the next machine. The flour and middlings from these three reductions are sent to an ordinary bolting chest, and the middlings and bran obtained from the reductions are treated in any man- of any kind, and thus make available many ner deemed best by the millers. Those who have carefully considered my remarks on millstones and rolls, cannot but see the wisdom of thus confining a machine to a single class of work, instead of forcing it to perform to the rope by pouring from a can into the en frame work for an intermediate station. work of a varied and essentially antagonistic

In being able to successfully degerm the wheat and remove the seam impurities, the Jonathan Mills machine performs what we have seen millstones and rolls cannot do. Instead of breaking the wheat berry in all ice. sorts of shapes, as rolls and millstones invariably do, the degerminator splits it in a rational manner, by breaking it through its weakest By thus liberating these impurities before the real work of reduction commences, one of the principal sources of inferior break flour is avoided. That these machines are superior to fluted rollers for reducing wheat is proved beyond the possibility of successful contradiction, by the fact, that while they make as large a percentage of middlings as any roller or other machine, the "break flour" produced becomes better and better at each successive reduction. It is a fact well known in the markets that the "clear flour" or "break flour" made by the Mills system is exceptionally white and strong, and this fact bears out what could readily be inferred from the construction and operation of his reduction machines.

The smooth surfaces and rounded edges of Mr. Mills' discs carry out to perfection another function of scientific milling besides splitting the wheat through the crease in reducing the lobes of the berry. Their nature effectually prevents the pulverizing or comminution of the bran, and this is another and obvious reason for the superiority of the break flour made in this system. Surfaces so smooth and edges rounded off so perfectly do not cut up or rasp off the bran as millstones or rolls do, but preserve it intact, broken only in such a manner as is necessary to free the middlings and

flour from its company.

A fair comparison of the actual work of the three means most commonly used for reducing wheat, viz., the millstone, the roll, and the Jonathan Mills machine, gives the palm to the latter. One reason of this superiority is that the inventor designed his machine for the reduction of wheat alone, and studied most successfully the application of the means to the end. Both the millstone and the roll made their appearance long before the principles of scientific milling were clearly understood, while the Jonathan Mills disc machine was invented expressly to carry out one of the acknowledged purposes of advancwheat to middlings the use of the roll and casual observer the motion or use of these the better it will work. millstone is but an adaptation of old and two small ropes would not be detected; but unsuitable means, a makeshift, as it were, on a closer inspection, they are found to be instead of being the result of a study of the constantly running the elevators and machinethe Mills system produces a clear flour of cooper shop, some 400 feet distant. unexampled whiteness and strength. Nature always rewards with the best results those who follow in the path which science points out. In conforming to scientific principles, the Jonathan Mills system naturally obtains the highest and best results in practice.

THE END.

Transmission of Power.

From Williams & Orton Manufacturing Company, Sterling, Illinois, we have a treatise upon the subject of transmission of power by wire rope, which we recommend to all having need of using power at some distance from its source. We quote the following:

The distance to which wire rope transmissions can be applied ranges from 50 or 60 feet rapidly. up to miles. "As a magnificent example of diagonally across the Rhine, and extended for a distance of two miles, and distributed developing means of carrying power. among fifty different manufactories, situated in every imaginable position, and embrac- water power can be obtained, steep or uneven mallets platting chisels and mallets driving feet one end to the other, is supported by col-

directions."

Wire rope transmission comes into use at a point where a belt or line of shafting becomes too long to be used profitably, and in point of economy it is much cheaper than its equivalent in either shafting or belting.

This method has been largely introduced, years past, and is now receiving a rapid development in this country.

in any desired direction, up or down hill, across rivers, around buildings or obstructions sources of power which are now useless. The ropes hang free in air, and require no protection from the weather, excepting an occasional coat of warm, coal tar, which can be applied groove of the wheel while running; or raw linseed oil can be swabbed on the rope to

less on vulcanized rubber fillings, and are not affected in the least by wet or cold, snow or

In almost every manufacturing establishment it would be convenient at times to transfer power to some isolated building at a distance. A wire rope transmission affords the ready means which commends itself on account of its cheapness, its economy of maintenance, and its perfect reliability under all circumstances

We now refer the reader to a few of the many permanent applications of wire rope transmissions in Germany and this country, and then proceed to enumerate a few inreliability and economy, leaving a long list of applications that may be fitted out as they become suggested to practical thinking men.

"In the neighborhood of Frankfort-on-the-Main, in Germany, the power of a 100-horse power turbine is conveyed for a distance of 3,200 feet, by means of a wire rope transmission, to a cotton factory, located in the proper place for such a building; wheels of $13\frac{1}{2}$, size of rope $\frac{5}{8}$ inch. A nearer site for a building could not be found, and this was the only way in which the power could be made available for that purpose."

Hundreds of cases similar to the above manent rope transmissions are numbered by machinery at a distance. thousands. We have a wire rope transmission in connection with our works, where This distance is about the limit for short transmission. However, by this short transmission, fully 10-horse power is conveyed from our machine shop building across to our foundry, running a large blower and the machinery connected with our foundry department in the most reliable and satisfactory manner. This transmission is made on five-foot diameter sheaves, running at 90 revolutions per minute, and 1 inch diameter rope.

At a large distillery in this city may be seen in operation two wire rope transmissions. Here, in the first instance, two slender ropes are seen issuing through the casing of the attic window of the main building, and running high in the air to the cupola of the

horse power a distance of 250 feet from water wheel to factory, running saws, planers, shapers, etc., by 7 foot sheaves and 3 rope, sheaves running at 80 revolutions per minute. employed in the shipyards. Double above power can be carried if desired. and transmission has been running eight years. right would be a pretty exhibition of this plan; cut sheaves are not true on shafts, and wear away rapidly, a new rope being necesary every fifteen months or so. It ticks continually on side of flange, and instead of wear-

We mention these transmissions in cur nearly every kind and phase of this rapid

carrying sheaves be put on same.

In streams that are subject to heavy run-Power can, by this method, be transmitted ning ice in spring, a stone pier, similar in dered. construction to an ordinary bridge pier, can be put in, and thus form a permanent transmission.

> In streams that are not subject to heavy ice, a dirt embankment or artificial island can be filled in and "rip-rapped" with loose stone. On this embankment may be erected a wood-

On the other hand, there are many valuable water powers on streams that are subject to keep it from rusting, and thereby preserve it. extreme high water, and where the banks in The ropes run perfectly smooth and noise- the vicinity of the power are too low and at wire rope comes into play, as the factory or nials, the better health and comfort of the millers, and cheapness and preservation of mill are obtained by setting the mill away from water and carrying power by wire rope.

Take another case: Your neighbor a few has a surplus of power, while you are "short," or working by hand. Now this latent power of your neighbor's would be of great value to you if, by some application, it could be stances where it can be applied with perfect brought into your building with but little wooden panes in a window, or slits in the window casing, you can run your wire rope high over the heads of the passers-by, to your utmost satisfaction and profit.

It can be profitably employed in pumping wheel pits, coffer-dams, stone quarries, and all sorts of contractors' grading, excavating day, according to their intelligence and skill. or building operations. A current wheel might be referred to in Europe, where per- the power conveyed to a pump or other

This plan of carrying power is very profitably used in cotton-ginning, hay-pressing, power is carried a distance of only 60 feet. and other cases where it is desirable to away to prevent danger from fire. In any establishment using steam power, the insurance can be lessened by this means; besides the fact that a total loss can never be fully covered by insurance, and the delay of above purposes, setting the mills, etc., away from engine and boilers.

applied with great profit and economy in almost every instance where the distance exceeds 100 feet, and in many cases where the distance is as short as 50 or 60 feet. The main feature however, in wire rope transed milling. For the gradual reduction of malt house, some 200 feet distant. To the mission is distance, and the longer the line

Ship-building in Maine.

The Lewiston Journal in speaking of the ends sought, as the disc machine is. It is ry of the large malt and storehouse. In the ship-building industries of Bath, Me., states therefore, that while making as large a per- second instance, power is transmitted to a that last year that city built fifty-five vessels, centage of middlings as any system can make, large bonded warehouse, and thence to a of a tonnage of 36,334.13 tons, or three-fifths A manufacturer of this city is carrying 20- during the year. The value of these fifty-five vessels is nearly \$2,000,000. It is expected that nearly seventy-five vessels will be built in Bath this year. Nearly 2000 men are

The Journal gives an interesting picture of a Maine shipyard. It says: There is no place The rope runs over the race, the adjoining for a drone in shipyards. Three is no more of two nuts which are firmly secured to the property and a street, and were it put up lively place in the world. There or four hundred brawny men, with their tools, in the open air make a harmony of workmenlike are out of line, so that the rope and filling noises which fall cheerfully on the ear. It is a greatful hubbub and a methodical hurlycombined hurry, order and thoroughness commenced. It is situated in McKean Couning a groove into rubber, it saws it off very from the scenes around him. Here, carpen- ty Pa., about four miles from Alton, and its long transmission, we would mention that of city as they come under our daily observa- fellows have a heavy timber on their shoul- According to an article in the Scientific Schaffhausen in Switzerland, at the Falls of tion, and at the end of this treatise can be ders and are carrying it across the yard, the American, this bridge is 2051 feet long and 301 the Rhine. Here 800-horse power is carried found testimonials and letters that cover joiners are busily plying their planes; strong- feet high. It has twenty spans sixty-one feet armed men are tirelessly swinging glittering long, one 62 feet long alternating with the lower In many localities where a good and reliable nothing but swing an adze for eight years; high and ten feet wide, and continuous from six

ing all the varied arrangements of changing banks forbid the erection of buildings in the trunnels keep up a steady, machine-like immediate vicinity. Now in such cases rope clicking; round-shouldered men are carrying transmission furnishes a complete remedy. pails of pitch; the caulkers are a noisy set of The power can be conveyed by this medium fellows and play an accompaniment to the up stream or down, up an ascent or down a sledges and anvils of the blacksmiths; sleek hill as well, or in many cases across the stream. oxen are laboriously pulling or lifting with In the latter case, where the stream is too tackles; a cloud of steam from the puffing wide to span without, an artificial foundation steam mill where the planks and knees are with great success, in Europe, for several for an intermediate station can be put in, and sawed, floats over all. A great many of the men in the yards are veterans and have swung the broad-axe till they are stoop-shoul-

> The first process in ship-building is laying the keel. The keel is made of oak, maple or some such unyielding timber. The timbers in the keel are firmly bound together with iron. The next thing is to set the frame, the huge ribs of the vessel. The frame is then sealed—planked inside. It is then decked. Then it is planked outside, and is ready for the caulking, the painting and the general finishing. The masts are generally set and the vessel rigged after she has been launched. The white oak used largely in the keels, such times covered with water. Here the planks, etc., of the vessel comes from Virginia, chiefly. The yellow pine used in the mill can be placed higher up or lower down deck comes from Georgia and Florida. The the stream, or out on the high table land in the hackmetack for the vessels knees is cut in distance. As shown by some of the testimo- our own woods and so are many of the spars. The masts are cut in tall-treed Oregon. Every part of the vessel's sides between the keel and the deck is filled with Liverpool salt, to keep her timbers from rotting. It comes into Bath by the shipload for this purblocks away, or perchance across the street, pose. The sealing is fastened to the frame with iron bolts. The decks timbers are secured with great spikes, and the planking is fastened with copper spikes, bolts and trunnels of locust wood. The caulking is done with pitch and oakum. All the work trouble or expense, and with no detriment or on a vessel is sub-let to master-carpenters, interference to any one. You ascertain that master-joiners, etc. All the carpentering, by making your own application, this power joinering, ironing, caulking, rigging, etc., are may be rented for a nominal sum. You now done at a certain rate per ton by the masterhave your remedy, and through a couple of workmen, who hire men by the day and have full sway over them. The master work-man may be running crews on several vessels at once. This method simplifies business for the building firm.

> Good master-workmen are paid \$5 per day. Carpenters and joiners are paid \$2.50 to \$3 a Not so many young men are learning the may be put in a swift place in the stream, and trade as in days gone by. "How long a term of service is necessary to acquire the craft of the ship-carpenter? asks the reporter. "Some men can never learn it; others will become good workmen in three years," said the man of ships. Caulkers are paid hardly so high set the engine and boiler at a safe distance wages. Professionel riggers are paid about \$2 per day. They are not numerous and a great many sailors are pressed into the service.

> The models for nearly all the ships built in Bath are made by William Pettee. Generations of Pettees have made ship models since business and lying idle of capital while rebuild- time out of mind. One may find in Mr. Peting. We are furnishing transmissions for tee's storehouse many cords of miniature ships and shooners, the images of the vessels launched in Bath in the last half-century. In short, wire rope transmission can be J. T. Donnel & Co. carry on in Bath the only rope-walk in Maine, and employ fifty hands, The anchors for the vessels are forged chiefly in Camden. The sails are made in New

> The amount and value of the tonnage owned in Bath are enormous, although they represent a small part of the wealth of that city; 315 vessels, of a total burden of 169,-717.54 tons, are owned by the Bath citizens. The value of this shipping, averaged at \$22 per ton, a low estimate, is \$3,633,774 these vessels 769 officers and 2342 sailors—a total of 3112 men-are employed. By Bath's of all the tonnage built in New England shipping interests and the numerous industries which branch from it, employment is given to 6000 or more able-bodied men, on land and sea.

Items of Interest.

An elevator bucket attachment invented by George L. Lord, Waupaca, Wis., consists inner surface of the bucket, and two flatheaded bolts which pass through the belt and engage with the nuts.

LAST August the Kinzua Viaduct, the highest railway bridge in the world, was burly. An observer gets the impression of completed, a year from the time it was ters are hewing chips upon chips with their construction was ordered by the New York, sharp, broad-axes; a dozen broad-backed Lake Erie & Western Railway Company. adzes-one of them told us he had done spans, which are 381 feet each. The truss, being toward the middle of the bridge. They spread process so uniformly and so delicately that out with a batter of two inches to the foot, columns of the highest bents at the bottom. The two longest bents rest on two long piers, feet, they are tempered and then wound up with pedestals built on each side of the stream, each containing about 500 yards of masonry. All the other columns rest on piers containing from twenty to 125 yards of masonry. The bridge contains 4,000,000 pounds of road then winds the springs to a diameter iron and 7000 yards of masonry. Its cost was about \$300,000.

TREATMENT OF DIPHTHERIA.—The Medical Press says that Dr. Deuker, who, during 24 years of very extensive practice in the Children's Hospital, St. Petersburg, has treated upward of two thousand cases of diphtheria, and tried all the remedies, both internal and external, employed in this affection, has obtained the best results from the following method, which he has employed for the last ten years. As soon as the white spots appear on the tonsils he gives a laxative mainly composed of senna, which produces an abundant evacuation. When the purgative effect has ceased he gives cold drinks, acidulated with hydrochloric acid, and every two hours a gargle composed of lime water and hot milk in equal parts. Dr. Deuker affirms that when this treatment is commenced early, it is generally and rapidly successful.

KRUPP's steel works at Essen, Germany, were founded by the father of the present proprietor in 1810. The present proprietor took the work on his own account in 1848, the number of workmen employed being then not more than 74. In 1880 the number had reached 8679, and is at present 10,600. The mines and ironworks had in 1880 an additional number of workmen, numbering 7103; the number employed by all Krupp's works being in 1880 a total of 15,782, and it is at present higher. In the steel works there are 1542 furnaces of different kinds, 294 generators of steam, 82 steam-hammers of from two hundredweight to 50 tons; 310 steam engines of from 2-horse power to 1000-horse power, with a total of 12,000-horse power; 1622 machine tools of different kinds. Including the steamers and the metallurgical works, the average daily consumption of the establishment is 2680 tons of coal and coke, 13,000 cubic meters of water, 17,300 cubic meters of gas for lighting (obtained from the gasworks belonging to the establishment.) There are in all 22,235 gas lights. Intercommunication is facilitated by 63½ kilometers of railway, 23 locomotives, 767 wagons, 50 horses, 206 cars, 65 kilometers of telegraph wire and 35 telegraph stations. The works also possess a chemical laboratory, a photographic and lithographic office, a printing office with three steam-presses and five handpresses, and a fire-brigade of 63 men. There are six works with 14 blast-furnaces, producing 600 tons of iron in 24 hours. The mines are: Four coal mines, 547 iron mines, in Germany, and some in the north of Spain, the average daily production being 3000 tons of coal and 1600 tons of ore, of which 1200 tons are raised in Germany. The ore is brought from Spain by five steamers.

CHEAP AND SIMPLE REMEDY FOR RHEUMA-TISM .- A remedy for rheumatism which is both effectual and inexpensive is something which will be sure to earn for its discoverer the gratitude of mankind. The Canada Medical Record is authority for the statement that Dr. Wood, Professor of Chemistry, in the medical department of Bishop's College, Montreal, reports a number of cases in which acute articular rheumatism was cured by fasting, usually from four to eight days. In no case was it necessary to fast more than ten days. Less positive results were obtained in cases of chronic rheumatism. The patients were allowed to drink freely of cold water, or lemonade in moderate quantities if they preferred. No medicines were given. Dr. Wood says that from the quick and almost invariably good results obtained by simple abstinence from food in more than forty cases in his own practice, he is inclined to believe that rheumatism is, after all, only a phase of indigestion, to be cured by giving complete and continued rest to all the viscera.

PROPELLING STREET CARS BY STEEL SPRINGS. -It is reported that recent experiments in Philadelphia have proved that it is possible to propel street cars smoothly and rapidly by the expansion of powerful steel springs, the difficulty of giving a uniform and perfect temper to the metal having been overcome. The company controlling the patents make the following claims: The motor consists of six springs coiled upon a cylinder. Each spring will be made of a flat bar of steel, 300 feet long, 6 inches wide and 4 inch thick.

umns one foot thick, which increase in length | These springs are tempered by the new their power becomes tremendous. After first being coiled so that their diameter is 18 until the diameter is 7½ feet. In this condition they are placed upon the motor truck and the appliance of the patents adjusted. A stationary engine at the terminus of the of 40 inches, and it has been demonstrated that the power of the expansion of the six springs, from 40 inches to 71 feet, in diameter is sufficient to drive an ordinary street car, full of people, five miles on any track in Philadelphia. The springs are so entirely under the control of the brakeman that he can use the power of all of them at once or limit the power to one, or in going down a steep grade he can shut them all off. A check prevents the car from running at a greater speed than nine miles an hour.

NEWS.

A grist mill is soon to be erected at Kiel, Wis. BURNT out. Crow Bros & Co's mill, at Paris,

Burnt out. W. R. Evan's mill, Jefferson, N. H.

WHIPPLE & HARKER, of Deerfield, Ind., have sold out.

JAMES WILSON & Co., Rochester, N. Y., bave

Pollach's flour mill at B'uffton, Wis., burned

THE flour mill is nearly ready for work at Aberdeen, Dak.

BURNT out. Miller & Henderson's mill at Wilkesville, Ohio.

Russell, Dailer & Co., Crestline, Ohio, have dissolved patnership.

 ${\bf L}.$ W. Tubbs, Emerson, Iowa, has sold out to the Emerson Milling Co.

VAN VALKENBURG & Co., are building a grain elevator at Cedarburg, Wis.

Burnt out. Seth P. H. Hale's mill at Hubbardstown, Mass. Insured.

Newton & Orton, Lane, Kansas, are succeeded by Newton & Alward.

CHARLES BURTCH & Co., Webberville, Mich., have sold out to V. C. Dixon.

DAVIS BROS., of Minerva, O., have ordered a line of the Odell roller Mills.

A new four-run mill will be built at Clear-field, Pa., by R. McPherson.

C. C. WHITE, of Valparaiso, Neb., has decided upon further enlarging his mill.

BURNT out. The mill of Moir, Son & Co, Bed-

ford, Nova Scotia; partly insured. Burned—Sept. 12, the Crescent Mill and Elevator at Denver, Col. Loss \$225,000.

BURNED out. W B. Dodge's 200 barrel flour

mill at Montello, Wis. No insurance

BURNT out. Baily & Mill's flour mill at Iroquois, Ontario—Canada. Insured.

THE office of the St. Louis Miller recently narrowly escaped destruction by fire.

H. C. Evans & Co. are progressing finely with their new flour mill at Chattanooga, Tenn.

Henry L. Valburg & Co., of Ingle Station, Ind., has ordered an Odell Roller Mill for bran.

WM. & JNO. HAYTER are commencing the erection of a water power mill at Ainsworth,

John. W. Carr & Son's flour Burnt out. mill at Hamilton, Ohio. Loss \$18,000, insured for \$8,000.

WILL SHEA'S mill at Newbern, Ind., is having important additions, necessitated by his growing trade.

WHEELER & WICHTER, Appleton, Wis., have ssolved partnership. M. A. Wheeler sucdissolved partnership.

The firm name of Geo. W. Adams, Rochester, Mich., has been changed to Geo. W. Adams

Jones, Ballard & Ballard's mill, at Louisville, Kentucky, was damaged by fire to the extent of \$5,000.

THE firm name of Maxwell Bros. of Millers-, has been changed to Maxwell, Stevens & Co.

W. G. Beed, of Hampton, Iowa, has ordered of the Case Mfg. Co. first break machines and scalpers.

HENRY VAHLBURG, Evansville, Ind., has purchased some machinery of the Case Mfg. Co., Columbus, Ohio.

WM. Brenner, of Atlanta, Ga., has ordered the Little Giant Break Machines from the Case Mfg. Co., Columbus, Ohio.

THE Midland (Mich.) Milling Co., a new organization, have commenced the erection of a 125-barrel roller mill.

A. A. Pearse, of Bakers Mill, O., is putting in a lot of machinery furnished by the Case Mfg. Co., Columbus, Ohio.

THE Case Mfg. Co., Columbus, O., are furnishing L. C. Prunty, of Laclede, Kansas, with

some new machinery

Banks & Sweny, of Blackburn, Mo., are put-ng in new machines furnished by the Case Mfg. Co., Columbus, O.

C. A. Smith, of Lebanon, Mo., has ordered a set of double 9 x 18 Rolls from E. P. Allis & Co. of Milwaukee, Wis. Two pairs of 9 x 24 Rolls have been ordered from E. P. Allis & Co., of Milwaukee, Wis., by the Hudnut's, Pekin, Ill.

The Stilwell & Bierce Mfg. Co., of Dayton, Ohio, have taken the order for a full line of the Odell rolls for the mill of E. & G. Brooke, Birdsboro, Pa. The diagram for the mill is to be furnished by Mr. Odell.

J. T. Halteman & Co., of St. Louis, Mo., ordered two pairs of 9 x 18 Rolls, from E. P. Allis & Co., of Milwaukee, Wis.

A Chattanooga, Tenn., grain dealer has purchased 160,000 bushels of wheat for shipment

to Chicago and Milwaukee.

Mr. ISAAC JONES retires from the milling firm of Gates & Jones, Rose T. J. Criteser is admitted. Roseburgh, Oregon, and

TREMAN & Moss, Mecklenburgh, N. Y., have ssolved partnership. The business will be dissolved partnership. The continued by F. W. Treman.

L. N. CRILL & Co., of Richland, Dakota, are putting in new machinery furnished by the Case Mfg. Co., Columbus, Ohio.

ADAM G. GROFF of Lancaster, Pa., has placed his order with the Case Mfg. Co., Columbus Ohio, for a set of smooth rolls.

Thus far, this year, 5,782 miles of new railroad ave been built, against 3,180 miles reported at the corresponding time in 1881.

PLANK Bros., of Wooster, Ohio, have ordered a Double Roller machine, 9 x 18, from E. P. Allis & Co., of Milwaukee Wis.

E. P. Allis & Co.. of Milwaukee, Wis., have the order for two pairs of Rolls, 9 x 18, from Coons & Co., Winchester, Ill.

G. W. Woodruff of Columbus, Ga., has ordered two pairs of 9x18 Rolls from E. P. Allıs & Co., of Milwaukee, Wis.

J. T. WALTERS of Easton, Pa., has ordered a Double 9x18 Roller Machine, from E. P. A'lis & Co., of Milwaukee, Wis.

E. P. Allis & Co., of Milwaukee, Wis, have just received order from O. F. Barber, Golden, Col., for 2 pairs 9x18 Rolls.

J. L. ALLARD, Paducah, Ky., recently ordered one double 9x24 Roller machine, from E P. Allis & Co., of Milwaukee, Wis.

Two pairs of 9x18 Rolls have been ordered from E. P. Allis & Co, of Milwaukee, Wis., by Geo. A. Klinger, St. Charles, Mo

D. J. Lew, Rushford, Minn., has ordered recently 2 double 9x18 Roller machines from E. P. Allis & Co., of Milwaukee, Wis.

W. Younger, of Catasauqua, Pa, has ordered from E. P. Allis & Co., of Milwaukee, Wis, one double Roller, 9x18 machine

E. P. Allis & Co., of Milwaukee, Wis., received Graber & Co., of Waxahachie, Tex., will the order for two pairs of 9x18 Rolls from build a two-run mill.

Chisholm Bros. & Gunn, Minneapolis, Minn, have sent order for two pairs of 9x18 Rolls to E. P. Allis & Co., of Milwaukee, Wis

The Case Mfg. Co., Columbus, Ohio, are furnishing Geo. G. Smith, San Francisco, Cal., with their Little Giant Break Machines.

C. B. SLATER & Co., of Blanchester, O., have furnished Messrs. Tate & Trollinger at Mebanes-

ville, N. C. with two of the Slater Reels.

Two pairs of 9 x 14 Rolls, have been ordered from E. P. Allis & Co., of Milwaukee, Wis., by Stephen Apper, Theilmantown, Minn.

Jos. Kratochwill, of Dayton, Ohio, has ordered two pairs 9x18, and two pairs 8x from E. P. Allis & Co., of Milwaukee, Wis.

Chisholm Bros. & Gunn, of Chicago, Ill., have ordered twelve 9x18 double Roller machines, from E. P. Allis & Co., of Milwaukee, Wis.

David Ellis & Son, of Indiana, Pa., have ordered a full line of the Odell Roller Mills of the Stilwell & Bierce Mfg. Co., Dayton, Ohio.

VAN VLECK & McArthur, manufacturers of mill supplies, Hudson, N. Y., have dissolved, and are succeeded by S. S. & G. P. McArthur.

Burned—Aug. 30, Danby & Smith's elevator and mill at Moscow, Minn. Loss \$15,000. Insurance \$7,500. Fire supposed to be incendiary.

E. P. Allis & Co. of Milwaukee, Wis., received the order for four double 9 x 18 Roller machines from C. A. Gambrill Mfg. Co., Baltimore, Md.

The mill at Arcadia, Ind., will be much enlarged with machinery now being made by Nordyke & Marmon Co., of Indianapolis, Ind.

W. W. SNIDER, of Lyons, Iowa, visited Columns, Ohio, and left his orders with the Case Mfg. Co, for rolls, break machines and scalpers.

A two pair 9x18 Roller machine has been ordered from E. P. Allis & Co., Milwaukee, Wis., by Bierbauer & Hutton, of Fillmore, Minn.

ONE double 9x18 Roller Machine has been ordered from E. P. Allis & Co. of Milwaukee, Wis., by C. A. Donnel & Co, Conway, Iowa

E. P. Allis & Co. of Milwaukee, Wis., have the order for two of their Double Roller machines, from Smith, Stratton, Gifford & Co., Nashville,

E. P. Allis & Co., of Milwaukee, Wis, have received an order for a double 9x18 Roller machine, from May, Webber & Co., Watertown, Wis.

Messes. S. T. Emmons, of Homer, Mich., recently ordered from E. P. Allis & Co., of Milwaukee, Wis., two pairs of 9x14 Porcelain Rolls.

Six of Gray's Double Noiseless Belted Roller Mills have been ordered from E. P. Allis & Co., of Milwaukee, Wis., by the Centennial Mill Co., Avoca, Iowa.

Herzog & Roberts, of Racine Wis., have confided an order for 5 double 9x18, and 4 double 9x24 Roller machines to E. P. Allis & Co., of Milwaukee, Wis.

L. PLANTE, of Faribault, Minn. is remodeling his mill and putting in rolls, breaks and scalpers, manufactured by the Case Mfg. Co., Columbus, Ohio.

Three double 9x18, and one double 9x24 Roller machines have been just ordered by J. Stoly & Co, Pekin, Ill., from E. P. Allis & Co, of Milwauke, Wis.

ONE 9x18 Double Gray's Noiseless Belted roller mills, has been ordered from E. P. Allis & Co., of Milwaukee, Wis., by A. F. Ordway & Son, Columbus, Wis.

Two double 9x18, and one double 9x24 Roller machines have been ordered from E. P. Allis & Co., of Milwaukee, Wis, by A. F. Ordway & Son. Beaver Dam, Wis.

WILFORD & NORTHWAY, of Minneapolis Minn., have ordered recently 19 of Gray's Double Noiseless Belted Roller Mills, from E. P. Allis & Co., of Milwaukee, Wis.

Schrader, Maurer & Seiter, of Enon, Ohio, have placed their order with the Case Mfg. Co., Columbus, O., for a full gradual reduction mill on the Case System.

THE Case Mfg. Co., Columbus, Ohio, have just taken the contract of Jordon, Shounty & McFarland, of East Brook, Pa., for a full gradual reduction mill on the Case System.

THE Michigan State Fair, at Jackson, has awarded the highest premium, with gold medal, to the Atlas engine works, of Indianapolis, for the best slide valve engine on exhibition.

Two pairs of 9 x 18 Allis' Rolls, Gray's Noiseless Belt movement and patent frame, have been ordered by R. Ruston, of Evansville, Ind., from E. P. Allis & Co., of Milwaukee, Wis.

A large invoice of roller mills was shipped to Australia via New York recently by Nordyke & Marmon Co. of Indianapolis, Ind., for converting a 1,000-barrel mill to the roller system.

LATE deaths in the milling fraternity: Wm. Walker, Calumet Station, Prov. of Quebec, Canada: J. E. King, Bennington, N. H.; Samuel A. Smith, of Empire Mill Co., St. Louis, Mo. Massrs. H. Resener & Co's mill at Cheshire O., which was rebuilt by C. B. Slater & Co., of Blanchester O., have added rolls for finishing up their offal, Slater & Co., doing the work.

E P. Allis & Co, of Milwaukee, Wis, have recently made a large shipment of Rolls of all sizes to the Pacific Coast to meet the increasing demand for their machines in that region. The Stilwell & Bierce Mfg. Co., of Dayton, O, are having a large demand for the Odell Rolls, and are now making plans for a large number of mills in Ohio, Pennsylvania, Illinois and

Michigan. THE citizens of Henning, Minn., are very desirous of obtaining a good flouring mill, and are willing to give some inducements of a substan-

tial nature to any one who will erect a suitable mill there. A water mill has at last become an assured

addition to the young city of Vaaler. Minn., Mr. Tuff, of that place, having ordered a three-run outfit of Nordyke & Marmon Co., of Indianapolis, Ind.

THE well known firm of Shepp & Co. Tamaqua, Pa., have decided upon remodeling their mill, and are having their roller mills and other machinery made by Nordyke & Marmon Co., Indianapolis, Ind.

The proprietors of the new mill at Grand Rapids, Mich., recently built by Nordyke & Marmon Co., of Indianapolis, Ind., are jubilant over the results. The flour is highly spoken of all over the state.

C. B. SLATER & Co., of Blanchester O., are furnishing Mr. John Ribeyer at New Harmony, Ind., with two of their improved Bolting Chests, with Slater Reels, rolls for finishing up their offal, and other machinery.

THE EAGLE MILL Co., at Parkersburg, West Va., are about to give their mill a thorough overhauling, and have ordered their entire outfit, including the Slater Reels, from C. B. Slater & Co., of Blanchester, O.

Messrs. D. W. Barret & Son at Rainsboro, O., are enlarging their bolting capacity with Slater Reels, and are giving their mill a general overhauling. C. B. Slater & Co. of Blanchester O., furnishing the necessary machinery.

JUDGE RANDOLPH, of Princeton, Ky., has decided that a flouring mill would be a good investment, and with that end in view has purchased a two-run water mill outfit from Nordyke & Marmon Co., of Indianapolis, Ind.

THE Minneapolis Millers held their second picnic at Lake Minnetonka, Saturday. Aug. 19. The affair passed off very pleasantly. and we regret that it was impossible for us to picnic with them, in response to their courteous invitation.

A new flouring mill is being built at Batesville, Mo., for W. H. Gaunt. The machinery consists of three run of stones and engine besides the usual parts, and all came from the Nordyke & Marmon Mill Works, Indianapolis,

Ind. THE mill at Sweetwater, Tenn., which was about to be erected on the old millstone system, will contain nothing now but rollers, all of which together with the usual machinery will by Nordyke & Marmon Co., Indianapolis, Ind.

The water power at Columbus, Ga., is stated to be equal to 75,000 horse power, nine months in the year, and even at its lowest stage the water will give 37,500 horse power. Flouring, cotton, and other mills are there, but there is room for more.

The mill of Saigers Bros., at Allentown, Pa., is to be remodeled to a roller mill by tue Stilwell & Bierce Mfg. Co., of Dayton, Ohio A complete line of the Odell Rolls ar: to be used. The millwright work is to be done by A. N. Wolf, of Allentown.

THE well known Winona Mill Co., of Winona, Minn., has ordered from the Case Mfg. Co.. Columbus, O., a number of their 1st breaks and roller machines. They are now using 42 feed boxes in their mill, all furnished by the Case Mfg. Co., Columbus, Ohio.

M. H. Jackman, & Son, Louisville, Neb., W. Davis, Monroe, N. C., E. L. Blackmore, Aplington, Iowa, J. Burton & Co., Blanchester O., and John Dikes Monroe, N. C., have placed their orders with C. B. Slater & Co., of Blanchester O., for the celebrated Slater Reels.

Mellon & Gaiser, New Brighton, Pa., have placed their order with the Case Mfg. Co, Columbus, O., for a full gradual reduction mill on the Case System. This will make 4 mills the Case Co. has in Beaver Co. on their system.

ODELL Roller Mills have lately been contracted for by Rictor & Co., Williamsburg, W. Va.; H. S. Snavely, Junction Station, Pa.; B. S. Runburgh & Co., Sedalia, Mo.: Jas. L. Brownlee, Mondovi, Wis.; G. Frick, Chillicothe, O.; Stein & Trough, Pottsville, Pa.; Wm. Brenner, Atlanta, Ga.; W. G. Crabb, Clinton, Ind.; Jacob Snyder, Parksville, Ill.; W. D. Dorwin, Durant, Wis.; Crane & Hughes, Grand Ledge, Mich., and others. and others.

and others.

At Winfield, Kan., Sept. 9, W. H. Colgate was arrested, charged with setting fire to Bliss & Wood's flouring-mill, which burned some weeks ago. Colgate was a book-keeper of the mill, and his books are said to be in a bad shape. Another man was put in his place. Colgate in a fit of rage and frenzy at being discharged, set fire to the mill and books. The prisoner is an only son of J. B. Colgate, a banker and millionaire of New York, and founder of Colgate Academy at Utica. Messrs. Bliss & Wood lost heavily by his operation. his operation.

An Immense Success READ IT! READ IT!

OVER ONE YEAR IN OPERATION, GIVING SAME SATISFACTION AS WHEN FIRTS STARTED.

Fully Guaranteed. No Filling up of the Cloth. It is the only one which gives Satisfaction.

No Experiment any more. Try it and Satisfy Yourself. All the Leading Mills are adopting our Machines.

AN IMPORTANT PROBLEM SOLVED AT LAST.

Taking care of the dust laden air from Middlings Purifiers and other machines, using air to carry off the dust, has been thoroughly met and conquered in the highest degree by the

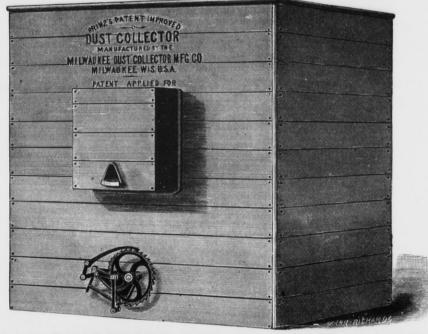
PRINZ DUST GOLLEGTOR.

After years of study and experiment success has crowned the labor of F. Prinz. He produced a machine, that will give satisfaction in such a manner that no miller would ask for anything better.

Simplicity is a Leading Feature in this Machine.

No Dead Air Chamber.-The dead air chamber, which has been a source of much trouble in other machines by wearing out and allowing the air to get in, thereby injuring the power of the cleaning mechanism on the cloth, which results in the cloth filling up, is entirely overcome in this machine, as it has NO DEAD AIR CHAMBERS.

Less Power is used with this machine than any other as there is no back press-



ure on the fan; the motion of the fan has to be reduced whenever this machine is applied.

It does away with the cumbersome dusty, dirty old-fashioned dust room, entirely, and the numerous spouts leading to them, which fill up the Mill, leaving no room to get around.

It Retains the Dust in the Mill, thus allowing no waste of stock by being blown out into the air as is the case with the old-fashioned dust room.

It does away with the liability of dust explosions, as the air coming from the machine is entirely free from dust, which is not the case with the air coming from any other Dust Collector offered to the milling public heretofore.

We the undersigned manufacturers CUARANTEE ENTIRE SATISFACTION in the use of this machine. Our machine does not infringe on any patent, which we fully guarantee; on the other hand we caution parties in purchasing infringing machines.

LOW PRICES FOR EXCELLENT MACHINES.

TESTIMONIALS.

MILWAUKEE DUST COLLECTOR MFG. CO.

Stillwater, Minn., July 24th, 1882.

Dear Sirs: Have made such inquiries as we are able, and upon such we increase our orders to four machines, adding three more for No. O Smith Purifiers.

Yours Respectfully,

J. H. TOWNSSHEND.

MILWAUKEE DUST COLLECTOR MFG. CO.

Dundas, Minn., Aug. 10th, 1882.

Gentlemen: We have been using the Prinz Dust Collector for the past year. We consider the machine a great success. It does its work well at all times.

Very truly,

E. T. ARCHIBALD & CO. Milwaukee Dust Collector Mfg. Co.

[Please mention the United States Miller when you write to us.]

AN OPEN LETTER

Office of J. B. Miller & Co., Ashley, O. Ashley, O., Aug. 15, 1882. Mr. C. F. Miller, Mansfield, O.

Dear Sir :- In reply to your favor of recent date, we have now been running about four months, and wish to say to you that your system of bolting, as adopted in our Roller Mill, has proved to be a great success, and your bolting cloth is certainly of very superior quality. We have not found it necessary to make any changes, since starting our mill, and we are very much pleased with results, both as to quality and yield of flour. In conclusion we wish to express th appreciation of your ability in arranging mills, to operate on the gradual reduction system.

Very truly yours,

J. B. MILLER & CO.

Flour Wanted.

Millers wishing to sell their Flour direct in New England at a small com-mission by a salesman who can furnish first-class reference, please address

> FLOUR SALESMAN, Box 2679, Boston, Mass

C. F. MILLER,

MANSFIELD, OHIO.

Materials and Plans for Stone or Roller Roller Mills furnished complete with all necessary appliances, and the most perfect system of bolting for Mills of any desired capacity. Genuine Zurich Silk Bolting Cloths by the piece, or made up with Webbing. Warranted best quality.

Mention the United States Miller when you write.]

ON'T BUILD A MILL until you write for Prices and Samples to the BODINE ROOFING COMPANY MANSFIELD, OHIO.

What Slater's Bolting Reels do.

The improvements in Alt & Co's Mill are complete and the Mill is again in full blast.

The Flour manufactured at this Mill is not surpassed by the finest brands made anywhere.-Effingham Times.

We are increasing the capacity of the Mill we built at Barnesville, O., for Carter, Wiesner & Co. last spring. They say they are making the best Flour in the county. Respectfully yours,

> C. B. SLATER & CO. Blanchester, Ohio, U. S. A.

Messrs. Carter Weisner & Co., at Barnesto any other manufactured in their county, and is getting a wide reputation. C. B. Slater & Co., of Blanchester O., who planned and built the mill, have been called upon to enlarge their is far superior capacity.

The Chicago. Milwaukee and St. Paul Railway Company is about to erect at Milwaukee a building 80 feet wide and 400 feet long, to be devoted to the manufacture of car wheels, and from it, when once in full operation, there will be turned out 150 wheels daily, or an annual product of 20,000,000 pounds of castings

THE Case Manufacturing Co. have just taken the contract to put their entire system in the "Canal mill" of Simon Gebhart, Dayton, O. Mr. Gebhart is one of the largest millers in Ohio, and is always on the lookout for the best in the way of machinery. He is one of the first in Ohio to adopt Gradual Reduction, which he did a year or two ago in his other Dayton mill. His brother, Joseph R. Gebhart, has just started up on the Case system.

THE Case Mfg. Co., of Columbus, O., write us that they will have a display of their machinery at the coming Exposition at Chicago. Millers of the North and West attending will be interested in this as the line of machines made by this form are this time traction. by this firm are at this time attracting no little attention. The company reports business brisk, and they are constantly adding to their force to enable them to get out the goods ordered. They have no traveling agents.

THE Franklin Millwright and Machine Shops of greater height, the old dam was submerged. are putting in considerable new machinery and doing extensive repair work for the Union Steam Mills. Among the more important machinery being added are a ten-reel bolting chest, a two-reel bolting chest, one run of middlings stones and 300 feet of detachable link bolting. The firm within the past year have belting. The firm within the past year have more than doubled their working force, and this coming fall will still further increase it. Recently the firm put in a new boiler at their works, the old one being too small to run all their machinery.

Messrs. Huntington & Koch, of Barton, Wis.,

have just started up their mill on the Case gradual reduction system, and from the tone of gradual reduction system, and from the tone of the local paper giving an account of it, we infer it has been a success from the start. The account says: "Their decision was made with great caution and deliberation, but their action then was quick and energetic. Only about two months ago they purchased at Columbus, Ohio, the 'Case roller system,' consisting of a series of seven sets of iron rollers for their Barton mills, and to-day they have them in full blast, manufacturing 100 barrels of flour, per day and of a facturing 100 barrels of flour per day and of a better quality than that of the world-renowned Minneapolis mills. We say that they make a better quality, because such is the fact. The Barton roller mills have all the yery latest improvements, and are in this point fully ahead of the Minneapolis mills. We are assured also by these gentlemen that their rollers are to day by these gentlemen that their rollers are to day ahead of anything in the state, and they are so admitted to be by competent judges from all parts of the state who are daily visiting their mills to see this new system working, and who invariably return home convinced that the 'stone age' in milling is a thing of the past. Orders are coming in thick and fast from all quarters for their flour, and they can choose their customers and fix their price themselves. Indeed it may be said that they are without competition to-day, although it is not at all probable that they will remain so very long for other millers will be quick to profit by their experience, and the day is likely not far distant when the roller system will be as general when the roller system will be as general in this country as the stone system now is."

LEGAL.

A. B and C owned the mills on a certain stream, and they built a reservoir for their mutual benefit, above the mills, the water of which was used in common for over thirty years. Then A erected a new dam below, and, it being a request and refusal to abate it.

A asserted the right to control the use of the water from the new dam, and B and C disputed his claim, and asked for an injunction against him. In this case, Adams vs. Manning, the Supreme Court of Connecticut. at the present term, decided that the injunction should be granted. Judge Parker, in the opinion said: The artificial use of the stream, by long-continued use, became its natural condition. The erection of the lower dam would not give to A any exclusive use of the water stored thereby, but by submerging the old dam A practically continued that in existence, and the rights of B and C in the old reservoir were continued in the new one. The judge added: When controversies arise between mill owners, each of whom has a separate right to the use of water to be drawn from a common reservoir for storage on irregularly recurring occasions of need, the time and manner depending upon the quantity in store the needs of others and established custom, it is the proper office of a court of equity to call them into its presence, and in one proceeding and by one decree determine their respective rights and obligations. A separate action at law to each for each wrongful detention or drawing will not furnish adequate relief practically no relief at all.

A Mill Dam Suit.

A raised a dam which set the water back on B's mill; C bought A's land, and B sued him for the damage he had suffered. In this case, Prentiss vs. Wood, the defense was made that, as the dam was raised in 1865, the right of B to sue was barred. The Supreme Judicial Court of Massachusetts, in April, in sustaining a verdict for the plaintiff, in the opinion. delivered by the Chief Justice (Morton), said: It is settled that a person who is injured by a continuing nuisance may maintain an action against the original wrong doer who creates it, or against any grantee who continues it after

The Little Giant Break Machines.



Single Break Machine, capacity 5 to 60 bushels per hour.

The rapid increase of our orders and wide inquiry for our Machines prove that the Case Reduction Machines are fast becoming the favorite system of Milling.

It is not an experiment.

THE CASE MANUFACTURING CO., COLUMBUS, OHIO:

ASHLEY, OHIO, JULY 24TH, 1882.

Gents:—We have been running your full system of Gradual Reduction for 90 days, and the result has been a fine one. It has been the cause of raising our flour \$1.00 per bbl., and increased our trade to such an extent that we are now way behind our orders. The Little Giant runs with little attention, and a better break can't be made from wheat. No fluff and but little break flour and a very even quality of middlings. We have made three tests on three different kinds of wheat. On Lancaster wheat we made a barrel of flour out of 42)-60; on Fultz and White wheat we used 430-60. Were we to fit up another mill we would certainly buy the Little Giant.

Respectfully yours,

J. B. MILLER & CO.



Double Break Machine, capacity 120 bushels per hour.

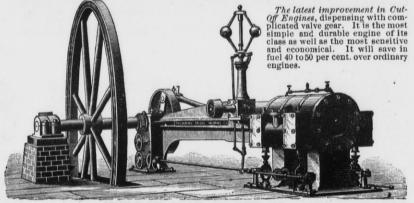
CO., COLUMBUS, OHIO.

MANUFACTURING CASE

OFFICE AND FACTORY, 5th Street, North of Naughten.

Please mention the United States Miller, when you write to us.]

"HOWARD" AUTOMATIC CUT-OFF ENGINE.



Built only by the MURRAY IRON WORKS CO., BURLINGTON, IOWA.

BUILDERS OF ALL KINDS OF ENGINES AND MACHINERY.

HARRIS-CORLISS ENGINE.

WM. A. HARRIS, Providence, R. I.

Built under their original patents until their expiration. Improvements since added: "STOP MOTION ON REGULATOR," prevents engine from running away; "SELF-PACKING VALVE STEMS" (two patents), dispenses with tour stuffing boxes; "RECESSED VALVE SEATS" prevent the wearing of shoulders on seats, and remedying a troublesome defect in other Corliss Engines, "BABBITT & HARRIS' PISTON PACKING" (two patents). "DRIP COLLECTING DEVICES" (one patent). Also in "General Construction" and 'Superior Workmanship."

The BEST and MOST WORKMANLIKE form of the Corliss Engine now in the market, substantially built, of the best materials, and in both Condensing and Non-Condensing forms.

The Condensing Engine will save from 25 to 35 per cent. of fuel, or add a like amount to the power and consume no more fuel. Small parts are made in quantities and inter-changeable, and kept in stock, for the convenience of repairs and to be placed on new work ordered at short notice.

NO OTHER engine builder has authority to state that he can furnish this engine

The ONLY WORKS where this engine can be obtained are at PROVIDENCE, R. I., no outside

WM. A. HARRIS, Proprietor.

[Mention this paper when you write to us.]

BOLTING CLOTH



Let it not be forgotten that we keep a very large stock of the genuine Dufour Bolting Cloth always on hand, and those who order that brand from us will always be sure to get the genuine article. In addition to this we keep con-

stantly on hand a large stock of Dutch Anchor Cloth, which we import direct from the manufacturers, in Switzerland, and is not sold by any other dealers in Bolting Cloths in this country. This we warrant to be equal to, and even superior, to any other brand in the market, except Dufour. We know what we say in this regard. Cloths made up ready for the reel in the best manner possible, by the use of our Patent Attachments, using the best of Ticking and Silk Twist. Please write us for prices, discounts, and samples of cloth and making, before purchasing elsewhere. Address.

HOWES. BABCOCK & EWELL.

[Pease mention the United States Miller, when you write to us.]

Silver Creek, .N Y.

We are the Sole and Exclusive Licensees for this Country under the

MORRITZ MARTIN

And we are now prepared to fill orders for machines with latest improvements, which include

OUR NEW DOUBLE CONVEYORS. NEW CLOTH FIXING AND STRETCHING DEVICE,

NEW AND SIMPLIFIED MANNER OF DRIVING. THE CENTRIFUGAL has more than FOUR TIMES the capacity of the ordinary reel, and will make clear flour and a clean finish on stock that cannot be treated in the common reel without loss, no matter how much silk it is passed over.

IT IS SPECIALLY ADAPTED to handling soft, reground material, full of light impurities, whether from rolls or stone. IT IS INDISPENSABLE to a CLOSE FINISH in any system of gradual reduction milling, and will improve the qualtity of the low grade flour at the same time it makes the offal cleaner.

IT MAKES A CLE AN SEPARATION on caked and flaky meal from smooth rolls, which no other style of reel can do IT IS VASTLY SUPERIOR to the common reel for dusting middlings.

THEY CAN BE USED TO ADVANTAGE as a complete system of bolting, to the exclusion of the ordinary reel.

Over one Hundred sold in six weeks. REFERENCE TO LEADING MILLERS IN THE UNITED STATES.

Write for descriptive circular and price list to

GEO. T. SMITH MIDDLINGS PURIFIER CO., - Jackson, Michigan.

[Please mention the Mnited States Miller when you write to us.

Policies of Insurance on all approved mpany has now sufficient members to y one Mill from \$1.000 to \$3.000. It relating to Insurance should be address. SCHUETTE, Sec., to

11 14 MILLERS

WISCONSIN

Manitowoc,

applications allow it to

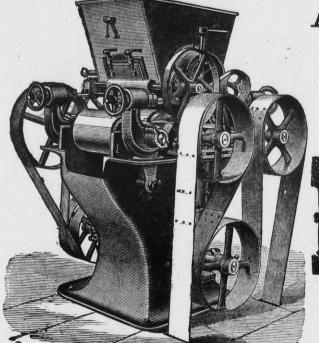
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EDW. P. ALLIS & CO.

MILWAUKEE, WISCONSIN.

MILL BUILDERS AND FURNISHERS,



AND SOLE MANUFACTURERS OF

GRAY'S PATENT NOISELESS

ROLLER WILLS

CORRUGATED AND SMOOTH CHILLED IRON ROLLS,

WEGMNN'S PATENT PORCELAIN ROLLER.

We shall be Pleased to hear from Millers contemplating an improvement in their Mills, or Building new ones, and can furnish Estimates and Plans of our system of GRADUAL REDUCTION ROLLER MILLING. We have built and Changed over hundreds of Mills, in all parts of the Country, and using all classes of wheat, BOTH HARD AND SOFT, and can furnish references on application. The Largest and Best Mills of this Country are using our System and Roller Machines. Messrs. C. A. Pillsbury & Co., of Minneapolis, have over 400 PAIRS OF OUR ROLLS AND HAVE RECENTLY PLACED AN ORDER WITH US FOR ABOUT ONE HUNDRED AND TWENTY MORE. We have had a longer and larger experience in Roller Mill Building than any other manufacturers of this country. There is no EXPERIMENT ABOUT OUR SYSTEM and Rolls, so expensive to millers, and when the mills that we build or change over are ready to start, THEY DO SO AND WITH PERFECT SUCCESS, and there is no further changing, additions, stopping or expense. We manufactured and sold during the year 1881 over TWO THOUSAND FIVE HUNDRED pairs

We can send competent men to consult with any millers who contemplate an improvement, and whom they can depend upon as being RELIABLE AND THOROUGHLY COMPETENT to advise them as to the number and kind of machines required, best method of placing them and the change required, if any, in the bolting and purifying system. WE DO NOT URGE A GENERAL CLEANING OUT OF ALL OLD MACHINERY unless we clearly see such would be the ONLY COURSE TO PURSUE to make a SATISFACTORY AND RELIABLE MILL. In nearly all instances we can use all the Old Machinery, leaving it in its original position, or with as slight a change as possible. We aim to make the Improvement so that it will be a Profitable one to the Miller, and at the least expense possible.

Our System is THOROUGH and RELJABLE, and our Roller Machine Perfected by Long Experience, and the Miller takes no chances in using them, as HE DOES with the New Fangled Notions of Drive and Adjustment on many other machines now TRY-ING TO FOLLOW OUR IMPROVEMENTS and still avoid our Patents, in BOTH of which THEY FAIL. We were the first to advocate the Entire Belt Drive, and were opposed by every other maker, who claimed it was not positive, etc., etc., and now that our Belt Drive is an ACKNOWLEDGED SUCCESS, and will SUPERSEDE EVERY OTHER STYLE, these advocates of Gear Drive have suddenly learned that Belts are the Thing. The same may be said of our Spreading Device, Feed Gates, and Adjustable Swing Boxes. Other Makers are now copying these. ALL these Features, including BELT DRIVE with ADJUSTABLE COUNTERSHAFT and TIGHTENER, the SPREADING DEVICE, FEED GATES, Adjustable Swing Boxes and Leveling Devices, Self-Oiling Boxes, etc., are secured to us by several Strong Patents, and we CAUTION MILLERS in regard to these Infringements of Our Patents and Rights, for we shall look to THEM for Redress. The matter is in the hands of our Attorneys, who will soon take VIGOROUS ACTION against the Makers and USERS OF MACHINES infringing Our Patents.

Several machines are already on the market which Broadly Infringe, and we are informed that other makers are now changing their Old Style Machines, and adopting in a large measure Our Improvements. BEWARE OF THEM.

Send for New Illustrated Catalogue, Giving full Information, to

EDW. P. ALLIS & CO.,

MILWAUKEE, WIS.

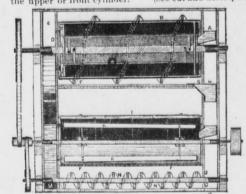
Branch Office 318 Pine Street, Benson Block, SAN FRANCISCO, CAL.

J. R. CROSS, Manager.

Frank Andree's Excelsior Centrifugal Flour Dressing Machine.

Economy is wealth, and this machine is economical in labor; economical in horse power; economical in repairs; economical in space; economical in price and rich in the yield, and thereby hangs excelsionship. The inventor, Mr. F. Andree has succeeded after many experimental efforts, in constructing a 'Flour Sifting Machine' on the 'Centrifugal Principle,' which will prove in effect the above combination of merits.

In Germany sitting machines have been universally adopted and scarcely will you find the common cylinder in use in any mills there, wind-mills not excepted. There are Centrifugal Machines in the market here, which in Germany sitting machines have been universally adopted and scarcely will you find the common cylinder in use in any mills there, wind-mills not excepted. There are Centrifugal have been universally adopted and scarcely will you find the common cylinder in use in any mills there, wind-mills not excepted. There are Centrifugal have been universally adopted and scarcely will you find the common cylinder in use in any mills there, wind-mills not excepted. There are Centrifugal have one offer a vastly superior one which we will try to bring under however do not deserve recognition of great merit, they being of the German discarded pattern, and will do where there are none better, but time and study improves, and we offer a vastly superior one which we will try to bring under however do not deserve recognition of great merit, they being of the German discarded pattern, and will do where there are none better, but time and study improves, and we offer a vastly superior one which we will try to bring under however do not deserve recognition of great merit, they being of the German discarded pattern, and will do where there are none better, but time and study improves, and we offer a vastly superior one which we will try to bring under the pattern of the pattern of



DESCRIPTION.

Through spout A the chop enters Front Cylinder B. Grit or Middlings, and flour pass through and the bran is taken by the catchflap in the Front Cylinder, separated and carried through opening C and spout D. The grit and flour passing through Front Cylinder B are carried by conveyor E backward to opening F and spout G, and deposited into the Centrifugal Cylinder H, then received by the screw-shaped wings K and evenly thrown against gauze-reel I. The flour will pass through the gauze, while the middlings remain, and is taken by the wings K and carried to the front, passing outside through spout L. The flour drops in the hopper, having at its bottom a double conveyor, thence passes outside through spout M.

This machine is built in one size, and its ability surpasses all expectations. The power required is but trifling, as only one-half of one horse power will suffice to produce This machine is built in one size, and its ability surpasses all expectations. The power required is but trifling, as only one-half of one horse power will suffice to produce This machine is built in one size, and its ability surpasses all expectations. The power required is but trifling, as only one-half of one horse power will suffice to produce This machine is built in one size, and its ability surpasses all expectations. The power required is but trifling, as only one-half of one horse power will suffice to produce This machine is built in one size, and its ability surpasses all expectations. The power required is but trifling, as only one-half of one horse power will suffice to produce the machine will suffice to produce a few powers and accomplish but half the amount of work.

The bottom frames, and its stationary. The bottom frame of the reed of the centrifugal Cylinder is covered on the inside with zinc, and the other two frames with bolting cloth. As most of the action is below, all wear is avoided in this new constructed or the power sufficient of the power sufficient in the produce with the grades coarsel bolting cloth fine or c

THE MACHINE CAN BE SEEN IN OPERATION ATQuincy, Ill. Chicago, Ill. | EAGLE MILLING CO ...

INDUSTRIAL EXPOSITION .. FRED VOLTZ, 676 Milwaukes Ave. Chicago, 11t.
INDUSTRIAL EXPOSITION. Milwaukee, Wis. NORTON MILLS, 3 West Madison Street Chicago, Ill. ... Oostburg. Wis. The above mentioned parties will at any time give desired information. All machines are built under the personal supervision of the inventor. Consignments made on ten days trial.

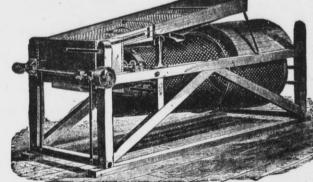
Any further information will be cheerfully given at our office.

[Mention the United States Miller when you write to us.]

F. ANDREE & CO., Sole Manufacturers.

330 East Division Street, CHICAGO, ILL.

COCKLE SEPARATOR MANUFACTURING COMPANY, MILWAUKEE. GENERAL MILL FURNISHERS



PLAIN COCKLE MACHINE.

CKLE SEPARATORS

Richardson's Dustless Wheat Separators!

Also Sole Manufacturer of BEARDSLEE'S PAT. GRAIN CLEANER.

We will contract to furnish entire Wheat Cleaning Machinery for mills, and guarantee the best results.

Send for Illustrated Catalogue.

WE GUARANTEE GREAT CAPACITY combined with GOOD QUALITY OF WORK. Any common Sieve will separate the cockle from wheat, but to separate it WITHOUT WASTE is the GREATEST FEATURE of our Machine. A WASTEFUL machine is a DAILY LOSS OF MONEY in a mill. There is NO MACHINE IN THE MARKET which can stand comparison with ours. Perforated Zinc at Bottom Figures. Minneapolis, Minn. Aug. 22, 1881. time with very satisfactory results. We

would not think of doing without it, having tried it once, and can conscientiously vouch for its good work.

Yours respectfully,

BROWN & WINFREY.

Perrysville, Ind., Nov. 24, 1881.

Cockle Separator Mfg. Co., Milwaukee.
Sirs:—The combined machine I bought of you has been running about three weeks. It certainly does all you claim for it, and is the most perfect Separator where it without wasting any of the small wheat. In my opinion every mill in the wast in have any knowledge of.

Yours respectfully,

B. O. CARPENTER.

W. T. PRICE,

per D. G. THOMAS.

P. S—I have been milling now for twenty-seven years, but never have I seen anything that will equal yours in cleaning wheat.

As an Oat Separator it is No. 1, and for Cockle it cannot be beat. I can take screenings and separate the cockle from it without wasting any of the small wheat. In my opinion every mill in the United States ought to have one, and if I were to build a mill I would have no other. I remain
Yours, etc.

The best device for regulating the FEED ON ROLLER

Carbondale, Ill., Dec. 2, 1881.

Cockle Separator Mfg. Co., Milwaukee.

Gentlemen:—Replying to your late favor, would say that we can cheerfully recommend your Cockle Separator as doing all that you claim for it. We have tested ours throughly by this time and know whereof we speak. We would not think of doing without it, having tried it once, and can conscientiously vouch for its good work.

Yours respectfully,

BROWN & WINFREY.

Hixton, Jackson Co., Wis., Dec. 30, '81
Cockle Separator Mfg. Co., Milwaukee.
Gentlemen: A will wankee.
Gentlemen: A will wankee.
Gentlemen: A will wankee.
Gentlemen: Brown in the combined machine I bought of you last combined machine I bought per hour through them, one third more Cockle Separator Mfg. Co.

Yours truly, CAHILL, FLETCHER & CO.

D. G. THOMAS. June has been in operation since that

cannot see that it breaks the wheat or We have been using two of Beards- requires an unusual amount of power Yours truly,

WILLIAM LISTMAN.

BEARDSLEE'S WHEAT CLEANER.

Milwaukee, Wis., Aug. 23, 1881.

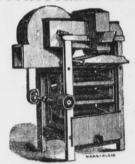
Gentlemen:-The Beardslee's Grain any other cleaners, and consider our Cleaners which we have purchased wheat as well cleaned as any in Minne-apolis. kee Mills give us the best of satisfac-tion. Experienced millers having seen the work done by the machine agree with us, that it cannot be beat. You are La Crosse, Wis., July 30, 1881.

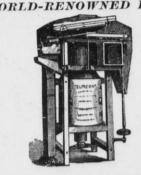
Cockle Separator Mfg. Co., Milwaukee.
Gentlemen: — The Beardslee Grain Cleaner sent me about the middle of June has been in operation since that

Pott's Patent Automatic Feeder! The best device for regulating the FEED ON ROLLER MILLS, PURIFIERS, and other machines requiring a regular feed, spread out the full width. Very cheap and Simple. Sent on trial upon application. Write for circulars with illustrations. Perforated Zinc of all sizes at low rates. Send for Illustrated Catalogue.

OWES, BABCOCK & EWELI

Silver Creek, Chautauqua County, New York, U.S.A. Established 1856. Established 1856. MANUFACTURERS OF THE WORLD-RENOWNED EUREKA GRAIN CLEANING MACHINERY AND SPECIALTIES HEREWITH ILLUSTRATED









Eureka Brush Finishing Machine



Silver Creek Flour Packer. Will pack whole and half barrels, and half, quarter, eighth and sixteenth barrel sacks. Provided with labor-sav-ing patent creveling steel coil spring regulating the packing to perfection.

occupies but little space, does its work in an effectual manner. Is also built for use in Elevators and Warehouses, with a capacity of from 100 to 1,000 bushels per hour.

Eureka Magnetic Automatic Separator.

Removes all metallic particles from a flowing stream of particles from a flowing stream of cleaning.

Eureka Brush Finishing Machine Recognized as the leading one of this class of machines. Universally recombined for inishing the process of machines. Provided with labor-saving patent creveling steel coil spring regulating the packing to perfection.

GENUINE DUFOUR AND ANCHOR BRAND BOLTING CLOTHS.

Office and Warehouse in England, 16 MARK LANE, LONDON, E. C.

Gen. Agency for Australian Colonies & New Zealand, THOS. TYSON, MELBOURNE, VICTORIA.

Abernethey's New Book.

PRACTICAL HINTS

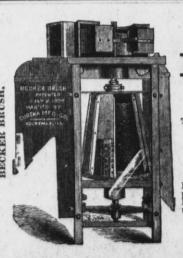
Mill Building.

The Latest, Best and Only Exclusively Flour Mill Work in Print.

Every Miller, Millwright and Millwright's Apprentice should have a copy.

THE UNITED STATES MILLER for one year and a copy of this book will be sent for \$4.00, Address,

UNITED STATES MILLER, Milwaukee, Wis



EUREKA MANUFACTURING CO.,

Manufacturers and Sole Proprietors of the

BECKER BRUSH,

Galt's Combined Smut and Brush Machine. The Only Practical Cone-Shaped Machines in the Market, and for that Reason the Best.

ADJUSTABLE WHILE IN MOTION.

Nearly 1,000 of these Machines in Use.

In the United States and foreign countries, and so far as we know all that use them are pleased. Millers, millwrights, and milling experts claim the Cone Shape Solid Cylinder Brush is the true principle to properly clean grain. All machines sent on trial, the users to be the judges of the work. For price and terms apply to

EUREKA MANF'G CO., ROCK FALLS, ILL., U. S. A.

[Mention this paper when you write.]

