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COST OF THE NATION'S FOOD.

An interesting branch of Mr. Edward Atkinson's discussion of the "Distribution of Products" relates to the aggregate annual cost of the nation's food supply, the average cost of individual nourishment, distributed among the various articles of consumption, and the profits of retail traders. In addition to the matter contained in his book, Mr. Atkinson has favored us with the graphic illustrations which are presented below. The scope of the inquiry may thus be easily grasped.

In the first place, it is evident that a definite average cost of subsistence can be reached only through the collection of a wide range of data. Exact information upon this point cannot be easily obtained. Certain of the bureaus of statistics of labor, however, have turned their attention to this subject, and others will doubtless do so in course of time, so that by and by the relative proportions and cost of the food consumed by families throughout the country may be perfectly well known. Such information, Mr. Atkinson thinks, would help forward improvements, in the distribution of food.

But, while hard and fast decisions cannot yet be laid down, some suggestive conclusions may be drawn from such facts as are at hand. Two sets of expense bills are made the basis of the author's study. One of them presents the actual cost of feeding seventeen adult men, most of them mechanics hard at work, and eight women, three of whom were servants, for six months in 1884, in a manufacturing village of Massachusetts. The other statement shows the cost of the food eaten during the same period by seventy-two adult female factory operatives and eight servants in Maryland. It may be assumed without violence that the average of these two tables would be no more than a fair daily ration for all adults. Table A shows the two rations, separated under eight heads, and their average per day, per week and per year, and also the sum and proportions of this average, if served to a population of 57,000,000 computed as equivalent to 50,000,000 adult consumers, as the population of the United States is now or soon will be.

Mr. Atkinson's comments on the facts here presented are highly entertaining and instructive as well. Looking first at the various kinds of food it will be seen that the consumption of flesh at the Massachusetts table is much greater than in Maryland, due, no doubt, to the circumstance that the sharers in the former are mostly men and the latter women. Perhaps the same thing is true of the use of milk, cheese, butter and eggs. A more detailed statement of the Maryland expenditures would show a very small use of cornmeal as compared to wheat flour, a great quantity and variety of vegetables, an absence of the New Englanders' fish-balls and baked beans, and a large proportion of beef to all other meat. Nearly every one, Mr. Atkinson says, will be surprised at the relative cost of sugar as compared with flour. But these instances are not exceptional—such is an almost universal rule, although the Maryland women unquestionably ate a disproportionate quantity of sweetstuff. The enormous value of dairy products made way with is also striking

Returning again to the first and second columns in the table, it appears that, at the average prices and amounts reported, each of the Maryland operatives consumed daily one-half to two-thirds of a pound of meat, one-half pint of milk, one and one-half ounces of butter, one-half an egg, three-fourths of a pound of bread and two and one-half to three ounces of sugar. At the same time the Massachusetts mechanic's ration included one-half pound to one pound of meat and fish, according to kind and quality, flour and meal sufficient for three-fourths pound to 1 pound of bread, three to three and one-half ounces of sugar and syrup, and one-half to two-thirds of an ounce of tea and coffee. On the basis of these and other data Mr. Atkinson says that an ample and varied supply of nutritious food can be supplied in the eastern parts of the United States at a cost not exceeding 20c. a day or $1.40 per week, and probably for a less sum in the West, provided it is judiciously purchased and economically served. At the average rate above shown, which is in excess of this estimate, the food of the nation cost last year $4,340,500,000.

Carrying out this computation a little further, the estimate is reached that the whisky and beer bill of the American people amounts to about $400,000,000 per annum. Altogether, therefore, food, drink, domestic fuel and light cost consumers $4,500,000,000 to $5,000,000,000, and clothing, carpets and other textiles over $1,500,000,000 a total of $6,000,000,000 to $6,500,000,000 out of a value of $10,000,000,000 to $10,500,000,000 of total annual product. The proportionate expenditures of the people of the United States last year for food, clothing and shelter for the increase of population, it may be said in passing, appear to have been as shown in table B.

It will be observed that the supplies of food under consideration represent purchases made in considerable quantities and substantially wholesale prices—the supplies of large boarding houses. No one can doubt, Mr. Atkinson points out, that the actual cost of food prepared for use in workingmen's families would be 25 to 40 per cent. more than the above standard of 20c. a day in the more densely populated parts of the country, or else if only 20c. a day were spent it would fail to yield so good a subsistence as is obtained in the establishments cited, for want of skill both in buying and cooking. The rations indicated are no doubt above the average, both in quantity and variety, especially in respect to the colored and poor white population of the south. But very few working people anywhere enjoy so ample and good a ration as either of these for 20c. or even 28c. a day.

The question whether the retail cost of the food of the poorer people, who are compelled to buy in small quantities, cannot be reduced in some way is one of great importance. It appears that in New York or Boston the cost of bread is less than 3c. a pound, and that it can be profitably sold at ½c. a pound profit, or at 6c. for a loaf weighing 1¼ pounds if the sales are made on a large scale over the counter for cash. But the price of bread in Boston in the small shops is 5c. to 8c. a pound. Fish, meat, vegetables and fuel are sold in small quantities at quite as great an advance on the first cost. Four bushels and a half of wheat, worth $3.60 in Dakota, becomes a barrel of flour when milled, and the bread made therefrom has cost all told, when ready for distribution, 3½c. per pound, or $10.92. For this bread the poorer people of Boston pay the baker $18.

In addition to ordinary retail profits the consumer pays the penalty of waste, most articles of food being subject among Americans to great waste in cooking and consumption as well as purchasing. This is a matter of the utmost moment for the common laborer in a large city. And accordingly Mr. Atkinson adds: "Cannot a waste of food equal to 5c. a day on the average be prevented? Whoever teaches the masses of the people how to get 5c. worth a day more comfort or force out of the food which each one consumes will add to their productive power that would be equivalent to $1,000,000,000 a year in value. Cannot bread be served to the workmen of Boston at 3c. a pound as well as in New York or in London. Cannot methods be adopted for bringing milk and vegetables within easier reach of the poor?

TABLE A—COST OF FOOD PER INDIVIDUAL AND PER AGGREGATE OF POPULATION.

	Per Individual.					Total population of 50,000,000 per year.	Relative Amounts of Each Kind.
	Cents per day Md.	Cents per day Mass.	Cents, average per day.	Average per week.	Average per year.		
Meat, Poultry and Fish	7.58	11.82	9.70	$0 6790	$35.31	$1,765,000,000	
Dairy and Eggs	3.84	7.37	5.60	.3920	20.38	1,019,000,000	
Flour and Meal	2.09	2.90	2.50	.1750	9.10	455,000,000	
Vegetables	2.39	1.58	1.98	.1386	7.21	360,500,000	
Sugar and Syrup	1.98	1.90	1.94	.1358	7.06	353 000,000	Considerably above an average consumption.
Tea and Coffee	0.86	1.18	1.02	.0714	3.71	185,500,000	
Fruit, Green and Dry	0.50	0.73	0.62	.0434	2 26	113,000,000	
Salt, Spice, Ice, etc	0.46	0.52	0.49	.0343	1.78	89,000,000	
TOTALS	19.70	28.00	23.85	$1.6695	$86.81	$4,340,500,000	

TABLE B—EXPENDITURES FOR FOOD, CLOTHING AND NEW SHELTER.

1. Food on the basis of the rations served to factory operatives in Maryland and New England. Drink, as recently computed by David A. Wells.

Food.....$4,340,500,000
Drink..... 474,823,000

Total.....$4,815,323,000

2. Clothing ready for use, carpets, blankets, laces and all other articles made from vegetable or animal fibres, on the basis of a computation from the census returns, the figures of the imports and an estimate of the cost of converting cloth into clothing.

Clothing, etc. $1,740,000,000

3. Shelter for the increase of population, now approximating 2,000,000 per year, on the basis of one dwelling or part of a dwelling to each five persons, at an average cost of $500, or $100 per capita.

Shelter..... $200,000,000

TABLE C—ARABLE LAND COMPARED WITH THAT UNDER CULTIVATION.

	Sq. Miles.	About ½ Arable.	¼ Grazing.	¼ Mountains Forest and Mines.
Total area United States	3,000,000			
Indian Corn	90,000	At 31 bushels to an acre will produce over 1,800,000,000 bushels—about the crop of 1884. At 5 pounds corn to 1 pound pork, one-half the crop would give 33,000,000 casks of pork.		
Dairy and Eggs	60,000	At the ratio of 1 cow to 2 acres would sustain 19,000,000 cows. Number in 1880, 12,500,000. By means of ensilage and cottonseed meal two cows can be sustained to 1 acre of cornstalk.		
Wheat	60,000	At only 13 bushels to an acre will yield over 500,000,000 bushels.		
Mutton and Wool	40,000	At 5 sheep to an acre, 102,400,000 sheep; at 4 pounds per sheep, 409,600,000 pounds.		
Beef	30,000	At 1,100 pound meat per acre, 1 pound beef per day for 58,000,000 people. By means of ensilage and meal from the corn area this can be done, whether at a profit or not remains to be determined.		
Cotton	20,000	At half a bale to an acre, 6,400,000 bales.		
Total assigned	300,000			

Corn, wheat and cotton, actual on our present wasteful modes of agriculture.
Dairy products, beef, mutton and wool possible, but not probable for many years

Cannot the distribution of meat, bread, fish, vegetables and milk be organized and made profitable with large sales at small profits as well as the distribution of calicoes, blankets and petticoats?"

Granted that these questions can be answered affirmatively, the whole tendency of the inquiry is to refute the dreary doctrine of Malthusianism. The rate of wages measures the laborer's share of what is produced but the total annual product of the country's industries, Mr. Atkinson contends, is in excess of all the wants of our whole population. "The rate," he says, 'would suffice for an ample subsistence for every man, woman and child in all our broad land, if only the mechanism and the metaphysics of distribution could be brought within the rules of social science." What this means is indicated in part by Table C, which shows that the possibilities of the soil of the United States for the production of food have as yet hardly begun to be made use of. The area of the United States, omitting Alaska, is substantially 3,000,000 square miles. In Table C will be found a comparison of the total area of arable land, with the areas actually under cultivation, in grain and cotton (in round figures, disregarding fractions), and the areas which would suffice for meat, dairy products and wool, if special modes of agriculture now in use should become general. —*Bradstreets.*

THOSE PLAGUY BELTS.

How many pounds of lace leather do you use in a year? Figure it up and see what it costs you. Figure up how many inches of belting you waste every year by cutting off the ends where the hooks or lacing has broken out, and then figure how many hours have been wasted in stopping to lace belts. Get all these figures down fine, and then go to town and learn to make a cement joint. Get some leather cement if you want to, or get some "isinglass" or fish glue, and make the cement yourself. Use oue part fish and two parts of common glue. Cut the belt just once and a half its width too long. Scarf the ends a distance equal to the extra length. Make the scarf very smooth by finishing with a smooth plane. Take a very little hot cement on the brush, and work it into the splice. Rub both ends until it is just wet—not covered. The less cement you get into the joint the stronger it will be. Put the splice together on a hardwood board, or, better still, a smooth iron. Hammer lightly with a round faced hammer, and then drive a row of shoe pegs all around the splice. Don't try to drive the pegs with the belt on iron. You want a soft pine board for this business. After pegging, trim with a sharp knife. Cut all the pegs off close to the leather. In ten minutes the belt will be ready to go to work. It would be better if it could stand an hour or two after splicing, but the glue sets very quickly, and a joi t seldom comes apart. Try the cement joint and see how much nicer everything runs. Put a cemented belt on one pulley of an upright molder and run the other spindle with a big laced joint. What a difference you find. The laced belt makes you think of a shaker to a grist mill, while the cemented belt runs smooth and nice, and you don't hear it at all. Try cement joints. Put them in big belts, little belts, old belts and new belts, and you will never use another piece of lacing or another belt hook.

It takes longer to make a cement splice. You can lace three belts while you are cementing one, but you have to lace that same belt four or five times before one cement splice gives out. Figure that up, too, and put it beside the pile of lace leather and torn belt ends, belt hooks and malleable iron clasps. Last week we went into a mill where the belts all ran true, straight and silent. Every splice was cemented. Not a laced joint in the mill—and there never will be as long as the present owner runs it. If your belt stretches and you want to take it up you can cut it at any place. If a certain spot has stretched, you can cut it there and straighten to suit. Perhaps it is a very short belt and will not bear to have a "row of holes" cut off of it as you would have to do with a lace belt. You can cut a quarter of an inch or less from a cement joint, and get the belt

just long enough. Patched up belts are poor things to have. Pieces two, three, four and five feet long laced into a belt don't carry the power as it should be carried. Cement all these odds and ends together, and you will have a piece of belting that will surprise you. A mill hand will never mend a belt as long as it holds together. It may be torn half way across, or the lacing broken and torn, but it has got to run until it breaks clear off and comes flopping down around his ears, or winds up around the shaft and proceeds to thresh three feet of belt against gas pipes, shippers and the floor until the men above think the room below is full of condensed earthquakes. When the mill hand gets this belt down and mends it, he will work a piece of five-inch into that six-inch belting every time, unless you stand over him with a club, and then he will get a "twist" into the belt and have to take it apart again.—*Lumber World.*

WHEAT CLEANING.

Some one has said that "wheat well cleaned is half milled." This may be putting it a little strong, but it is a fact that improperly or cleaned wheat can never be well or properly milled; it can be ground, bolted and packed in barrels or sacks, but it will not make good, white, clean flour. It is not our intention or purpose to write a treatise upon wheat cleaning, yet a few ideas and suggestions, gathered from an experience of nearly thirty years in building and adapting machinery for properly handling and cleaning wheat of all kinds and qualities, and in all conceivable conditions, will not be deemed inappropriate in connection with this descriptive catalogue of our manufactures. First, please take into consideration the fact, that in the construction of a mill, the machinery for cleaning the wheat is the most important. If that class of machinery is defective, the wheat will be imperfectly cleaned; and if the balance of the machinery for reducing wheat to flour is all first-class, the final result will be unsatisfactory. In a mill of any considerable capacity, a full line of cleaners, consisting of the milling separator, the combined smut machine and the brush machine, should be used in the order here given. In some instances, between the separator and the brush, two smut machines, used continuously, are thought to be advisable to thoroughly and economically clean and fit the wheat to be manufactured into flour. Wheat, as it comes into the mill from the farmer or the warehouse, has incorporated with it many loose, extraneous snbstances. The removal of these, while essential, is comparatively easy of accomplishment by the aid of the mill separator, provided with a series of graded sieves and powerful air suction. Attached to the wheat berry, however, are impurities of many kinds—fuzz, smut, etc., etc.—the removal of which is a matter requiring time and specially devised machinery. Our experience has demonstrated that these adhering impurities are best removed by frictional contact of the wheat upon itself, and smooth surfaces in the scouring case, and actuating device by which the frictional contact is kept up. Roughened surfaces or projections of any kind in the casing in which the cleaning, scouring or smutting is being carried on, have a greater or lesser tendency to abrade the bran of the berry, and this, for reasons that are obvious, is highly undesirable. The smutter or scourer should be *thoroughly ventilated*, and in such a manner, that as soon as any particle of impurity is freed from adhesion to the wheat berry, it may *escape* through the *perorations* of the scouring-case; more than this, it should be forced out, because, if permitted to remain, it will, if of a smutty character, be rubbed on and into the crease of the berry, to be freed therefrom only as the reduction of the wheat to flour takes place, and will thus become incorporated with the flour, from which no-after process of separation will remove it. Our idea of perfect cleaning is, that the wheat, in addition to thorough ventilation while scouring, should pass through a strong current of air before it goes to, and after it leaves, the smutter. Where this system is followed, each machine, if properly constructed, will handle the material lightly and without waste, and when it has passed through the whole line, the smut, dirt and filth will be effectually removed, leaving the bran intact, and not liable to be pulverized in the process of reduction, or to be mixed with, and darken, the flour. Another important consideration in selecting a line of machinery for cleaning wheat, is to select the whole from the same manufacturer; when machines to constitute a full line are ordered—say one or two—each from different manufacturers, the result is invariably unsatisfactory, for the reason, if for no other, that the number of machines used by the different manufacturers do not correspond in capacity; in such cases the result can easily be imagined. In selecting machinery, be careful to select the best.—*From Howes & Ewell's Catalogue.*

THE SMALL SHOP.

The large factory in this country has to a great extent superseded the small shop, the latter not being generally able to compete with the better facilities and greater capital of the former. Yet it is not an assured fact that the small shop will be permanently abolished, at least so far as many lines of manufacturing are concerned. The profits of the small maker must necessarily be greater *pro rata* than those of the large maker, but there are some kinds of work that can be done to better advantage in the small shop, and which, owing to favorable facilities, can be made at a remunerative price. In some countries, notably Russia, Germany and Switzerland, the small shop system prevails, and is likely to continue for many years. But generally speaking, there is little chance for the individual workman or the very small manufacturer to hold his own against large establishments where steam power is applied to the running of numerous machines, especially where automatic machinery is employed.

However, something may be said against large shops. In these institutions there are frequently found wasteful methods. There is waste in fuel, in the use of material, in the manner of producing, in the employment of labor, and scores of ways which cannot be foretold. On the other hand, it must be remembered that there is a large margin for such waste. Thus in a works where 5,000 machines are annually turned out, a profit of $5 on each machine would give a very respectable aggregate on the year's business; but a small maker who could not produce over 50 such machines in the year could not afford to make them for less than $10 profit per machine, even could he produce at the same cost as those made in the large works. Here, then, is a margin for wastefulness of $25,000 a year in favor of the large works. In other words the latter could not compete with the small maker and yet suffer the above large loss. But if the small maker can produce a better machine, or one more salable, or can introduce some cheapening process whereby he can reduce the comparative cost of his productions, he may be enabled to hold his own even against the greater capital and better facilities of his competitor.

There are some things which may be produced to better advantage in the small shop—such as require fine hand work or very accurate mechanical skill applied to small details of work. The artist painting his picture in the quiet of his studio can unquestionably do finer execution than though working amongst hundreds of fellow artists. Quiet and repose of mind are essential to the performance of the highest duties pertaining to artistic or mechanical labor. While the artist or machinist—and the latter is often an artist—may do excellent work even amid surrounding noise and confusion, it is rarely that one is found who can do his best under such conditions.

It is probable that home-work or small shop work will be greatly facilitated by the introduction of small motors and handy but inexpensive machinery. This will be true particularly in cities where compressed air or steam power will be supplied to small users, who will have to pay for only so much power as they employ, and who will not be required to erect an expensive plant in order to supply their limited wants.

There is much to be asserted in favor of small shops, and indeed there is much to be argued against them. The owner may be said to be his own master, but this is in a sense true of the workman in the large establishment. To the owner of the small shop there are always before him great—we might say unlimited—possibilities. How many of our noted manufacturers have risen by successive stages from the small shop? The maker of a hundred machines may some day become the maker of ten thousand. The owner of the small shop is master of his time, and may devote a share of it, if he chooses to self-improvement—a wise thing to do. But with this broad liberty there are coupled duties and reponsibilities. In times of business depression, losses and cares come upon him, and he has no one to share them with. The workman, on the other hand, at worst only suffers a diminution in his wages, and the greater loss falls upon his employer.

The small shop owner, to realize the greatest success, must not only pay a due regard to close methods of economy, but he should also employ the best material and the best skill. It is very essential that great attention should be given to these matters, for reputation for producing superior work is an excellent capital, and often does more than money can do towards building up a business.—*Industrial World.*

HOW CLEVELAND DEFEATED THE BOASTING CHECKER-PLAYER OF THE VILLAGE.

There comes a pleasant story to my ears of President Cleveland, says a writer in the *New York Times*. "Cleve"—his title in the days I write of—happened to be spending a few days at the home of a relative in a reposeful hamlet. The young man's visit was during the winter, when the place was desolate and dreary enough. When he got his bearings, tired of tramping about in the snow and ice, he sometimes dropped into "Uncle Silas's," the village store. One gray-skied afternoon he came upon the regulation circle of gossips. One of the characters of the place was sandy-haired, small-eyed, pucker-faced Ike Sanders, a prodigious boaster. This local Sir Oracle was a confirmed checker-player. Lazy and shiftless, the long winter hours were passed by him up at Uncle Silas's, where from a favorite corner he watched for victims. On the afternoon that Grover entered the excitement over in the corner seemed to be running over. A mild-faced, middle-aged little man was nervously bent over Ike's slow and impressive moves on the checkers. The game was close, and Sanders's opponent, no other than the village schoolmaster, had held a slight advantage; suddenly Ike surrendered one of his men to the foe, who promptly seized the opportunity. Another man was yielded, and the trap became apparent, and the devoted dominie rushed to his ruin.

"Ha-ha! ho-ho! Why you can't play checkers any more than you can scrape the sky," was Isaac's taunt as he grasped his victory.

The poor schoolmaster, his thin cheeks pinking with mortification, shrank back with a faint excuse for his defeat. Ike carelessly rearranged his draughts, boastfully placed the board over on the firkin, and looked up with a challenge in his eye. "Say, Uncle Silas," he called out, "have ye got anybody else thinkin' they can play checkers here? No? Well, put the board away." Uncle Silas admitted that Isaac was master at the game, and was making preparations to place the checkers on the desk, when the young stranger pitying the defeated schoolmaster, found voice:

"I say, Mr. Sanders, would you mind trying a game with me?"

"With you? Sho, young fellow, you don't want to play against Ike Saunders!"

"Well, I would be willing to try."

"Oh, come; you can't play nothin' against me; I'm tired of beatin' this village, anyhow; now take the advice of a friend, and don't waste your time, young man."

"I might give you some trouble, though."

"Humph! you're sassy enough about it, and to take down your conceit a peg or two I'll let you have a game."

Once more the firkin was moved into place, and the knot of spectators peered over the shoulders of the contestants, and old Silas again resumed his wonted attitude. As the game advanced there was no sound in the room save the clatter of the wooden blocks as they were changed from square to square. The young player's black men wedged themselves boldly in among the "whites." Isaac began to pucker up his thin lips. Soon his fingers opened and shut nervously as his fist lay against his hip and his left foot tapped impatiently on the pine boards. His moves became hasty and his manner irritable. Lookers-on took in the situation; glances of relief were interchanged, some bolder ones nudging their neighbors, and soon half-suppressed snickerings were heard. Ike didn't "know what folks meant by disturbing the game." When a few more moves effectually placed him in coventry, and his remnants were completely hedged in he began really to understand; his under lip dropped, and he had only voice enough to murmur: "Wa'al, the first game's yourn, and that's all ye kin reckon on." The second game started. The result was as before. Ike's enemies crowded round to see him "put down by that there young Grove. Cleveland." Another and another victory was wrested from the crestfallen Ike. When the fifth contest failed to change the tide, Sanders, unable to control himself longer, dashed board and checkers to the floor, and pushed his way out through the door, followed by jeers and laughter from former victims now become tormentors. Young Mr. Cleveland received enthusiastic congratulations, his eyes flashing triumphantly and a smile lurking in the creases of his chubby face. It is related he only laughed quietly the next day, when he heard the dictum of Mr. Isaac Sanders, which has made a good many folks in these later days rank plagiarists: "Some folks do have dod-gasted luck!"

A GROWING ENTERPRISE.

THE MILLERS' AND MANUFACTURERS' MUTUAL INSURANCE CO.

[From the Northwestern Miller.]

A representative of this Journal who recently called at the offices of the Millers' and Manufacturers' Mutual Insurance Company of Minneapolis, Minn., found Secretary Shove buried up to the eyes in business, but managed to hold his attention while putting a few questions regarding the condition and prospect of the company. Mr. Shove said:

"This company was organized in 1881 with a charter which gave the company the privilege of writing only on flour mills, manufactories, elevators and their contents. The flouring mills of the west as a class are either so poorly constructed, or their management is so indifferent that financial reverses seem to produce ash piles rather too often to be remunerative to other classes of property insured with them. There is also as much difference as to construction of flour mills as in any manufacturing establishments, and until the time comes when flouring mills are built with a view to permanency, filled with improved modern machinery, so well ventilated and roomy that they may be kept clean, constant care and caution used, built in a position where the surroundings will warrant a mill from a financial standpoint, some other classes of risks are better for the company. A mill thus described, of which we have a goodly number, this company will write on freely. By extending our business on to other first class property we can weed out those indifferent mills, running down our loss ratio, thus making a saving larger than we otherwise could do, and return to our members having good mills a dividend large enough to stimulate them in making the modern improvements for protecting their property."

"Have you changed your rules and instructions?"

"Yes sir," was the reply. This company will in future be governed by the following rules, viz:

"Doing all business direct with its members.

"Paying no commissions to agents or brokers.

"Selecting the risks to be insured.

"Making all policies large enough to warrant an inspection of the risk from two to six times a year.

"Exacting from its members full compliance in every respect with the demands of thorough, tried inspectors.

"A careful study of risks assumed morally and physically, as well as the surroundings.

"By adhering strictly to these principles a large saving will be made to our members in the way of commissions, brokerage and dividends, which stock companies must pay. By avoiding these items this company of necessity will have a much lower loss and expense ratio."

"What other regulations do you rely on for building up your business?"

"By following the course of systematic inspection our members will soon become educated as to where their danger lies and will remedy all defects, as there is no business to which the old saying, 'An ounce of prevention, etc.,' is so applicable as in fire insurance. With care, order, cleanliness, steam pipes well secured, safe heating and lighting apparatus, buildings of good construction, the cost of insurance will be light and our members will soon see that the position taken by this company is to prevent fires rather than pay losses. The lower we can get our expense and loss ratio, the greater will be the returns to our members. When we can, so to speak, make the insured and the company's interests identical in preventing fires, then will success be attained and losses brought down to a minimum. Thus, we may say, the higher the standard toward perfection that we reach, the lower must be the rate."

"How does this policy compare with that of the stock companies?"

"The position taken by stock companies is the opposite. The rate made by them is based on their losses, expenses and dividends—the result of doing a promiscuous business, without regard to kind or character. This last assertion may be denied by our stock brethren. However, that may be, it is safe to go farther and make the statement broader, and say there is not a risk in the northwest that is so bad, or the moral hazard so questionable, that it will not find a ready taker among the stock companies. With mutual companies it is never so much a question whom they can get to insure, as whom they will accept. In other words, they make it a privilege to hold their policies. It is useless for you to fight against the rate made by stock companies, unless you use the one weapon, mutual insurance, as when it is once known that a party is prepared to join mutual companies, a reduction in rate soon follows for that party. This company enters the insurance field to write only upon such risks as mentioned above, letting the poor risks seek indemnity where they choose."

"Who are the officers of the Millers' and Manufacturers' Mutual?"

"Wealthy, reliable, conservative, shrewd and popular business men, who are at their desks every business day. E. R. Barber, of D. R. Barber & Son, is president; C. McC. Reeve, of the Hall & Dann Bbl Co., vice president; V. G. Hush, banker, is treasurer, and your humble servant secretary."

"What is the financial condition of the company?"

"The following statement will answer that question. I am proud of it, and don't think you will want a better answer:"

Contingent fund	$187,478.81
Loans and discounts	10,389.36
Cash on hand and in bank	29,938.75
Due from other companies	3,246.01
Office furniture	863 96
	$231,915.99

Liabilities—None.
Losses paid since organization, four years $115,523.43

THE FLOUR MILL EXPLOSION AT WURZEN.

On the 1st of March last, an explosion of flour took place in the steam mill of Mr. G. Schoenert, at Wurzen, Germany, which ranks next to the memorable explosion in the Tradestone Mills, Glasgow, in 1871, and the one in 1878, in Minneapolis, by which latter five large mills were destroyed. Dr. H. Sellneck, president of the Saxon Millers' Association, writes that he was invited by the proprietor to examine the ruins on the afternoon of the day on which the explosion occurred, and he gives the following details of what he saw: The ground floor and the two next floors of the principal building were in ruins; the walls of the upper story were also entirely destroyed, as well as three sides of the second story. Iron girders and iron columns were twisted in all directions; the outer buildings and the boiler-house were likewise broken down, and the party walls destroyed. Thirty feet from the scene of the explosion a carriage was found entirely destroyed by the debris, which the force of the explosion had hurled this distance. The appearance of the building, with its partially demolished roof, dislocated and twisted girders, bent worms, and blackened walls, was heartrending, and the curious might well ask, were all these things caused by flour? With the exception of several windows, the mill, in which there were 12 pairs of stones, a number of roller mills, and purifying and dressing machinery, had not suffered; nevertheless, the explosion ca ised immense agitation amongst the workmen, of whom 14 were injured, but none seriously.

The Inspector of Factories, Mr. Morgenstern, who had been informed of the cicumstances, accompanied me in my voyage of inspection. Examined more closely, we found that the building destroyed was about 5 metres by 9 metres, and divided in two by the floors; half had been used as a warehouse, and the other half as a flour mixing chamber; it was in this latter chamber where the explosion occurred. Situated on the first floor, there was the hopper above the mixing machine, and below a place for depositing the sacks. The flour mixing machine was established on a platform, and the action of the machine was to thoroughly mix the flour by rotating beaters. The mixing chamber was entirely closed and dark, without windows, and only accessible by means of a trap (?) door; light was obtained from a naked gas jet night and day. When the mixing machine was put to work the doors of the chamber were closed, and the workmen could only enter the chamber to fill the sacks when the mixing was finished, and the flour and dust had been deposited. Flour mixing had been carried on under these conditions perhaps thousands of times. On this occasion, however, it would appear that the door of the chamber was not closed, so that as soon as the machine was put in motion, the flour dust quickly spread about and soon reached the gas jet, the explosion at once occurring. This view is confirmed by the circumstance that the force of the explosion was most severe just above the door in question. The conjecture that a spark could have come down the chimney in the chamber and caused the explosion is not reasonable, for flour will not ignight from contact with a spark, which has been proved by Professor Weber. The direct cause was a clear flame from the gas; the burnt flour found on the floors, and the carbonised walls prove this. The flour itself was Rye flour, which is of a nature to catch fire easily and quickly. The building, fortunately, was a lightly erected one; had the walls been very thick, the destruction and damage would have been greater still. The explosion should teach us to always place the flour mixing chamber, as well as the dust chamber, outside the mill building, in a light, separate building; moreover, this disaster shows anew very strongly that open gas jets are very dangerous. Millers generally admit any cause of these explosions except the true one, viz: that flour will burn and explode like powder, when it is properly divided and mixed with air.

THINGS WORTH KNOWING.

Lemons will keep good for months by simply putting them into a jug of buttermilk, changing the buttermilk about every three weeks. When the lemons are required for use they should be well dried with a cloth.

One of the best disinfectants is a high degree of cleanliness. Save fire, there is no disinfectant besides this that is perfect in its action. If not thorough, disinfectants are almost useless. Many only narcotize disease germs, but do not destroy them.

A good and very old plan for preserving eggs is as follows: To each pail of water add two pints of fresh-slaked lime and one pint of common salt; mix well, fill a barrel half full of this fluid, put the eggs down in it any time after June, and they will keep for many months.

Harness dressing: One gallon of neatsfoot oil, two pounds of beeswax, four pounds of beef tallow; put the above in a pan over a moderate fire. When thoroughly dissolved add two quarts of castor oil; then, while on the fire, stir in one ounce of lampblack. Mix well, strain through a fine cloth to remove the sediment, and let cool.

One tablespoonful of ground brown mustard seed, mixed with two tablespoonfuls of lukewarm water, will make a very efficient plaster. Lay this between well-worn muslin and fold the edges, that the linen of the bed or person may not be soiled. A little molasses will prevent blistering.

One need have no more "crow-feet" at 40 than at 14 if people would laugh with their faces. But the crow's-feet are increased tenfold by burying the face in pillows at night. A looking-glass will prove this at any time.

Wrinkles on the forehead are similarly invited, and with the crows' feet, can be sent away at any time.

Dry salt applied every day and brushed into the roots will make the hair silky and cause it to grow. Do not continue but a year, or two at longest, as it is a strong tonic.

Velvet wears better if brushed with a hat brush, by pressing down into the nap and then turning the brush as on an axis, to flirt out the lint. Do not brush backward or forward.

Cut jewels should never be wiped after washing. Wash carefully with brush and castile soapsuds; rinse and lay face down, deep into fine sawdust until dry; boxwood dust is best.

The best way to apply salt to paths to destroy weeds is as follows: Dissolve the salt in water, one pound to one gallon, and apply the mixture with a watering-pot that has a spreading nose. This will keep weeds and worms away for two or three years. Put one pound to the square yard the first year; afterwards a weaker solution may be applied when required.

The beauty of morocco leather may be quite restored by varnishing with the white of an egg.

To prevent the rusting of steel instruments; take equal parts of carbolic acid and olive oil, and smear over the surface.

A better plan for removing grease-spots than by applying a hot iron is to rub in some spirits of wine with the hand until the grease is brought to powder, and there will be no trace of it. Every schoolboy is not aware that ink-spots can be removed from the leaves of books by using a solution of oxalic acid in water; nor does every housemaid know that "spots" are easily cleaned from varnished furniture by rubbing it with spirits of camphor.

Crape may be renovated by thoroughly brushing all dust from the material, sprinkling with alcohol, and and rolling in newspaper, commencing with the paper and crape together, so that the paper may be between every portion of the material. Allow it to remain so until dry.

STRAIGHTENING A LEANING CHIMNEY.—It was discovered upon examination not long ago, that a chimney 80 feet high at Holyoke, Mass., was about 42 inches out of perpendicular. The method employed in righting was quite simple. A harness was located under the corner, and two others below the first. Two lever jackscrews were placed under the girders of one of the harness on one side, and six jackscrews similarly on the other side. The earth was then carefully loosened about the chimney on the opposite side from that of its inclination, and water poured in, after which the jackscrews were turned gradually, and the earth again loosend and dampened with the hose. After this process had been several times repeated the earth was puddled, and the whole stands now properly righted.

THE *Philadelphia Record* says: One steel manufacturing firm in the west end of the state has just opened coffee houses adjacent to the mill, where hot coffee, rolls, sandwiches, etc., are served up cheap. A pint of coffee, with milk and sugar costs 2 cents; pint of coffee and ham sandwich 5 cents. If such humanitarian sentiments found expression a many of our manufacturing establishments there would be less liquor drinking and physical exhaustion among laborers.

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

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MILWAUKEE, MAY, 1885.

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OPERATIVE MILLERS ASSOCIATION.

The object of this Association is to unite all practical millers, to give aid to its members, to assist each other to procure employment, to establish a widows' and orphans' fund, and for the advancement of the art and science of milling The officers of the Association are: Dan J. Foley, President; Tom Stoutenberg, First Vice-President; John T. Gebbie, Second Vice-President; A. Snuggs, Secretary and Treasurer. 821 Howard Street, St. Louis, Mo.; Dan J. Foley, Alex. Frazer, David Pollock, Trustees. Hall at 110 N. Fifth Street, St. Louis.

AUSTRIA will not impose the import duty on grain at present. Sweden has also concluded not to impose import duties on grain.

THE *Cincinnati Price Current* issued its thirty-sixth, annual report of the provision and grain trade, April 16. It is very comprehensive and merits careful study.

A GREAT many people on each side of the border would like to see a new commercial treaty established between the United States and Canada. A liberal treaty is certainly desirable for both countries.

THE Milwaukee Dust Collector Co. are receiving a great many letters from millers complimenting their handsome new catalogue, and congratulating them upon the great success of their machine.

JERE. ALLIS, the father of Edward P. Allis of Edw. P. Allis & Co., of Milwaukee, died in Franklin, N. Y., April 18, aged ninety-nine years. He retained his mental faculties unimpaired to the last. The remains were brought to Milwaukee for interment.

THE prediction of many that with the incoming of the new administration the country was going to "the demnition bow-wows." does not seem to materialize. The probabilities are that we are to have another straightforward business administration. More business and less politics will tend to advance the prosperity of the country.

No happier definition of the importance of paper to the social commonwealth could, perhaps, be given, than that of the German writer, who describes it as the repertory of all the arts and sciences, the minister of all governments, the broker in all trade and commerce, the second memory of the human mind and the stable pillar of an immortal name.

THE *Northwestern Trades Gazette* is the title of a very handsome paper published by C. S. Van Duyn & Co. of Milwaukee. The paper circulates very extensively among the dealers of the Northwest, and it is well supported by Milwaukee commercial houses. W. G. Roberts a thorough newspaper man, is responsible in no small degree for the healthy appearance of the *Gazette*.

WAR AND FINANCE.

The despatches from the leading grain distributing centres show how sharp was the rise in prices, and more especially in the price of wheat, occasioned by the rumor of actual war between Russia and England. Rarely has the evidence of such a flurry been seen unaccompanied by panic and ruin, but the idea has become general that such a war will be of benefit to this country. Men who had long grumbled because wheat was selling below one dollar a bushel saw their opportunity and ran up the price seven cents, though much of this was pure speculation, and may not be sustained after the actual facts are known and the resulting influences gauged more accurately.

FREIGHT RATES IN ENGLAND.—One reason why the food supplies of London are obtained so largely from the continent or from this country is that local freights in Great Britain are high. At a meeting of the East Kent Chamber of Agriculture statements were made which evoked bitter comments upon the policy of English railways. A ton of cheese was transported from the United States to London for 25 shillings, while a ton of cheese from Chester to London cost 42 shillings 6 pence. Potatoes from France were transported to London for 30 shillings per ton, while from Penzance the charge was 45 shillings. Hops were transported from Flushing, Holland, for 20 shillings, but from Feversham the charge was 33 shillings. Comparing these British charges with those of which many people complain so bitterly in this country, it will be seen that after all American railroads serve the public at very reasonable rates.

A SHORT WHEAT CROP.

The returns of April to the department of Agriculture indicate a reduction of over 10 per cent. of last year's area in winter wheat. The aggregate shortage amounts to 3,000,000 acres. A decrease is reported in every State except Oregon. It is 22 per cent. in Kansas and Virginia, 20 in Mississippi, 15 in California, 14 in Alabama, 12 in Tennessee, Illinois aud Missouri; 11 in New York and North Carolina; 10 in Maryland and Texas; 8 in New Jersey, West Virginia, Kentucky and Indiana; 7 in Georgia and Ohio; 6 in Pennsylvania and Delaware, 5 in Michigan, 3 in Arkansas and 2 in South Carolina. The present condition of wheat, as reported is worse than in 1883. It is 77 per cent. against 96 last year, and 80 in 1883. In 1881, the year of lowest of recent rate of yield, the condition, April 1, was 85, and serious loss was sustained afterward. The real status of the crop will be better shown a month hence, when the vitality of the roots has been demonstrated and the character of the spring determined.

On the present showing the reduction of yield on the basis of last year's production promises to be nearly forty millions bushels on account of reduced area, and more than sixty millions from winter killing and low vitality. Whether the crop will exceed 400,000,000 bushels or fall short of it depends upon the reliability of the present appearances and on future conditions affecting growth and ripening. The soil was in bad condition at the time of seeding on the Atlantic coast from New Jersey to Georgia and in West Virginia and Tennessee. It was better in the Southwest and in Missouri, Illinois and Michigan. In the Ohio Valley it is scarcely in a medium condition. Damages by the Hessian fly were not severe, though worst in Indiana, Illinois, Missouri and Kansas, where injuries have occurred in three-tenths of the reported territory.

The acreage of rye has been decreased in about the same proportion as wheat, but the condition of the crop is decidedly better, the average being 87 per cent.

WAS THIS THE FIRST PASSENGER ELEVATOR?

In a little work entitled "*The Greville Memoirs*," the author, in an account of a visit to Genoa, Italy, in 1830, mentions a passenger elevator as follows:

Called on Madame Durazzo and went with her and her niece, Madame Ferrari, to the King's palace. Like the others, a fine house, full of painting and gilding, and with a terrace of black and white marble commanding a view of the sea. The finest picture is a Paul Veronese of a Magdalen with our Saviour. The King and Queen sleep together, and each side of the royal bed there is an assortment of ivory palms, crucifixes, boxes of holy water and other spiritual guards for their souls. For the comfort of their bodies he has a machine made like a car, which is drawn up by a chain from the bottom to the top of the house; it holds about six people, who can be at pleasure elevated to any story, and at each landing place there is a contrivance to let them in and out!

Certainly this was the precursor of the modern elevator for it possesses all its essential features—much more so than the passenger car used in the torture chamber of the Inquisition in the sixteenth century, which took in passengers, hoisted them up, and then had the habit of letting them out through the bottom and landing them on sharp spikes without consulting them as to when or where they desired to make a landing.

HYDRAULIC TEST FOR BOILERS.

Mr. J. E. Jerrold, foreman of the C. M. & St. P. R R. Boiler Department in Milwaukee, in a recent communication to our esteemed contemporary, *The American Machinist*, makes the following remarks on the above subject:

There is no risk or responsibility incurred in testing boilers of this size up to 300 pounds, if the material and workmanship are first-class. I have listened to many arguments and objections against subjecting boilers to the hydraulic test as useless and destructive. Having been engaged for the last twenty-five years as foreman of boiler shops, and having made and tested probably over two thousand boilers during that period, some experience and many hard facts have been gained; and I have made several tests with a view of ascertaining the result of high hydraulic pressure test, and have yet to discover any injury that has been inflicted on the boilers so tested when the materials and workmanship were first-class. Of course, boilers can be and are often strained by hydraulic testing, but a close examination will show the true cause. Generally the makers of such boilers are bitterly opposed to hydraulic or any other form of testing.

If builders were fairly paid for their work, and none but the best material and workmanship allowed, testing would only affect poorly-made boilers, and the record of boiler explosions would be greatly diminished. Some years since, the writer recollects the objections that were urged against iron railway bridges, n consequence of accidents that were traced to the use of poor material used in construction. The manufacturers saw the mistake, and applied a remedy—a rigid system of testing and inspection of all material subjected to strain.

In conclusion I will say there is no mystery connected with boiler explosions. The causes are poor material, poor workmanship, incompetent examinations and carelessness.

GREAT BRITAIN AS A GRAIN CARRIER.—The marked supremacy of Great Britain as a grain carrier over the other countries of the world is strikingly brought out in a statement just published, giving the extent of the grain exports from New York in 1884. For the twelve months ending in December last, we find that there were 45,393,787 bushels of grain shipped from New York. Large as this quantity is, it was the lowest for any of the past five years, and for comparison the figures may be given:—1880, 113,343,468 bushels; 1881, 72,276,312 bushels; 1882, 46,-162,738 bushels; 1883, 48,457,945 bushels; 1884, as already stated, 45,393,787 bushels. In the transport of the last-named quantity 1,221 vessels were engaged—1,120 steam and 101 sail. Of the total amount shipped last year, the flag of the United Kingdom carried 25,-177,009 bushels in 664 vessels, as against 20,-216,778 bushels by other nations in 557 vessels. American vessels only participated to the extent of 69,354 in two sailing vessels. Next to Great Britain as a carrier comes Germany, with 6,442,330 bushels and 216 vessels; then Belgium, with 5,074,773 bushels and 73 vessels; France being fourth in the list, with 2,283,770 bushels and 65 vessels. Russia, of all the European countries, took no American grain last year. An interesting fact brought out in the statistics is the great displacement in this trade of sail by steam carriers. America and Austria had no steamers engaged in this trade from New York in 1884, and Italy and Portugal still did the large bulk of their share of the trade by means of sailing ships; but Great Britain and the other European States have almost wholly supplanted sail by steam. In fact, there were no Belgian, Danish, Dutch, or Spanish sailers engaged in the trade last year. Great Britain sent only three sailing vessels to New York for grain, and these in the aggregate carried only 143,167 bushels, showing a little over half of one per cent. carried by her sail in 1883. In 1880 sail tonnage was predominant, no less than 63,376,-584 bushels being transported in that year, as against 49,966,579 bushels by steam. In 1881 there was an abundance of steam freight, for grain by sail ran down by comparison with the previous year to less than 30 per cent., and in 1884 but 2,431,988 bushels were carried in sail bottoms by all nationalities. The changes of the last five years from sail to steam are shown in the following table:

Year.	Steam. Bushels.	Sail. Bushels.
1880	49,966,579	63,376,584
1881	53,355,728	19,020,583
1882	39;343,449	6,284,289
1883	44,105,009	4,252,936
1884	42,561,799	2,431,988

The total shipment of wheat for the year was 28,102,185; corn, 9,798,819; rye, 4,945,266; oats, 2,482,196; and barley, 65,321 bushels.—*Leeds Mercury*, (England.)

THE Geo. T. Smith Middlings Purifier Co. are building an elegant and convenient Pavilion to be sent to Antwerp, to be used as their office at the Miller's Exposition to be held there the coming season. It is made of the various woods used in constructing their purifiers, and will be a most unique and attractive affair. Our Octopus-ian friend, W. M. Clark, will spread his tentacles, all over and through it, and gather in all the glory and business it will hold. It will be a fine specimen of American enterprise and business.—*Southern Miller.*

MARINE STEEL BOILER.

*Exprience in the use of thick Steel Boiler Plates.**

By Mr. W. PARKER.

An ordinary cylindrical boiler 13 ft. in diameter and 16 ft. long, designed for a pressure of 150 lb. per square inch, for which the scantlings were amply sufficient, burst under the hydraulic pressure. The pressure was applied very carefully, and when it had reached 240 lb. the fracture occurred, extending completely accross one of the shell plates, and to a slight extent also into the adjoining plate.

The boilèr was constructed entirely of steel made on the Siemens-Martin process by a firm who enjoy the reputation of producing a material second to none in the country.

The plates were all tested at the steel works and fulfilled the requirements of both Lloyd's Register and the Board of Trade.

I find from our surveyor's report that the sample from the particular plate which failed —which was 1¼ in. thick—stood a tensile strain of 29.6 tons per square inch with an elongation of 20 per cent. in a length of about 8 in., whilst strips cut from it were bent almost double, cold. In fact the material appeared, from the mechanical tests applied before it left the steel works, to be in every respect suitable for the purpose for which it was intended.

One remark, however, may here be made, namely, that the plate in question was exceptionally large and heavy, viz., 20 ft. long, ft. 5 6 in. wide, and 1¼ in. thick, weighing about 2 tons 16 cwt.

This material was built up into a boiler by a company who have had an unusually extensive experience in the manipulation of steel, having turned out no fewer than 175 boilers of this material.

The plates were treated precisely as other steel plates have been treated in the same works, and with all the appliances which experience has shown to be necessary, all the holes were drilled, and the plates were then heated in a furnace and bent to the required curvature in a pair of powerful vertical rolls in the usual manner.

Under these circumstances it appeared at first sight astounding to find the material tearing under a pressure which represents a strain of 6.7 tons per square inch only, or less than one-fourth of the strain which the original sample withstood. In addition to this the appearance of the fracture indicates that the plate did not possess any ductility, stretch, or elongation whatever.

Neither the steelmakers nor the boilermaker have as yet afforded any satisfactory explanation of the occurrence.

It is without doubt a most serious affair, especially in view of the high pressures which have now become so common.

On hearing of this accident, the Committee of Lloyd's Register instructed me to investigate the matter, endeavor to ascertain the cause of the accident, and, if possible, recommend some measure to prevent such an occurrence in the future. My investigations were only completed last Tuesday, and as such a serious matter as this, which bears upon the safety of life and property at sea, must naturally give rise to no little specula-

*Read at the twenty-sixth session of the Institution of Naval Architects in London, England.

tion amongst engineers and steelmakers, and has already produced great consternation in many quarters, I have taken this opportunity of laying before you a short statement of the facts as they have come before me, the results of my investigations, and the conclusion which I have arrived at, with a view to eliciting from the various steelmakers and steel users here the benefit of their views and experience.

Upon my visit to the boilermaking works I was fortunate enough in finding a sister boiler to the one which had burst; ready for testing.

This boiler was tested in my presence to 300 lbs. per square inch, and was carefully measured and gauged and found to show no signs of deflection or yielding.

I also ascertained from an examination of the testing appliances that an abnormal pressure could not possibly have been exerted at the time of the testing of the first boiler.

Seeing that the plates that broke had stood all the mechanical tests required, before leaving the steel works, and that when worked into the form of a boiler shell it gave way at less than one-fourth of its original strength, it appeared at first sight that the plates had been in some way injured, or had undergone some material change from the time they left the steel works until they were rivetted into the form of a boiler shell; therefore it became necessary to look carefully into the mode of manipulation of the plates in the boiler shop and especially the heating and bending of them.

One of the plates was bent in my presence. It was heated in an ordinary plate furnace, but when taken out was far from being of a uniform heat; the end of the plate near the door of the furnace was at a black heat, which gradually increased towards the other end to a dark red heat. Then the plate was turned end for end and again placed in the furnace with a view to heating it as far as possible uniformly, but when again drawn out of the furnace it was seen that the heat was not at all uniform, one end being of a dark red or nearly black heat, which gradually cooled down to a blue heat at the other end.

In this condition it was passed through a set of powerful vertical rolls, and bent to the required curvature. The plate passed through these rolls six times, and by the time the operation was completed one end of the plate was quite cold, when the other end remained at a blue heat.

It was thought that this unequal heating of the plate may have set up in the body of the plate excessive strains of a dangerous character, and that these strains were aggravated by rolling the plate at a dangerous heat, it being well known that all steel becomes brittle when worked at a blue heat, and it is, I think, generally admitted that it is far safer to work steel cold, or red hot, than at any heat between these two points. Steel plates, and especially large ones, must be injured by such treatment, but as to the intensity of the strains set up, or their exact locality nothing definitey can be said, to ascertain the nature of the material as it stood. Test pieces were cut from the fractured plate, both close to the fracture and apart from it, and subjected to tensile test at one of Lloyd's proving houses, with the following results, which the engineers have kindly communicated to me.

Samples.	Breadth.	Thickness.	Area.	Total Tons.	Square Inch.	Extension in 8 in.	Extension in Inches.	Contracted Area.
	in				tons	per c.		
S. I. X.	1	1 15/16	1.96	38.25	30.3	27.34	2 3/16	1 1/4 x 3/4
S. C. H. I.	1	1 15/16	1.96	41.75	33.1	26.59	2 1/16	1 5/16 x 3/4
S. 2.	1	1 15/16	1.96	41.5	32.93	21.27	1 1/16	1 1/4 x 3/4
S. C. H. 2 X.	1	1 15/16	1.96	39.5	31.35	23.4	1 1/8	1 1/4 x 3/4
S. XX.	1	1 15/16	1.96	37.5	29.7	21.8	1 1/16	1 1/4 x 3/4
S. IXX.	1	1 15/16	1.96	37.25	29.56	26.6	2 1/16	1 1/4 x 3/4
S. XXX.	1	1 15/16	1.96	38.5	30.5	28.1	2 3/16	1 1/4 x 3/4
S. IXXX.	1	1 15/16	1.96	38.25	30.3	27.34	2 1/16	1 1/4 x 3/4

From these tests it appears that the proved tenacity of the plate ranges from 29.5 tons to 33.1 tons, while the elongation stands at from 28.8 per cent. to 28.1 per cent, in a length of 8 in.

I may say that I corroborated these tests by others made from the same plate for my own information in London, and they were also corroborated by other tests made for the information of the steelmakers.

This range of from about 4 tons in the tensile strength of a plate of homogeneous metal like mild steel is very unsatisfac tory.

I obtained samples of the plate, and submitted them to five eminent and independent metallurgists, who have kindly furnish me with the results or their chemical analyses, which are as follows:

Carbon.	Silicon.	Sulphur.	Phosp.	Manganese.
.36	.015	.055	.087	1.05
.27	.016	.044	.076	.641
.33	.010	.038	.065	.612
.30	.018	.044	.063	.648
.26	.005	.038	.067	.650

The most striking feature in these analyses is the large proportion of carbon shown to exist in the plate. It is particularly high for boiler plates. Material used for thin plates, say, from ½ in. to ⅝ in. thick, to stand the same mechanical tests as these thick plates did, would not contain more than from .15 to .18 of carbon; and this facts led us to further experiments.

In view of the great difference in carbon between a thick plate and a thin one to stand the same mechanical tests, it was deemed desirable to make an experiment which would determine to what extent work in the shape of rolling, and especially rolling thin plates, which during the latter part of the operation must of necessity be rolled, comparatively speaking, cold, affected the tenacity and ductility of the material. A slab of steel containing about the same amount of carbon as the plate that ruptured, viz, .33, was obtained at the steel works where the plate was made, and rolled at one heat down to ½ in. in thickness. This material, had it been rolled down to 1¼ in. plate, judging from the carbon it contained and the tests of the broken plate, as well as the opinion of the steel makers, would have had a tenacity of from 30 to 34 tons per square inch. It was found, however, that when rolled down ½ in. thick its tenacity wa increased to from 35 to 41 tons per square in., with an elongation of from 21 to 24 per cent. in a length of 8 in. Other pieces were made hot and quenched in water. These, when tested broke at a tenacity of from 44 to 45 tons, and had, practically speaking, no stretch at all.

Pieces were cut from the fractured edge of the plate, and subjected to tensile, bending, and temper tests. They showed a tenacity of 33.5 to 34.2 tons per square inch, but they stretched 13 and 16 per cent., and broke with a crystaline and apparently brittle fracture, as will be seen by the specimens produced. They bent cold to a considerable degree, but when made red hot and quenched in water, instead of bending, as pieces of a thin plate of similar tenacity and ductility would do, they broke under the first blow of a hammer without any bending whatever. The material was so high in carbon as to take a temper and become quite hard and brittle.

Further cold bending tests were made from pieces of the broken plate, both before and after being annealed: those which were tested before annealing bent fairly well, strips ½ in. square bent to an angle of 49 deg. and 61 deg., as will be seen by the specimens, the fracture showing a considerable amount of alteration in form, while those pieces which were tested after annealing bent much better—in fact, almost double. Strips, however, that were heated and quenched in water broke short without any bend whatever at the first blow of a hammer, and thus corroborated the previous experiments made in London before referred to.

These experiments point to the fact that the plate which gave way must have become partially tempered by the heating and cooling to which it was subjected for the purpose of rolling it into its cylindrical form.

Having thus placed before you the nature of this accident, and the steps taken with the view of unraveling the supposed mystery, I now venture to state what inferences may, in my opinion, be drawn from the results of the investigation.

I think it will be acknowledged that a material which is so high in carbon as to take a temper and break short, as described, even if it possesses high qualities of tenacity and ductility before being tempered, must be looked upon as unreliable and altogether unsuitable for use in marine boilers.

It would appear that the desire to obtain high steam pressures, and to use steel of a higher tenacity consistent with a large amount of ductility, has caused the marine engineering world to unknowingly drift into using a material of a most unreliable and unsuitable character for the shells of marine boilers, more especially when the usage which such plates received in heating and bending is considered, for, except among steel-makers, it does not appear to have been generally known that the thicker a plate is, the more brittle and erratic in its behavior it must become, as compared with a thin plate made to stand the same mechanical tests as far as tenacity and ductility are concerned, as otherwise, that the increase in tenacity from 29 to 32 tons for thick boiler shells would not have been advocated.

So far as I am concerned, and the society which I represent, I may say that it has always been our endeavor to discourage the use of high steel. The rules of Lloyd's Register require boiler plates to have a tensile strength

of 26 to 30 tons, and have done this from the commencement of the use of steel, because we felt that the higher the tenacity arrived at, the more likelihood there would be of the plates giving trouble, and our whole desire has been to keep the material mild. We have, however, had considerable pressure brought upon us by manufacturers and engineers, to allow a strength of 32 tons per square inch.

This accident and the investigations which have followed, clearly point out that engineers have been drifting towards the use of unreliable material which is too near the verge of danger to be pleasant, a state of things that should not exist with steam boilers.

I would therefore urge, in order to remedy this growing evil, that the tenacity of steel plates for boiler shells, which are becoming thicker every day, should in no case exceed 30 tons; and that the practice of using enormously large plates should be discouraged; while more care should be exercised in uniformly heating and bending these plates.

I have conferred with the principal steel-makers in the kingdom on this subject, and am able to say that they agree with me, and are decidedly of opinion that steel plates more than 1 inch in thickness, and having a tenacity of more than 30 tons, must contain so much carbon as to render them unsuitable for boiler-making purposes; although they may possess the necessary tenacity and ductility to withstand the usual tensile and cold-bending tests.

I venture to hope that this paper will be made the subject of a discussion, with a view to obtaining further opinions respecting the important points in question.

MACARONI.

Though we may not all go into ecstacies over macaroni, it is a positive fact that but very few people who have once tasted this peculiar preparation ever discontinues its use. But there are different qualities, and much depends not only upon the materials employed but upon the methods of manufacture, and also upon the manner in which it is prepared. The proper way to cook macaroni—so says an eminent Italian *chief*—is to take a quarter of a pound of macaroni and sufficient water to cover; the water must be boiling before the macaroni is put in, and must be kept so while cooking for twenty minutes, stirring occasionally. Salt to suit the taste, strain, and serve with tomato sauce or gravy and grated cheese.

The word macaroni is taken from the dialectic Italian *maccare*, "to bruise or crush." The article is a preparation of wheat originally peculiar to Italy, where it is an article of food of national importance. Different forms of the same substance are known as vermicelli, pasta or Italian paste, taglioni, fanti, etc. These are all prepared from the hard, semi-translucent varieties of wheat which are largerly cultivated in the south of Europe, and known by the Italians as *grano duro*. These wheats are much richer in gluten and other nitrogenous compounds than the soft or tender wheats, and their preparations are more easily preserved, which makes them more suitable for these pastes. They are made in various fanciful forms in a uniform manner, from a granular meal commercially known as *semolina*. This semolina being thoroughly mixed into a stiff brown paste with hot water, is forced by a powerful plunger through the perforated head of a cylinder into the various forms required. After this the product is dried rapidly by hanging up in long sticks or tubes over wooden rods in heated apartments, through which currents of air are driven. It is only genuine macaroni, rich in gluten, which can be dried in this way; the spurious made of poor flour and colored artificially, will not hold together. Hence, when we find macaroni which shows that it has been dried in the described manner, we are sure of its genuineness. True macaroni shows the mark of the flattened rods over which they have been hung to dry, are never mouldy on the inner side, and do not crack or split as do the imitation, which have been laid out flat to dry. It has a soft yellowish color, is rough in texture, elastic and hard, and breaks with a smooth glassy fracture. In boiling it swells up to twice its original size without becoming pasty or adhesive, maintaining always its original tubular form without either rupture or collapse. It can be kept any length of time without alteration or deterioration, and is a most nutritious and healthful article of food. Many imitations are made in France, Germany and the United States, the best of which are made of common flour, enriched by the addition of gluten.

LATEST FROM THE INVENTOR OF THE KEELY MOTOR.

John W. Keely to-day told a reporter of his latest discovery. As he related the narrative the discoverer's eyes sparkled and a beam of satisfaction spread over his face when he remarked: "I have at last attained the work of my life. I have discovered the power which for years I sought, and I feel perfectly satisfied now that my discoveries and inventions can go forth to the world. For six months I have worked fourteen and eighteen hours a day. The world saw little of me because I was locked up in my workshop. My new engine is operated upon an entirely different system from anything I ever used before. It will be known as the rotary etheric engine. The power is obtained from inter-atomic air, or, rather, luminiferous ether. In fact, I have half a dozen terms to apply to it. This new power is under complete control, and is greater by five or six times than gunpowder. Indeed, by multiplied concentration I can make it fifteen times greater. In a recent experiment I obtained 22,800 pounds of pressure to the square inch in eight seconds. No water is used in this engine or to secure this power, air alone being the agent. The introductory receptacle, which holds one-half pint of air, required sixty pounds of steel in its construction. I expect (but can not state for a certainty) to give an exhibition in three weeks. This will depend entirely upon the machinists. If they disappoint me, I can not tell when it will happen. Next month I will have a perfect engine completed. It will not weigh more than three tons, and will be equal to five hundred horse-power. The apparatus which is used in connection with the engine is named the "Liberator."

"How about the Keely Motor company?"

It has no interest in the new engine and discovery. A company is to be formed, but I should hardly give the particulars. It will have a capital of $12,000,000, and it is likely that the shares of the Keely Motor company will be exchanged for those of the new. I will have the controlling interest. The Keely Motor company has not paid me a penny for two years, and all these new discoveries and inventions have been paid for out of my own pocket. To return again to the original subject, I believe that five liberators and engines can supply all the power needed in this city. This power can be stored in tubes and transported anywhere. In about six months, or sooner if possible, I will take out the patents in this country, and then I shall go to Europe, where I desire to exhibit my vibratory lift, the sympathetic lift, and several other inventions which the public do not know of."—*Philadelphia Cor. St. Louis Globe-Democrat.*

THE KANSAS CORN CROP.

The large growth in the live stock interest has resulted in the retention of a much larger proportion than usual of the corn crop. The low prices have had much to do in keeping the product at home, and but a small proportion will ever be sold out of the country in which it was grown. In 1884 the 5 per cent. of the crop that was called "unmerchantable" was moldy corn, not soft corn. This was occasioned by continued wet weather in the late summer and early fall. There are no reports of injury to the condition of cattle or losses from eating this moldy corn, although many instances of loss are again reported from turning stock into "stalk fields" where there was an insufficient supply of water.

The average amount of sound corn for a series of years in Kansas, as reported by correspondents is the same this year as last—84 per cent. The proportion of the crops of 1884 that was sound was larger than that of the previous year, being 95 per cent. The corn crop of 1884 was not only the largest in the history of the State but was of a better quality than ever before. The average price per bushel, however, of the crop remaining on hand is much less than at this time one year ago, being 27 cents per bushel for sound and 18 cents for unsound. This low price has prevailed since the fall of 1884, and as a result a much larger per cent. than usual yet remains in the field, this proportion being 13 per cent. For the first time in several seasons the western counties harvested a fair crop, and much preparation is being made in consequence to put an increased area this year, and a large addition has been made to the numbers of cattle and hogs.—*Kansas City Price Current.*

BOOK NOTICE.

We have received from Aug. Heine, the well-known manufacturer and bolting-cloth dealer of Silver Creek, N. Y., copies of his memorandum book for 1885. Millers will be furnished copies free upon application.

FORMULA FOR GELATINE PAD.—The French Ministry of Public Works publishes a formula for a hectrograph or gelatine pad, which is said to produce very satisfactory results. The composition consists of 100 parts of good ordinary glue, 500 parts of glycerine, 25 parts of finely powdered baric sulphate, or the same amount of kaolin and 375 parts of water. For the copying ink a concentrated solution of Paris violet aniline is recommended. To remove the old copy from the pad, a little muriatic acid is added to the water, washing it gently with this liquid by means of a soft rag, afterwards using blotting paper for removing superfluous moisture.

WHAT OUR MILLING EXCHANGES SAY.

WHY MILLS BURN.—The insurance man vaguely hints that the friction of a policy on unproductive property is one of the chief causes of mill fires. The nervous, but ill-informed alarmist traces everything to dust explosions and spontaneous combustion; though just how dust explosions can occur in mills that have been idle for several hours, or maybe a day or a week, is not explained.

Undoubtedly there are some mills that are directly fired by their owners to get their money out of a bad piece of property. Millers are no better or no worse than the average of mankind; and it would be strange if some few of them were not unprincipled enough to sell their mills in this way. But the greatest moral hazard connected with unproductive mills is not incendiarism by their owners, but the neglect which their unproductive character engenders. They are not kept clean. They are not watched, and if untenanted or idle for the time being, no one is at hand to fight the flames when they make their appearance. Comparatively few mills take fire and are completely consumed when running night and day, for the simple reason that some one is always present in such cases, and incipient fires are promptly detected and extinguished. The majority of mill fires break out after the mill has shut down, in time dating from an hour to a day or so; but usually in the early morning following the night the mill shut down. Mill fires on Sunday morning are numerous.

The explanation of all this is simply that the fire was in progress when the mill shut down—we mean when the time is limited to 24 or 48 hours. When the mill shut down, the fire might have been slowly burning in an elevator-head, a conveyor-box, in a fan-box, or some hot bearing may have already started a slow fire. Sparks of fire may have smoldered in out of the way places. In cases where the mill has been idle for several days or longer, spontaneous combustion is a very possible cause; for the elements of such a fire are present in most mills.

Millers and underwriters are gradually geting at the true causes of mill fires, and with a growth in the knowledge of the causes we may look for a decrease in the number of these mysterious fires. Close attention to the machinery, cleanliness in the mill, and avoiding placing machinery in inaccessible or out of the way places, where employes are apt to neglect it, are among the precepts which should be followed by every mill-owner, and which, if followed, will often prevent disastrous fires, and save the necessity of the rascally adjuster's services.—*American Miller.*

ECONOMY IN POWER.—To save power is to save money in running expenses. See that all shafting is kept in line, all bearings adjusted exactly right and no binding anywhere. We remember once where a shaft from the turbine came through a stuffing box on the decked flume. The wheel did not appear to give enough power. By loosening up the packing in the stuffing box we had one-half more power to use. Packing around the rods of an engine can be too tight, so as to greatly retard the engine's work. It pays to use the best oils for all bearings.

If we have some small pulley from which much power is taken, we are liable to lose power by the belt slipping. It will always pay to cover such pulley with leather, if it does cost something. We are sure very soon to save its cost in power and belt.

A handy arrangement to show if elevators are surely running, is to make a slot through the front of the elevator spout, and insert a strip of heavy leather, like belt leather. Have it project inside far enough for each passing elevator cup to hit it, and project outside so that the miller will readily notice the vibration caused by the knocking of the inside end. A habit of watching the projecting leather will give sure notice when the elevator is choked.—*From the Millers' Review for April.*

NASHVILLE NOTES.—At last the cold weather is passing away, and to our appreciation comes the balmy air and bright spring time. How very intense the piercing wintry air, and how prolonged it seems the season has been. Each one of our population seems heartily tired of its severity, and joyfully welcomes the approach of spring, however tardy it may have been in its arrival. As the season of spring has come to stay, the general appearance of the growing cereal crop can be more definitely seen and calculated upon; and as we before said, the prospect for a wheat crop is very far from flattering; in fact, all reports, however blue they might have been, cannot exaggerate the very unsatisfactory situation of that particular cereal.

In conversation with those who are engaged extensively in raising wheat, and who, too, have traveled extensively over a very large area of country, the general report is that there will not be to exceed one-fifth of the crop of last year.

Although in some few places the stand seems fair and somewhat encouraging, yet those positions are very few indeed, and the universal tone of the mass of farmers, with very few exceptions, echo the reports just enumerated, and to say that this particular community is blue is drawing it very mild indeed.

The severity of the winter and its effect upon the wheat plant has caused the farmers to note perceptibly the modes employed in planting. It is very obvious to observers which style of planting withstands the severe winters in the southern latitudes. As is known, there are several modes employed, broadcast by hand, broadcast by drill, and planting with the hoe drill. It is very generally conceded by the farming community, that wheat planted by means of the hoe drill has stood the test very much better than either of the other modes employed.

The hoe drill as it plants the grain has a general tendency to well cover the berry, and places it beyond all immediate danger from, at least, light wintry weather, and even a severe one, as has just passed; and as the freezing and thawing takes place, although the grain is being raised upward continually, still it being so well sheltered, and the roots so well advanced deeply in the earth; it adheres tenaciously to the soil, and is not induced to release its hold until a very severe spell of cold weather prevails, with the ever-changing temperature of this changeful climate.

Not so with the broadcast grain either way it might have been sown. The grain is embedded so shallow that the action of the changes in the weather completely raises the blade conspicuously out of the ground, even, as it were, setting each blade upon a little knoll of earth, the which, on being continued, gradually strains the slender root until, at last, it is cut off and fades.

Undoubtedly the makers of the different kinds of drills will note the changes necessary for the peculiar climates their several machines have to labor in, and act accordingly, for the successful operation of them under climatic influences.

Respecting the operations of the several mills in and around the city, not very much change can be noted from that of last month. Business, if anything, has become more dull, and those mills reported on half time then still continue about the same turnout. Flour has become a drug, and the tendency is to stock up some, even running part time. It is possible, however, by the impetus received at some of the mills in the shape of some decent orders in the thousands, that the next report will be more cheerful. The New Era is among the last named, and the boys thereof are happy.

By the approach of good weather and good roads it is to be hoped that business will brighten some, and it is now generally thought that prices will hold good in view of the unfavorable crop reports.

Some little is being done in mill overhauling, mostly in small plants, however. Messrs. Shelton & Jordan, at Triune, are putting in a full roller equipment for a 75-barrels mill, and have entrusted the arrangement of the plans and selection and setting of the needful machinery to Mr. John Metherell, Superintendent at the New Era Mill, of this city.

Several other small plants are now occupying his attention in the shape of diagrams and preparations for future remodeling. Judging from inquiries he receives in this direction the southern small millers are beginning to awaken to the matter of improvement.

The corn meal mill spoken of in a late number, has not yet been settled on. All that can now be said is that it will be built at no very late day, some machinery for the purpose, I learn being already purchased. But the general contract, although under consideration, has not, as yet, been awarded.

I would mention here, that some of our anxious ones have been daily perusing the morning papers relative to the English-Russian probable war. But as each morning's news seems to grow more beautifully less in the shape of war and relative high prices for flour, the expectations have settled down somewhat, and thoughts plod along again in the same old rut of competition and small margins, and for a while at least, the hordes of the world's vast population will continue to exist, although those who judge wisely of the world's crowded condition argue and say

That the World's condition would take a new stand,
If war and pestilence scourged the land.

—*By "Rock City" in the Southern Miller.*

TAKE WARNING.—The startling fluctuations in values shown on the grain board, the present week, demonstrates that prices built upon foreign war news are unstable as water, and dangerously quicksandy. For three weeks we have urged the utmost caution in making deals, the possible profit from which was contingent upon actual war between England and Russia. The issues involved, and the results to accrue from an actual conflict between these two great powers across the sea, are of too great magnitude to admit of a hasty resort to the arbitrament of the

sword, however unctuous the occasion may appear. That a crisis exists there, is sufficiently clear, but an open declaration of war is little more probable or nearer at hand now than it appeared a full month ago. Besides, there is nothing in a fully waged conflict to warrant this country in going outside the safe paths of straightforward, legitimate business. Speculation, always dangerous, becomes additionally so when it has no better basis for indulgence than a war between two powers but inconsiderably dependent upon outsiders for supplies. Russia is too poor to fight if she can avoid it decently, and England is so fully occupied in maintaining her supremacy in her colonial possessions, by the steady menace of armed forces, she could scarcely afford to withdraw for concentration, as would be necessary in waging war with so formidable an adversary as Russia. So she won't fight, if bluffing can be made effective.

The United States, now just emerging from a period of disastrous depression, is in no condition to have her agricultural and industrial interests wrought up and distracted by foreign complications, which, if everybody attends legitimately to business, might be turned to account. Just now, however, the best thing is close attention to home affairs, and the pursuit of strictly legitimate business upon tried and approved business principles —*St. Louis Miller.*

RECENTLY we heard the report of another invention designed to utilize the current of a river without costly dams and wings and foundations; the power generated to be transmitted by electricity to any distance. Now if ever there was a place where such an invention would ensure a fortune to its owner, that place is Buffalo, with a stretch of five miles river front where the current seldom falls below five, and often runs above eight miles an hour, winter and summer, carrying about 20,000,000 cubic feet of water per minute down to Lake Ontario. Who could wish for a better working field to test the value of such an invention? Trot it out, gentlemen, whoever controls it; trot it out here and prove to the world the truth of your statements, and you will receive all the encouragement at the hands of our citizens that you desire. Don't be afraid that you will generate too much power so that you don't know what to do with the surplus. First demonstrate that you can utilize the current and the rest will take care of itself.—*Milling World, April 20.*

WHY THEY FAIL.

It cannot be denied that not a few millers, after adopting the roller system, have failed to do a profitable business. Some have been compelled to assign, others have sold out their business at a sacrifice, while others have, by dint of desperate struggling, been able to keep their heads above water. Those adherents of the millstone system who spend much of their time in vainly seeking for a valid objection to improved methods have of course made the most of this fact, and bring the charge of inherent unprofitableness against rolls and the system of which they are a part.

Now the fact is that it is no more just to blame the roller system in general for individual failures, than to attribute the poor quality of an editor's effusions to the make of pencil which he uses. Yet it is undoubtedly true that in some cases a miller who was doing a good business and making a fair profit with burrs has been unable to keep up after changing to the roller system. How is this to be accounted for?

Not by attributing it to the rolls, surely; for hundreds of prosperous roller mills all over the country bear witness to the money-making qualities of that system. In fact, there is no one reason which can be universally applied. The causes which lead to these failures are various and widely different. Some of these we will briefly.

The cause of a roller-mill's non-success may be in the inability of the miller to handle the roller system. The man who was entirely competent to run a burr mill finds himself in strange territory when he tackles the gradual reduction system, and it is not surprising that he frequently gets lost if he has no guide. The best roller mill is no good commercially unless it has a well-posted man at the helm.

Or the location of the mill and the class of its patronage may be such that the increased cost of a full roller-plant was not warranted. The conditions may be such that an increased income to compensate for the necessary outlay cannot in any way be secured. The local market will not support a first-class mill and outside markets cannot readily be reached. To this class belong especially small grist-mills, out of reach of the railroads. Their location makes a roller mill unprofitable.

Or the financial condition of the mill-owner may be bad. He sees the roller mills taking away his trade, and no way to compete with with them except to adopt their methods. So he goes to a much larger expense than his means warrant, and when his mill starts up is head over heels in debt. This debt is a continual drag upon him, and it is not strange that he often has to give up under the load. Too limited capital has been the cause of many a failure in all branches of business.

Or, in changing the systems, the size of the mill may be increased beyond what the trade will warrant. The temptation is always to put in the greatest possible quantity of machinery and get all the flour possible out of the mill. But where there is only market for fifty barrels it is folly to make a hundred and fifty. A small mill frequently makes a good profit, where a large one would only sink money steadily. The capital that is ample for a 50-barrel mill may prove entirely insufficient for one of four times the size.

Or the mill-owner may not have the business ability to make a success of a roller mill. Especially is this apt to be the case where he has been running a grist-mill all his life, and doing an almost purely custom business. With the roller mill the merchant part of the trade will naturally become more prominent, and he may be unable to run this successfully. A different sort of management is required and this he may not give.

Or the roller mill may not be a roller mill at all. On the strength of a double set of smooth rolls for bran and germ it may blossom out as a complete roller mill and place its products on the market in competition with mills which can justly claim that title. When this is the case it is easy to predict what the end may be.

Or the miller may have attempted to save money by buying the machinery himself and hiring a cheap millwright to put it in position. If this be the case it is usually incorrect to say that the roller system is employed, for the mill has no system at all. It contains some of the machinery belonging to the roller system, jumbled together in any way that was convenient and in such shape that first-class work can not be expected from it. It is not strange that such a mill does not succeed.

Or the mill may have been put up by a "cheap" mill-furnisher, whose alleged system is worse than no system at all. The machines may be poorly constructed, of inferior material, and not enough of them. The reductions may be slighted, the tail of the mill cut short, and the cleaning machinery insufficient. The programme may be bad. All the work may have been slighted. In fact, the mill-furnisher may have done his best not to build a mill that was capable of good work and would be satisfactory and profitable to its owners, but to fill his contract in such a way that he can get the largest possible profit from the job. There are scores of such mills in existence, and all we wonder at is that more of them have not gone under. It is certainly only a question of time when the unlucky possessor of this sort of mill will be obliged to improve it, with the assistance of competent and honest men, or quit the business. The number of genuinely good roller mills is increasing too rapidly to allow permanent prosperity to such miserable botch-work as some flour mills are witnesses of.

These are some of the reasons why roller mills fail. None of them can be traced to any inherent defect of the system. For all of them the poor judgment or incompetency of some person or persons is responsible.

The days of large profits in milling are probably passed. Mills are too numerous and competition too keen to allow of their return. But there are few favorably located, well equiped, well managed roller mills, with a good miller at the helm and a good business man in the office which cannot still make money enough to render it an object.

And, as a class, the roller mills are more prosperous than the burr mills in almost every locality. We assert this unhesitatingly because the facts bear us out. We do not know of a single instance where a burr mill has been able to compete successfully with a high-class roller mill in the hands of competent men.—*The Roller Mill.*

"YOUNG gentlemen," said a lecturer in chemistry, "coal exposed to the elements loses ten per cent. of its weight and power. This is due to the alkali constituents of "——

"But what if there's a dog sleeping near the coal, Professor?"

"None of your levity, young man; this is a serious matter."

"That's what dad thought when 82 per cent. of his coal pile disappeared during three nights of exposure. Then he asked my advice as a student in chemistry, and I told him to buy a dog. He bought a dog with bay-window teeth and the springhalt in his upper lip, and now we don't lose one per cent. of our coal a month. That's the kind of practical chemist I am. Now go on with your theory."

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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.

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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Affidavit Concerning Circulation.

STATE OF WISCONSIN, } ss.
MILWAUKEE COUNTY. }

E. HARRISON CAWKER, editor and publisher of the *United States Miller*, a paper published in the interest of the FLOURING INDUSTRY, at No. 124 Grand Avenue, in the City of Milwaukee, and State of Wisconsin, being duly sworn, deposes and says that the circulation of said paper has at no time since January, 1882, been less than FIVE THOUSAND (5,000) copies per month; further, that it is his intention that it shall not in the future be less than FIVE THOUSAND copies each and every month; further, that he has paid for regular newspaper postage at the rate of two (2) cents per pound on domestic and Canadian newspaper mail for the years 1883 and 1884 the sum of $423.74, showing an average of $17.65 per month for 24 months; the average weight of domestic and Canadian mail being 882½ pounds per month and the total number of pounds of such newspaper mail sent out during the 24 months ending with December, 1884, being 21,180 pounds. Six copies of the U. S. Miller weigh about one pound. The above postage does not include postage paid on local or foreign papers, Canada excepted.

E. HARRISON CAWKER.

Subscribed and sworn to before me this 7th day of January, A. D. 1885.

G. MCWHORTER.
Justice of the Peace, Milwaukee, Co., Wis.

THE formal ceremonies of the dedication of the new board of trade building in Chicago, took place April 29.

R. A. DANLIKER, the American agent for the Reiff-Huber brand of bolting cloth has removed his office to No. 159 La Salle st., Chicago, Ill.

TRADE SCHOOLS.—The jealousy with which mechanics and artisans first regarded the schools established to teach young men trades seems to be dying out. Workmen are perceiving that the schools do not graduate enough men to crowd the ranks; they see, too, that by raising the average quality of workmanship the schools indirectly assist the movement in favor of increased wages.

THE markets have been very unsteady during the past month, owing to the rumors of war between England and Russia. The latest advices (May 1,) indicate that there will be a peaceable solution of the matters of difference which have so seriously threatened to disturb the affairs of Europe. In these days of civilization it seems far better to adjust disputes between nations by arbitration than by war.

GERMAN THRIFT.—The Germans know how to make an honest penny as well as the shrewdest citizens of this great Republic. The consuls in different parts of Europe complain that the sale of agricultural implements of American manufacture has deplorably decreased. The reason why is to be found in the fact that our German cousins are willing to have us think for them, and ready to use the inventive genius of this country for their own gain. Lower wages allow them to put on the market a good imitation of our reaping and threshing machines; and, if they follow the pattern so closely that even the name of the American manufacturer is copied, it only shows their high appreciation of everything on this side of the water. We feel complimented, of course, but we also feel poorer.

MILWAUKEE FLOUR PRODUCTION.

From the most accurate figures which the UNITED STATES MILLER is able to obtain, the total amount of wheat flour manufactured by the Milwaukee flouring mills from January 1, 1885, to May 1, 1885, is 365,678 barrels. Some of the mills have run but a small portion of that time, and none have run all the time at full capacity. The Cream City Mill has lately been thoroughly overhauled and started up. The Centennial Mills have also been making some important changes and additions. All the mills are in good shape to run to full capacity whenever the market demands.

WATER WHEEL PLANT AT NIAGARA FALLS, N. Y. FOR CENTRAL MILLING CO.

On Page 20 we illustrate the setting of a 35 feet Victor turbine in the mill of the Central Milling Co., Niagara Falls, N. Y., now nearly completed. This wheel is placed under about 65 feet head, and will develope about 1000 H. P., furnishing power for driving the entire machinery of the mill including the elevator and also for moving cars. As will be seen, the wheel is placed in an iron flume at the bottom of a well sunk through solid rock, the water being conveyed to the wheel through an iron pen-stock, the connection between the pen-stock flume being provided with a valve for shutting off the water entirely from the wheel when necessary. Everything is of the most perfect and durable construction. This mill will have a capacity of about 2000 bbls. daily, and is, we believe, the largest mill now in process of erection on the globe. The plans and programme for this mill were made by U. H. Odell, Milling Engineer for Stilwell & Bierce Mfg. Co. of Dayton, O., and it will be equipped with Odell's celebrated roller mills, all of which together with the water wheel and iron work throughout the mill were furnished by them. The entire plant reflects great credit upon its owners and also upon Stilwell & Bierce Mfg. Co., whose reputation as manufacturers of flour mill machinery is world wide.

NEW PUBLICATIONS, ETC.

We acknowledge with thanks the receipt of a copy of the Fifty-second Annual Report of the Philadelphia Board of Trade by Secretary Geo. L. Buzby.

We have just received a copy of NUMBER SEVENTEEN of OGILVIE'S POPULAR READING—price only 30 cents—containing the following seven stories—all complete—the price of EACH ONE of which, if issued in book form, would be 75 cents to $1.50: "The Cloven Foot," by Miss M. E. Braddon; "Calamity Jane," by Reckless Ralph; "The Young Heiress," by Edward Kirk; "Viviene," by a popular author; "Foiled," by Mrs. M. A. Holt; "See-Saw, Marjorie Daw," by a popular author; "Ninety-nine Readings and Recitations," by J. S. Ogilvie.

We have received from the U. S. Department of Agriculture a copy of the "Report of the Department of Agriculture for 1884," and also "The first Annual Report of the Bureau of Animal Industry."

THE weekly review of the flour product of Minneapolis by *The Northwestern Miller* for its issue of May 1, is as follows: The mills are not unduly crowding matters. The run last week was a strong one and the output was raised to a point only exceeded at the busiest time last fall. Out of eighteen mills, ten showed an increase in output and eight a decrease, there being among the former some of the larger mills. The flour production for the week ending Saturday was 142,836 barrels, against 132,200 barrels for the preceding week and 103,375 barrels during the corresponding time in 1884. On Wednesday twenty-one mills were running with a strong feed and it is quite probable that they will do as well as last week. For several days past less inconvenience has been experienced from wheat grinding "tough."

The markets have shown a fair improvement during the week, not so much in advanced quotations as a disposition on the part of buyers to take hold. They cannot be said to be doing so freely as yet, as all are waiting for the outcome of the European entanglement. Notwithstanding this feeling of suspense nearly all buyers are taking

some goods, evidently thinking that if war is declared the advance will be much greater than the decline if peace be maintained.

The receipts were: Wheat, 559,600 bushels; flour, 145,488 barrels; wheat in store, Minneapolis, 3,594,794 bushels; St. Paul, 916,500 bushels; Duluth, 6,434,346 bushels.

NEWS.

A roller flour mill is being erected at Capetown, Africa.

A small mill is to be built this spring, at Fairbank, Dakota.

Wilson & Seaver have purchased Crowley's mill at Brookville, Ks.

A Keusler & Co. have bought M. Grossheart's mill at Kansas City, O.

The Ypsilanti Machine Works will shortly introduce a new roller mill.

James Wise & Co. have bought R. Torrence's mill at Rockport, Ky.

Williams & Winchester have bought out Horton & Sons, at Palmyra, Wis.

The Barnard & Leas Manufacturing Company now builds the Gordon reel.

The Greenwood Milling Co. succeed J. W. Hoover & Co., at Greenwood, Mo.

Staler & Engler, Center Valley, Pa., have been bought out by Stahler & Ruiker.

Thiers, Kuegle & Co. succeed C. Thiers & Son in the milling business at Columbiana, O.

The Sweetwater, Tenn., flour mill was burned April 10. Loss $30,000; insurance $15,000.

Flour mills will, probably, soon be erected at Leiderville, Tenn,, and Dyersburg, Tenn.

John L. Lewis is contemplating the erection of a large oat meal mill at Grand Forks, Dak.

The Pillsbury B mill in Minneapolis, will probably be ready to start up about the middle of May.

L. M. Powers, Ottumwa, Iowa, is putting in rolls furnished by the Case Mfg. Co., Columbus, O.

In the new Pillsbury B Mill there will be no brandusters; centrifugal reels will be used instead.

The Morse bolt is about to be introduced in New York mills, a large number having been ordered.

The mill of the Eldred Milling Company, at Jackson, Mich., is nearly completed. It will start up in May.

The Garden City Millfurnishing Company, is having quite a large demand for its machines from Europe.

James Ellis & Co., flour merchants at Bradford, Pa., with liabilities of $300,000, have suspended payment.

The Case Mfg. Co. Columbus, O., have an order for 1 No. 1 double purifier, from Langton & Co., Melissa, Tex.

Leck Bros., of Bockenheim, Germany, have shipped a roller mill outfit to Jekaterenburg, in Siberia, Russia.

Robert Flickinger, Atchison, Kans., is putting in a No. 1 single purifier from The Case Mfg. Co., Columbus, O.

Kuehne's dust-collector is said to have proved successful. B. F. Gump, of Chicago, manufactures the machine.

Giblin hand fire-grenades did good work recently in the flour mill at Barron, Wis. No mill should be without them.

Kaestner & Co., of Chicago, will soon have a roller mill on the market, which is expected to develop an enormous capacity.

A grain-cleaning machine, with an emery cone and rubber case, has been tried in Chicago, and, it is said, has proved successful.

The Dehner & Weurpel Mill Building Co., St. Louis, has placed an order with the Case Mfg. Co., Columbus O., for 5 pairs of rolls.

The Red River Valley Elevator Co. (office in Minneapolis), will erect twelve elevators of 30,000 bushels capacity each, this year.

There are at present about 6,300,000 bushels of wheat stored in elevators, vessels etc., in Duluth, awaiting the opening of navigation.

The Champion Mill Co., has been incorporated with a capital of $1,000,000 for the manufacture and sale of flour, feed, etc., in New York City.

The Throop Grain Cleaner Company, of Buffalo, N. Y., is about to manufacture an English dust-collector, for which it has American rights.

The Pillsbury B Mill will be lighted by electric light. Incandescent burners will be placed in positions so as to render hand-lights unnecessary.

The Case Mfg. Co., Columbus, O., have closed contract with W. H. Dickson, Martel, O., for all the necessary machines for a 60-bbls. full roller mill.

The Case Mfg. Co., Columbus, O., have an additional order from C. E. Buck, Richmond, Va., for 2 pairs rolls with patent automatic feed.

A pickerel forty-four inches in length and weighing twenty-five and one-half pounds, was shot in the Montello, Wis., mill-pond by D. S. Perkins

The Case Mfg. Co., Columbus, O., have an additional order for five automatic feed boxes, from I. A. Shellabarger & Co., Decatur, Ill., for their Smith purifiers.

It is rumored that a roller mill is to be manufactured at Silver Creek, N. Y., and that the works lately occupied by McNeil & Spaulding will be used for that purpose.

W. N. Potts & Co. are rebuilding the Bonanza Mills burned last October at Richmond, Ky. The new mill will cost about $30,000 and have a capacity of 130 bbls. per day.

John Finch has overcome the principal difficulties in connection with the Ortmann dust-collector, which has been secured by the Knickerbocker Company of Jackson, Mich.

The new flour mill to be erected at Duluth, Minn., will be a very large one and as complete and perfect in detail as modern skill can make it. That is the report any way.

Henry C. Yaeger, late of Kane, Ill., has purchased the 400-barrels flour mill at Carlinville, Ill., owned by Weir Bros. It will be overhauled and started up again as soon as possible.

The Wilford & Northway Manufacturing Co. of Minneapolis, is introducing a new roller mill, with six-inch rolls and belt drive. One of the machines is working in the Crown Roller Mill, Minneapolis.

Fond du Lac papers report that Caspar & Sons, millers at Calvary, Wis., made an assignment to John Reinig, of Fond du Lac. The liabilities are not fully reported, but are estimated at from $12,000 to $18,000; assets about $10,000.

A boy named Fred. Cummers, while assisting to put on a belt in Stevens mill at Tustin, Mich., had his clothing caught in a rapidly revolving shaft, and was horribly mangled. His death was instantaneous.

The citizens of Lamberton, Redwood Co., Minn., offer a bonus of $2,000 to any one who will build a 100-barrels roller flour mill at that place. Communications should be addressed to F. Ries, Lamberton, Minn

One of the Phœnix Works (Minneapolis) three-high screenings roller mills has been ordered by G. V. Hecker & Co., of New York. This machine has the only practical belt-drive for a three-high roller mill yet introduced.

The Case Mfg. Co., Columbus, O., have an order from the La Grange Milling Co., La Grange, Ind., for one 5-reel scalping chest, and one "Case" centrifugal reel; also an additional order from H. L. Smith & Co., Lawrence Kans., for rolls.

C. McRoberts, head miller for Duchel Bros., Scio, Mich., writes the Case Mfg. Co.: "I have run the mill alone for 1 week, bought the wheat, packed the flour, and ground 28 bushels of wheat per hour; we have the best running mill on the Huron River."

New milling enterprises are contemplated at Athens, Ga.; Stewartsville, Ky.; Jackson, Ga.; Sharpe, Ky.; Hillsborough, Texas; Loretto, Tenn.; Onancook, Va.; Palatka, Fla.; Coopertown, Tenn.; Liberty, Va.; Appling, Ga.; Augusta, Ky.; Corning, Ark; Stone Mount, Ga.; and Newmansville, Fla.

The Case Mfg. Co., Columbus, O., have orders from the Fleniken Turbine Co., Dubuque, Iowa, for 8 pairs rolls for Henry Meder, Mederville, Iowa; and 8 pairs for J. H. Carnell, Correctionville, Iowa—all with patent automatic feed; also from W. T. Pyne, Louisville, Ky., who has placed an additional order with the Case Mfg. Co., Columbus, for rolls to be shipped T. J. Morris, Bowling Green, Ky.

It appears from carefully collected statistics that the total number of boiler explosions in the United States in 1884 was 152, by which 354 people were killed and 261 others injured. This number falls slightly below that of the preceding year. The saw mill boiler is down for 56 of the explosions. The percentage in 1884 was 37 per cent. of all the explosions, instead of over 40 per cent. of the year before. There was a falling off of two in the number of locomotive boiler explosions from the record of the preceding year.

BURNED.—April 9. W. J. Phelps' mill at Millers Falls Mass.—loss $5,000, insurance $4,000; April 10, the mills at SweetWater, Tenn.—loss $30,000, insurance $15,000; March 9, E. J. Ross' mill at Empire, Ill.—loss about $10,000; April 6, Ed. Melchur's mill, near Reading, Pa.—loss about $10,000, insurance $5,000; April 8, Rohebach Bros'. mill at Bowers Station, Pa.—loss $15,000, insurance $6,000; April 13, Joseph Harps' mill, near Ellerton, Md.—loss $6,000, no insurance; April 13, Taylor's mill at Mt. Pleasant, Iowa—loss $12,000, insurance $5,000; Baden & Nelson's mill near Stillwater, Minn., April 14, loss about $8,000, insurance $3,500.

About two years ago The Case Mfg. Co., Columbus, O., furnished M. E. Moore, of Waterville, Kas., a complete outfit of breaks, rolls, purifiers, etc., for a full roller mill on the "Case" system. A few weeks ago the mill was destroyed by fire. Mr. Moore concluded to rebuild his mill, and being well pleased with the Case machinery, he has again placed his order with the same company for a complete outfit of breaks, rolls, purifiers, scalpers, etc., for the new mill, which speaks well for the Case machinery.

The Case Manufacturing Co., Columbus, Ohio, have received the following orders the past month: From A. L. Strang Co., Omaha, Neb., for rolls, purifiers, centrifugal reels, scalping reels, bolting reels, etc., for a complete gradual reduction mill on the "Case" system, using 10 pairs rolls; from Dehner Weurpel Mill-building Co., St. Louis, Mo., for 5 pairs of rolls with patent automatic feed; from H. Smith & Co., Grafton, Wis., for 2 pairs rolls, with patent automatic feed; from Johnson & Wentfinger, Jefferson, Wis., for a full line of breaks, rolls, purifiers, scalpers, centrifugals, and bolting reels, and all necessary machinery for a complete gradual reduction mill on the "Case" system; an additional order for 1 pair rolls, with patent automatic feed, from H. C. Smith & Co., Lawrence, Kas; from J. A. Parker & Co., Terre Haute, Ind., for rolls to be shipped to Eaton & Parks, Sullivan, Ind.; from Sinker, Davis & Co, Indianapolis, Ind., 2 additional pairs of rolls for the Zrystal Palace Milling Co., Wetherford, Tex.; from the Lehman Grinding Disk Co., Kansas City, Mo., for 4 pairs of rolls with patent automatic feed, for Bowman Bros., Dale & Co., Pawnee Rock, Kas.; they have also been awarded the contract of the Carmel Milling Co., Carmel, Ind., for a full outfit of breaks, rolls, purifiers, centrifugal reels, bolting reels, and all necessary machinery for a complete reduction mill on the "Case" system, using 12 pairs of rolls; the contract of Wm. Rathman, Uniontown, Ky., for a complete outfit of breaks, rolls, purifiers, centrifugal reels, scalping reels, &c., for a full roller mill on the "Case" system; the contract of Poorman Bros., Anthony, Kas., for all the necessary machinery for a complete roller mill on the "Case" system, using 12 pairs rolls with patent automatic feed.

HE COULDN'T MAKE IT OUT.—The proprietor of a tannery, having erected a building on the main street for the sale of his leather, the purchase of his hides, etc., began to consider what kind of a sign would be most attractive. At last what he thought a happy idea struck him. He bored an auger-hole through the door-post and stuck a calf's tail into it, with the bushy end flaunting out. After a while he noticed a grave-looking person standing near the door, with spectacles on, gazing intently at the sign. So long did he gaze that finally the tanner stepped out and addressed the individual:

"Good morning!"

"Morning," replied the man without moving his eyes from the sign.

"You want to buy leather?" "No."

"Want to sell hides?" "No."

"Are you a farmer?" "No."

"Are you a merchant?" "No."

"Lawer?" "No."

"Doctor?" "No."

"Minister?" "No."

"What in thunder are you?"

"I'm a philosopher. I've been standing here half an hour trying to decide how that calf got through that auger-hole, and for the life of me I can't make it out!"—*Every Other Saturday.*

ITEMS OF INTEREST.

HEALING PROPERTIES OF WATER.—There is no remedy of such general application and none so easily attainable as water, and yet nine persons in ten will pass it by in an emergency to seek for something of less efficacy. There are but few cases of illness where water should not occupy the highest place as a remedial agent. A strip of flannel or a napkin, folded lengthwise and wrung out of hot water and applied around the neck of a child that has the croup will usually bring relief in ten minutes. A towel folded several times and quickly wrung out of hot water, and applied over the seat of the pain in toothache or neuralgia will generally afford prompt relief. This treatment in colic works like magic. We have known cases that have resisted other treatment for hours yield to this in ten minutes. There is nothing that will so promptly cut short a congestion of the lungs, sore-throat, or rheumatism, as hot water when applied promptly and thoroughly. Pieces of cotton batting dipped in hot water, and kept applied to all sores and new cuts, bruises and sprains, is the treatment now generally adopted in hospitals. Sprained ankle has been cured in an hour by showe ing it with hot water, poured from a hight of ten feet. Tepid water acts promptly as an emetic, and hot water taken freely half an hour before bed-time is the best of cathartics in the case of constipation, while it has a most soothing effect on the stomach and bowels. This treatment continued for a few months, with proper attention to diet, will alleviate any case of dyspepsia.

SHE COST HER WEIGHT IN GOLD.—Mrs. Jesus Costro, an aged Mexican lady, now residing at American Flag, in the Santa Catilina mountains, is perhaps the only woman who, literally speaking cost her husband her weight in gold. It is said that in the early gold-digging days of California, she was a resident of Sonora, in which state she was born and grew to womanhood. When about the age of 17 a paternal uncle, but a few years her senior, returned with his companions, gold-laden, from the El Dorado of the West, and became desperately enamored of her. He sought her hand in marriage and was accepted, but the church refused, because of the near relationship existing between them, to solemnize the marriage. Persuasion being in vain, he tried the power of gold to win the church his way, and succeeded only by the payment of her weight in gold. She at the time weighed 117 pounds, and against her in the scales the glitteriug dust was shoveled. Her affianced husband still had sufficient of this world's goods to provide a comfortable home, and they were married. They lived happily together, and she bore to her husband eleven children. In the course of years he died and she married again, Mr. Castro being her second husband. The above is a fact, and not fiction, as living witnesses can prove.—*Tucson Star.*

ELECTRIC BOILER CLEANERS.—Electricity is being advantageously applied in Calais for removing the incrustations from boilers. Two poles of a battery of ten to twelve Bunsen elements are applied to the ends of the boilers, and after 30 to 40 hours the deposits fall from the sides to the bottom. When a boiler has been thus cleared the formation of new deposits may be prevented by applying a much less energetic current under the same conditions.—*Brooklyn Eagle.*

AN Atlanta, Ga., man claims to have discovered a new principle in hydraulics that will revolutionize pumping. Hitherto it has been an established belief that water will not rise in a vacuum to a hight of more than 33 feet. For that reason pumps are generally set within 26 feet of the water. By the new discovery the pumping machinery can be put on the surface of the earth, and as far from the water as is necessary. The inventor claims to have pumped water out of an artesian well in Texas 600 feet deep.

THE remarkable telegraphic apparatus recently devised by Messrs. Hathaway and Linville, of Philadelphia, is a striking illustration of the constant progression and development of human ingenuity. This machine renders telegraphy as simple as operating a writing-machine, and it promises to revolutionize the telegraph business. With it there is no use for the expert telegrapher, as any one who can operate an ordinary type-writer can send messages. In front, it is like a type-writer, the letters and numerals standing up on elevated keys. The keys start variously graduated currents of electricity which traverse the connecting wire, sometimes meeting and passing in opposite directions. The touching of a key produces a letter on the paper of both the sending and receiving instruments, for both are alike. Each machine serves for either use, and can be worked as fast as a skillful type-writer operator can touch the keys. One great advantage is, the message cannot be read by sound, thus securing privacy. It is applicable to any system of wire communication and is capable of working with any number of tributaries. A company has been formed in Philadelphia to control the patents, and $2,000,000 of capital stock has been issued, but no shares are for sale. The president is Mr. Thomas Cochran, of Philadelphia, who has given assurance that the details published regarding the invention are substantially correct.—*Bradstreet's.*

THE LUMBER TRADE IN 1884.—The *Northwestern Lumberman* has collected elaborate statistics of the production of white pine lumber in the Northwest, giving the output of nearly every mill last year. The total production for twelve years is given as follows, in thousands of feet:

YEAR.	M. FT.	YEAR.	M. FT.
1873	3,993,780	1879	4,806,943
1874	3,751,306	1880	5,651,295
1875	3,968 553	1881	6,768,857
1876	3,879,046	1882	7,552,151
1877	3,595,333	1883	7,624,790
1878	3,629,473	1884	7,935,023

It appears from this that the production last year was four per cent. more than the year before, but in some of the lumber districts only a comparatively small part of the year's production was marketed.

THE latest experiment in the organization of industry comes from Russia, where the employes at the large engineering works belonging to the firm of Struve & Co. have recently been planted in a complete settlement somewhat like Pullman City in the state of Illinois. The workmen, of whom there are between 3,500 and 4,000, are all lodged in small cottages, most of which are made to accommodate two families only, while the public institutions of the colony include a refectory, a laundry, a hospital, a benefit society; but charity in any other form is quite unknown in the place. The co-operative society pays a flourishing dividend. It would be curious if Russia, which is a survival of the past in its village communities of an agricultural type, were also to be a pioneer of the future in village communities of an industrial type.

THE BEST TOOL ALWAYS THE CHEAPEST.—Practically, the price paid for the tool which will do the work in the best and cheapest manner is of no consequence. The difference between the lowest priced machine tool to be found in the country and the best one which money can buy for a given purpose, is so small compared with the difference in the amount and quality of the product, as to make the first cost an entirely secondary consideration.

AN English officer, who has seen service in Egypt, states that the food of the Arabian horse consists of six pounds of barley, which is given at sunset. This custom seems to agree with the animal, and it enables his owner to carry in a bag food enough—sixty pounds—for a ten days' journey across the desert. The stomach of the horse is small, and for this reason it is the custom in agritural countries to give him three meals a day. But in Arabia they make a virtue of necessity. Fast is broken but once in 24 hours.

A DIAMOND WEIGHING NEARLY 200 KARATS.—In a small morocco case in the New-York office of D. L. Van Moppes, the diamond merchant, lay a crystaline lump yesterday, which was almost pure white, save for a yellowish tinge toward the extreme a gles. It was a diamond which probably contains the finest material and is of the most perfect shape of all diamonds approaching its size in the world and certainly in America. It tipped the dainty little scales at the extraordinary weight of 192 karats. It comes from the Kimberly mine of the South African diamond fields and has been in the possession of the firm for some time. The elder Van Moppes of Paris sent the stone to America for exhibition merely, as no price has been set upon it. Holding it up to the light its wonderful beauty, even in its uncut state, was seen. Its crystaline form is perfect, the sharp points only having been ground off to guard against the danger of fracture from a sudden fall. Save for one minute speck close to the surface it is flawless as far as can be judged at present, and its perfect shape will allow it to be cut to extreme advantage so that the loss will be in the neighborhood of 70 or 80 karats, and the cut stone will therefore weigh about 110 to 115 karats. The parent house of Van Moppes is in Paris, but the cutting house is in Amsterdam, where many men are employed; here it is likely this stone will be cut.—*N. Y. Tribune, April 20.*

HOW GOOD BREAD IS MADE.

The Boston woman who wrote this homily on the bread question seems to know precisely what she is talking about. Hear her:

"Why any one who has been busy since last summer in making the bread needed in a family of any size could fail to solve that problem I am unable to comprehend. I was taught to make bread many years ago, by a grandmother who was a lady of the olden time. A life of happiness, and, much of the time, of prosperity, so filled my days that my bread knowledge was not called in question for many years, except to name the

faults I would find with it if we made a change of cooks and the texture varied.

"At last a change came for me in life, and to help keep our home I received a few young ladies into it for educational purposes. With a good deal of the practical about me, I soon decided that those girls should have added to their studies as much of a knowledge of cooking as I could crowd in without too great a pressure. The first step was bread-making, and from Jan. 1 until they went home in June they made all the bread we used, each taking a week. There were four of them, and every morning during those months we had, as had always been the habit, warm rolls on the table as well as cold bread. I can not recall the loss of one batch of bread from any cause, or poor bread during that time. Previous to that time I had taken some charge of bread myself, as it had seemed wise to train less expensive servants than we formerly employed. This gave me fresh experience.

"It was our never-failing hot home-made rolls that inspired the girls with a desire to excel in that line, and the work was voluntary with them, not required. Soon, however, there was a strife as to which did excel. I always was sure what the result would be, because rules acquired by observation were held to. The average heat of a kitchen during hours when a good fire is in use can soon be learned. Compressed yeast is far quicker in its effects than old fashioned yeast, and as that was used we could count accurately upon the results. About 5 P. M. a sponge was set with two quarts of all milk, or half water, as the case might be. Flour was sifted in a deep bowl, and the milk was lukewarm. In a little of the hot water was melted a tablespoonful of butter, a small tablespoonful of sugar, and an even teaspoon-ful of salt. In the centre of the sifted flour this was stirred until enough was wet for a sponge, the yeast added. Two hours later, the sponge was light and the bread kneaded, a work of but a few moments. I always sat by the table to suggest from time to time.

"Just before retiring, after an hour or more with studies, say 9 P. M., two small pans, holding eight to ten rolls each, were buttered and filled. The rolls made less than half the size wished when baked, to allow for rising, and consequently placed some distance apart. These pans were placed in the ice-chest, or in the store-room if freezing weather. The cook merely had to take them to the kitchen in the morning, and while her oven was heating the warmth of the kitchen would soon bring the rolls to the exact condition for baking. The remaining dough was kept on ice, or below freezing point, and used for a night or two. Bread once light can not be made heavy or injured by cold, neither need it be sour. I never used an atom of soda to sweeten sour bread. These ideas are given for winter use. Spring and summer heat requires a change of hours. I had never failed in securing good bread from servants, but I do make it a rule to give personal attention to it for a month, and the habits thus formed remain. I don't mean by this that I make it, for I do not, but I sit by and have all done carefully.

"Now about the oven, as the best bread can be spoiled there: It must be a habit to brush out all the places where ashes can collet at least once a week. An ordinary sized loaf of bread requires about an hour to bake. Coal should never be heaped to the lids, as the oven does not heat as well; evenly filled as high as the fire brick is enough; dampers adjusted, time watched, and rolls are ready in twenty minutes; bread from an hour to an hour and a half, depending upon the quickness of oven. No machine need be invented to take the place of common sense, and that, in full exercise with a person who is methodical, solves the problem. Your bread under such culture will run as regularly as your clock, providing that these conditions are enforced. It is natural to try an oven with the hand, but raising the lid of the range will tell me any moment whether that is a fire I can bake with or not, and just how long I can rely upon it, for it is better not to add coal during the process of baking."

NONSENSE.

No Similarity.—"Darling," he said, as he tried to tickle his wife under the chin, "why am I like the moon?"

"You are not like the moon, John Henry, in any particular."

"Why, how do you make that out, my dear?"

"Because the moon has been full but twice this month."

He says that isn't the right answer.

Effect of Eating Pie.—Jones—"A queer thing happened in New York the other day. A horse stole three pies from a baker's wagon and ate them."

Smith—"I should like to have seen that baker. He must have been astonished."

"Astonished! He was mad; in fact driven to desperation."

"Why, what about?"

"The loss."

"The loss of the pies?"

"No; of the horse. It was the only one he had."

"Who left that door open?" growled Mr. Dinkle, looking up from his desk one of those freezing days last winter.

"I did," answered the new office boy.

"Can't you ever learn to shut a door?"

"I s'pose so, sir."

"Well, why in thunder don't you do it?"

"I'm goin' to; but you see I'm new yet, and I had so much to learn that I thought I'd leave the door be till along toward the last."

"Going with your bride to select your table ware, are you? Well, young man, let me give you a hint. Buy light cups and small plates. Many a man and wife have been seriously injured in a dispute by big plates." And old Mr. Budger chuckled and rubbed his head, and the happy couple passed on.

His Qualifications.—"Here's a musical salesman advertised for. Why don't you apply, Ned?"

"I? Why, I'm not musical."

"Perhaps not; but I notice that you can blow your own horn, you're familiar with bars, you are always giving notes and all the rest."

In 1850 Elder Littlejohn offered up the following original prayer, which, though intended for Indiana, will fit other states: "O, Lord! there is great wickedness and much drunkenness in our young and rising towns. Therefore, O Lord, we crave Thy blessing. Now, Milwaukee, just sprung up, is bad; Chicago, another mushroom, is worse. Yet do Thou, Lord, bless and improve them. Then, there is Michigan City, a place of sand and whisky, and La Porte of mud and wickedness; and indeed they need Thy blessing. And there is South Bend, and also Niles, where they think themselves righteous, but they are full of rum-holes and rottenness. Lord, they need Thy blessing. And here in Mishawaka, which boasts itself something, but has nothing but self-righteousness, good Lord, open its eyes, that it may receive Thy blessing. Then we have Elkhart, and Bristol, and Mottville, little things, but wicked. Do, Lord, bless them. [Then pausing for breath and raising his voice to the highest pitch.] And, lastly, then, dear, good Lord, even bless Constantine, where Gov. Barry sells whiskey at three cents a glass. Amen."

Nora's Balance.—Last summer, during the excitement owing to bank failures in Indianapolis, I was watching the anxious crowd besieging the doors of a bank that was supposed to be in danger, when I overheard the following dialogue between an Irish woman and her husband:

"Nora, dhraw yer money out."

"An' shure, Patrick, I won't."

"But, Nora, you musht dhraw it out."

"Faith an' I won't draw me money out at all."

"Nora, an' don't yees know they'll lose yer money for yees ef yees don't dhraw it out."

"An' shure, Patrick, ain't they better able to lose it than we are?"

Patrick was evidently overpowered with this last astonishing and unanswerable argument, and they both left the scene apparently satisfied. Fortunately the bank survived the pressure, and its ability *to lose Nora's balance* was not practically tested.—*Editor's Drawer, in Harper's Magazine for May.*

A Bad Break.—Sam. Peterby, a merchant from the interior, while attending the Mardi Gras festival at Galveston, united business with pleasure by purchasing a bill of goods from a prominent firm. He was very politely received, and one of the proprietors showed him over the immense store. On reaching the fourth floor the customer perceived a speaking tube on the wall, the first thing of the kind he had ever seen.

"What is that?" he asked.

"Oh, that is a speaking tube; it is a great convenience. We can converse with clerks on the first floor without the trouble of going down stairs."

"Can they hear what you say through that?" asked the visitor.

"Certainly; and they can reply at the same time."

"You don't say so!" exclaimed the visitor. "May I talk through it!"

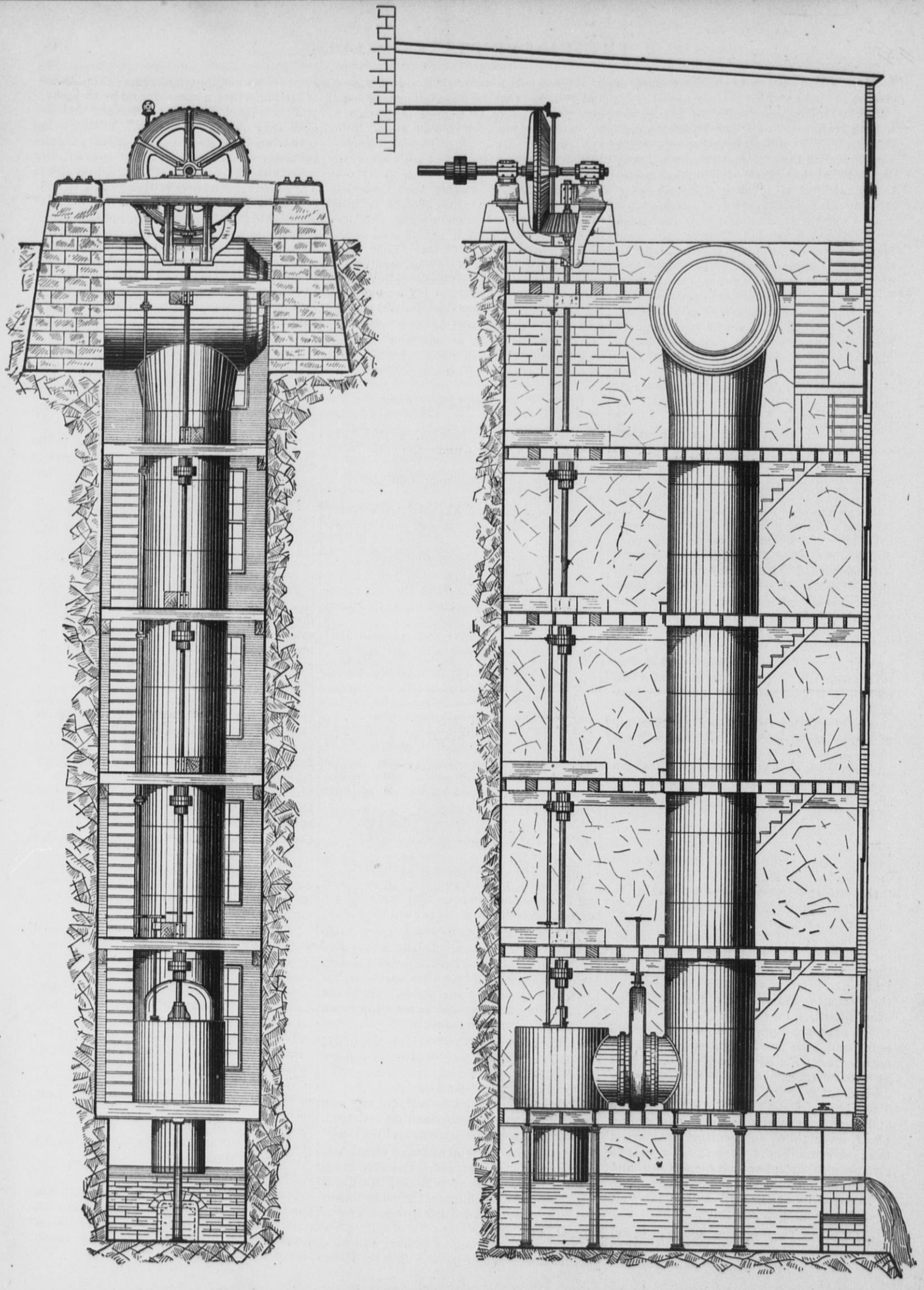
"Certainly," was the reply.

The visitor put his mouth to the speaking tube and asked: "Are Sam. Peterby's goods packed up yet?"

The people in the office must have supposed it was somebody else speaking, for a moment later the distinct reply came back: "No. We have not packed them up yet. We are waiting for a telegram from his town. We believe he is a slippery cuss."

Tableau.—*Texas Siftings.*

Isn't it awful?" cried Julia, as a dog in the agony of fright went scurrying past with a kettle tied to his tail. "Yes, indeed," replied Jones, "I guess there won't be much left of the kittle."



THE NEW YORK PRODUCE EXCHANGE BILL OF LADING.

Last Saturday's *N. Y. Journal of Commerce* (April 25) says: The correspondence which has been for some time in progress between the special committee of the New York Produce Exchange and the Liverpool Shipowners' Association regarding the bill of lading adopted by the Exchange, in which the Liverpool Association sought to introduce various modifications, has borne substantial fruit in producing full accord between the two bodies. The Board of Managers of the Produce Exchange yesterday approved the modified form agreed on as the result of this correspondence, but continued the special committee, consisting of Messrs. Gustav Schwab, chairman, David Bingham and Charles F. Wreaks, secretary, with power to make further modifications and to correspond with other bodies in order to secure their co-operation in the adoption of the bill. We have already stated that the special committee of the Chicago Board of Trade, with which the New York committee have been in correspondence, have practically resolved on making their adhesion to the form, so far as through bills are concerned, giving further consideration to the form of a lake bill.

The modifications of the Produce Exchange bill, as compared with its original, adopted at the "Conference of the Association for the Reform and Codification of the Law of Nations," are very considerable, but the changes now made are not numerous nor fundamental, though some are rather important. The first is the introduction in the clause stipulating for delivery at the port, of the words "or as near thereto as she may safely get," the insertion of which is optional with the carrier. The words "and primage (if customary) in cash without discount," or "with primage" may be likewise inserted at the carrier's option. The clause giving the carrier liberty to convey goods in lighters to and from the ship at the risk of the owners of the goods, is varied somewhat in form. The carrier's exemptions for loss or damage are enlarged by the inclusion of "causes beyond his control, riots, strikes, or stoppages of labor, heating," errors or insufficiency of marks, numbers, address, or description (the *absence* of these marks, etc., was already provided for); "risk of craft, hulk or transhipment." The loss by fire, is further defined as an excepted risk "wheresoever occurring," and the exemption from liability on account of latent defects, etc., in hull and machinery, is extended to "appurtenances." It is stipulated that "the holder of the bill of lading" shall be bound by its conditions on acceptance, as well as the shipper, owner, and consignee of the goods, as fully as if signed by them. Finally; the clause specifying the number of bills issued concludes with the proviso: "One of which being accomplished, *and given up to the carrier*, the others to stand void." The words in italic letters are new.

MILLING PATENTS.

The following list of patents relating to milling interests granted by the U. S. Patent Office, during the past month, is specially reported by Stout & Underwood, Solicitors of Patents, 66 Wisconsin st., Milwaukee, who will send a copy of any patent named to any address on receipt of 50 cents.

Issue of March 31, 1885.—No 314,571—Bag-holder, W. B. Emmons, Pettisville, Ohio; 314,627—Feed Regulator for roller mills, F. M. Tatlow, Hannibal, Mo.; 314,668—Blast-regulator for grain separators. J. Grabe, Newark, Ohio; 314,770—Bag-holder, W. Yerdon, Port Plain, N. Y.; 314,776—Machine for dressing millstones, I. B. Baker, Port Allegheny, Pa.; 314,844—Pulp Grinders, W. H. Howell, Thorold, Ont.; 314,850—Apparatus for crushing and Grinding malt, etc., E. Kanfield, Pittsburg. Pa.; 314,977—Mill-stone Dress, J. R. Price, Hickory, Miss.

Issue of April 7, 1885.—No. 315,143—Machine for breaking wheat, H. Hudson and S. M. Tobey, Salinas, Cal.; 315,146—Pulverizing Apparatus, W. A. Koneman and H. H. Sevville, Chicago, Ill.; 315,155—Wheat Scourer, T. Mc. Cuddin, St. Louis, and A. F. Shearlock, Festus, Mo.; 315,201—Roller Mill, J. L. Wilford, Minneapolis, Minn; Re-issue, No. 10,579—Roller Grinding Mill. F. Wegmann, Zurich, Switzerland.

Issue of April 14, 1885.—No. 315,508—Grain Dryer, E. W. Johnson, Trumansburg, N. Y.; 315,523—Grain-cleaner, F. M. Lynett, Toronto, Ont.; 315,585—Grain Meter, E. N. Williamson, Lodge, Ill.; 315,588—Green corn cutting-machine, A. P. Wood and W. E. Lindsey, Baltimore, Md.; 315,682, Grain-measuring Apparatus, O. P and Q. E. Wagner, Pontiac, Ill.

Issue of April 21, 1885.—No. 315,996—Machine for Cleaning Grain, M. D. Beardslee, Milwaukee, Wis.; 315,997—Grain-scourer, M. D. Beardslee, Milwaukee, 316,063—Grain-cleaning and Drying Machine, J. Ritchie, Liverpool, Eng.; 316,068—Screening Apparatus, O. Schlickeysin, Berlin, Germany.

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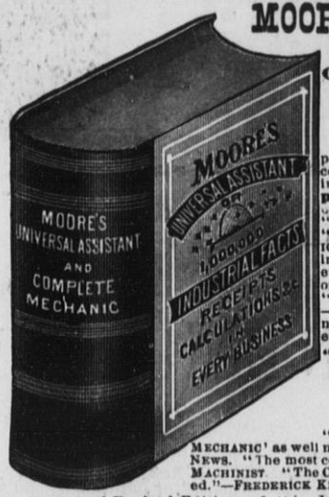

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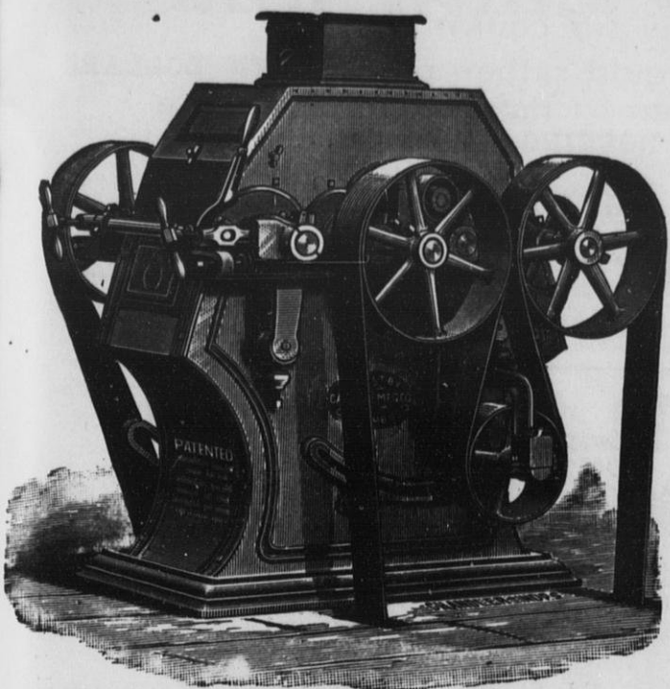

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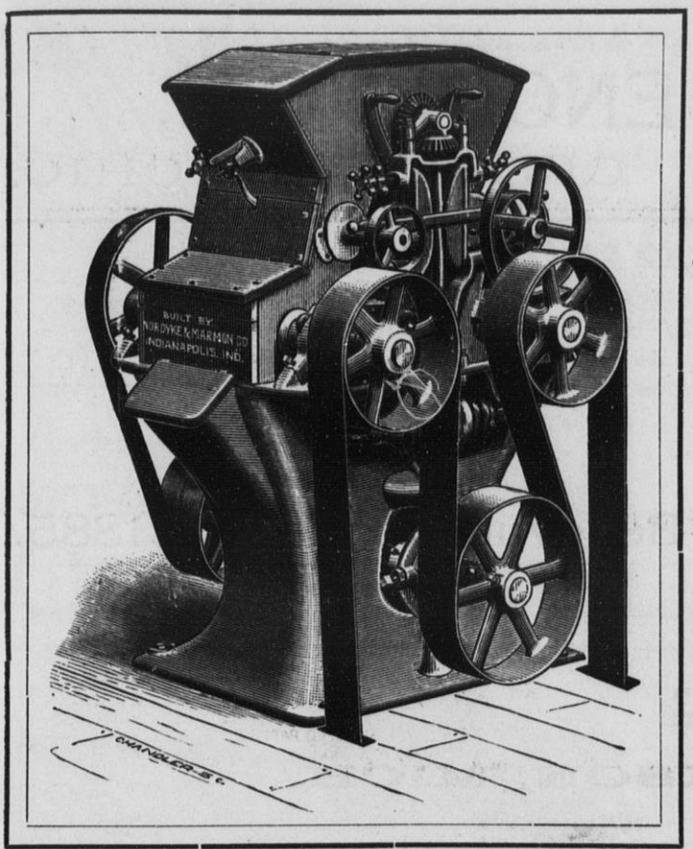

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THE SILVER CREEK DOUBLE SCALPER.

It is freely admitted that the quicker the separations of the various products of the crushed or ground wheat berry are made, the less danger there is of the injurious product deteriorating the better, or of making reductions of particles that should not be further pulverized.

Taking as an example the effect of carrying nicely dusted middlings in a conveyor a distance of twenty feet, it will be found that at the end they will be so reduced as to show from 15 to 25 per cent. of flour. In the case of middlings we actually see the injury done, and generally avoid it, *but are we not all the time doing the same thing, only that we do not see the harm, by our endless system of bolting, conveying and elevating. Is not the flour that is unnecessarily handled injured to quite the same extent?*

So long as nothing better than the old style scalper, in connection with dusting reel and double conveyor, the separating reel with double conveyor, and further the six or eight reel chest with more double conveyors, was used, we got along as best we could, but the miller often wondered what made his flour so soft. Has any one ever calculated the distance traveled by a particle of flour, from the first break to the packer? How much of it is useless? The object of the SILVER CREEK DOUBLE SCALPER is, when supplemented by a series of centrifugals, to reduce the useless handling by nearly one half, with an incidental saving of much power and room.

The Silver Creek Double Scalper is composed of two continuous surface cylinders, one placed inside of the other. The material to be treated is fed to the inside cylinder by means of the Fickinger patent feed device, where upon the surface of wire cloth or grit gauze as the nature of the stock may require the flour and middlings are at one separated from the coarser particles of wheat or bran, if the material treated be burr chop, which are, by means of elevator arms in the tail end of the cylinder, raised and discharged centrally through an opening into a discharge spout.

Surrounding the inside cylinder and supported on hoops and standards which rest upon it, is another cylinder of a continuous cloth surface of suitable mesh. On this the flour and middlings, as they are bolted through the cloth of the inside cylinder, are simultaneously separated, the flour passing through the meshes of the cloth into the hopper below, while the middlings are carried along the surface and discharged over the tail of the outside cylinder into a separate compartment, perfectly dusted and ready to go to the purifier.

To keep open the meshes of the cloth and insure a uniform bolting operation, a self-acting knocker is applied to the inside of the reel, and the further advantage of keeping the specks on the inside surface is gained.

It will be seen that three distinct separations are made. The wheat break to go to the next reduction rolls, the middlings perfectly dusted to go to the purifier, and the flour to go to a suitable centrifugal, and all these separations are made on a machine that takes no more room than the common scalper now used in connection with rolls, and without the injurious effect of conveyor mixing.

The manner of putting on the cloth is by means of lacing hooks and cord, approved by all who have seen it.

All machines are driven from tail end unless otherwise ordered. They can be run either right or left hand. This machine is manufactured by Aug. Heine, Silver Creek, N. Y.

MECHANICS IN EDUCATION.

Seeing and feeling are two senses which are more important in aiding to a knowledge of our surroundings than any others, and yet their education is generally neglected until the possessor begins to learn something of mechanics. By mechanics in this connection is intended any attempt to contrive, put together, manufacture or change by manipulation, so that a woman who contrives and fashions a dress out of the unformed and plain material may be a mechanic. The use of mechanical tools cannot be begun too early in life, whether the pupil is to be a practical mechanic or to follow some other calling—there are few vocations that do not demand for success some practical knowledge of mechanics. "The whittling Yankees" possibly owe much of their undisputed position as inventors and good mechanics to the habit of using a pocket knife. A very prominent inventor and superior mechanic recently remarked that the bent of his taste as a mechanic was undoubtedly given by his schoolmaster, who was a carpenter and joiner, and who worked at his trade in summer and taught the district school in winter. If a boy did not possess a foot rule, he made one for him from a shingle or constructed an inch scale. The foot rule and a pocket knife he considered necessary in a schoolboy's outfit, and he encouraged his pupils to estimate dimensions by the eye and then verify them by measurement. Wind-wheels and water-mills were part of the pedagogue's training, and the click-clack of one or the other could be heard all about the school-house and on the borders of the brook in an adjoining field. Vanes cut from pine boards, toy ships, bird houses, bows and arrows, pudding sticks, and most of the toys used by boys forty years ago were made by the schoolmaster's boys under his direction. To-day, besides the prolific inventor named, there are one superintendent of a railroad company, one bridge builder, one superintendent of a large manufactory, and two architects to be counted from memory, who probably received their bent for mechanics from the carpenter schoolmaster.

All these lead lives of usefulness—they are producers, adding to the wealth and comfort of the country and the people; and nothing in their education makes them less valuable members of society. One of the most distinguished pulpit orators was a blacksmith, and many men who are noted for their eminence in literature, divinity, law, medicine, and as educators, have had a mechanical training.—*Building and Engineering Times.*

CRUSHING ROLLS.—The use of rolls in place of stamps for crushing ore is becoming more and more general in this country and is universal in the new and best constructed foreign works. The plant as now adopted in concentrating works consist usually of one or two sets of rock breakers of the Blake or other convenient pattern. These reduce the size to about ¾-inch. Two sets of Cornish rolls reduce the ore successfully from this size to the maximum desired in concentrating, which may vary from $\frac{1}{30}$ inch to ¼ inch. The ore from fine rolls goes to sizing screens, and from these the sizes down to say $\frac{1}{50}$ inch go to jigs, the ore finer than $\frac{1}{50}$ inch going usually through spitzkasten and sometimes directly to slime tables or belts of one of the accepted types. Perhaps the most important machinery in such a mill is the crushing rolls. These m ust combine enormous strength durability of wearing parts, facility of repaisr with moderate first cost.

The rolls are now almost always made with removable shells of steel or of special grades of iron, and they vary in diameter from 20 inches to 36 inches, and in width from 10 inches to 16 inches. Sometimes one roll is made wider than the other, but there is an object in this, as far as possible making the parts interchangeable.—*Eng. and Mining Journal.*

A LOAF OF BREAD.

"Are you most ready?" called a merry voice from the foot of the stairs.

"Almost."

There was something not altogether satisfactory in the answering tone. Miss Dallas deposited the basket she held beside the newel post, gathered up a bewildering combination of mull puffs and embroidery high enough to display a daintily shod foot, and tripped lightly up the stair-case.

"I shall have a better opinion of myself from this time forth," she declared, as she paused at the doorway. "For once I am on time and you are not. Such a thing never happened before!"

"Make the most of it then."

The retort came with an effort that was instantly detected.

Miss Dallas made a sudden onslaught upon the girl who stood before the mirror finishing her toilet. "What is the matter?" she demanded, laying constraining hands on Polly's shoulder, and looking straight into the brown eyes that were thus forced to meet her own blue orbs. "You've been crying."

"Well, what then?"

"Why, that you have had good and sufficient cause, Polly," with quick apprehension; "is it Jack? Have you heard from him?"

Polly smiled reassuringly, in spite of the red rims about her eyes.

"You needn't begin to worry about Jack," she answered stooping to kiss Jack's sister. "Yes, I had a letter last night, and he was well and in excellent spirits."

"*We* didn't hear," said Katrine Dallas, accenting the personal pronoun. "If we wern't so fond of you, Polly—one and all of us—I don't know how we'd be able to endure you!"

"But you do love me, you see; and it wasn't Jack's fault this time," Polly answered incoherently. "His letter to me was cut short by a party of men who had ridden over from Birch Creek. He was going to write to your mother that night, but of course he couldn't then."

"And of course it was you that came first," said Katrine, with pretended jealousy.

"It is not that he loves Cæsar less," began Polly.

"That he loves Rome more. No doubt you think that is a very satisfactory explanation, Miss Polly, but opinions may differ."

"Yours don't," said Polly, putting her arm around Katrine's waist. "Come,—suppose these people up at the church are wondering where we are, and abusing us as unprofitable members."

"They may continue in that laudable occupation," said Katrine, coolly; "it will give them something to do. Nobody ever goes to a church festival at 3 o'clock of a summer afternoon—it's all nonsense to open before 6.

"But we promised to be there."

"And you wern't ready," interrupted Miss Dallas. "Now I don't propose to go till I know what change has come over the spirit of your dreams."

"I'd rather not tell you."

"Is it your own worry, or somebody's else?"

"Mine," was the despondent answer. "Do not bother over it, Katrine. It can't be helped, and there's no use talking about it."

"The use is that I love you, and that I am Jack's sister."

"That's the very reason."

Katrine's blue eyes opened wide, and she planted herself defiantly against the door. "Then I *insist* upon knowing, Polly," with a sudden change of voice and manner. "Don't you love me [one arm curled around Polly's waist, a blonde head rested against Polly's shoulder, and two blue eyes looked with a pleading expression,] enough to trust me? I wouldn't treat you so."

Polly melted, visibly. "I am making a mighty mystery," she said, with a little hysterical laugh, over a question of—*clothes!* You don't credit me with being silly enough to cry because I couldn't have the purple and white linen I had set my heart on?"

"And I don't now," said Katrine, quickly. "Tell me what you mean."

"I mean that yesterday's hail-storm has upset all my plans and preparations."

"What a frightful storm it was! Weren't you frightened, Polly?"

"Yes—for the *grapes*."

Katrine looked up with wondering eyes. "I begin to understand," she said, slowly. "Won't you please try to forget that I am Jack's sister; I was your friend before he appeared on the scene, remember! and I want this thing explained."

"It is simple enough," said Polly with a sigh. "You've been nursed in the lap of luxury all your life, you ridiculous little aristocrat! but I very soon had a practical understanding of the disastrous effects of frost and hail, drought and potato-bugs, army-worms and grasshoppers. If the crops sold well things were comfortable enough; if they didn't, why, we had to curtail our wants—that's all."

"And this hail storm—"

"Cut the grapes all to pieces," was the succinct answer. "The crop was already sold, and father had promised the money to me for ——"

"Oh!"

"More than that," said Polly, with averted eyes, but with a full determination to explain the situation thoroughly, now that she had begun; "the corn is so hopelessly hurt that father will have to plow it all up again; there is nothing that isn't injured, more or less. So you see," her voice faltered a little, but she went on bravely, "even if I would consent to his taking it away from the others, father cannot give me the money that he promised, and I can't be married this year. There! [explosively] I suppose it's very stupid of me to tell you all this, but you might as well know the truth."

"I should think so!" Katrine put up her red lips to be kissed. "But, Polly, you don't imagine that Jack will consent to putting off the wedding day for any such cause as that? What difference will the little more or little less make to him?"

"The difference would be to me," was the proud answer. "You don't understand, Katrine; things come to you without the sweet sense of providing, but you know just as well as I do that there are some things I must have—if it's only the one new dress. Hats, gloves and shoes can't be bought without money, and failing the money that is out of the question now; my worldly all is about two dollars and a half! I told you it was useless to talk about it. Come, I've bemoaned myself long enough; I'm not the only girl in the world who is disappointed. We were due at the church an hour ago."

"Polly, I wish you loved me well enough to let me ——"

"Stop! said Polly, decisively. "I'd rather you wouldn't say it, please.

"Why not?"

Polly turned upon her with flushed cheeks. "I have heard," she said "of girls who permitted the men they were to marry to supply the *trousseau*. I always had my opinion of such girls. Don't make me feel close kin to them."

"It isn't the same thing at all."

"It's so near it that I would rather not discuss the question. Is your basket of supplies all ready? Mine is yet to be packed."

Polly's tone was final, and Katrine could only follow in silence as her friend led the way to the store room, where the contributions for the church fair and festival were set out in goodly array on the shelves.

"I don't wonder they always ask you to send bread and rolls," she observed, breaking off a corner for her own delectation. "I never see such bread any where else. Yours is nothing short of perfection."

"I can't see why any one should have poor bread. There need be no difference in result if there is no difference in the process."

"You wouldn't convince the average cook that bread-making is one of the exact sciences," laughed Katrine. "What a good cook was spoiled in making you a lady!"

"That doesn't follow by any means," retorted Polly, who was proud of her thrifty New England bringing up. "Every lady ought to be a good cook; though, mind you—I don't insist upon her doing it. Her servants should be trained so that her own time may be spared for something better."

"You may bring both theory and practice into the Dallas family as soon as possible," said Katrine slyly. "We always approve of you, Polly."

"That's better luck than I deserve," said Polly," taking good care as she spoke that her light, white loaves should not encroach upon the cocoanut-puffs which were to bear them company. "I am all ready now; lead the way, Katrine."

The ladies of the Church of the Good Shepherd had pledged themselves in solemn conclave to pay off the remainder of the Church Extension Fund debt. For weeks the rival sewing societies had been piling up articles salable and unsalable in their respective baskets; the committees had canvassed the town for contributions. Miss Winter, the President of the Guild, whose sensible, sunshiny face belied her name, had marshaled her corps of assistants early in the morning, and the result of their labors was something for every church-member to be proud of, so bowery and flowery was the effect.

Katrine Dallas and Polly Reynolds, as members of the Young Ladies' Sewing Society, and teachers in the Sunday-school, were to take active parts in the business of the evening; and though Polly could not altogether banish the memory of the bruised and battered grape vines whose wreck had borne down so many fond, girlish hopes, she threw herself so bravely into the spirit of the occasion, that no one guessed what damage the storm had done to her. Its severity was a frequent theme of conversation that evening, each new comer having some fresh tale to tell of the fields laid waste, gardens destroyed, green-houses broken, and windows that looked as though the village had laid under a bombardment.

"Well, I'm glad it came yesterday, since it had to be, and not to-day," exclaimed Miss Partridge, coming up for a fresh supply of salad and sandwiches.

"The day makes a difference to us," said Mrs. Kemble, more gravely, "but it will make no difference in the suffering and privation that our poorer neighbors will have to bear."

"It falls heaviest on the poor, of course," said a third speaker, "but the effect of that storm will be felt in more directions than we see yet, I'm afraid."

"Another dollar added to the price of every barrel of flour, I suppose, for one thing," remarked Mrs. Miller, resignedly. "Which being the case, let us eat, drink and be merry while we may! No, Miss Partridge, you can't have the half-loaf for your sandwiches; I'm saving that for the rectory party. It's too good to waste on the 'vulgar herd;' I want it to be properly appreciated."

"One would almost be willing to live by bread alone, if the bread were like this. I wonder who made it?

"I don't know," said Mrs. Kemble, "but I know I would like to enter into a contract with the maker to supply me with the staff of life in future. I would gladly offer an increase on the baker's prices."

"So would I," responded Mrs. Barlowe; "it would be well worth three or four cents a loaf more."

"Why can't people do such things?" asked Mrs. Miller. "I suppose the mere suggestion would be an offense, but when these worthless Bridgets of ours never send up good bread twice running, one can't help wishing it were possible to make a neighborly little arrangement with somebody else's Bridget."

"This may be only a happen so!"

"Very true! yet there are people who make a habit of having good bread, and some of these days I shall offer my idea to the person who will be able to carry it out."

"Count me as one of that person's steady customers," said Mrs. Kemble with a laugh.

"And I pledge myself as another," added Mrs. Barlowe.

"And I."

"And I."

"And I," came in laughing response from the different members of the group, who separated, little dreaming that their careless conversation had opened up new hopes and possibilities in the mind of one to whom yesterday's storm had brought bitter and unlooked for disappointment.

"I will find out whether they really mean it," thought Polly, with determination, "and if they do, why, they shall have the good bread they make such a fuss about. And I—well I shan't have to make Jack wait till next year." Whereat Polly smiled sweetly at old Mr. French, the most confirmed bachelor in town, and offered a flaxen haired doll in a pink Mother Hubbard for his purchasing.

"What's the matter with you, Polly?" asked Libby Power, as Mr. French passed on grimly. "He might have bought that cigar case of Fanny Beale's or one of those plaques—are your wits wool-gathering?"

Polly laughed good naturedly, and resigned the business of the fancy table to Miss Libby's more capable direction. Her thoughts were busy with plans and calculations in which the business of the church had no share. She had fallen into a trick whenever her mind was busier than her fingers, of playing with a ring she wore on her left hand, and with the unconscious action came a sudden misgiving as to Jack's opinion of her plans—or if not, of Jack's family. Something was due to them; but remembering the tone of the conversation she had overheard, Polly took heart of grace. She would prove that such things might be done between ladies. The venture was a little unusual, but the girl had an unaffected contempt for the false pride and fear of "losing caste," which might have prevented a less self-reliant girl from taking advantage of the opportunity thus offered. Long before the end of the evening her fear of the Dallas opinion took the unexpressed form of hoping they would say nothing to dissuade her, since she was serenely sure that such opposition would only tend to lower them in her estimation.

The details of the plan were her last thought as she went to sleep that night, and mingled oddly enough with her first waking thoughts of that far-away lover who was looking forward to the wedding day that should crown his home-coming at Christmas time. A ray of sun-light fell upon her ring, throwing its design into bold relief. It was not the conventional engagement ring. Some unexplained feeling of pride had made her refuse the offered solitaire—diamonds would be fitting ornaments for Jack's wife, but for Polly Reynolds, something simpler seemed in better taste. "If you want me to wear a ring, let it be really your own," she said. "I would rather wear that seal-ring of yours than anything you could buy for me," and since then the tiny polished oval, bearing the quaint device of an overflowing horn of plenty, with the carved legend "God gives" above it, had been to Polly her promise of all good things in the future.

"*God gives plenty*," she said to herself, holding up the hand that bore the assurance. "But God gives it to those who work for it."

[TO BE CONTINUED.]

THE PLANCHETTE.

There are some indications that the mysterious little planchette board, like roller skating, is coming into fashion again. No adequate explanation of it has ever been received, though many have been offered. The construction is simply a plain, heart-shaped cedar board fixed upon two metal legs, to which are adjusted wheels that move easily and lightly in all directions. At the point of the heart a hole is made, and a sort of round case is fixed to hold an ordinary pencil firmly. That is all there is of it.

Put a pencil at the point, and then put two hands upon the board. After keeping the hands lightly and quietly in their places a few minutes, planchette will often begin to write. It usually scribbles out yes and no, and senseless gabble of one sort or another, to which no importance must be attached. It is claimed positively, however, that the board has written intelligent answers to questions, which those holding their hands upon it could not possibly be aware of. It may be. But, before believing this is true, ask some questions and see for yourself. It is one of those cases in which the word of no second person must be taken. Above all, do not have any superstitions about the thing, taking for granted that the writing is done by spirits.

Planchette is merely a puzzle, to be investigated as any other scientific subject would be, on the same sort of evidence, and weighed by the same judgment. Don't admit the element of humbug and witchcraft and nonsense and superstition into your soul. Thus you will not be likely to lose your head, even when amusing yourself with planchette. It is a fascinating study in psychological science, nothing more. It may be that there are powers and forces in the human organization that have hitherto been undeveloped in all but a few exceptional cases. It may be that we are on the verge of some marvelous discoveries in mental science. So much it is safe to admit.

The board writes best in the position described, with two hands, a right and left, upon it. What does the writing nobody knows. The best authorities have concluded that it is done unconsciously by the person whose hands are upon the board. A nervous fluid is supposed to pass from the hands and from a current that moves the board. The explanation at best is a lame one. But this much is certain: Planchette writing as an entertainment can do do harm as long as the experimenter does not let go his common sense and put a superstitions faith in its revelations.

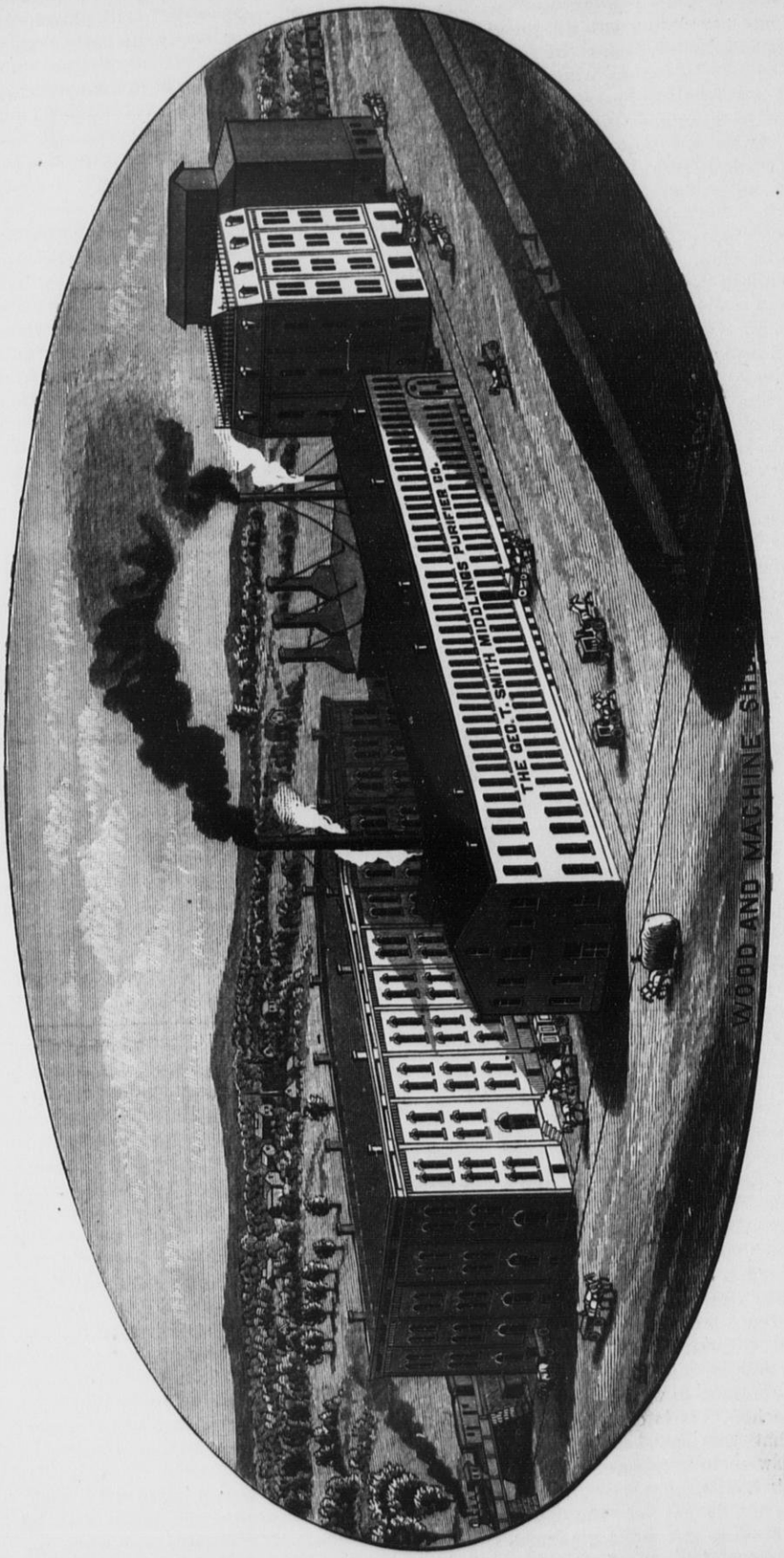
THE EDUCATION OF THE ARTISAN.

Professor Huxley says: For myself, I look upon simple knowledge by itself as of far less importance to the artisan in his career in life than a number of other qualities. I do not say that knowledge is not an extremely good thing; but if a man is to make a good workman, or to do anything in practical life, you must give him an education that fits him for the conditions of life with which he has to deal, and you will not give him that education by filling his head with a number of intellectual abstractions, or even by giving him the largest acquaintance with scientific principles. And I think it is a profound mistake, considering the career to which the majority of artisans or persons in that class of life are necessarily bound, ever to take them out of the wholesome discipline of practical contact with the realities of life, for the mere sake of giving them a greater or less amount of knowledge. A man who is inclined to do so may always pick up knowledge, and he may do so at the same time that he is getting his education in the highest sense of the word, out of his contact with the realities of his daily life; but if you make a bookworm of him, if you take him away from all that contact with reality and turn him back afterward into it, he has lost touch of life.

I speak with the greatest hesitation, because I have nothing to do with industrial pursuits; but I have had to do with mankind in many stations in life, and it seems to me that what is wanted in a foreman is a man of energy, punctuality, business habits, and power of dealing with men, all of which things are not to be got out of books or laboratory work. These qualifications are the most essential qualifications in a foreman, and what you want besides in such a man is not book learning, but an intelligence sufficiently trained to be able to deal with new conditions, and an amount of knowledge sufficient to enable him to know where to go to find more if he wants it.

WORKS OF THE GEO. T. SMITH MIDDLINGS PURIFIER CO., JACKSON, MICH., U. S. A.

We have the pleasure of presenting to our readers herewith a view of the works of the Geo. T. Smith Middlings Purifier Co., the products of which are to be found in flour mills in every civilized country of the world. The founder of this mammoth enterprise was Mr. Geo. T. Smith, a miller's son, who in 1870 was working as a miller for Stephen Gardner, at Hastings, Minn., in the old "Vermilion Mills." This mill became most favorably known at the time for the excellent quality of its flour, due to a peculiar dress Mr. Smith used on the stones. Shortly after he became head-miller in Hon. Geo. H. Christian's mill in Minneapolis. The new dress which he used on the stones producing a very large amount of middlings, he used a device of E. N. Lacroix for treating them, which, after being greatly improved by him, produced ultimately a complete revolution in milling.



WORKS OF THE GEO. T. SMITH MIDDLINGS PURIFIER CO., JACKSON, MICH.

In 1877 the manufacture of Smith Middlings Purifiers was begun by Bennett, Knickerbocker & Co., in Jackson, Mich., and 120 machines made that year. In April 1878, the present company was organized. During 1879 the works were destroyed, 600 machines being made and sold.

In 1880 a thousand machines were sold. In February, 1880, he visited Europe; returned to be present at the Millers' Exposition in Cincinnati; returned to Europe, remaining there for over a year, where he succeeded in effectually introducing his purifiers and system of milling. The business of the company increased rapidly, and it was found absolutely necessary in 1882, to erect larger works. Mr. Smith became the owner of a controlling interest in the stock of the company, and since then has been constantly burdened with the general management and superintendence of its ever increasing business.

In 1883 a foundry was purchased on Pearl street, a third and then a fourth building was erected, the latter for pattern making and drafting. Steel was substituted for iron, and hardwood for soft, in the machines. The excellence of the work is shown by the fact that the repairs on each machine sold, it is said, have not averaged fifty cents each. Mr. Smith became President of the company in 1883, G. S. Bennett, Vice President and Secretary, and Mr. Harmon, Treasurer. More than 3,000 machines were sold that year. The company have works also at Stratford, Ont. The full capacity of the Jackson plant is 17 machines per day. The pay roll which numbers 360 men at Jackson and 150 in Canada, requires a monthly payment of $15,000.

The two-story building shown in the engraving is 56x218 feet, having a basement of equal area, and sufficient height to allow the operation of machinery. The four-story building is 70x105 feet, and well adapted to the requirements of the company. There is another building, not seen in the cut, 52x60 feet, and two stories high. The total floor surface is 85,000 square feet, to which must be added an addition 97 feet long, to the main building, erected last year. These works are thoroughly equipped with all the most recent machinery and appliances, and the system of division of labor is carried to perfection as far as practicable. The facilities for shipping are ample, private tracks running to the doors of the works, where the machines are loaded and sent to all parts of the world. There are some 250 electric lamps used for lighting the entire works. Power is supplied by a 250-horse power Reynolds-Corliss engine.

Take it all in all, the works are as complete and perfect in detail as those of any manufactory in this country.

RULES FOR MANAGEMENT AND CARE OF STEAM-BOILERS.

ADOPTED BY THE HEWES & PHILLIPS IRON WORKS, NEWARK, N. J.

1. *Condition of Water.*—The first duty of an engineer, when he enters his boiler-room in the morning, is to ascertain how many gauges of water there are in the boilers. Never unbank nor replenish the fire until this is done. Accidents have occurred, and many boilers have been entirely ruined from neglect of this precaution.

2. *Low Water.*—In case of low water, immediately cover the fires with ashes, or, if no ashes are at hand, use fresh coal. Do not turn on the feed under any circumstances, nor tamper with or open the safety-valve. Let the steam outlets remain as they are.

3. *In cases of Foaming.*—Close throttle and keep closed long enough to show true level of water. If that level is sufficiently high, feeding and blowing will usually suffice to correct the evil. In cases of violent foaming, caused by dirty water, or change from salt to fresh, or vice versa, in addition to the action before stated, check draft and cover fires with fresh coal.

4. *Leaks.*—When leaks are discovered they should be repaired as soon as possible.

5. *Blowing Off.*—Blow off 8 or 10 inches at least once a week; every Saturday night would be better. In case the feed becomes muddy, blow out 6 or 8 inches every day. Newer blow entirely off, except when boiler needs scraping or repairing, and then not until fire has been drawn for at least ten hours, as boilers are often seriously injured or ruined by being emptied when the walls are hot. Where surface blow-cocks are used, they should be often opened for a few moments at the time.

6. *Filling Up the Boiler.*—After blowing down, allow the boiler to become cool before filling again. Cold water, pumped into hot boilers, is very injurious from sudden contraction.

7. *Exterior of Boiler.*—Care should be taken that no water comes in contact with the exterior of the boiler, either from leaky joints or other causes.

8. *Removing Deposit and Sediment.*—In tubular boilers the hand-holes should be often opened, and all collections removed from over the fire. Also, when boilers are fed in front, and blown off through the same pipe, the collection of mud or sediment in the rear end should be often removed.

9. *Safety Valves.*—Raise the safety valves cautiously and frequently, as they are liable to become fast in their seats, and useless for the purpose intended.

10. *Safety Valve and Pressure Gauge.*—Should the gauge at any time indicate an excessive pressure, see that the safety valves are blowing off. In case of difference, notify the parties from whom the boiler was purchased.

11. *Gauge Cocks, Glass Gauge.*—Keep gauge cocks clear and in constant use. Glass gauges should not be relied on altogether.

12. *Blisters.*—When a blister appears there must be no delay in having it carefully examined, and trimmed or patched, as the case may require.

13. *Clean Sheets.*—Particular care should be taken to keep sheets and parts of boilers exposed to the fire perfectly clean, also all tubes, flues and connections well swept. This is particularly necessary where wood or soft coal is used for fuel.

14. *General Care of Boilers and Connections.*—Under all circumstances keep the gauges, cocks, etc., clean and in good order and things generally in and about the engine and boiler room in a neat condition.—*American Machinist.*

ITEMS OF INTEREST.

A FISHING CAT.—One of our county commissioners owns a mill and a pond, and grinds corn for the public. He also owns a large cat that, as soon as the mill is stopped by shutting down the gate, will immediately run down behind the mill and get on a log just over the sheathing over which the water is flowing. She will then look very intently into the water, which is from 18 inches to 20 inches deep, until she spies a fish; she then plunges into the water, frequently burying herself under it, but almost always comes out with a fish. She then quietly sits down on a rock near by and enjoys her meal.—*Charleston News and Courier.*

KILLED BY AN ÆROLITE.—An apparently authentic account comes from Somerset, Pulaski county, Ky., of the death of a farmer named Julius Robble by a meteor which fell from a clear sky on the morning of the 1st instant. The meteor was very brilliant, emitting a light described to be more dazzling than that of lightning. It struck the man's head and instantly exploded, mangling his body frightfully. His clothing was torn and burned, and his body was streaked with burning streams of molten iron or detached stones of white heat. His limbs were charred and bent out of all shape. The meteor burned itself deep in the earth, and sent splinters of itself in all directions, some of which were as large as a peck measure. A witness describes the noise it made as the roaring of a dozen locomotives blowing off steam. So swiftly did it drop that the rushing sound, the flash and the explosion were almost simultaneous.

THE Italian theatres, which are said to be the finest in the world, are oval in form, not horseshoe shaped as in this country. This enables the stage to be seen from every seat in the house, and adds to the acoustic qualities of the building. These theatres are built upon a thoroughly fire proof plan, being usually of brick, with a small amount of wood work. The seats being wide apart and the aisles numerous, offer free passage to an audience in case of panic; the floor of the parquette is the solid earth itself, covered with gravel.

BROAD WAGON TIRES.—We learn that J. W. Sanborn of the Missouri Agricultural College, has been making some experiments to demonstrate the value of good roads and broad wagon tires on road and farm wagons. He says that the condition of the country road is one of the surest indications of the civilization of the people. The trials were made with a carefully tested dynamometer; the loads drawn were 3,665 pounds each, and the felloes and tires were one and a half and three inches, respectively. The first test was on blue grass sward somewhat moist, though it had not rained for two weeks. The average draft of the narrow-tired wagon was 439 pounds, while that of the wide-tired was 310 pounds—a difference of over 41 per cent. in favor of the wide tire. Assuming the wagons to weigh 1,000 pounds each, the same team could draw 3,248 on the wide tire as easily as 2,000 on the narrow, and, besides this, the wide tires did not cut through and injure the turf as the others did. In a further test, on a partially dried dirt road, the broad wheels showed a draft of 371 pounds to 441 pounds for the narrow, being 12.7 per cent. in favor of broad tires, so that with the same wear and tear of team, the broad-tired wagon could carry 331 pounds per ton load more than the other. Although these differences disappear on hard, well-made roads, he concludes that every farm should have one or more broad-tired wagons, and says the teamsters on the college farm always prefer such for use about the farm. We have long known the value of a broad tire for farm wagons, and have such a one for all work on raw ground or meadow land. It costs very little, if any more, and soon pays for itself by saving the team.—*Farm Implement News.*

A PNEUMATIC TUBE BETWEEN LONDON AND PARIS.—The plan to connect Paris and London with pneumatic tubes has been reported favorably by the French engineers and submitted to the Government. It is proposed that two pneumatic tubes be laid, following the line of the Northern Railroad from Paris to Calais, thence across the channel to Dover, following the line of the South-eastern Railroad to London. Letters could be thus transmitted between the two capitals in one hour. Wagonettes like those now used to transport telegrams from Paris are to be used, weighing 10 kg. and capable of carrying 5 kg. weight of mail matter. Twenty pneumatic trains are to be started every hour. The total cost is estimated to be $7,000,000. The total distance is 475 km.

FLOUR MILLING INDUSTRY IN PENNSYLVANIA.

In the preparation of statistics regarding the flour milling industry of the state, for embodiment in the report of the secretary of Internal Affairs for the year 1883, there were sent out 3,781 blanks to the millers of the state to be filled out and returned. From 512 of these no reply was received, and 799 were returned unfilled; 2470 returns were received properly filled out. There are understood generally to be between thirty-two and thirty-three hundred merchant and grist mills in the state. Many of those receiving the blanks evidently did not care to show the small amount of business done, and others, through lack of interest probably, thought it not worth their while to make a reply. The county making the largest return was Lancaster, which reported 171 mills, with 537 runs of stones and 65 sets of rolls, the amount of all grain ground in these mills being 2,006,395 bushels. The county next in order was Berks, which reported 127 mills, with 397 runs of stones, but giving no satisfactory data as to the number of sets of rolls in use. The amount of grain ground in these mills was 911,748 bushels. The third county in the list was Chester, which replied to 126 inquiries, and these reported 285 runs of stones, 32 sets of rolls, and ground 860,438 bushels of grain. Considering the limited facilities afforded for acquiring the information desired, the result must be taken as satisfactory. Many of the mills receive their mails through more than one of the country post offices, and the published list of the mills often reports the same mill to more than one address. This accounts for a part of the discrepancy between the returns and the approximate known total of mills. The chief of the Buerau, Hon. J. B. McCamant, was most untiring and enthusiastic in the prosecution of his work, but when it is known that but two thousand dollars was allowed by the state for the collection of statistics in every branch of manufacture followed in the state, any incompleteness in the result may be readily accounted for.—*Millers' Review.*

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OPERATIVE MILLERS ASSOCIATION.

The object of this Association is to unite all practical millers, to give aid to its members, to assist each other to procure employment, to establish a widows' and orphans' fund, and for the advancement of the art and science of milling. The officers of the Association are: Dan J. Foley, President; Tom Stoutenberg, First Vice-President; John T. Gebbie, Second Vice-President; A. Snuggs, Secretary and Treasurer. 821 Howard Street, St. Louis, Mo.; Dan J. Foley, Alex. Frazer, David Pollock, Trustees. Hall at 110 N. Fifth Street, St. Louis.

THE fire losses among the mills in this country during April, amounted to about $200,000.

CANADIAN millers have received very large orders for flour and wheat during the past six weeks.

The National Coopers' Journal, is the name of a new paper published in Buffalo, N. Y., in the interests of the cooper trade. It presents a good appearance.

WE acknowledge the receipt from the secretary Mr. Geo. F. Stone, of the Twenty-seventh Annual Report of the Chicago Board of Trade.

THE *Electric Review* is the name of a new paper issued by the Taylor Publishing Co. at Chambersburg, Pa. The first number, just at hand, is a very good one.

THE firm of Vœchting, Shape & Co. has been incorporated under the style of THE JOSEPH SCHLITZ BOTTLING WORKS (*Limited*). The new company will continue to supply the world with the well-known Schlitz' Bottled Beer. The business has grown to enormous proportions, and gives employment to a large number of persons.

THE American Exhibition of the Arts, Inventions, Manufacturers, Products and Resources of the United States of America will be opened in London, England, May 1, 1886. All arrangements for its complete success are being rapidly made, and the result of this exhibition will doubtless prove of vast benefit to our country. Full particulars may be obtained by addressing "The Secretary of the American Exhibition, 7, Poultry, London, E. C., England.

THE imports of American flour into Great Britain for the cereal year 1883-84, were 6,263,000 sacks, and for the eight months of the present cereal year, 5,246,000 sacks or equal for the full year to 7,869,000 sacks. These figures are highly interesting to British millers, bakers and farmers, and it is not surprising that even free trade journals are crying out for protective duties on flour. The large mills of Belgium are also crowding their flour into the London market. With the British market full of foreign flour, the British miller has plenty of time to think over the situation.

A newspaper article is not valuable, simply because it is *original*. We have been driven to make this observation by the fulsome self-praise indulged in by some of our contemporaries. It would be a blessing to the reading public if all newspaper writers (circumstances permitting) would lay aside their articles for twenty-four hours after writing them and then read and carefully revise before printing. True, we should all need larger waste-baskets, but the long suffering public would doubtless be willing to "chip in" and buy them.

WE present on another page, a report concerning the railway and export development in India. As a great deal has been said and written in this subject during the past year we deem it worth while to publish Consul Shaw's report in full. India may prove a strong competitor for the trade in Europe, which the United States now enjoys, but as we have said before, we do not think that the time is *close* at hand when Europe will obtain the bulk of its bread-stuffs from India instead of the United States. British millers will willingly pay more for American wheat than they will for Indian, because it is more desirable as to quality.

BUILDING FOUNDATIONS ON QUICKSAND.

Foundations in quicksand often have to be built in places where least expected, and sometimes the writer has been able to conveniently span the vein with an arch and avoid trouble, but where it cannot be conveniently arched over it will be necessary to sheath-pile for a trench and lay in broad sections of concrete until the space is crossed, the sheath piling being drawn and reset in sections as fast as the trenches are leveled up. The piling is left in permanently if it is not wanted again for use.

Sometimes these bottoms are too soft to be treated in this manner; in that case boxes or caissons are formed, loaded with stone and sunk into place with pig iron until the weight they are to carry is approximated. When settled the weights are removed and the building begins.

Foundations on shifting sand are met with in banks of streams, which swell and become rapids as each winter breaks up. This kind is the most troublesome and dangerous to rest upon if not properly treated.

Retaining walls are frequently built season after season, and as regularly become undermined by the scouring of the water. Regular docking with piles and timbers is resorted to, but it is so expensive for small works that it is not often tried.

Foundations are formed often with rock, well planted out; and again success has attended the use of bags of sand where rough rock was not convenient or too expensive.

In such cases it is well to try a mattress foundation, which may be formed of brushwood and small saplings, with butts from ½ inch to 2½" in diameter, compressed into bundles from 8 to 12" diameter, and from 12 to 16 feet long, and well tied with ropes every four feet. Other bundles, from 4 to 6" diameter and 16 feet long, are used as binders, and these bundles are now cross-woven and make a good net-work, the long parts protruding and making whip ends. One or more sets of netting are used as necessity seems to require. This kind of foundation may be well filled in with a concrete of hydraulic cement and sand, and the walls built on them with usual footings, and it is very durable, suiting the purpose as well as anything we have seen or heard of.—*Inland Architect.*

BOOKWALTER'S IMPROVED SEMI-PORTABLE ENGINE.

The accompanying engravings exhibit a new 10 horse power engine manufactured by James Leffel & Co., at Springfield, O. The

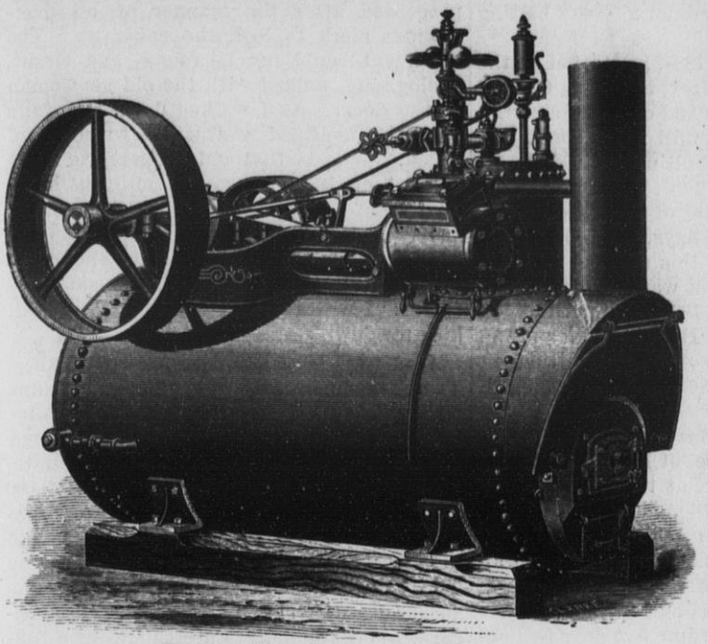

FIG. 1.—SEMI-PORTABLE ENGINE.

main frame or bed plate is cast in one piece, so that all strain comes within it, and it is attached to the boiler in such a manner as to avoid the difficulties of expansion and contraction. The bed is cast with a bottom to catch all the drippings from the engine, keeping the boiler free from them. The cylinder is of exact and through finish, with head turned and polished, and a Russia iron jacket fitted with brass bands. Special care has been bestowed upon the piston head and rings, which are made of the best material and in the most durable form. The guides and cross head are substantially made, the latter being lined with brass; and the connecting rod, which is of wrought iron, is

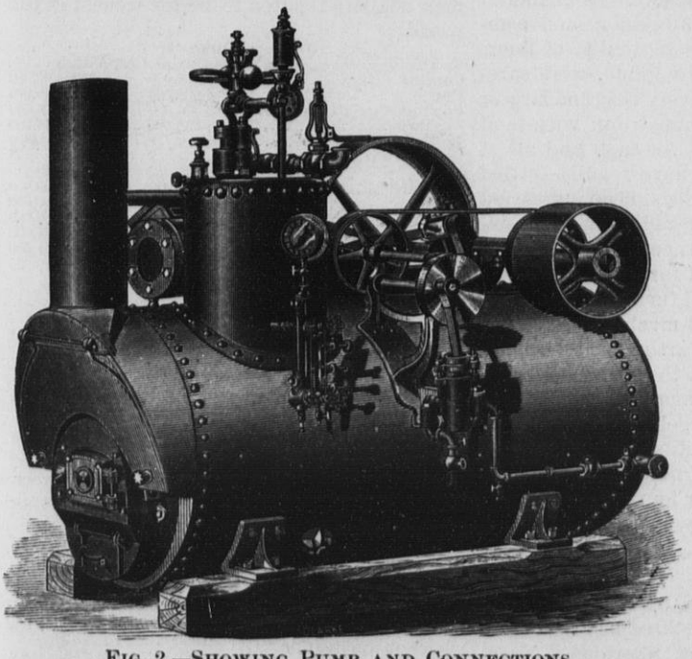

FIG. 2.—SHOWING PUMP AND CONNECTIONS.

provided at each end with brass boxes accurately finished, with wrought straps, keys, self-oilers, etc. Great solidity and strength are secured in the crank shaft, which is steel, of extra size, and has bearings 8 inches long. The steam chest is so placed upon the cylinder that the valves are in a direct line with the driving eccentric on the crank shaft, greatly increasing the symmetry of the engine. To avoid the difficulties of driving the pump from cross head, the method of driving which is now conceded to be the best—namely, by belt—has been adopted. The pump is strong and substantial, with 3-inch brass plunger and 4-inch length of stroke, making forty-eight revolutions per minute. It is fitted with large cup valves of locomotive pattern. Its great strength, accurate finish, and long, steady and slow stroke insure its perfect work. Other noticeable features of the engine are the governor, of the latest and most approved design, the brass pop valve, of locomotive style, the improved patent brass safety valve, 2½-inch brass whistle, and superior fittings throughout, both on engine and boiler.

In Fig. 3 is shown the interior construction of the return flue boiler, omitting the steam dome. It embraces all the desirable features of the common form of return flue boilers, with the additional advantage of having the fire box entirely surrounded with water. This construction gives the greatest amount of heating surface, avoids the difficulties of a fire brick lining, and admits of the boiler being built in a compact and substantial manner. The fire box is circular in form and receives the pressure upon an arch at every point, thus affording the greatest resistance and strength. The shell is made of ¼-inch No. 1 charcoal hammered iron, and the heads of ⅜-inch flange iron; and the best material is used and great care in construction exercised throughout.

The dimensions of the engine are as follows: Cylinder, 7x10 inches; revolutions, 210 per minute; heavy band wheel, 36 inches diameter, 7 inches face; small pulley, 16 inches diameter, 8 inches face. The engine will develop full 10 horse power with sixty pounds steam. The boiler is 42 inches diameter, with twenty-three 3-inch flues, 64 inches long; length of boiler over all, 70 inches; diameter of fire box, 25 inches. The weight of the engine and boiler is 3,800 pounds. Any additional particulars desired may be obtained by addressing the manufacturers at Springfield, O., or 110 Liberty street, New York.

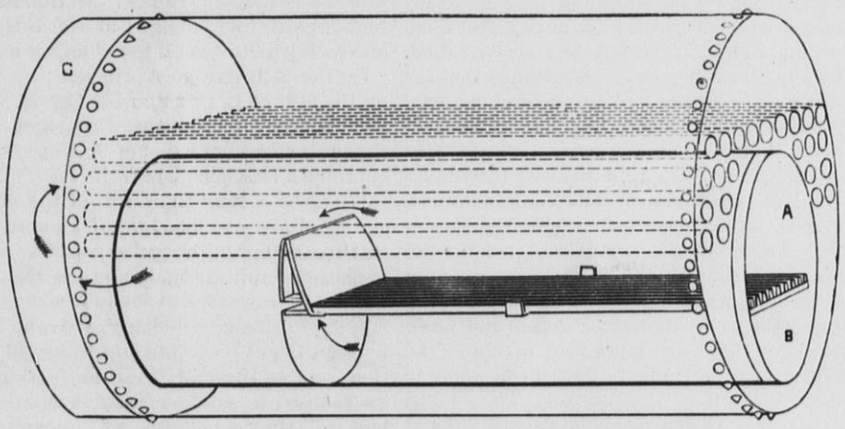

FIG. 3. INTERIOR CONSTRUCTION OF BOILERS.

LABOR IN IRON MILLS AND THE CLAPP-GRIFFITHS PROCESS.

The statements regarding the Clapp-Griffiths process made public by Messrs. Withe-row & Hunt at the New York meeting of the mining engineers, concerning which we commented at some length last week, have aroused the attention of rolling-mill proprietors to an unexampled extent. That steel is destined to supplant puddled iron to a large extent has been manifest to those operating rolling mills for some years. To what extent this substitution has already taken place has from time to time been made the subject of editorial comment by us, and it has been evident to those who have watched the progress of events, that, were it not for two obstacles, the displacement of iron would be much more rapid than at present: First, the large expense that has heretofore been necessary to change an iron plant to a Bessemer plant, and second, the high character of ores and pig iron required by the Bessemer process. The improvements that have been made in the character of the steel produced by the Bessemer process were such as to permit its substitution for iron in many cases. This alone, and the high labor cost of puddled iron, as well as the difficulties in dealing with labor in the iron rolling mills, would long ago have led to the substitution of the Bessemer process, with its cheaper and more easily con-

trolled labor, were it not for this heavy item of expense in construction and the character of the pig iron required. These obstacles the Clapp-Griffiths process has overcome. As stated by Mr. Hunt, a plant can be built for $55,000, producing 80 gross tons of steel a day, and this from a pig iron which, compared with that used in the Bessemer process, is exceeding high in phosphorus, the resulting metal answering all the tests and fulfilling all the purposes for which puddled iron is now used.

But the greatest boon of this process to the rolling-mill man will be that it will enable him to once again manage his own mill, without that imperious dictation in its management which has characterized the Amalgamated Association in dealing with labor difficulties. The Association itself and the men in the iron mills have been warned again and again that it was inevitable that steel should supplant iron, and that their only hope was by concessions to defer the coming of that day. They have not only refused to make them, but have persistently declined to own that there was any danger to their craft from the coming of steel. If they have recognized the possibility of danger they have attempted to meet it by such temporary and illogical makeshifts as demanding a higher price for working a material easier to work in the rolls and heating furnaces, and with which they could produce a greater tonnage than when working iron. These expedients have failed. The hope that they have entertained that the expense of erecting a plant to produce steel would not only require a too extensive destruction of old plant, but too expensive new construction, has been swept away by the Clapp-Griffiths process, and the puddler now stands, as never before, face to face with the inevitable. There is another feature. Among the operations requiring skilled labor about a rolling mill, there can be no doubt that puddling is the most laborious. Again and again in the hundred years since Cort invented the puddling furnace efforts have been made to reduce the toil of the process. The Danks furnace and Dormoy rabble are attempts in this line, but with the exception of the change from puddling to boiling, and some minor improvements of the furnace, the process remains as it was a hundred years ago. The new process will do away with this laborious occupation. Perhaps some of the duties about a converter are as hard as those at a puddling furnace, but in proportion to output not nearly as many men are employed. The future of this process and its effect upon labor will be closely watched.—*Iron Age.*

[Correspondence.]

SUCCESSFUL MILL STARTING.

Editor United States Miller:

In view of the fact that in the past nearly all millers have experienced a great deal of trouble in starting up their mills, almost always expecting to change a large number of spouts and bolting cloth, and be delayed and annoyed for weeks before the mill has got in successful operation, it becomes a matter of interest and news to the miller to read of the successful starting of mills in which no changes are necessary to be made. We believe that nothing will interest millers more than this, and for this reason we give a statement of the successful work of one of our men, who has been employed in the work of starting mills since the 15th of February last. The following is the result of his labors:

On the 15th day of Feb., 1885, he started up the mill for Pearce & Co., at Shreve, O., and ran it four days, obtaining a settlement, and not a spout was changed nor a foot of bolting cloth.

On the 28th of Feb., 1885, he started up the mill for Mr. A. Hulshizer, at Utica, O., and ran the mill five days and obtained a settlement in full. In this mill not a spout was changed nor a foot of bolting cloth.

On the 1st of March, 1885, he started up the mill of J. W. Lumpkins, of Owensboro, Ky., and ran the same five days, and obtained a settlement in full. In this mill not a foot of bolting cloth nor a spout was changed.

On the 9th of March, 1885, he started up the mill for C. W. Ellis, at Dubois, Ind., and ran the mill one week and obtained a settlement in full. In this mill one spout was changed, but no bolting cloth.

On the 28th day of March, 1885, he started up the mill for M. Lynn, at Belden, Ind., and ran the mill one week, at the end of which time he obtained a settlement in full for the mill, and not a foot of bolting cloth nor a spout was changed.

On the 5th day of April, 1885, he started up the mill for Lane, Fuget and Lane, of Tower Hill, Ill., and ran the same five days and obtained a settlement in full. In this mill two feet of cloth was changed at the tail end of one reel, which was all the changes made.

On the 24th day or April, 1885, he started up the mill of L. C. Lillard & Co., at Marion, Ind., and ran the mill two days, and did not change a spout nor a foot of bolting cloth, and obtained a settlement in full.

We give this as the result of the labors of simply one of our men, who is operating and starting up our mills, and as a matter of news, to show the millers that the time has passed when it is necessary to spend weeks and even months in changing bolting cloth and spouts, in order to get their mill in successful operation, and in each of these mills they were guaranteed to produce results equal to the best mills in the country, and in each and all of them, samples were brought in and compared and the results as to quality of flour, yield and quantity of low grade, were carefully compared with the very best and largest mills that we come in competition with, and in view of the fact that, in each and all of those cases, the millers have readily settled within from two to five days, is an indication that milling has been brought down to a science, and that those firms who are able to furnish the proper talent for making out systems of separations, and furnishing the very best and latest improved machinery, are not having any trouble in starting mills, neither need it be necessary that the miller should be annoyed for months and months with changes which interfere, very largely, with the profitable and successful operation of the mill. We give this as a matter of news, and believe it is worthy a place in your journal.

We are very truly yours,

CASE MANUFACTURING CO.

A KIND AND CONSIDERATE CLERK.—When Grant was in Chicago, three or four years ago, he lounged about Sheridan's headquarters a good deal. His son Fred was at that time on Sheridan's staff, but was absent one day, and Grant took his place at Fred's desk and looked after the business. A nervous, fidgety, irritable old fellow came in to inquire for some paper that he had left with Fred. When he stated his case Grant took up the matter in a sympathetic way, and proceeded after the manner of an over-anxious clerk to look the paper up. The document could not be found, and Grant, apologizing, walked with the old gentleman to the door. As I walked down the stairs with the mollified visitor he turned and asked: "Who is that old codger? He is the politest clerk I ever saw at military headquarters. I hope Sheridan will keep him." I answered quietly: "That is General Grant." The fidgety old gentleman, after staring at me for a full minute, said, with considerable fervor: "I will give you 50 cents if you will kick me down stairs."

A NEW MATCH-MAKING MACHINE.—Two Troy men have invented a machine which, it is claimed, will practically revolutionize match making. It has been operated to make 24,000 perfect matches in a minute, and its capacity is expected to reach 15,000,000 in ten hours. The veneer of pine wood is fed upon a small platform and passes between rollers, which partly cut it crosswise the width of a match. From the rollers the veneer passes over the abrupt edge of a concave, where the splints are caught by a rubber roller, separated by the action of the roller and rubbed along over the concave so that all the adhering fibre is removed. Then the splints are carried by a chain, from which they are forced into a dipping web or strip of paper. The web containing the splints is then conveyed into a trough, wherein, by the action of a revolving wheel, paraffine is put on the end of each of the splints. When the paraffine is dry by passing through a heated chamber, another wheel, revolving in a phosphorous composition, applies the composition to the ends of the splints, and the webs pass to reels, where they remain until dry.

THE FOUR BIGGEST INCOMES.—The following are the estimated incomes of the four men who are reputed to be the richest in the world:

	Duke of Westminster.	Vanderbilt.
Capital	$ 80,000,000	$175,000,000
Per year	4,000,000	7,000,000
Per month	300,000	676,000
Per day	10,000	15,000
Per hour	450	800
Per minute	7	18
	Rothschilds.	**Mackey.**
Capital	$200,000,000	$275,000,000
Per year	10,000,000	13,750,000
Per month	850,000	1,000,000
Per day	25,000	35,000
Per hour	1,000	1,500
Per minute	20	25

NEW PUBLICATIONS, ETC.

We have received a new catalogue for 1885, from the Webster and Comstock Mfg. Co. of Chicago, Ill., fully illustrating their specialties.

Thanks to Hon. Chas. F. Mills, Secretary of the Illinois State Department of Agriculture, for the most complete state crop report for April we have yet seen.

Harper's Magazine for June is an elegant number, full as usual of beautiful illustrations and interesting reading matter.

We have received a copy of the 1885 catalogue of flouring mill machinery from the Case Manufacturing Co., Columbus, O. It is handsomely printed, illustrated, and contains price list of all machinery, made by the company. Millers will be supplied with copies on application.

We have received from Hon. Alex. Heron, Secretary of the Indiana State Board of Agriculture, a copy of the Report for 1884. It is a very complete report, handsomely printed.

THE WHEAT HEATER.

Just before the introduction of the roller system wheat heaters were "all the rage." They certainly approved themselves to millers; at least those properly constructed enjoyed a large sale, and in the hands of intelligent millers certainly made a difference in the grade of the flour. When rolls came, the earliest convérts had but one article in their creed, which was the potency of rolls to do all that was necessary to make good flour. Wheat cleaning, and along with it wheat heating were largely lost sight of. And a good many millers to-day have forgotten about wheat heaters. Yet they are made and sold and used in roller mills as well as in burr mills.

The philosophy of the wheat heater is that the steam heat puts the bran in a better condition for separation than it is in naturally, and hence enables the miller to make a whiter flour, and a closer yield. The steam heat draws the moisture from the interior of the berry and toughens the bran. The wheat heater performs the same function that wetting the wheat does in Colorado and other western states where the wheat is very dry, and where the bran would inevitably be more or less pulverized if ground without dampening. Of course this toughening process makes the bran less liable to pulverization. Some wheats need this toughening process more than others, and it is more necessary at some times than at others. The months of June and July are about the best months to mill, and the wheat heater gives to the wheat a trifle higher temperature than these months—about blood heat.

If any one doubts the efficacy of steam heat as a toughener, let him heat some wheat quite hot and then put it through a scourer, scouring close enough to remove particles of the bran. He will find that the particles removed are larger than would be taken off on wheat that had not gone through a preparatory process. Of course, the tougher the bran and the less liable to pulverization it is, the whiter will be the flour and this is true both in roller mills and burr mills.—*American Miller.*

THE WEEVIL.—Dr. Harris says that these insects are effectually destroyed by kiln-drying the wheat. The grain that is kept cool, well ventilated, and frequently moved, is said to be free from their attack; also, by winnowing and shifting rice in the spring the beetles can be separated, and should be immediately gathered and destroyed. Curtis states that placing the grain in close cellars is the worst of all proceedings, as the weevils delight in darkness and being undisturbed. He recommends frequently stirring or turning over the heaps of wheat; he also says that the scent of spirits of turpentine or the fumes of sulphur did not appear to incommode the insects. In an experiment tried, the odor of a few drops of cloroform killed both larva and weevil in some closely-corked bottles of samples of wheat in the agricultural department; the same being opened a year afterward retained the scent. Benzine would perhaps have the same effect and be much cheaper, but most probably would also impart a nauseous taste and smell to the grain. Wheat kept in bottles thus treated with cloroform for a week germinated when planted. Curtis says that the larvæ, as well as the weevils, are destroyed at 190 deg. Fahrenheit, but it also scorches the grain; and that a room filled, heated to 130 deg. by hot water pipes, has been constructed in Maderia, which answers every purpose, and wheat subjected to this high temperature vegetated in the ground. He also says that fleeces of wool laid on the grain heaps attract and kill the insects. A larger weevil called the hunter weevil has been much complained of in certain localities as eating the leaves of corn. A very similar insect is found near the Pedee River, in South Carolina, the larvæ of which feeds on the stalks of corn, thereby entirely destroying the plant. The weevils inhabiting nuts, acorns, chincapins, and chestnuts are distinguished by their very long projecting and slender bills or trunks. The egg is deposited in the young fruit and the grubs are found in the interior. The pea weevil destroys the interior substance or future seed, leaves of the pea, seeds of locust, and other leguminous plants. The egg is deposited singly in punctures made by the female on the pod. The larvæ, when hatched, penetrate through the pod and bury themselves in the pea opposite the puncture, where they eat the interior of the pea. About the only certain mode of getting rid of these insects when they once infest rice, grain, or nuts is to sell or get rid of the stuff. The remedy recommended to our correspondent is undoubtedly good, but even that at times may prove ineffectual.—*The American Grocer.*

MILLING PATENTS.

The following list of patents relating to milling interests granted by the U. S. Patent office during the the past month, is specially reported by Stout & Underwood, Solicitors of Patents, 66 Wisconsin St., Milwaukee, Wis., who will send a copy of any patent named to any address on receipt of 50 cents:

Issue of April 28th, 1885.—No. 316,478, metalic grinding plate, E. M. McKee, Batavia, Ill.; No. 316,484, drier, D. H. Rice, St. Albans, Vt.; No. 316,722, grain cleaning machine, H. B. Balk & F. Burtt, Kalamazoo, Mich.; No. 316,756, belting, E. Deming, Middletown, Conn.; No. 316,778, mechanism for brushing flour bolts, M. Harmon, Jackson, Mich.; No. 316,864, machine for silking green corn, J. B. Baker, Aberdeen, Md.

Re-issue No. 10,591, middlings' purifier, F. Prinz, Milwaukee, Wis.

Issue of May 5, 1885.—No. 316,936, grinding mill, J. & W. L. Bell, Decatur, Ill.; No. 319,968, centrifugal flour bolt, H. Heine, Silver Creek, N. Y.; No. 317,094, fanning mill, B. S. Consand, Peru, Ind.; No. 317,220, automatic grain weighing apparatus, C. Scessle, New York, N. Y.; No. 317,278, elevator bucket, M. Babott, J. H. Roberts and C. Banker, Pittsburgh, Pa.; No. 317,412, combined fanning mill and cockle separator, E. Phelps, Hartford Mich.; No. 317,461, apparatus for steaming grain, W. H. Justus, Massillon, Ohio.

Issue of May 12, 1885.—No. 317,527, wheat elevator, P. F. Fleming, Huntsville, Mo.; No. 317,655, grain cleaning machine, H. Lampman, Afton, N. Y.; No. 317,735, grinding mill, P. T. Couch and C. W. Wollbert, Philadelphia, Pa. No. 317,782, grain separator, J. F. Henderson, Menton. Mich.; No. 317,813, grain separator, J. Lucas, Hastings, Minn.; No. 317,827, grain separator, W. H. Mercer, Mercer, S. C.

Issue of May 19, 1885.—No. 318,117, centrifugal crushing mill, F. A. Huntington, San Francisco, Cal.

Issue of May 26th, 1885.—318,519, belt driving pulley, J. L. Stanley, Newark, N. J.; 318,585, grain reducing apparatus, A. J. Williams, Hannibal, N. Y.; 318,624, bag holder, I. B. Jennings, McPherson, Kas.; 318,633, grain bagging apparatus, V. Laplace and E. Laplace, Issoudan, France; 318,674, grain elevator and cleaner, F. M. Williams, Dows, Ia.; 318,677, seed separator, George Adams, Sherburne, Minn.; 318,700, grinding mill, H. H. Coles, Philadelphia, Pa.; 318,704, grain drier, G. H. Diehl, Lake, Ill.; 318,707, belt tightener, M. Dugan, Brandt, Pa.; 318,835, grain separator, Battle Creek, Mich.

TALLMADGE'S ESTIMATES OF GROWING WHEAT.

MILWAUKEE, May 31.—S. W. Talmadge, of this city, has prepared his first preliminary estimate for the season, by States, of the probable total yield of wheat in the United States for 1885.

The figures are made up by States and Territories with the kindly assistance of the State Agricultural Departments, statistical agents, and other reliable authorities, and are based upon the actual acreage sown and present condition of the growing crop.

The estimate shows the probable yield of winter wheat to be 231,000,000 bushels; of spring wheat, 130,000,000 bushels; total of winter and spring, 361,000,000 bushels.

The United States Department of Agriculture officially report the crop of 1884, winter wheat, 370,000,000 bushels; spring wheat, 143,000,000; total winter and spring, 513,000,000 bushels.

From these figures it will be seen that the crop of 1885, compared with 1884, will show a shortage in winter wheat of 139,000,000 bushels; spring wheat, 13,000,000 bushels; total winter and spring, 152,000,000 bushels.

The average wheat yield of the United States for five years past is 461,000,000 bushels. The estimate shows a shortage, compared with the average five years, of 100,000,000 bushels.

The following is a table of the estimated probable yield by States and Territories:

SPRING WHEAT.

	BUSHELS.
Minnesota	37,000,000
Iowa	28,000,000
Nebraska	25,000,000
Dakota	25,000,000
Wisconsin	15,000,000
Total spring	130,000,000

WINTER WHEAT.

	BUSHELS.
California	26,000,000
Michigan	25,000,000
Ohio	22,000,000
Indiana	22,000,000
Kansas	21,000,000
Missouri	18,000,000
Oregon	16,000,000
Pennsylvania	12,000,000
New York	11,000,000
Illinois	10,000,000
Kentucky	5,000,000
Maryland	5,000,000
Tennessee	4,000,000
Texas	4,000,000
Washington	4,000,000
Virginia	3,000,000
North Carolina	3,000,000
Colorado	3,000,000
West Virginia	2,000,000
Georgia	2,000,000
South Carolina	1,500,000
New Jersey	1,500,000
Utah	1,500,000
Arkansas	1,500,000
Alabama	1,200,000
Delaware	1,000,000
New Mexico	1,000,000
Montana	1,000,000
Idaho	1,000,000
Maine	500,0000
Vermont	300,000
New Hampshire	200,000
Mississippi	200,000
Arizona	200,000
Nevada	100,000
Other States	300,000
Total winter wheat	231,000,000
Total spring wheat	130,000,000
Total winter and spring	361,000,00

Accompanying his estimate Mr. Tallmadge presents the following crop reports received from his correspondents within the past thirty-six hours.

With the exception of that of "New York and Michigan" the condition of winter wheat shows little or no improvement.

The spring wheat States show a decrease in area of about 10 per cent, as compared with last year. The condition is favorable, considering the backwardness of the season, and with no damaging weather between now and harvest the yield per acre will be about an average.

RAILWAY AND EXPORT DEVELOPMENT IN INDIA.

REPORT BY U. S. CONSUL ALBERT D. SHAW, OF MANCHESTER.

The policy inaugurated by the Government of India some twenty-three years ago of constructing railways under Government guarantees, and later by direct action, has resulted in largely increased supply to England of cotton and wheat.

Before railways were built the wheat and cotton from the interior could not be transported profitably to the seaboard, and frequently vast supplies of wheat were buried or burned to get rid of it. Now it can be easily sent to tide-water, at comparatively small cost, from many productive regions, and it is the supply of cheap Indian wheat that has chiefly caused the great fall in price in Great Britain during the past year. The agricultural laborers in India are content with from 8 to 9 cents a day, and many of them can live on rice at a daily cost of less than 2 cents. The lands are fertile, and the ryot easily secures a yield of from 9 to 13 bushels an acre even under the ancient and primitive fashion of tilling the soil, which is largely followed. It is claimed by competent authorities that these seemingly rude methods of tillage are, after all, well adapted to the peculiar climate and soil of India, and that experiments made in the hope of introducing European modes of cultivation have not been as successful as was anticipated. The chief difficulty lies in the fact that labor is very cheap, and the native is wedded to old ways, and does not readily take up new and, to him, distasteful methods of tilling the soil. The way of his forefather for ages is good enough for him, and this universal feeling renders much progress on new lines exceedingly difficult. However, the use of modern agricultural machinery is making some headway amongst them, and must eventually become general, when better results will be certain to follow.

The wise and far-seeing policy of the Government of India in developing the country through building railways and other public works is now bearing fruit in the vast and growing volume of wheat and cotton now finding a market in this country (England). If the great increase in quantity keeps up for ten years to come in the ratio it has during the past five years, Indian wheat and cotton are likely to find a market in the seaboard towns in the United States before many years, our duty on wheat to the contrary notwithstanding.

The following data, culled from official sources, will furnish some idea of the development which has attended the policy pursued by the Indian Government, in connection with the products of the soil, during the past twenty-three years especially.

The first Indian railway was built in 1853, or rather the first 20 miles was constructed out of Bombay. Broadly speaking, all the railways constructed in India during the period included between 1853 and 1873, were built by companies to which the Government of India guaranteed 5 per cent. interest. The later policy has been for the Government to construct the lines, except in some few instances where interest at the rate of 3½ to 4 per cent. only has been guaranteed by Government. Up to the end of March, 1883, 10,317½ miles of Indian railways were open, and 2,333 miles were sanctioned and under construction, making a grand total of actual and promised mileage of railways in India at the above date, of 12,650½ miles. These lines of railways have been built with an expenditure as follows:

Guaranteed lines	$496,383,000
State lines	175,194,000
Lines made by native states	14,599,500
Toal cost	686,176,500

The payment of interest on the guaranteed lines and on loans for state lines up to the end of 1882, was $118,255,950 in excess of the revenne from the railways. These heavy payments were however, nearly all made previous to the year 1881. Since that date the Indian railways as a whole have been paying full interest, and in some years have earned a surplus, even including the capital spent on railways which were not yet opened. The present policy of the Government of India is to build about 500 miles of new railway each year for the next five or six years. Two main objects are kept in view in constructing the new railway system: (1) protection against famine; and (2) to develop the natural resources of the country. As to the first consideration, the fear of famine is a great cloud always hovering over the people in remote regions in India; and the wise English heads of the Government there see the power which an easy avenue of reaching every section by good lines of railway, place in their hands. The lamentable mortality of the last great famine in India, where it is estimated 4,000,000 persons perished of hunger, could have been largely averted had there been railway connections between distant portions of the vast empire.

The present policy when fully carried out, will intersect the country with railways so as render impossible any wide-spread ravages from famine in the future. The second object is one of commanding importance to Great Britain, under the controling direction of which India acts. Already great changes have been secured through the increased supply of wheat and cotton from India.

The Indian wheat trade has developed rapidly during the past ten or twelve years, and this surprising increase has been the result of the direct advantages which the Suez Canal provided in the way of quick and cheap freights from india. The heat of the extreme southern trip around the Cape of Good Hope damaged the grain, and the time occupied in making the distance in a sailing vessel, about four months, as well as the heavy cost per steamer, owing to the distance, rendered the risk and expense so great that it was not profitable to send wheat that way. The success of the Suez Canal changed all this, and now the surplus of wheat of India can be laid down in England at a comparatively low rate. The export of India in 1872–'73 amounted to 14,385 tons; in 1881–'82 to 2,993,176 tons. This enormous increase in nine years has arisen from the increased price which new railways and cheap freights to England have secured for the wheat growers of India.

In the report of the Government of India on wheat early in 1884, the area of wheat lands is set down as follows:

	ACRES.
In British territory in India	20,000,000
In native territory in India	6,000,000
Total wheat acreage	26,000,000

The estimated yield from the above acreage is 7,000,000 tons yearly. In addition to the 26,000,000 acres now available for wheat cultivation in India, it is estimated that, with new railway lines, 9,000,000 acres of good wheat lands can be opened in the Punjab alone! A competent authority gives it as his opinion that the wheat lands of India are fully equal in extent to the wheat lands in the United States, and that the rapidly extending wheat area promises a largely increased yield from India at a very low cost.

These facts are important and impressive and should be duly considered by our people, for, as the outlook now appears, the American markets and those of the South American states must soon mainly provide consumers for our American wheat. In discussing and adjusting any future commercial policy in the country, this point should be kept prominently in view.

The opening up of railways in India enabled growers of cotton, as well as of wheat, to cheaply transport their crop to the principal shipping ports, and the improved prices which followed better means of transportation and cultivation, led to a large increase in the production. Much attention has been given to this staple crop by the Indian authorities, and special legislation has been passed to compel inspection of all cotton baled for export. This action, however, did not practically meet the approval of those who were actively engaged in the cotton trade. It was found to be expensive, and that even when officially "inspected" the grade was found uneven and the cotton inferior in quality. The rivalries of business houses engaged in the cotton trade in India have led to a system of doing the work of collecting the cotton from the interior in a fashion that secures perfect grading and careful assorting before it is finally baled at the ocean ports.

The cheap and abundant labor of India enables those who produce cotton to produce it at very low cost. Not only does this apply to the inland points, where farm hands or laborers are employed, but in large seaboard towns also. Coolie laborers will work for from $3.89 to $4.38 a month, and *provide their own food and lodging.*

In remote agricultural districts good labor is obtainable at as low as $2.50 per month, including food, or a little over 8 cents a day! One of the principal articles of diet consists of rice, which is very cheap all over India. The following data will show the steady growth of the exports of Indian cotton since 1878, and it should be borne in mind also that an increased native consumption has taken place during the same period:

	NUMBER OF CWT.
1878–'79	2,966,060
1879–'80	3,948,476
1880–'81	4,541,539
1881–'82	5,627,453
1882–'83	6,168,278

The largest proportion of this Indian cotton is used on the European continent, where, owing to its cheapness, an increasing yearly consumption is taking place. When the cheap rate of wages in India is considered, and the further fact that there are still vast tracts of land suited to the cultivation of cotton to be developed, the outlook is very promising for a greatly increased supply in the near future from this source. The ease with which the cotton crop is cultivated and the abundance and low cost of labor for its manipulation combine to render the crop profitable to

the natives, although the yield per acre is often as low as 50 or 60 pounds! Indian cotton is much in favor on the Continent especially on account of (1) its cheapness, and (2) because the thread spun from it will take on a high polish, thus enabling silk manufacturers to largely use it in imitation of pure silk. In fact so closely can the thread spun from Indian cotton be made to resemble silk that it sometimes takes a good judge to tell the difference.

The value of last year's exports of cotton from all Indian ports was, in round numbers, $78,102,591.

The brief reference made in this report to the development now taking place in India, as well of its past history, is worthy of careful study. It shows how vast the increase in the Indian wheat and cotton supply has been within the past ten years, a direct result of the policy of the Government aid.

New railways, cheap labor, and low freights have enabled Indian producers to come to the front as successful competitors in the principal markets of the world, to such an extent, in fact, that the price of wheat is to-day lower in Great Britain than it has been during more than a hundred years. The wise policy of extending Government aid in building railways, and in liberally supporting new steamship lines to distant portions of the globe is now bringing forth fruit an hundred fold. This is a subject of great importance to the people of the United States, and there are valuable lessons to be learned in a study of the far-reaching policy of the Government of Great Britain, in so far as the aid that the Government extends to the establishing of steamship and railway lines is of commanding importance to all the manufacturing interests of the empire. When it is borne in mind that the present railway system in India is, in the main, under the direct control of the Government, and that it has been developed under its guaranties, as a charge upon the imperial treasury, in case of deficiencies in income, it will be seen that the brave and liberal policy of the rulers in India, seconded by the home Government, has been to develop the productions of the Indian Empire, in order that cheap raw materials may be secured, for Great Britain. Plainly stated, this is a policy of protection to the manufacturers of Great Britain to an extent and in a way few nations have ever fostered their vital industries. This dual policy (1) that of securing the development of far-away dependencies so as to provide a large and cheap supply of raw materials for home use, and (2) at the same time open up new markets for home manufactures covers a field in practical political economy at once vast and comprehensive. It will not be overlooked that new Indian railways call for no end of rails, engines, rolling stock, &c., all of which is sent out from England. With war expeditions almost constantly on the march, calling for immense supplies to keep up the waste of campaigns, with extensive railways and other enterprises fostered by Government going on in India, it is clear to see that all these sources of demand for supplies focussed upon the manufacturers of Great Britain, create a market for the manufacturers of an unprecedented character and in an unfailing volume.

CO-OPERATIVE BAKING.—Inhabitants of London and of other English towns could be charged with no violent precipitation if they followed the example set them in La Rochelle. This French town suffered patiently for a long time the tyranny of the local bakers, who, although buying their flour in a cheap market, continued shamelessly to put a high price upon their loaves. But in 1866 a society was formed to defeat the monopoly of the bread sellers, and it has not only survived to this day, but also grown and flourished exceedingly. About 2,000 families are now said to deal with the association, which is founded, of course, on co-operative principles. The members of the company, for it has been duly incorporated, are only admitted after inquiry as to their respectability, and are at once expelled if they are found to be selling bread to outsiders. The result of the competition is gratifying to the shareholders and interesting to the rest of the world. During the early part of last year, it charged 32 centimes (6 cents) for the kilo of bread, which the bakers sold at 38 centimes; and at a later period of the year the difference was rather more marked. In fine, the small fraction of population belonging to this small town saved 18,000 francs over its consumption of bread. The reason why more members do not join is to be found partly in the fact that the association purposely remains select, but also in the objection which many people have to be restricted to a few sizes only in the loaves they buy. The company bakes nothing but loaves weighing 5 or 10 lbs. each; and it is not every one who cares to adapt the requirements of his household to these inflexible rules.—*English Exchange.*

NONSENSE.

EFFECT OF CULTURE.—Boston Girl (to Uncle James, a farmer).—Do you like living on a farm, Uncle James?

Uncle James—Yes, I like it very much.

Boston Girl—I suppose it is nice enough in the glad summer time, but to go out in the cold and snow to gather winter apples and harvest winter wheat, I imagine might be anything but pleasant.

A DAKOTA BOARD OF TRADE.—A member of the Cleveland board of trade, who was in Dakota last fall, happened in a town on the line of a railroad, which only had one wheat elevator. In conversation with the owner of of the elevator, he inquired:

"Who makes the price on wheat here?"

"Our board of trade" was the reply.

"So you have a board of trade, eh?"

"Well, a good enough one for such a town as this."

"How many members?"

"Only two—myself and clerk; I'm the bear and he's the bull, and between us the market is kept pretty lively."

"But suppose the farmer doesn't want to sell at your figures!"

"That never happens. Being as we are the board of trade, and own the only elevator, and being as he is head over heels in debt, and must have money, the market may be quoted as steady."

At a Keesville, N. Y., burying-ground is this epitaph:

"Here lies the bodies of two sisters dear,—
One's buried in Ireland—the other lies here."

TAKING THE CHANCES.—"I w-want two g-grains of q-quinine and four o-ounces of w-whiskey," shivered a man with malaria to the drug clerk, "an' I'll take it now."

"Isn't that a rather small dose?" suggested the clerk; "you seem to have got it bad."

"I d-don't know but w-what it is. M-make it e-eight ounces of w-whiskey, an' I'll run the risk."

"LOVE you!" echoed the young man; "why I'd walk through the fires of Hades to sit by your side for ten minutes!"

"That's awfully nice. I wish pa loved ma that way."

"Doesn't he?

"Oh, no. She asked him at dinner for a $300 camel's hair shawl, and he made her cry."

"How?"

"Why, he said that, with wheat touching a dollar, and he half a million bushels short on delivery, at 87 cents, she'd better be thinking of calico at six cents a yard. Why, what ails you, Augustus?"

"I, I, that is, I've got to meet a man at sharp 3. Half a million bushels short, eh? Good day, Miss Fairbanks." And he went off kicking himself for not being in love with an ice dealer's daughter.

TOBACCO SMOKE.

Zulinsky has recently published in a Polish medical paper, the result of a large series of experiments on men and animals, made for the purpose of ascertaining the physiological action of tobacco smoke on animals. He has found that smoke is a powerful poison, even in very small quantities. In the case of man, tobacco smoke, when not inhaled too freely, is only deleterious to a limited extent. Zulinsky declares that the poisonous character of smoke is not entirely due to the nicotine which it contains. Tobacco smoke, rendered free from nicotine, remains poisonous, though not to so great a degree as before. The second poisonous principle is an alkaloid, colidin. Carbonic oxide, hydrocyanic acid and other noxious principles are also contained in tobacco smoke. The bad effects of excessive smoking depend very much both on the kind of tobacco consumed and on the manner of consuming it. In cigar smoking the greatest amount of poison is inhaled, in cigarettes, much less, in pipes still less, while those who indulge in the nargileh or any similar luxury, where the smoke is drawn through water, take tobacco in its least mischievous form. Such are Zulinsky's conclusions. There can be little doubt that many of the light colored tobaccos have been partially bleached in order to give them that pale tint which moderate smokers believe to be an infallible indication of mildness. The decoloring agent is suspected to be, in many cases, a deleterious chemical compound. Some of the light tobaccos smoke exceedingly hot, owing to the quantity of wood fibre which they contain. This is especially the case with "bird's eye," which is cut near the stalk of the leaf, the slices of the mid-rib thick in this part of the leaf, giving this variety of tobacco the characteristic appearance from which it derives its name. "Bird's eye" is very apt to cause slight inflammation of the tongue, on account of the irritant character of and heat of its smoke, and, together with other light tobaccos, must act very prejudicially in elderly smokers, who may be prone to cancer of the tongue or lip. Dark tobaccos are readily adulterated, but when pure they are probably the most wholesome for pipe smoking.—"*N. Y. Analyst.*"

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ANNOUNCEMENT:

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

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.

☞*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.*

TO ADVERTISERS.

Milwaukee, Wis., June 1, 1885,

To Those Interested in the Flouring Trade:

THE UNITED STATES MILLER is now in its tenth year, and is a thoroughly established and much valued trade paper. It has a large regular list of domestic and foreign subscribers. It is sent monthly to United States Consuls in foreign countries, to be filed in their offices for inspection by visitors. It is on file with the Secretaries of American and European Boards of Trade for inspection of members. Aside from the above, thousands of SAMPLE COPIES are sent out every month to flour mill owners who are not subscribers, for the purpose of inducing them to become regular subscribers, and for the benefit of those advertising in our columns. Every copy is mailed in a separate wrapper. Our editions have not been at any time since January, 1882, less than 5,000 COPIES each, and are frequently in excess of that (see affidavit below). We honestly believe that the advertising columns of the UNITED STATES MILLER will bring you greater returns in proportion to the amount of money invested than any other milling paper published. Advertisers that have tried our paper for even a few months have invariably expressed themselves well satisfied with the results. Our advertising rates are reasonable. Send for estimates, stating space needed. The subscription price of the paper with premium is One Dollar per year. Sample copy sent free when requested. We respectfully invite you to favor us with your patronage. We shall be pleased to receive copies of your catalogues, and also trades items for publication free of charge. Trusting that we may soon be favored with your orders, we are,

Yours truly,
UNITED STATES MILLER.
E. HARRISON CAWKER, *Publisher.*

Affidavit Concerning Circulation.

STATE OF WISCONSIN, } ss.
MILWAUKEE COUNTY. }

E. HARRISON CAWKER, editor and publisher of the *United States Miller*, a paper published in the interest of the FLOURING INDUSTRY, at No. 124 Grand Avenue, in the City of Milwaukee, and State of Wisconsin, being duly sworn, deposes and says that the circulation of said paper has at no time since January, 1882, been less than FIVE THOUSAND (5,000) copies per month; further, that it is his intention that it shall not in the future be less than FIVE THOUSAND copies each and every month; further, that he has paid for regular newspaper postage at the rate of two (2) cents per pound on domestic and Canadian newspaper mail for the years 1883 and 1884 the sum of $423.74, showing an average of $17.65 per month for 24 months; the average weight of domestic and Canadian mail being 882½ pounds per month and the total number of pounds of such newspaper mail sent out during the 24 months ending with December, 1884, being 21,180 pounds. Six copies of the U. S. Miller weigh about one pound. The above postage does not include postage paid on local or foreign papers, Canada excepted.

E. HARRISON CAWKER.

Subscribed and sworn to before me this 7th day of January, A. D. 1885.

G. MCWHORTER.

Justice of the Peace, Milwaukee, Co., Wis.

THE New Orleans Exposition will not be continued another year.

THERE were fewer fires among flour mills in May than in April.

THE dust collector patentees and manufacturers seem to be at loggerheads with each other just at present.

IT is rumored that an immense scheme is on foot for building a complete system of railways in the Chinese Empire.

THERE are no present indications that the Millers' National Association will hold a meeting for several months to come.

PROF. RILEY says that the 17-year locusts will certainly appear this year. The Hessian fly is doing some damage in Missouri.

HON. GEORGE BAIN, Ex-president of the Miller's National Association, has been appointed one of the judges of milling machinery at the New Orleans Exposition.

WM. FAIST, representing Edw. P. Allis & Co., has gone to Europe, to be absent for a lengthy period. It is probable that he will return, via South America, sometime next year.

WE hereby respectfully thank our exchanges and patrons for the kind compliments they have showered on the UNITED STATES MILLERS on account of its change in form, and general appearance.

THE Jonathan Mills Universal Flour Dresser, manufactured by the Cummer Engine Co., of Cleveland, O., is meeting with good success in various parts of the country. The company report numerous orders.

WE take pleasure in advising any of our readers desiring to enjoy a good day's fishing to visit John Robert's summer resort at Neenah, Wis., on the Wisconsin Central Railway. Everything that a gentlemanly fisherman desires can be found there. We have been there ourselves, and are going again.

THE Wisconsin Central has commenced the shipment of flour and grain from St. Paul and Minneapolis to the Atlantic seaboard, via its own line, the Green Bay, Winona and St. Paul to Green Bay, the Delaware and Lackawana, boat line to Buffalo, and the Lackawanna rail line from thence on. The first shipment by this route, made May 16, was one of 25 carloads, and a like shipment will now be made daily.

HON. CARL SCHURZ, in his recently published pamphlet, entitled "The New South," says that he found on all sides, "a high appreciation of the resources and advantages of the country; great expectations of future developments; a lively desire to excite interest in those things, and to attract northern capital, enterprise an emigration; a strong consciousness and appreciation of the importance to them of their being a part of a great, strong, prosperous and united country."

PROF. RILEY says the seventeen-year locusts, whose visit he has predicted, are harmless to growing crops and do no injury except to the twigs of forest and fruit trees. Wherever young orchards have been planted on land which has been cleared during the last seventeen years the trees are liable to suffer somewhat, but it is probable that kerosene spray upon the trees will protect them. The ordinary locust, which is so destructive to growing crops, has jaws which cut, while the seventeen-year species, more properly called the cicada, has only a beak, through which he sucks his nourishment.

The Mexican Government has permitted the garrison at Vera Cruz to be vaccinated with yellow fever virus according to Dr. Carmona's system. Experiments were first made on prisoners who volunteered for the purpose. Persons vaccinated with the virus have all the premonitory symptoms of the fever. It is thought that the inoculation will serve as a complete protection for four or five years.

GRANT'S COOLNESS IN THE WILDERNESS FIGHT.—Colonel Amos Webster says: I've seen General Grant in the most trying places, but he never showed the least sign of discomposure. Once, during the terrible fighting of the Wilderness, he was sitting on a log on a knoll, in the rear of the line, with his back against a tree. He had his knife out and was whittling a stick. Suddenly an aid dashed up in a state of great excitement. His horse was in a lather, his sword was out, and he had lost his hat. He reported, in excited language, that a gap had been broken in the line, and the rebels were pouring through it. The old man heard him clear through, dismissed him, and then said quietly:

"One of you go over there and see what's the matter."

GRASSHOPPER YARNS.—Since the invasion of Northern California by the grasshoppers, there has been a marked revival in the literature appertaining to this interesting insect.

"I remember in '71," said a member of the Grain Exchange yesterday, "I was coming accross the plains. Well, sir, I was seated in a car reading a newspaper about noon, when suddenly it grew quite dark, and I thought sure a terrible storm was on us. It was a cloud of grasshoppers; so thick that when they settled on the car track they stopped the train. There was good feed where we were just then, and it brought the 'hoppers to a halt. We were blocked for twenty-four hours, until a snow-plow was telegraphed for, and when it cut the way for us, it left a bank of 'hoppers on each side higher than the smokestack of the locomotive."

"That was pretty bad," said another broker, "but I have seen worse. We were camped one summer in Kansas, making survey for a new town. The 'hoppers struck us at night, and in the morning we thought the end of the world hade come. They were piled, sir,

twenty feet deep over our encampment, and we were nine hours tunneling out of them. If we did not happen to have a few giant powder cartridges to blast out air holes we should have been suffocated before we could have struck a shovel into the mass."

"Didn't you hive any of 'm?" inquired a warehouseman, who had seen a good deal of Western life.

"What do you mean?" asked the broker.

"Just this: I was caught in the same fix you have told about, once, in Kansas. I was in charge of a mule team, hauling supplies to a railroad camp. Among other things we had several thousand yards of canvas for tents for the men. As soon as the grasshoppers struck us I put my gang to work, and in a short time we had a canvas sack made, balloon fashion, only bigger than any balloon you ever saw. Well, sir, we filled it chock full of hoppers—live hoppers—and hitched it on to the wagon, and when the swarm started to go our caged hoppers went with them."

"And took off your balloon?"

"No, siree, they hauled our wagon for over seventy-eight miles, when they broke down and we bagged a new lot. It beat mule power all hollow. Then it has occured to me—" But his audience had gone, and the Western man, growling, "I suppose these darned fools think I'm green," walked off to find a more credulous and attentive auditory.—*Alta California.*

The *Cincinnati Price Current* says: There are many curiosities of burning, of extraordinary rapidity of combustion, worth detailing. Bad building is the cause of most, for bad building means rapid destruction by fire. The party wall in the majority of old houses built in a row, and in many new, does not reach to the roof as it should, and the space between creates a channel—almost a blowpipe—for the spread of the fire to the next, which is very difficult to deal with. It is known that a nine-inch brick wall will resist fire as long as it stands—but often through carelessness it is overlooked. A building with a large frontage of windows—a large shop, for instance, with show rooms on each floor—is one of the most dangerous. The glass soon cracks and falls out and the air rushes in, and the whole soon becomes one vast blast furnace. Perhaps the most dangerous of all are those lofty establishments of flats. There is no one spot in them free from or unlikely to catch fire for they are collections of private houses, as it were, and every part of a private house is equally vulnerable, and from their great height there are neither ladders long enough nor water jets powerful enough to reach the top stories.

THE FASCINATION OF GOLD HUNTING.—An old forty-niner says of gold hunting: "It's the fascination of it. Lor', man, when you've struck it pretty rich and can see yer gold right in front of yer; when you're piling it up every half hour o' the day, with a nugget now and again as big as a bullet to cheer you, and then when the evenin' comes and you count it up and find a hundred odd dollars just picked out o' the earth that day—well, there ain't nothin' like it. Then when you don't strike it rich you always think you're goin' to next day, an' it's just as excitin' hearin' what other men tell in the evenin' what they pulled out as it is countin' over your own. Why, I've been three or four months at a time without making a dollar and without a cent in my pocket; but geewhittaker! the excitement of it don't give a man twice to think how hard up he is."

A CITY ON WHEELS.

One of the most curious of cities consists of wooden huts on wheels, to the number of about one hundred and thirty, which, when the season arrives, are rolled on to the ice in Saginaw Bay, Lake Huron. The population of this "city without a name" is about five hundred. Each hut is furnished with cooking utensils, hammocks, and a stove, and is occupied by three men, whose business on the ice is to follow up a peculiar method of fishing. In the centre of each hut a hole is dug to the water about a yard square. One of the fishermen then takes a live fish of the herring tribe, and after fastening it to a piece of pack thread drops it into the water. The fish dashes away swift as an arrow until it is pulled up by the thread, when it returns toward the hole, followed by a host of pike and other large fish desirous to feast on the dainty morsel. Beside the hole stands the fisherman, harpoon in hand, waiting the arrival of the pursuers, who are received with thrusts of a four or five pronged instrument, which rarely fails to bring up some writhing victims. Some huts can show two hundred and upwards of fine fish at the end of the day's work. The most weird appearance of this city is at night, when the fishermen prosecute the work by the light of torches, which, as is well known, attract fish without the aid of the herring-bait. The glancing torches and the shadows of the men leaning over the holes make a strange spectacle. If fish are not abundant in the spot first chosen, the huts are wheeled to another site. This city of fishers is about ten miles from Bay City, and six miles from the mouth of the Saginaw river and the banks of the lake. The road thither on the ice is much frequented, not only by those who have business there, but also by the curious, who find their interest in the excursion enhanced by the magnificent course for sleigh-driving which the ten miles of ice present.

RESULTS OF FREE TRADE.

A speaker in the Kensington Parliament recently introduced in his speech the following amusing account: "Yesterday morning I rose early. My hot water was brought in a Belgian zinc jug; and, as is my wont, I worked half an hour in my garden with a Belgian fork and an American hoe. I then took off my French boots, put on a pair of Algerian slippers, and went into breakfast, which consisted of bread made from Odessa wheat, Normandy butter, Russian chicken, grilled, American bacon, French eggs (poached), Mocha coffee, and Swiss milk. Comparing my Geneva watch with the American clock, I found it was time to set forth; so I put some American tobacco into a French pipe, and having lighted it with a Swedish match, I went to the railway station, with its Belgian iron framework, from which a German engine drew me to the city over rails made in Belgium. Here I worked for four hours with an American stylographic pen, and then went to luncheon—American wheat-bread, butterine from Canada, Australian mutton, Swiss cheese, Vienna beer; the knives were American and the waiter was a Swiss. I consoled myself with a Havana cigar, and continued my toil. In the meantime I dispatched a box to a friend, closing it down with French nails, and further securing the same with Russian cordage. My friend was advised on Belgian paper. Through stooping, I found I had lost a button, which was promptly replaced by a Dutch one. At seven I prepared for dinner by drinking half a glass of Spanish sherry with Dutch bitters. My dinner was made up of Portugal oysters and Chablis, *concomme* soup, which came in a powder from France, tinned *entrees* from the same country, Norwegian hare, Swedish blackcock, American beef, and Belgian potatoes, Italian cheese, and French wine; a trifle of Chartreuse and a Manilla cheroot followed, and a cup of East Indian coffee brightened me for my journey home. Arrived there, I entered by opening an American lock, which was on a Swedish door. To please my wife, I bought her a box of Dutch confectionary and a French-straw bonnet, and for my little girl a German toy. Here I found my wife playing German music on a French piano, with a French shade on the lamp. I took out my Italian violoncello, and having applied some fine French resin to my new Leipsic bow, played for some time with her. Abruptly breaking off, I told her my adventures during the day in much the same language as above. She grew excited, being a Fair Trader, and assured me that, though men might have such experience, the case was different with women. I replied by reminding her that she got her bonnet, silk for dresses, trimmings, ribbons, lace, gloves, boots, and most of her clothes, from France, mantles from Germany, her hair from Russia, and her teeth from America. We got to high words; so, putting on my French boots and gloves, seizing my Malacca cane and French-felt hat, I left the house, hailed a hansom with a pair of American wheels, and spent the rest of the evening at the French plays. Going home in an American tramcar, I arrived, to throw myself in an American chair, whence I noticed a great blot of ink on my new French wall-paper. Ere retiring, I partook of some Belgian rabbit, curried, washing it down with brandy-and-water, sweetened by French refined sugar. Finally, I reposed on a bedstead of the same nationality.

AN AWFUL BLUNDER.—Here is a good story anent Sir Edward Thornton, for which the London *Pall Mall Gazette* vouches: At a Washington reception a young gentleman said to a rather imposing-looking man: Good evening! Glad to see you—we have not met since we parted in Mexico." The person thus spoken to coldly replied: "I fear you have the advantage of me." "Why, surely!" exclaimed the mortified young fellow; "you don't seem to remember me." "To tell the truth, I have never been to Mexico." "Are you not Sir Edward Thornton?" "No, I am Judge Poland, of Vermont." A few nights after this rebuff the young man happened to be at another party, and seeing the Judge, made up to him. After a little desultory conversation he ventured to say: "That was an awful blunder of mine the other evening, to take you for old Thornton." "And whom do you take me for now?" "Why, you told me you were Judge Poland, of Vermont." The reply was crushing—"On the contrary, sir, my name is Thornton."

IMPROVEMENT IN FOOD PREPARATIONS.

The progress and improvements in all useful and beneficent institutions and industries of the nineteenth century have been greater than during any one of the preceding cycles.

A brief synopsis of labor-saving machinery, the means of locomotion--both by sea and land; the construction of ships and dwellings; the utilization of steam and electricity; the transmission and communication of intelligence; warming and lighting of dwellings; the production of material for clothing, and machinery for manufacturing the same, and a thousand and one other useful improvements suggested by these would fill a volume. But this paper will form merely an index to the improvements of a few articles of food preparations; for discussions relative to the preservation, sale and use of food, are more in keeping with a periodical devoted to the interests of the grocery trade, than the numerous means utilized to produce and transport them.

During the early recollections of the writer, no one had suggested any means to prepare fish, flesh, or fowl for future use during long voyages on the sea or protracted journeys by land, except by salting or drying. So destructive to the best qualities of fish and flesh has salt always been, that no human being has long escaped scurvy or other diseases who has made salted flesh or fish chief articles of diet. Smoked and dried meats also, seemed fit for only semi-savage life. Green and fresh vegetables have always been indispensable to a constant use of dried meats. During our juvenile readings of Capt. Cook's voyages, and the sickness and failing strength of many who made excursions and long journeys in both arctic and equatorial regions, the causes of their weakness and sickness were not then apparent; but now every well-read school boy knows that had these voyagers been provided with suitable food such as is now abundant, they would have enjoyed even better health than ordinary landsmen, of the same vigor, for as soon as our strongest men are compelled to subsist on salted, dried and stale fish and meat, and old, stagnant and impure water, they, too, become weak and diseased.

Years and generations were allowed to pass away, even after it was known that pure water could be distilled from any part of the ocean, before even packet ships were supplied with the means of providing this most essential element to the enjoyment of life and health on the ocean. Water casks and tanks were filled and kept in ships' holds until too stale and stagnant for human use. No wonder that every ordinary seaman in those days formed an appetite for "grog"—composed of equal parts of rum and water! But grog three times a day would not save a man from scurvy while his staple food was stale hard tack and salt junk, terms by which the sailor designated this stale bread and meat. Even vigorous soldiers on a long march, often break down when kept some time on improper food. Men need and must have food adapted to the season and the climate in order to enjoy health and vigor. General Scott said that the American army under his command lost more men in the Mexican war, by being fed on navy beans and other stale food than by all the weapons of their enemies.

For generations a few scientific men knew that a great variety of food, if excluded from the ordinary atmosphere, would remain fresh and pure; but no one gave practical demonstrations of these known facts so that the masses could utilize them. For years a few thoughtful persons made soups, jellies, teas, etc., and poured them into small stone bottles, and while hot carefully corked and sealed the vessel, and derived great benefit from such preparations during long voyages. But it remained for a few plain utilitarian Yankees to make a business of canning corn, fish, meats --indeed food of every kind--in a manner so secure and easy to handle and transport, that persons of the most limited means can now enjoy, in season and out of season, every variety of fish, flesh, fowl and vegetables in its fresh and natural condition, possessing all their original and necessary qualities; and that too, anywhere in any climate and season. Even milk and cream, that we find difficult to keep sweet and fit for our coffee twelve hours during the summer, are readily so condensed and preserved that they can be opened, with their contents sweet and good, even within the torrid or frigid zones, after being tossed about from pillar to post for full seven years. During the civil war pure condensed milk, from the vicinity of Chicago, was abundant in all our southern hospitals, and when properly handled answered every purpose of milk, just from the cow. And so of every kind of food. Now the British government may, if she will, supply her armies hastening to the barren sandy plains of Africa, with every kind of animal or vegetable food, in packages so condensed and preserved that every reasonable want of strong or weak men may be supplied; and that, too, at an expense but a trifle in advance of what the same quality of food could be had at home and all this by the genius, skill and industry of Americans.

In the wilds of the United States a company of prospectors who would seek for gold and silver in the districts beyond the reach of food, have but to load their mules with a few cans of food, and then they can travel over mountains and through uninhabited valleys, and be always confident that their cans will yield all that their labels promise.

Had our Arctic voyagers been well supplied with these excellent goods, scores of valuable lives would now have been blessing their country and their families, instead of being buried among the icebergs.

All the means and machinery for fully perfecting the entire system of canning food and drink of all kinds, so that they can be full, wholesome and good for an indefinite period, are constantly being improved. The competition is among men of brains, genius, skill, energy, enterprise and wealth, and the *ultima thule* will certainly be reached at the earliest period possible.—*Chicago Grocer.*

JAGO'S STANDARD COLOR SCALE FOR TESTING THE COLOR OF FLOUR.

Men know things by comparison. Some standard is set up either naturally or arbitrarily, and whether a thing be greater or less, sweeter or sourer, darker or lighter than that standard, so we judge of it. The standard is the guide which directs our judgment and forms our knowledge. Comparison enables us to measure our progress. A baker counts up the number of sacks he baked this year, or the number of Good Friday buns, against the number of last year, and so he measures his success. In such matters as numbers made, it is easy to compare, but in such questions as the color of his buns, unless he has kept one in the same state as when new, he can only form a rough opinion. If he could have one of his last year's buns, just the same color as it left the oven, then he could compare, but not otherwise.

Now in flour nothing is so deceptive as its color, nothing so difficult to accurately remember, from month to month, from purchase to purchase. Here Mr. Jago has stepped in, and provided, at a cheap cost, a color scale which will enable any baker to test in the most accurate manner his intending purchase with his last delivery. The description of the inventor, which he sends out with each scale will give some idea of its value and appearance.

DESCRIPTION.—The usual method of determining the "Color" of a sample of flour consists in compressing a small quantity into a thin cake or slab, wetting the same and allowing it to dry. The depth and character of the color are then observed.

In using this method, the inventor has long felt the need of some definite color standard with which the flour under examination could be compared, and, if possible, the result expressed in numbers.

Flours differ, not only in depth of tint, but also in actual color. For most purposes of comparison they may, however, be divided into two varieties, the prevailing tones of which are respectively gray and yellow. The greater number of flours fall into the gray class, while a few of the very finest patents, represented notably by the best Hungarian brands, have a rich yellow tint.

It occured to the writer that the best method of meeting the want mentioned would be to construct a scale of graduated tints that should be numbered according to their intensity. The scale might then be suitably mounted in any convenient form. Such a scale would require to be made of colors that do not bleach or undergo change on keeping, the tint should as closely as possible resemble that of flour, and the character of the colored surface should resemble that of flour after being wetted and dried. The writer believes that, as the result of many months' work and experiment, he has succeded in producing a scale that satisfies these requirements.

The colors selected are—first, a grayish yellow and, second, a purer yellow tint. A scale of each color is constructed: they are termed the Gray and Yellow Scales respectively. The Gray Scale starts with a very light tint marked "1" and finishes with a dark tint marked "16." The whole of the tints have an intensity proportional to their number, thus number 2 is exactly twice as dark as number 1, while number 8 is four times as dark as number 2.

The Yellow Scale being intended for patent flours only, is not extended so far as the Gray Scale. It is difficult to compare the two scales with each other, because the color is dissimilar, but, in intensity, Number 1 Yellow is about equal to 1½ Gray; Number 10 Yellow is three times as dark as 1 Yellow and about equal in intensity to 4½ Grey. The colors deepen in intensity by regular intervals from Number 1 to Number 10 Yellow.

In the mounted scale, which is of a convenient size to fit the pocket, the Grey

Scale faces the cover, while the Yellow is placed underneath.

DIRECTIONS FOR USE.—To wet up a sample of flour, place a small quantity on a piece of thin board, or a plate of zinc, or other convenient substance; press carefully with a spatula or other body capable of giving the flour a smooth surface. Having thus obtained a smooth compact cake of flour, dip the same in a sloping direction into water; after some ten or twelve seconds withdraw, place aside, and allow to dry at the ordinary temperature.

If preferred, the sample may be doughed under conditions of absolute cleanliness, and the color of the dough noted after drying as before.

Color is best observed in good daylight, direct sunshine on the samples being avoided. Stand in front of a window, hold the scale and the sample side by side, and inclined at the same angle to the light. The scale must be held in the same direction as a book, that is with the darkest end or bottom of the scale to the observer. First determine whether the flour corresponds more closely to the Gray or Yellow scale; then, by careful observation, ascertain the numbered tint which agrees with the flour in depth of color. Should the sample fall between any two tints, indicate the color by a fraction, as for instance, 2¼ or 3½, estimating the fraction by the eye.

It is recommended that two scales be procured, the one for use in examining flours, the other to be kept for a "master" scale, and only used for testing, from time to time, the accuracy of the working scale. This scale, on being sensible soiled, should be replaced. —*British Baker and Confectioner.*

THINGS WORTH KNOWING.

COCAINE A NERVE FOOD.—Dr. Aschenbrandt, of Wurzburg, has made some experiments on the action of murate of cocaine on the human organism. He administered the drug, unknown to the subjects (who were soldiers), in doses about one sixth of a grain in cases of exhaustion and fatigue from various causes, and found invariably that the lassitude was speedily removed, and that the men could go on for hours without feeling hunger and thirst. One of his experiments was made on himself after a sleepless night, with the prospect of a long day's march before him, when a dose of cocaine (taken in coffee about 3 A. M.) enabled him to go the whole day without feeling hunger, thirst, or fatigue, and he dined late in the afternoon with his usual appetite. He considers the drug to be a direct nerve food, and not a stimulant merely; but its stimulating action is certainly far above that of alcohol, and it appears to have no injurious after affects.—*Medical Record.*

OLD WOMEN'S REMEDIES.—A writer in the St. Louis *Medical Journal* advises young practitioners never to make fun of an old woman's remedy. He will not only give offense, but may miss a valuable aid in his practice. The writer adds: "In 1830, while practicing in Madison county, Ill., I was induced, by the representations of an old woman, to make the trial, in dysentery and diarrhœa, of tablesponful-doses of pure cider vinegar, with the addition of sufficient salt to be noticeable, and it acted so charmingly that I have never used anything else."

ARTIFICIAL SPONGE, made of cotton, rendered absorbent, and treated with antiseptics, has been invented in England, at Birmingham. A piece of the size of a walnut has absorbed water until it reached the size of a cocoanut. It is so cheap that it need not be used but once, so that sponge infection can be readily avoided.

IRON vs. WOODEN SHIPS FOR GRAIN.

Mr. Henry Taylor, who had personal experience in ocean shipping from 1866 to 1879, replied in the Chicago *Tribune* to an article of Mr. Bates, giving the preference to wooden vessels, as compared with iron, as grain carriers. The writer says that the value in the market of cargoes in A1 all iron vessels is twenty-five cents per quarter over the same in all wood. The great danger of damage in the latter is well known to the shippers of the Pacific slope.

A first-class iron vessel, says Mr. Taylor, can, he thinks, be built on the Clyde for less than a wooden one of even tonnage, either on the Pacific or Atlantic coasts. The iron ship would be classed as A1 for twenty years; the wooden one would be so classed only for seven, in a few cases for ten or fourteen years; after these dates few would risk a cargo around the Horn. Iron ships make fully as good time, or a better average; while underwriters would not insure a grain cargo in a wooden vessel of seven years at as low a rate as in one of iron of double that age.

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AMERICAN FLOUR MILL AND MILL FURNISHERS' DIRECTORY FOR 1884-85.

Published by E. HARRISON CAWKER, of Milwaukee, Wis.

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No pains or expense have been spared to make this Directory as complete and accurate as possible. More than 30,000 circulars and innumerable letters were sent out to obtain information necessary for the compilation of this work. The volume contains over 200 large pages, no advertisements. It shows that there are in the United States of America and our neighboring Dominion of Canada 25,050 flouring mills, taking them as they go, great and small. The work indicates in about 9,000 instances the kind or kinds of power used by the mills, the capacity in barrels of flour per day. It further indicates cornmeal, buckwheat, rye-flour and rice mills. It shows that the number of mills in the various states and territories of the United States are as follows: Alabama 453; Arizona 17; Arkansas 343; California 222; Colorado 54; Connecticut 288; Dakota 81; Delaware 98; District of Columbia 5; Florida 66; Georgia 631; Idaho 21; Illinois 1123; Indiana 1089; Indian Territory 14; Iowa 790; Kansas 489; Kentucky 713; Louisiana 61; Maine 28; Maryland 353; Massachusetts 340; Michigan 846; Minnesota 487; Mississippi 386; Missouri 1025; Montana 21; Nebraska 25; Nevada 13; New Hampshire 182; New Jersey 442; New Mexico 32; New York 1902; North Carolina 848; Ohio 1443; Oregon 145; Pennsylvania 3142; Rhode Island 51; South Carolina 274; Tennessee 801; Texas 730; Utah 110; Vermont 247; Virginia 781; Washington Territory 61; West Virginia 447; Wisconsin 777, Wyoming 2.

In the Dominion of Canada the record is as follows: British Columbia 17; Manitoba 54; New Brunswick 198; Nova Scotia 12; Ontario 1160; Prince Edward's Island 39; Quebec 531. Total 25,050.

Anyone desiring to reach the flour mill trade of the United States and Canada will find this Directory indispensible. Cawker's Flour Mill Directories are issued once in two years. The next will not be issued until about March 1st, 1886. We refer to the following list of Parties using this Directory:

E. P. Allis & Co., Milwaukee, Wis.; C. B. Shove, Minneapolis, Minn.; Three Rivers Manufacturing Co., Three Rivers, Mich.; R. A. Danliker 63 S. Clinton St., Chicago.; Smith Bros. & Co., Three Rivers, Mich.; Everlasting Elevator Bucket Co., Terre Haute, Ind.; Geo. T. Smith Middling Purifier Co., Jackson, Mich.; Thos. Nixon & Co., Dayton O.; Latimer & Co., 33 N. Front St., Philadelphia, Pa.; Home Insurance Co., 116 Broadway, N. Y.; T. R. Burch, Gen'l Agent Phœnix Ins. Co., 164 Dearborn St., Chicago.; J. Ward Palmer, 426 Walnut St., Philadelphia.; Pratt & Whitney Co., Hatford, Ct.; Howes & Ewell, Silver Creek, N. Y.; Cockle Separator Co., Milwaukee.; North Star Iron Works, Minneapolis, Minn.; Knickerbocker Manufacturing Co., Jackson, Mich.; Bradley, Kurtz & Co., 25 Pearl St., New York.; Stephen Ballard & Co., 79 Chamber St., N. Y.; H. Henry, Shelbyville, Ind.; A. W. Haag & Co., Fleetwood, Pa.; D. L. Van Moppes, 27 Maidne Lane, New York.; Handy & Lord, Northfield, Minn.; Arkell & Smiths, Canajoharie, N. Y.; J. W. Supplee & Co., 1831 Market St., Philadephia.; Chas. E. Slayback, 58 Magazine St., New Orleans, La.; John W. Higley, Mobile, Ala.; Field, Lindley & Co., 17 South St., New York.; Youngblood & Hall, Atlanta, Ga.; Quinn & Co., Milwaukee.; Poole & Hunt, Baltimore, Md.; R. P. Charles, New York, N. Y.; Shields & Brown, 78 Lake St., Chicago, Ill.; M. Dea & Co., Bucyrus, O.; H. & W. Gregg, 45 Waring St., Belfast, Ireland.; C. M. Palmer, Minneapolis, Minn.; Wall Manufacturing Co., Minneapolis, Minn.; Wm. Dunham, 24 Mark Lane, London; E. C.; Mitchell Bros., Chicago, Ill.; Eureka Manufacturing Co., Rock Falls, Ill.; Sinker, Davis & Co., Indianapolis, Ind.; American Fire Insurance Co., 175 La Salle St., Chicago, Ill.; Wilford & Northway, Minneapolis, Minn.; Cummer Engine Co., Cleveland, O.; E. F. Bacon & Co., Milwaukee.; Richmond City Mill Works, Richmond, Ind.; E. Holmes & Co., Minneapolis, Minn.; L. V. Rathbun, Rochester, N. Y.; W. & N. Thayer, Westerville, O.; A. A. DeLoach & Bro., Atlanta, Ga, Peterson Bros. & Co., 90 La Salle St., Chicago, Ill.; S. Dessau, No. 4 Maiden Lane, New York.; Hill Grain Scale Co., Detroit, Mich.; Chatfied & Woods, Cincinnati; O.; Phœnix Iron Works, Minneapolis, Minn.; Western Electric Light Co., Chicago, Ill.; O. E. Rickerson, Quincy, Ill.; Fred. J. Schupp, Marshall Mo.; Jno. E. Crow, Wilmington, N. C.; A. R. Ennis, 107 N. Eight St., St., Louis, Mo.; Ohio Smutter and Separator Co., Bucyrus, O.; Richmond Manufacturing Co., Lockport, N. Y; Messer & Aldrich, Beloit, Wis.; Jas. Graham & Son 1014 Penn Ave., Pittsburgh, Pa.; Anton Kufeke, Glasgow, Scotland.; Farmer Roller Mill Co., Grand Rapids, Wis.; P. G. Hill Washington, D. C.; Weidler & Allen, Cincinnati, O., and many others in this country and abroad.

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1.00 Millstone	1.50	1.00 Miller Journal	1.50	1.50 Milling World, (Weekly)	2.00
1.00 Modern Miller	1.50	1.00 St. Louis Globe Democrat	2.00	1.00 Miller's Review, (with flour trier)	1.75
4.00 Hints on Mill Building(book)	4.00	1.00 Boston Globe Democrat	2.00	3.00 New York Weekly	3.25
3.20 Scientific American	3.50	5.00 Bradstreet's	4.50	1.00 Post-Dispatch, (St. Louis)	2.00
1.50 American Agriculturalist	2.00	4.00 Frank Leslie's Chimney Corner	4.25	3.00 St. Nicholas	3.60
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Publisher United States Miller, No. 124 Grand Ave., Milwaukee, Wis.

NEWS.

A cargo of Russian flour was recently sold in New York City.

The flour mill at Maryville, Pa., burned May 13. Loss $20,000.

Gordon Barker & Co.'s mill at Sparta, Ill., burned May 18; loss $30,000.

Wm. Horton has purchased Amos Phelps' mill at Delavan, Wis., and Mr. Phelps has retired from the business.

Poole & Hunt, the well-known manufacturers of Baltimore, have each given $1,000 to aid the Centenary Biblical Institute of Baltimore, which prepares young colored men for the ministry.

The Wellington (Kansas) roller mills have been thoroughly overhauled, and have started up satisfactorily. The Allis rolls are used. The mill is owned by Mr. George H. Hunter; Mr. C. H. Barnard is the head miller.

The Metropolitan flouring mill of George V. Hecker, New York City, is expected to shut down in a few days, and remain shut from two to four months. It employs 150 men. The Croton mill in the same street, is expected to continue running with increased capacity. The Metropolitan turns out about 1,200 barrels of flour per day, and the Croton 1,600.

We recently received a letter from Mr. O. P. Briggs, Secretary of the PRAY MANUFACTURING CO., of Minneapolis, Minn., from which we take the liberty of making the following extract: We have just contracted to build the Lincoln mill for the Washburn Mill Co. at Anoka, Minn. Our plans were subjected to the most severe criticism and were pronounced by all to be far ahead of our competitors. We have also the contract for furnishing the machinery for the new million and a half bushel elevator to be erected by the Union Elevator Co. of this city. In this case, also, our plans were adopted unanimously after having been examined by all the leading mill and elevator men in the west. This is the fourth elevator we have planned on the *Esplin* system and there is now no question but that the system will replace all others now in use. The Washburn Mill Co. have adopted it for their elevator at Anoka which is to have a capacity of 125,000 bushels. The Esplin system is a grand success and it saves the builder an immense amount of money.

The Simpson & Gault Manufacturing Co., manufacturers of flour-mill machinery, made an assignment May 25, to John R. Sayler for the benefit of its creditors. Its estimated liabilities are $125,000; assets, $75,000. The deed declares that dullness in business and disappointment in making collections to pay maturing indebtedness caused the failure. The preferences are as follows: In favor of Mary S. J. McGroarty, for $5,700; Mary T. Fitch, $3,778.25; Lucy D. Gault, $900; Robert Simpson, $30,033.91; R. P. Charles, $5,388.66. Total, $45,100.82. A lease on property on the west side of Elm street, south of Second, was transferred to Sarah Simpson for $12,000. The company was incorporated in October, 1881, with an authorized capital of $300,000, $150,000 of which it was claimed was paid in. The firms of Simpson & Gault, the Straub Mill Company, and the Peerless Wringer Company were merged in this organization. A year ago the company claimed that it had $90,000 invested. At present William P. Simpson is president and C. J. O'Hara is treasurer of the company.

During the past month, the Case Manufacturing Company, of Columbus, Ohio, have been favored with a very good business indeed; among the many orders they received, we note the following: From the La Grange Milling Co., La Grange, Ind., 10 pairs rolls with automatic feed; from Henry Studebaker of Farmland, Ind., for machinery for a complete roller mill on the Case system; from Peck & Hazelton, Hazelton, Kansas, for a complete outfit—breaks, rolls, purifiers, scalpers, centrifugals etc., for a full roller mill on the Case system; also for a full line of machinery for a roller mill on the Case system, for Stanley & Hawkins, Alliance, Ohio; from A. L. Strong & Co., mill furnishers, Omaha, Neb., for 10 pairs rolls and other necessary machinery for Blowers & Pheasant's mill at Osceola, Neb.; George Sears, of Shopiere, Wis., has ordered two additional pairs of Case rolls with patent feed; S. T. Rush & Co., Dawn, Ohio, have ordered another No. 1 Case purifier; W. T. Pyne, of Louisville, Ky., has ordered rolls with patent feed, for W. J. Meyers; W. C. Mansfield, Cleveland, Tenn., has ordered the Case patent feed for purifiers not of Case make, the patent feed being adapted to purifiers of any make; David Mercer, of Loudenbourg, Pa., is putting in a No. 1 Case purifier; Henry Schneer, of Mt. Vernon, Ind., has contracted for rolls, purifiers and a full line of machinery for a complete roller mill on the Case system; A. E. Atherton of Grand Blanc, Mich., has ordered a Case centrifugal; J. H. Henderson, Woodlawn, Ill., has ordered Case rolls and other machinery; A. Brand & Co., Smithville, O., have ordered bolting reels, Case purifiers, etc.; G. W. Cissel, Washington, D. C., has ordered eight No. 1 double purifiers, with patent feed, etc.; A. C. Strong & Co., Omaha, Neb., have ordered Case rolls, scalpers, bolting reels, etc., for G. W. Miller & Sons, Surprise, Neb.; Kerfoot Bros, Des Moines, Ia., have placed an order for two pairs Case rolls, etc., for Cory Bros., at Lehigh, Ia.

A MODEL MILL. We quote the following extract from a letter received from the CASE MFG. CO., of Columbus, O., May 18—"Mr. G. W. Cissel, of Georgetown, D. C., has recently sold out his half interest in the 600 bbl. E. P. Allis mill of that city, and has purchased a large mill building, which, for some time, has been idle in the same city, and had began the erection of a 400 bbl. roller mill. Before giving his contract, he sent his miller and millwright through the different parts of the country, visiting all the leading mills for the purpose of investigating the best systems of milling, and the most perfect and latest improved machines. The experts visited Cleveland and other points where they saw the Jonathan Mills reel in operation and also the reels of the E. P. Allis, Case Mfg. Co., Nordyke & Marmon Co. and other leading mill furnishers of the country, and examined the different mills built by these several firms. On their return to Washington they gave their order to the Case Mfg. Co. for a full line of their rolls and purifiers, and to Jonathan Mills for a full line of his flour dressers. The mill will be one of a novel construction and will be the most perfect in every detail. No expense will be spared to make it the finest and most complete mill in the United States. The machinery has been purchased without reference to cost, and the very latest improved and best line of machines have been selected. The mill will be erected under the supervision of Mr. E. Corbet, who has previously built two large flouring mills, using the Case machinery, in Georgetown, D. C., both of which mills have proven remarkably successful from the start. In view of the fact that the mill will be equipped with a full line of the Jonathan Mills flour dressing machines, and a full line of the latest improved Case automatic machinery, it will no doubt draw more than usual attention. It is calculated when the mill is completed it will be automatic throughout. It is expected that the mill will be in operation by the first of August, 1885."

Mr. J. Harrison Carter, a prominent milling engineer in London, Eng., has recently taken the contract for erecting a large roller mill at Coventry, Chili, South America, for Messrs. Balfour, Williamson & Co., said to be the largest firm of flour merchants in England. The mill is to be driven by a 40-inch Leffell turbine, supplied by a waterfall of 30 feet. The building is to be erected in a peculiar shape to resist the shocks of earthquakes not infrequent in that country. The walls of the lower floor are 4 feet thick, and the second 2 feet 6 inches. The top floor and roof are constructed of wood.

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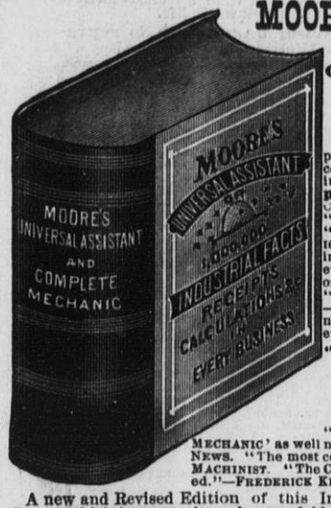

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2d, Association.—We comprehend as well as remember things chiefly by their associations. For this reason any one who shall carefully read the "Book" paragraph which we reproduce from Webster's Practical Dictionary, will not only comprehend it more readily, but will be able to remember two or three times as much as would be gained by reading about the same words when treated separately as in other works.

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4th, Derivative Terminations.—Only the larger dictionaries hitherto published give the derivative terminations. The New American Dictionary, for instance, does not give any of the four variations of so common a word as forbear, while they are all given in Webster's Practical.

5th, The Illustrations in Webster's Practical are more numerous and better executed than those of any other abridged or low-priced dictionary.

6th, Prefixes and Suffixes.—Another important feature of Webster's Practical is its peculiar treatment of prefixes and suffixes, which is believed to be more desirable than a separate department of two or three hundred pages which is sometimes allotted to them.

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8th, An Invaluable Book.—The importance of supplying every child with Webster's Practical **for his very own,** is not generally appreciated. As an educator it is worth a hundred times its price, and a little self-denial to provide one or more copies in every family will prove a better economy than an endowment of hoarded bank-stocks later on in life.

The following paragraph is reproduced from Webster's Practical.

Book, bŏŏk, *n.* A collection of sheets of paper, etc., bound together; a literary composition, written or printed; a subdivision of a literary work. (*Mer.*) A volume in which accounts are kept. — *v. t.* [BOOKED (bŏŏkt), BOOKING.] To enter, or register in a book. — **Book'ish,** *a.* Given to reading; more acquainted with books than with men. — **Book'-bind'er,** *n.* One who binds books. — **-bind'ery,** *n.* A place for binding, etc. — **-bind'ing,** *n.* Art or practice of, etc. — **-case,** *n.* A case with shelves for holding books. (*Bind.*) A book-cover. — **-cov'er,** *n.* (*Bind.*) A case for a book; a cover of cloth or other material prepared for casing a book. — **-keep'er,** *n.* One who keeps accounts. — **-keep'ing,** *n.* Art of recording mercantile transactions and keeping accounts. — **-learned,** -lĕrnd, *a.* Versed in books; ignorant of life. — **-learn'ing,** *n.* Learning acquired by reading,—esp. as opp. to practical knowledge. — **-mak'er,** *n.* One who writes and publishes books; a compiler; a sporting man who makes a record of bets. — **-mak'ing,** *n.* The practice of, etc.; compilation; systematized betting. — **-mark,** *n.* Something placed in a book by which to find a particular place. — **-plate,** *n.* A label indicating ownership, placed in a library, etc., usually on the inside of the cover of a book. — **-post,** *n.* The post-office arrangement by which books are mailed. — **-sell'er,** *n.* One who sells books. — **-shelf,** *n.* A shelf to hold books. — **-shop, -stall, -store,** *n.* A place for selling books. — **-stand,** *n.* A stand for selling books in the streets; book-stall; a support to hold books. — **-worm,** *n.* A worm or mite that eats holes in books; one excessively addicted to study.

THE QUANTITY TEST.

(The following exhibits are from the texts of the dictionaries named).

Webster's Practical Dictionary, ($1) 600,000 Words and 1,400 Illustrations.
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Quality Test.—Aside from all advantages above alluded to, there is still another and very important feature of the new work to be considered, viz.: its **quality** as compared with the cheap dictionaries which have had the largest sales, and which have been compiled chiefly from the old editions of Webster on which the copyrights have expired. Hence Webster's Practical contains more matter than any other dollar dictionary. Its quality, to say the least, is the **very best,** while its arrangement and all other new and desirable features, including first-class illustrations, paper, printing and binding are added without extra charge.

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Our arrangements with the Sole Agent (S. S. Wood, 134½ W. 33d St., N. Y.) enable us to announce the following Special offers:

For $1.60 we will send the UNITED STATES MILLER for one year and a copy of WEBSTER'S PRACTICAL, post paid to ANY ADDRESS IN THE WORLD, or for $2.25 we will send WEBSTER'S PRACTICAL and the UNITED STATES MILLER FOR 2 years to any address, or we will send 5 copies of WEBSTER PRACTICAL to any address for $4.00. Address all orders to E. HARRISON CAWKER, Publisher of the UNITED STATES MILLER, No. 124 Grand Avenue, Milwaukee, Wis.

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For private telegraphic correspondence, either for land or cable lines.

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

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The best and handsomest Song Book ever published at any price, containing 225 full size music pages, 76 complete vocal compositions, every one a gem, any two of them worth more than the price of the book, and several of them purchased from the Authors and Composers, especially for this work, and never before in print.

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Be sure and order The "National Piano Folio."

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An elegant selection of popular and fashionable PARLOR DANCES.
Peculiarly adapted for the use of SOCIAL HOME PARTIES.

Consisting of Quadrilles, Lancers, Galops, Polkas, Waltzes, Contra and Fancy Dances etc. etc.; a splendid collection of the latest approved compositions, together with the old favorite Reels, Hornpipes, Jigs, etc., "Money Musk," "Devil's Dream," "The Tempest," "Cicilian Circle," and others, with call for the different figures.

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SITUATION ✲ WANTED.

Short advertisements inserted under this head for 50 cents each insertion.

HENRY SCHAEFFER, 316 Third st., Milwaukee, Wis.—Head miller.

JAMES CASTERLINE, Painted Post, N. Y.—Experienced with both roller and stone mills.

EDW'D SHEARSTON, No. 172 South st., Lockport, N.Y. 20 years' experience. Will give satisfactory reference. Would like to take charge of a good roller mill.

J. W. BEEBE, Edinboro, Pa., 12 years experience.

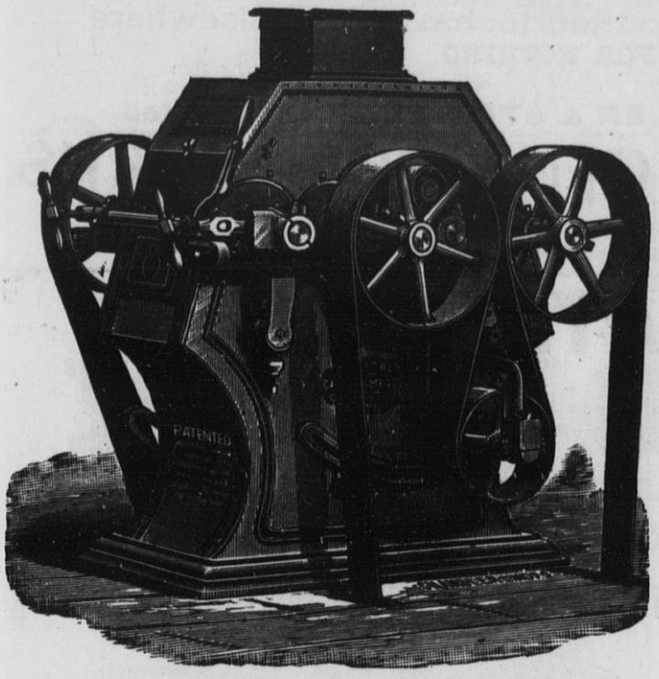
FRED. CONRADT, Box 341, Pittsfield, Pike Co., Ill. A German miller of long experience in Europe and America, will be open for engagement May 1.

J. B. WOOD, Londonderry, Chester Co., Pa., wants a situation as miller by August 1st.

WANTED—A SITUATION by a miller of 16 years experience with burrs, rolls and Garden City breaks. Understands handling centrifugals and bolts. Can speak German and English. Will guarantee satisfaction. Can come recommended. Am sober, honest and industrious. Have milled spring and winter wheat. Address, Lee Heck, Ottawa, Kansas.

On Top! On Top! On Top!

Read the following letters which indicate the kind of Mills we build everywhere.



9 X 18 FOUR ROLL MILL.

OFFICE OF THE NEW ERA MILL CO.

NASHVILLE, TENN., MAY 5th, 1885.

CASE MFG. CO., COLUMBUS, O.

GENTLEMEN:—In handing you herewith balance due on contract for reconstruction of the New Era Mill to a complete 350 bbl. full Roller Mill, we beg to express our thanks for the efficient manner in which the work has been performed, and for the honorable and faithful compliance on your part of all the terms of the contract in every particular. The Mill has been in successful operation for over two months, and we have had no trouble or delay of any kind since we first started up, and our results, both as to quality and yield of flour, have been entirely satisfactory. We feel confident that we have as good a mill as there is in the country; that we can make as good flour, and as much of it per bushel of wheat. We have a demand at good prices for all the flour we can make, and no complaints, but universal praise. You have cause to be proud of the finish and workmanship of the machinery, and of the nicely finished and perfect running line of rolls. You have *carte blanche* to refer parties to our mill, and we will be pleased at any time to show such parties the full operations of the mill.

Yours truly,

JAS. L. GAINES, Prest.

NASHVILLE, TENN., MAY 4th, 1885.

CASE MANUFACTURING CO., COLUMBUS, O.

GENTLEMEN:—Respecting the qualifications of the New Era Mill since being refitted to the full "Roller System" by you, I would say from personal observation of its workings in all its details coupled with the output in percentages, yields and qualities of its flours, it is a success. Successful in point of mechanical construction, successful in point of perfect separations, successful in point of excellence of grades in their several relative positions, and further successful in point of percentages and yields.

The Rolls themselves are well constructed, easily adjusted and exhibit a very pleasing appearance, combined with good finish and workmanship. The automatic feed saves the miller from anxiety and worriments, consequent on irregular feeding appliances, and the tension appliances are all one could ask for to secure positive and easy running.

Respecting the separations, I am positive that in this direction she has no peer, they being so perfectly under control that each and every separation presents itself for individual manipulation if necessity demands it, and as our quality of flours rank with the best, I am free to say that the mill to-day stands a monument of great credit to all the talent employed in the reconstruction, and further I would say, and it, too, not being the smallest classification, is the fact that since we started the mill off, not one inch of bolting, scalping or purifying cloth has been changed, or even a spout displaced. While all this can be truly said, I will not close without mentioning the very gentlemanly manner in which you carried out our contract to the letter, and having been personally interested in the construction of said contract, I am in a position to know whereof I speak. All who bid on our work will well remember the requirements of the contract, and I am pleased to be able to say, that personally I regard the fulfillment of all agreements perfect. Wishing you abundant future success.

I remain, yours truly,

JOHN METHERELL, Head Miller.

We have not changed $10 worth of cloth, and scarcely a spout in any mill we have built for months, which is proof positive that we have the best system of bolting, as well as the best machines of any competing mill builder in the country.

For low prices, address,

THE ✻ CASE ✻ MANUFACTURING ✻ CO.,

COLUMBUS, OHIO.

[Mention this paper when you write to us.]

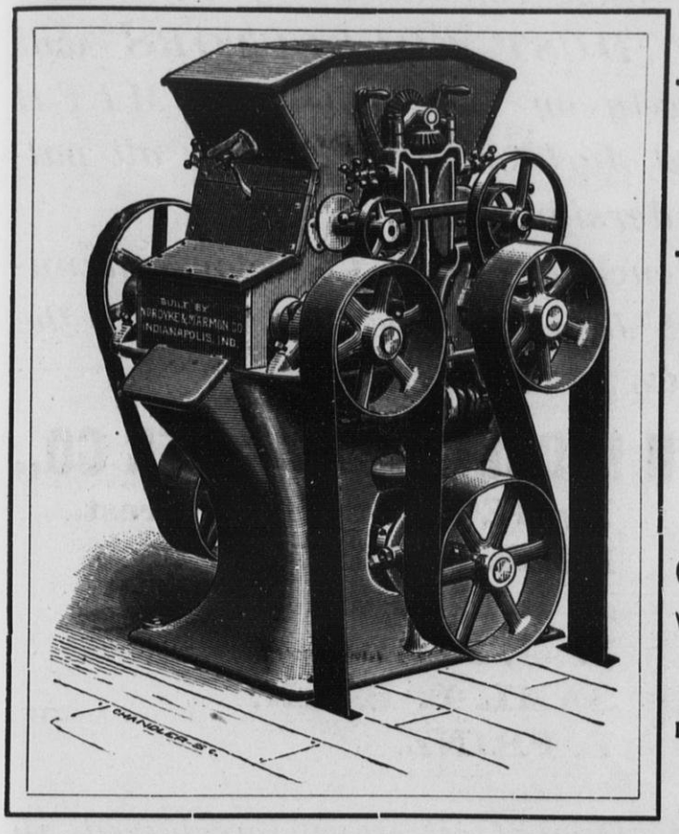
NORDYKE & MARMON CO., INDIANAPOLIS, IND.

——BUILDERS FROM THE RAW MATERIAL, OF——

Roller Mills, Centrifugal Reels

FLOUR BOLTS, SCALPING REELS,

✻ ASPIRATORS, ✻ MILLSTONES, ✻ PORTABLE ✻ MILLS, ✻



AND KEEP THE LARGEST STOCK OF ALL KINDS OF

Mill ✻ Supplies

IN THE UNITED STATES

Mill Builders and Contractors.

GUARANTEE RESULTS.

Special Milling Department.

Motive Power and Entire Equipment of a Modern Mill Furnished under one Contract.

140 BARREL MILL, MEMPHIS, TENN.

MEMPHIS, TENN., December 16th, 1884.

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen:—Our mill, as planned and diagrammed by you, has been in steady operation for nearly one year past, and in proof that you have given us a successful job, we will simply say that in the face of a very dull trade, and while other mills were running on short time, we have been running full handed, in order to supply a genuine demand for our flours. We must also notice, that although you only promised us 100 bbls. capacity, we easily make 140 bbls. per day without deteriorating in grades of flours. We use No. 2 wheat, and consume 4 bushels and 28 pounds in making a barrel of flour. We make about 28 per cent. of very high patent, 68 of bakers, and 6 per cent. of low grade. Yet our mill is so constructed that we may vary the percentages to suit various markets.

We have always been victorious in the sharpest competition, and from the first day of starting we have kept the highest position among all roller mills, either located or represented in this region.

Yours truly,

G. W. COWEN & CO.

OFFICE OF ANCHOR MILLING CO.,
ST. LOUIS, MO., Oct. 9, 1884.

NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen:—We have just been awarded all the first premiums on flour offered at the great Fair and Exposition. We made a clean sweep of them all, over all competitors, which includes all the mills in St. Louis, and all over the West, in fact the entries were open to the whole United States. We received 1st premium on Patent Flour, 1st premium on Straight Flour, 1st premium on Clear Flour. This embraces the entire list; the flour was made on your rolls, and you should make the fact widely known. Hurrah! for the N. & M. Co., and Anchor Milling Co.

Yours very truly,

JOHN CRANGLE, V. Prest.

NOTE.—The entire reduction of the wheat and middlings is made upon our rolls in this mill.

NORDYKE & MARMON CO.

---

500 BARREL MILL IN MISSOURI.

Read what an Old Miller who has thirty-four pairs of these Rolls in constant use says:

OFFICE OF DAVIS & FAUCETT MILLING CO.,
ST. JOSEPH, MO., NOV. 28th, 1883.

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen:—In regard to the workings of our new mill erected by you, will say it is working fully up to and beyond our expectations. Our average work is fully 33 per cent. over your guarantee. Since starting our mill last July we have had no complaint of our flour from any market where sold. It gives universal satisfaction, and we have it scattered on the trade from Chicago to Galveston, Texas. Our yields are all that are attainable. We have tested it on both Spring and Winter wheats with satisfactory results on both varieties. Since the mill was turned over to us we have not changed a spout or a foot of cloth, nor have we found it required to make any changes. We have run as long as six days and nights without shutting steam off the engine, not having a "choke" or a belt to come off. The mill is entirely satisfactory to us, and for a fine job of workmanship, milling skill and perfection of system, we doubt if it is surpassed in the United States to-day. It is certainly a grand monument to the ability and skill of Col. C. A. Winn, your Milling Engineer and Designer. You may point to this mill with pride and say to competitors: "You may *try* to equal, but you will never beat it." Wishing you the success that honorable dealing deserves, I am,

Yours, etc.,

R. H. FAUCETT, Prest.

☞ **Letters on file in our office from a large number of small Roller Millers giving as favorable reports as above. A portion will be published as occasion demands.**

[Please mention the UNITED STATES MILLER when you write to us.]

CONSOLIDATION

OF

Dust Collector Manufacturers.

Arrangements have this day been concluded by which the PRINZ and KIRK & FENDER DUST COLLECTORS will hereafter be manufactured exclusively by the GEO. T. SMITH MIDDLINGS PURIFIER CO., at Jackson, Mich., under all patents owned or controlled by the undersigned.

All communications with reference to Dust Collectors manufactured under our patents should hereafter be addressed to the Geo. T. Smith Middlings Purifier Co., Jackson, Mich.

GEO. T SMITH MIDDLINGS PURIFIER CO.,

Dated, Jackson, Mich.,
May 12, 1885.

By GEO. T. SMITH, Prest.
KIRK & FENDER.
A. H. KIRK.
W. J. FENDER.
SAML. L. BEAN.
F. PRINZ.

In pursuance of the above, all Dust Collectors purchased in connection with Purifiers will be fitted to the Purifier and tested with them before leaving our shops, thereby effecting a saving of from $20 to $30 to the purchaser on each Dust Collector, and insuring more satisfactory results from the Collector.

The Dust Collector will be built of better material than heretofore, and in workmanship and finish, will be made fully equal to our Purifier.

GEO. T. SMITH MIDDLINGS PURIFIER CO.,

JACKSON, MICH.

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

The United States Miller

Published by E. HARRISON CAWKER. | VOL. 19, No. 3. MILWAUKEE, JULY, 1885. | TERMS: $1.00 a Year in Advance, Single Copies, 10 Cents.

The United States Miller

Published by E. HARRISON CAWKER. | VOL. 19, No. 3. | MILWAUKEE, JULY, 1885. | TERMS: $1.00 a Year in Advance. Single Copies, 10 Cents.

GLASSES AND KISSES.

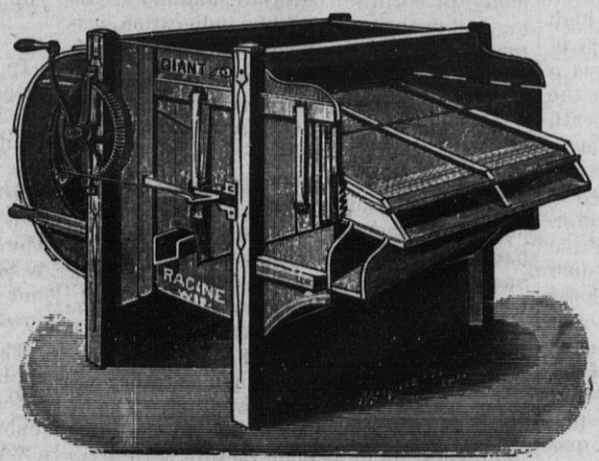
Deep draughts of wine yield joy divine,
Yet far, far higher bliss is
With him who sips from his dear love's lips
The red, red wine of kisses.

The wine will make him groan and ache
Upon the grievous morrow,
But heavier bane than a drunkard's pain
Is parted lover's sorrow.

And yet, methinks, from him that drinks
I've caught a plan will fit me;
Like him I'll take, when my heart may ache,
A hair of the dog that bit me!

DUSTLESS GRAIN SEPARATOR.

We give here an illustration of the famous "Giant" Dustless Grain Separator, manufactured by Dickey & Pease, Racine, Wis., and would call attention of our readers to the advertisement of it on another page of this paper. The great drawback heretofore with this class of machines has been that they were too expensive for a great majority of millers, but the Giant overcomes this difficulty as the cost is from *one-third to one-half* lower than for any other. It also combines great durability with the most perfect cleaning, separating and screening qualities, and large capacity. There is no excuse now for people who have grain to clean, being annoyed with *Dust*. It will cost nothing to write to the manufacturers for full descriptive circulars and prices, and we would advise our readers to do so even though they may not be in present need, as they will then know whether this machine is just what they want or not, and will know where to get one.



"GIANT" DUSTLESS GRAIN SEPARATOR.

THE DUST COLLECTOR MATTER.

The following orders of the County Court, Milwaukee County, show the present condition of the Dust Collector litigation.

COUNTY COURT, MILWAUKEE COUNTY.

Alva H. Kirk, William J. Fender, Samuel L. Bean, and the George T. Smith Middlings Purifier Company, Plaintiffs,
vs.
The Milwaukee Dust Collector Manufacturing Company, Defendant.

The motion of the defendant for a preliminary injunction in the above entitled action having come on to be heard this 6th day of June, 1885, and the plaintiffs' attorneys having applied for a continuance thereof; and the Court having heard the respective counsel of plaintiffs and defendant upon said application for continuance, and upon defendant's said motion for a preliminary injunction; and the Court having duly considered the matter:

It is ordered, that the said motion be and the same is hereby continued until Saturday, June 20th, 1885; and in the meantime, on defendant giving an undertaking in the sum of $50,000, conditioned to pay to said plaintiffs such damages as they may sustain by preliminary injunction, if the Court shall finally decide that the defendant was not entitled thereto, and until the further hearing of said motion, it is further ordered, upon the summons and complaint, the answer and counterclaim of defendant, the testimony of said William J. Fender, and the affidavits of Julius Schlesinger and John M. Stowell, that the said plaintiffs, Alva H. Kirk, William J. Fender, Samuel L Bean, and George T. Smith Middlings Purifier Co., and each of them and each of their attorneys, counsellors, agents, servants and assistants, under the penalties, by the law prescribed, do absolutely desist and refrain, from engaging in or resuming the manufacture and sale of Dust Collectors within the United States, in so far as exclusive license was vested in defendant for that purpose, under and by the agreements mentioned in the pleadings herein, or under the Letters Patent set forth in the answer of the defendant herein; and do absolutely desist and refrain from slandering the title of this defendant to manufacture, sell and license Dust Collecting Machines under any or all of the Letters Patent of the United States mentioned in said agreement, or in any way questioning or controverting the right of defendant to manufacture and sell said Dust Collectors under said patents, and also absolutely desist and refrain from all attempts by letter circular, advertisement, words of mouth, or other means, to divert the good will and patronage of this defendant to themselves, or into other channels.

June 6th, 1885. By the Court,
J. E. MANN,
County Judge.

COTZHAUSEN, SYLVESTER, SCHEIBER & SLOAN,
Atty's for the Milwaukee Dust Collector Mfg. Co.

FLANDERS & BOTTUM,
Atty's for Licensors.

CIRCUIT COURT, MILWAUKEE COUNTY.

Alva H. Kirk, William J. Eender, Samuel L. Bean, and the George T. Smith Middlings Purifier Company, Plaintiffs,
vs.
The Milwaukee Dust Collector Manufacturing Company, Defendant.

It is hereby order d, that the injunctional orders made in this cause dated the 6th day of June, 1885, be and the same is hereby continued in force in all respects *until the trial and final disposition of the cause.*

Dated June 25th, 1885. By the Court,
CHARLES A. HAMILTON,
Circuit Judge.

THE agricultural department estimates the total wheat crop of the country at 360,000,000 bushels. The condition of winter wheat is lower than ever before in June, and the average yield will be less than ten bushels per acre. There is an increase in the cotton area of 5 to 6 per cent. and a general average condition of 92 per cent. Reports from the principal tobacco-growing sections in the northern states show a decrease of acreage in New England, New York and Pennsylvania, and an increase of one-fourth in Wisconsin.

AMERICAN FLOUR IN BRAZIL. — Brazil buys from the United States, say five million to six million dollars' worth of flour in a year. American exporters, when flour is cheap, as it is now, occasionally send largely increased quantities, and expect that a market will be made for it. Its cheapness, how ever, seems hardly to make a difference in the quantity consumed. Some 30,000 barrels a month are consumed at Rio and its dependent markets, and it seems almost impossible to increase this consumption. At Rio the bread is all made by bakers; it is of good quality and is eaten by all classes. The great obstacle in expending consumption is the lack of internal transportation, and the fact that the mass of the people have never been accustomed to use flour, they being satisfiedwith the flour made from the mandioca root, and which they habitually eat mixed with their stewed black beans and dried beef. Alaige part the interior population produce and buy but little. They live in a primitive manner, in cheap dwellings with thatched roofs and earth floors, sleep in hammocks, use the scantiest of articles of furniture, and even convey their food to their mouths with their fingers. Men, women and children go barefooted the year round, and the red woolen blanket that is used for a cover atnight has to serve for a shawl or cloak on a wet day. Imagine all that country as large as all that part of the United States east of the Rocky Mountains supplied with as many miles of railway as are in operation in the State of Massachusetts, and you will have an idea of communication in Brazil and of the difficulties of rapidly increasing consumption.

Sparks' store and flouring-mill at Madison, D. T., with 6,000 bushels of wheat and 500 barrels of flour, was burned recently. Loss, $35,000; no insurance.

CLEARLY DEFINED.

He who carries loads of stocks,
In his safe or in his box,
And to hold them has the rocks—
That's a bull.

He who sells what he has not;
Knocks the prices, cold or hot;
Hopes the world will go to pot—
That's a bear.

He who comes down every day,
Hits the market any way,
Lies in wait for guileless prey—
That's a broker.

He of cheek, and quite a fop,
Wages small, high life can't stop,
Blows his dust into bucket shop—
That's a clerk.

Mr. Fresh, the silly "bloke,"
Who does his cash in Wall street soak,
And goes home later, flat, dead broke—
That's a lamb.

CONNECTICUT SPOOKS 50 YEARS AGO.

One of the strangest cases of witchcraft on record was that which befell a worthy family in North Canaan, Conn., over half a century ago. The Boardmans were a family well-known for their industry and integrity. They were attendants and members of Rev. Mr. Brown's Congregational church. The clergyman wore a long camlet coat and a broad-brimmed hat; and he was a godly man, firmly believing in the power of prayer. The Boardmans lived in an old-fashioned brown farm house. It was two stories high in front, sloping down to a single story in the rear. In the rear of the house was a woodshed running in an L shape from the main building. Over the wood piled beneath it was a chamber which served as a farmer's store-house. To reach this place there was an inclined plane which could be removed at pleasure. Two or three men could in a minute put it in place or take it away. From the woodhouse chamber there was a low door about three feet high, fastened with a loose wooden button, which led into the rear kitchen chamber. From the roof depended strings of red peppers, seed corn, herbs, woodchuck skins and everything else that could be thought of as having a place in a Litchfield county farm-house chamber. The door between the woodhouse chamber and the chamber over the kitchen of the farm-house could be easily opened by shaking it to turn the button.

It was late in autumn, and Mr. Boardman had harvested and husked his corn, and had spread it out on the kitchen chamber floor a foot in depth, so as to give it a chance to dry and become marketable. The Boardmans heard noises in the kitchen chamber, and it was believed that witches were at work. One night they were puzzled. They sent for Parson Brown, who lived but a short distance away, and he came with his camlet cloak and severe aspect. They listened at the foot of the narrow stairway, which led up into the kitchen chamber, and they heard the steady groaning of something evidently in distress.

Parson Brown reverently uncovered his head, and said, "Let us pray!" He said that the family had recently been afflicted by the powers of darkness, and he prayed for strength to go up and cope with the enemy of mankind. It was after 9 o'clock when he rose from his knees and asked Sister Boardman to bring him a lantern to face the witches. The door was opened and, lantern in hand, he went up the narrow staircase. Slowly he went up, and the rays piercing through the holes cut in the tin lantern, shone to the end of the kitchen chamber. He saw a pair of bright eyes, heard a grunt, and then there came rushing towards him a terrible monster. It was to all intents and purposes a four-footed witch of Endor, or, more exactly, of North Canaan. It rushed between the parson's legs, and the folds of the camlet cloak were tightly wrapped about the back of the monster, and his legs were also fast. Down the stairs rattlety bang with wild grunts and shrieks came the strange being with the parson riding down the stairs backward, the lantern beating time on the steps and other opposing objects. The neighbors below rushed for the door, and the monster, finding the door open, rushed out. The parson was caught by the sill and thrown on the floor of the porch. To say that the assemblage of half a dozen were frightened nearly to death just about describes the situation.

What was this unearthly presence?

It was an old sow of Boardman's that was involuntarily playing witch. Tired of confinement in her pen, she got out, walked up the inclined plane, which happened to be in position, and once in the woodhouse chamber she could easily open the small door and get into the kitchen chamber, where was plenty of corn. She over-ate, and her groaning and grunting, caused by indigestion, was the noise of witches whose unearthly doings Parson Brown was called on to quell.

BUCKWHEAT CAKES IN SUMMER.

While a down-town flour merchant watched an employe load a truck with buckwheat flour, the other day, he said: "You would hardly expect to see such a large sale of buckwheat as that at this time of the year, would you?" The fact is, the use of buckwheat is increasing. The restaurants here serve buckwheat cakes the year around, though it strikes a countryman as rather odd to see buckwheat in warm weather. The increased use of this flour is due to the great improvements in its manufacture within the last three or four years. When I was a boy the straw with the grain was piled on the barn floor and pounded with a flail. The straw was then forked off and the grain swept into piles. When the wind was blowing briskly the grain was thrown into the air with shovels, so that the chaff could be blown away, and then the grain was ground between the old-fashioned millstones. The bran was separated from the meal by sifting with a wire-bottomed sieve. The first improvement was made when a silk bolting reel was substituted for a wire-cloth sieve. After a great many years an old York state miller concluded that the meal would have less shuck or bran in it if the shuck could be removed from the berry before it was ground. To do that he run the grain through a series of corrugated rollers which simply cracked open the shuck and allowed the kernels to drop out. The broken shucks and kernels were separated by screens, and thereafter buckwheat flour was about as white as any other. The demand for it increased rapidly, but it was not quite perfect, because the fine fuzz and dirt adhering to the outside of the berry fell through the screen with the kernels after the shuck had been broken open by the rollers of the shucker. To get rid of this it was necessary to polish each berry of the grain separately before it was shucked. The machine for doing this has just been put on the market. It consists of a cast-iron cylinder, say three feet long and one foot in diameter, which revolves within a jacket made of steel wire-cloth. The cylinder is covered with square knobs a half inch large, which project to within a fraction of an inch of the jacket. The cylinder is set a whirling at the rate of 750 revolutions a minute, and the grain after passing over the screen to get the straw out falls down between the jacket and the cylinder. There it goes around and around, knocking against the knobs and the jacket, an upward current of air carrying off the dust until it falls out below as clean as a hound's tooth, then it slides over a magnetized plate to remove any trace of metal before going to the shucker. That makes what we call perfect buckwheat flour. Most millers have had to relearn their trade within the last five years on account of the improvements introduced in the process of manufacture, but in no branch of the business has the progress of the business been more marked than in the handling of buckwheat."
—*New York Sun.*

THE CLOSING ACT IN A GREAT PATENT SUIT.

In 1876 Mr. Geo. T. Smith and others brought suit against the firm of Goldie & McCulloch, of Galt, Ontario, for infringement of Smith's Canadian patents, and the case has been constantly before the Dominion courts until the present time, when a final conclusion has apparently been reached. The fight from the first has been a most desperate and determined one on both sides, and the last bottom fact bearing on the questions at issue has been dragged to light.

The first move of the defendants was an application to the Canadian commissioner of patents to have Smith's patents declared void under the provision of the Dominion patent act with reference to foreign patentees, on the ground of importation and failure to commence actual manufacture in Canada. The commissioner found for Smith on both points raised, but on trial of the case before the chancellor of Ontario, in 1880, the defendants again set up the protective clause of the Canadian patent act, and the commissioner's decision was reversed. The plaintiffs then carried the case to the Court of Appeal, where it was heard in the fall of 1880, the court sustaining the ruling of the commissioners of patents, but finding for the defendants on other grounds, raising the question of patentability.

From this decision the plaintiffs again appealed, this time to the Supreme Court of Canada, before which the case was argued in November, 1882, but the conclusions of the court were not made public until June, 1883, when a most comprehensive opinion was rendered, covering every question at issue and declaring for the plaintiff on all points. So far as further proceedings in the Dominion courts was concerned, this was the end of the law, but every subject of the British crown

may, with the consent of the privy council, appeal to the House of Lords of Great Britain, sitting as a court of last resort, and after some little delay the defendants elected to exercise this right.

The argument on their petition for leave to appeal was heard by the judiciary committee of the privy council at London, and on March 4, 1884, the decision of the full council as below given was rendered:

AT THE COURT AT WINDSOR CASTLE, }
THE 4TH DAY OF MARCH, 1884. }

Present:

The Queen's Most Excellent Majesty,
Lord President, Mr. Gladstone,
Lord Chamberlain, Mr. Dodson.

Whereas, There was this day read at the board a report from the judicial committee of the privy council, dated the 1st of March instant, humbly recommending that the petition of John Goldie and Hugh McCulloch, for special leave to appeal in the matter of a cause, entitled, Geo. Thomas Smith and others versus John Goldie and Hugh McCulloch, from a judgement or decree of the Supreme Court of the Dominion of Canada of the 19th June, 1883, be dismissed with costs, and directing that in case Your Majesty should approve the same the sum of thirty-seven pounds, two shillings and two pence sterling be paid by said John Goldie and Hugh McCulloch to the said George Thomas Smith and others for the costs opposing the same.

HER MAJESTY having taken the said report into consideration was pleased by and with the advice of her privy council to approve thereof, and of what is therein recommended and to order as it is hereby ordered that the said petition of John Goldie and Hugh McCulloch be and the same is hereby dismissed by this board with thirty-pounds, two shillings and two pence sterling costs, whereof the governor-general, lieutenant-governor or commander-in-chief of the Dominion of Canada for the time being and all other persons whom it may concern are to take notice and govern themselves accordingly.

C. L. PEEL.

In pursuance of this decision the Supreme Court of Canada sent the case to a master to assess damages due the plaintiff under its judgment of June 19, 1883.

In the course of the proceedings before the master, that officiall intimated that his finding would be made on the theory that plaintiffs were entitled only to such an amount as they might have realized in profits on the number of purifiers made and sold by the defendants had these machines been built and sold by themselves. The plaintiffs appealed from this ruling, and the appeal was argued before the Hon. Mr. Justice Proudfoot who, on the 3d inst., rendered a decision sustaining the appeal and directing the master to base his assessment of damages on the value of the purifiers to the users to whom defendants have sold, since the dates of the respective machines. This decree is final and cannot be appealed from. Its effect is to vastly increase the amount of damages to be recovered by the plaintiffs, which must be equal to the value of the right to use a middlings purifier, the machine on which the whole system of modern milling is founded and without which it could not be conducted.

What makes the above of special interest to millers in the United States is the fact that something like half a dozen suits are now pending in various United States courts for infringement of the same patents involved in the Canadian litigation, and that there is not nearly as good grounds for defense in these suits as was held by the defendants in the Dominion.

THE MANUFACTURE OF SPLIT PEAS.

In England and in other countries the manufacture of split peas is of commercial importance, but in this country little or no attention is given to it. The process by which the peas are split and hulled is thus described by Craik, and is quite interesting:

The first part of the process consists of soaking the peas in a tank of cold water, or water slightly tepid, if the weather be cold. This must be continued until the farinaceous part within the hull is moistened and swelled, when the hulls being oily and less affected by the absorption moisture, will burst and be loosened by the unequal expansion. The water is then drained off, and the peas elevated to a floor where they are spread out until the superfluous water is dried off, when they are afterwards thoroughly dried in the kiln. This drying must be accomplished without contact with the smoke, or the color and flavor of the grist will be injured. When split peas are made in connection with oatmeal, the drying is generally effected by hurrying a batch of oats from the hot kiln and withdrawing the remaining fire; the peas are then spread upon the kiln, and turned and shifted around until sufficiently dried by the remaining heat in the kiln. Sometimes cylinder driers are used for this purpose; these are a kind of a *cross* between the cylinder oat kiln dryer before described, and that used for roasting coffee. After being dried and cooled, the peas are split and hulled in the shelling stones which finishes the process except that the hulls must be blown out.

When split peas are made apart from the oatmeal business, they are sometimes split and hulled between a conical cylinder and case, made of strong sheet iron and punched, the rough faces placed together and the peas passing down between these, the space being enlarged or contracted by raising or lowering the revolving cone. Another plan we have seen used for splitting peas, and hulling buckwheat, is a stone, like a barley stone, millstone, or thick grinding stone, and hung like these on a horizontal shaft. It has no case around it, but only a concave of similar stone, and resembling a water trough under a grindstone, this incloses one-fourth or more of the circumference of the stone, and is hung in an adjustable frame, one end having a permanent axis, and the other being set by a screw, either closer or further from the stone, as required. The motion of the stone draws the peas in at the movable end of the trough, and throws them out split at the other end onto a small sieve, which lets through any small fragments and saves them. A small fan then blows out the hulls and the peas are ready for market.

This stone and its concave are both picked in small lines, commencing at the edge and running obliquely to the center, where they meet; those cut into the stone with the wide end of their triangle foremost, and those in the concave in the opposite direction. This arrangement of the lines gathers the peas toward the center where they are thrown out in a round stream.

"GRAIN GAMBLING IN CHICAGO."

The *Commercial Bulletin*, of New York, joins in the hue and cry against "grain and gambling in Chicago." It declares that "more harm has been done in this country within the past five years by gambling in products, and by the practices to which that sort of business leads, than by any other single influence." It finds that the export movement of grain has repeatedly been stopped by this gambling, that a large surplus has had to be carried over at great expense, that the finances of the country have been unfavorably affected, since it has been neccessary to export gold instead of grain, and, finally, that prices have in the end reacted to the injury of owners of grain. *The Bulletin* admits, however, that this sort of business can not be stopped by repealing the charter of the Chicago board of trade. It admits that a body of men acting as a firm under general laws could do pretty much everything that is now done on 'Change, and at the same time could hold property without limit as to amount, while the amount of property that the board can hold is limited. This is quite true. Bad as the alleged "grain gambling" may be, it can not be stopped by legislating against it. It is, in fact, an evil which may safely be left to cure itself. If the "gamblers" put up prices so as to stop exports and play the mischief with the exchanges, they are sure to be the principal sufferers from the inevitable reaction. They find in the long run that this sort of "gambling" doesn't pay, and it does not require any legislation to induce them to stop it. No legislation against speculative operations has ever proved efficacious, even under governments far more arbitrary than ours. Attempts to stop it by legislation here will fail as certainly as like attempts have failed elsewhere.

"SECOND WIND."

The reader may not be aware that in ordinary respiration we only use a portion of our lungs, the cells at the extremity not being brought into play. This is the reason why those who are not "in training," and who try to run for any distance, soon begin to gasp, and, unless they are courageous enough to persevere in spite of the choking sensation, are forced to stop. But if they will persevere, the choking goes off, and the result is what is technically known as "second wind." When the second wind is fully established, the runner does not become out of breath, but goes on running as long as his legs will carry him. I know this by experience, having been accustomed for some years to run three miles every morning over a very hilly road. The fact is, that on starting, the fartherest portions of the lungs are choked with effete air and the remainder do not supply air enough to meet the increased circulation caused by exercise. By degrees, however; the neglected cells come into play, and when the entire lung is in working order the circulation and respiration again balance each other, and the "second wind" is the result. Now, let the reader repeat his experiment of holding his breath against time, but first let him force out of his lungs every particle of air that he can expel, and then draw as deep a breath as his lungs will hold. If this be repeated some seventy or eight times, by way of imitation of the whale, the experimenter will find that he can hold his breath for a minute and a half without convenience. Should he be a swi... should always take this p... "taking a header," an... can swim for co... needs to rise...

DULUTH.

Duluth, further north than any other city in the United States, and 155 miles from St. Paul, came first into prominence as the eastern terminus of the Northern Pacific Railroad. It was a hastily constructed town, and the first created harbor being destroyed by a storm, one of the finest natural harbors in the world was made available in place of it by simply cutting a channel 500 feet wide through a projecting tongue of land into the bay of Superior, one mile in width, upon which the town now faces. This tongue of land, which is called Minnesota Point, is seven miles long and 300 feet to half a mile wide. Facing it at a distance of a mile is another projection into the lake two miles long, called Rice's Point. Between and along these points, which are covered with warehouses, hills and dwelling-houses, has been built one of the most magnificent systems of dockage in the world, affording as it does six miles of commercial frontage. Into the second harbor, formed by Rice's Point, empties the beautiful winding river, St. Louis, which is made the highway for vast quantities of lumber, floated down in logs from the back country. This river forms an extension to the harbor, and is navigable for about twelve miles. The logs are collected and towed down to the mills by steam tugs. A bridge over a mile long has been constructed across the St. Louis river at this point.

Between the bay and the bluff, parallel to it, which rises to a height of 700 feet—upon ground conveniently inclined—are spread the streets and buildings of Duluth, the latter gradually encroaching upon the rugged background, until nearly every projecting boulder has perched upon it a picturesque cottage. Parallel to the bluff runs the main street of the city—Superior street lined on either side with many handsome business buildings, an opera house which would do credit to any metropolis and several large hotels. Stretching in either direction and encircling the bay are the residences—many of modern architectural beauty—churches and schoolhouses. Across the marshy district between the town and the harbor proper, stretch the long trestle-work approaches of several railroads. Beyond them lie the great coal, elevator and warehouse docks, provided with double tracks of railroad. Above the enormous heaps of coal rest huge cranes for unloading, supported upon long structures of timber. Behind them are visible the masts and funnels of the shipping, and in the distance, beyond the reef-like tongue of the land, the dark blue water of the great upper lake. Toward Rice's Point at the right loom up the four great elevators, B, C, D and E, and their accompanying warehouses, 500 feet in length. Still further to the right are seen the chimneys of several large mills. At the left, outside the harbor proper, stand elevator A and that belonging to the St. Paul & Duluth Railroad.

The population, which is fully one-half American, will run between 18,000 and 19,000. The streets are lighted by both gas and electricity, and an efficient system of water-works with ample supply of lake water. The [illegible] by street cars. The surpassed for natural [illegible] city's commercial advantages, begins 150 miles west in the lake and park region of Minnesota, embraces the valley of the Red River of the North, and thence stretches westward far beyond the Missouri.

The surplus grain of all this magnificent country, embracing the best known hard wheat belt of the world, must have water transportation at the nearest point, and herein lies the key to Duluth's greatness.

The first cargo of wheat shipped from Duluth was transported on the steamer Winslow, in August, 1870. The wheat was sent by rail from Southern Minnesota and loaded from cars directly into the steamer for shipment to Philadelphia. These first shipments were the result of a forced movement for the support of the Lake Superior & Mississippi Railroad, now the St. Paul & Duluth. At that time nearly all the wheat grown in Minnesota was raised near the Mississippi and Minnesota Rivers, and in the country between those streams. There were great obstacles in the way of success, among which were the resistance of the old lines to Milwaukee and Chicago—apparently the natural routes to market—the diffiulty of a shallow canal at Sault Ste. Marie, since deepened, making freights higher from Duluth to Buffalo than from the Lake Michigan ports, and the absence of a market at Duluth. After a hard fight for seven years the struggle was abandoned, and in 1876 and 1877 Duluth sank into the depths of despondency, with a diminished business, diminishing population, and an increasing debt. But the rapid settling up and occupancy by farmers of Western Minnesota and Northern Dakota turned the tide and ushered in an era of prosperity by the force of natural trade selection. For the product of this great, rich northern wheat belt, the leading competitor is Minneapolis, but this matchless hard wheat, rich in gluten, goes only to Minneapolis now to be made into flour, much of which in turn goes to Duluth for shipment to Eastern markets. From the time this wheat first found its way to Duluth, the growth of the city has kept pace with the increase of acreage harvested. And right here is where the sanguine statistician gets in his work. This is his argument:

"If within the past five years the receipts of wheat at Duluth have increased from 1,000,000 to 15,000,000 bushels, is it not fair to predict that with the increase in settlement of the Northwest for the next five years the amount will foot up to 50,000,000?"

	Receipts.	Shipments.
1880	1,347,670.20	1,453,674.50
1881	3,332,176.05	2,865,533.55
1882	3,366,242 25	3,235,498.25
1883	4,707,803.50	4,586,808.50
1884	7,900,436.40	7,732,646.10

As a speculative market the development of Duluth is something extraordinary, there being closed out daily at present from 500,000 to 2,000,000 bushels. Orders to buy or sell 100,000 bushels at a time are not infrequent, and the transaction is closed in less than a quarter of a minute upon the board. The Duluth Board of Trade includes a membership of 200, many of the members being prominent grain dealers in St. Paul, Minneapolis, Chicago, Milwaukee, Buffalo and New York. It was organized in 1881 with a membership of 12, and the present price of a ticket is fixed at $500, the original figure having been $100. The members, as a rule, are active, shrewd and enterprising, but appear to conduct business in a quiet way compared with the style adopted in New York and Chicago. The only change from this method yet chronicled was introduced during the fluctuations of the Anglo-Russian war excitement. But, although nearly moderate in tone, a majority of their transactions are, as has been previously indicated, of the extensive order.

On May 1, the clearances at one bank alone amounted to $6,731,298.71. The amount of telegraphing required to transact the business of correspondents and customers is extensive. In one month alone it amounted to upward of $4,000.

The Duluth market ranges about 2 cents per bushel above Chicago prices, because of the superior quality of No. 1 hard wheat, which chiefly arrives here. Every ten minutes during a session of the Board, Chicago quotations are received by telegraph and posted. From 1¾ cents to 2¼ cents is about the range of No. 1 hard over the highest figure made at the Chicago board sales. Hence arises a very lively opportunity to indulge in what is known as "straddling," in which the telegraph is brought into active requisition. Six grades of spring wheat are included in the Duluth classification: No. 1 hard, No. 1 northern, No. 2 hard, No. 2 northern, No. 3 northern and rejected.

Commission merchants charge consignors 1 cent per bushel for making sales, and in the Board dealings between members the commission rate is ⅛ cent. Sales always specify the month when the wheat is to be delivered.

The recorded transactions on the board for April were 30,000,000 bushels. There are several houses which will handle during the present year from 75,000,000 to 100,000,000 bushels each. The total board transactions for May were 29,750,000. The biggest day of the month was the 27th, recording transactions amounting to 2,000,000. The board is at present occupying temporary quarters in the Metropolitan block, and the room in which it meets is less than forty feet square. A fine new Board of Trade building of pressed brick, with brown stone trimmings, is now in course of erection. It will be 50x115 feet in dimensions, five stories in height, and was designed by Wirth, the St. Paul architect. It will stand on Superior street, in the business center of the city. Among the members of the board may be mentioned:

Munger & Marshall, A. J. Sawyer, George Spencer & Co., Wright, Ray & Co., Yerxa & Kirkbride, Dunn & Thompson, David Dows & Co., Lenham's Elevator Company, R. Barden, G. S. Barnes & Co., Walter Turle, G. S. Van Dusen & Co., A. B. Taylor & Co., S. S. Linton & Co., Griffiths, Marshall & Co., Hunter & Inglis, E. W. Markell, Andrew Jackson, Clarkson, Leeds & Co., Hunter & McFarlane, O. Dalrymple & Co., W. W. Davis, Owen Fargusson & Co., C. H. Graves & Co., Hooker, Crittenden & Co., Leavans & Fuller. These firms do a regular grain commission business.

The president of the board is M. J. Forbes, and the secretary is R. W. Baker. The vice-president is Charles D. Wright, of the firm of Wright, Ray & Co. Mr. R. Barden, formerly of St. Paul and Minneaplis, leads the "put and call" business transacted on the board. W. T. Hooker, formerly president of the board, came originally from Milwau-

kee, and served with great credit all around.

Mr. R. S. Munger, formerly of the music firm of Munger Bros., St. Paul, is one of the pioneers, both of the board and Duluth. He is one of the projectors of the Opera House block, is interested extensively in elevators and several other enterprises. It was largely owing to his faith, exhibited during the dark days of '73, that Duluth owes her present condition. Mr. A. J. Sawyer is another of the city builders. Col. D. Dodge is another prominent business man, who has the proud distinction of being the first Democratic appointee of this region. There are three banking institutions in Duluth; the American Exchange, with a capital of $200,000 and a surplus of $70,000; Duluth National, capital $200,000, surplus $25,000. The bank of Bell & Eysters, a private institution, has a capital amounting to $45,000. The total banking business transacted during last year was $156,006,781.

A glance at the port of Duluth, with its incoming and outgoing steamers and vessels, steam tugs and sailing boats, together with its magnificent harbor and crowded docks, affords some adequate idea of the city's importance to commerce. Constant dredging and general improvement is under way. During 1884 there were 900 arrivals, a total tonnage of 594,235, and 11,440,500 bushels of grain shipments, 421,000 bushels of which went by rail. The record of the present year will show a large increase over these figures, as a matter of course. The deepening of the canal at Sault Ste. Marie was a great advantage to Duluth in the way of navigation, as it enables the transit of heavily-laden vessels. The barge system renders possible the transit of enormous shipments at low rates, each barge carrying from sixty to seventy thousand bushels. During one day last week there were shipped by boats from Duluth 265,000 bushels, 87,000 going in one cargo. The bulk of the grain goes to Buffalo, thence to Chicago, New York, and the rest of the world.

There are four railroads now running into the city. These are the St. Paul & Duluth, the Northern Pacific, Chicago, St. Paul, Minneapolis & Omaha and the St. Paul, Minneapolis & Manitoba. From the coal and freight docks the St. Paul & Duluth distributes large quantities of coal and merchandise to supply the demand of St. Paul and Minneapolis, and other interior cities and towns along the main line and its branches. The trains return laden with flour and local produce gathered upon the way. These are re-shipped to local points on Lake Superior and to New York, Boston and European points.

The Eastern freight and coal docks of the great Northern Pacific Railroad are also located on the harbor. Besides the coal, freight and other docks and offices, the stock raising and shipping over its thousands of miles of track and branch lines demand large cattle yards and a great capacity for cold storage. From Portland, Ore., the western terminus, the wheat comes pouring in, each hundred miles adding more cars until five trains are the record for a single day. This company also brings in large quantities of silver ore and bullion from Dakota and Idaho. The cars are reloaded with agricultural implements, kerosene, coal, salt, lime, plaster, groceries, etc. The Northern Pacific has additional southern and eastern connections with the South and East over the double track bridge across the bay, which also admits to Duluth the Chicago, Minneapolis & Omaha, which carries away large quantities of coal, lumber and merchandise.

Among the roads unloading immense quantities of wheat at the elevators for Eastern shipment is the St. Paul, Minneapolis & Manitoba. In return it carries back coal and lumber.

The great feature of Duluth, and the one which attracts attention is the great group of grain storehouses and elevators which can be seen for miles, looming up along the harbor front. It is the necessarily enormous capacity of these huge cavernous bins which permits the steady flow marketward of the great grain tide. So gigantic are these in outward appearance that it is only by sight of them that the novice can grasp the idea conveyed by figures which express millions of bushels of wheat. In Duluth receipts of corn and oats cut but a small figure.

The system consists of six elevators and two warehouses, as follows: Elevator A, built in 1870, with a capacity of 565,000 bushels; Elevator B, capacity 1,000,000; Elevator C, 1882, capacity 1,330,000; Elevator D, 1884, capacity 1,200,000; Warehouse 1, 1884, capacity 750,000; Elevator E, 1884, capacity 800,000; Warehouse 2, 1882, capacity 600,000, and St. Paul & Duluth elevator, 1884, capacity 600,000. Beside these there are now being built two more gigantic elevators, which will be completed by September, with a capacity of 1,500,000 bushels each. This will give a total storage capacity of 8,515,000 bushels. A visit to these great structures is of exceeding interest. Through the open doors below the stranger can follow the railroad track, where it passes from end to end completely through the elevator. Overhead in the cool darkness is a forest of timber and iron beams supporting the enormous bins. From above depend long tentular arms or tubes, which absorb in a constant ascending stream the wheat as it is shoveled from the car into pits below by means of huge scoop shovels drawn by steam and controlled by a man. From the pit it is drawn upward into bins, where it is weighed, spouted downward into cleansing machines and thence whirled aloft again into storage bins. Sometimes before it reaches a place of rest the wheat traverses the height of the building up and down several times. It is a striking sight, these car loads, ship loads and oceans of pale golden grains, each grain perfect, hard and polished, heaped up in mounds which would bury an ordinary dwelling house out of sight. Men wade about in it ankle deep and shovel it aside as though it were dirt and not more precious than gold or silver.

Before being put through the cleansing process, however, there is more or less dirt mixed with the wheat, and as it flies off with the wind created by its transit through space, the air becomes charged with an extremely irritating and dirty load of minute particles. This dirt is very hard on the throat and lungs, and some of the men wear muzzles or respirators made of tin and oakum, through which the air is filtered.

Between Elevator B and its storehouse runs a belt of four-ply rubber, four feet wide and 300 feet long, said to be the largest belt in the world. Upon its upper surface, hollowed as it passes over concave rollers, is transported the wheat at an exceedingly rapid rate. Before the wheat is put into the elevator it is inspected by an inspector, who leaves a ticket in the car specifying the grade. When it is shoveled into the elevator pit, the foreman below makes out a ticket, headed as follows, and also enters it upon a book:

Number of scale; Letter of car or bags; No. of car or bags; Grade; Test weight; No. of bin; Remarks.

This ticket is put into a box and sent up stairs to the weighmaster, who keeps a record of its contents. By it he knows what scale to weigh it in, where to put it after weighing, its condition, etc. If dirty it is sent down to the cleaning bins, after which it goes to the separator. This last process usually takes out from two to two and a half pounds for every sixty. When a car load of grain arrives at the elevator it is inspected, weighed and receipted for. These grain receipts are good as bank notes, regular engraved certificates signed by proper authority. They circulate as grain from one to ten thousand bushels, whatever the market, or the value of the wheat may be—and are good at bank as collateral. It is stored in the warehouse for the first 20 days at the rate of 1¼ cents a bushel. After that period the storage charge is one-half a cent for every ten days. The certificates are, when desired, divided up into smaller amounts or quantities, known as splits, for convenience in loading vessels.

When a vessel is to be loaded with wheat all that is necessary is to get a shipping order from the foreman of the elevator, tie up alongside the elevator dock, lower a telescopic iron spout into the vessel's hatchway, turn on a valve and the business is done in a few moments. The wheat is delivered under inspection into the vessels at a cost of 40 cents per 1,000 bushels to the shipper. The month rate for storage is 4 cents from Nov. 15 to June 1. For cleaning grain in the elevator one-half a cent per bushel is charged. For weighing the charge is 25 cents per car load to or from cars, or 20 cents for 1,000 bushels from elevators to vessels. The inspection rate is 25 cents per carload and is charged in the freight bills.

There is considerable precious mineral yet undeveloped in the region surrounding Duluth. The subject is so exhaustive, however, that it will, in the near future be made the foundation of a special article in these columns.—*St. Paul Globe.*

THE lady clerk in a baker's shop says wedding cakes are supplied to suit the occupation of customers; thus, for example, to musicians she furnished an oat cake; to one living upon his friends, a sponge cake; to editors, a spice cake; to pugilists, a pound cake; and so on.

THE Indians of the Menominee reservation, in Shawano county, Wisconsin, are allowed to cut burned or down trees only into logs for sale. But they have "got on to a racket" that beats the government agent the same as a white man would. If the government wants burned logs, the government can have them. The aboriginal logger, realizing that a technicality can be secured by burning the standing trees, piles brush around the green pines and speedily converts them into burned log timber. It is thus that the enterprising remnants of the noble Menominees earn an honest income each winter.

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

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MILWAUKEE, JULY, 1885.

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GRAND OPERA HOUSE.—Performances every even ing, and Wednesday, Saturday and Sunday matinees.

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OPERATIVE MILLERS ASSOCIATION.

The object of this Association is to unite all practical millers, to give aid to its members, to assist each other to procure employment, to establish a widows' and orphans' fund, and for the advancement of the art and science of milling. The officers of the Association are: Dan J. Foley, President; Tom Stoutenberg, First Vice-President; John T. Gebbie, Second Vice-President; A. Snuggs, Secretary and Treasurer. 821 Howard Street, St. Louis, Mo.; Dan J. Foley, Alex. Frazer, David Pollock, Trustees. Hall at 110 N. Fifth Street, St. Louis.

A PATENT law has been enacted in the Hawaiian Islands. The life of a patent is fixed at ten years. The cost is about the same as for an English patent.

DURING the year 1884 there were manufactured in the United States 7,451,771 barrels of beer. Two Milwaukee breweries head the list, Philip Best Brewing Co. with 374,770 barrels and the Joseph Schlitz Brewing Co. with 343,000 barrels.

VOL. I, No. 1, of *The Miller*, published by John D. Nolan, of Chicago, has made its appearance. It is a good-looking paper, and as we understand it, will strongly advocate the use of the old millstone.

WE call the attention of shippers and travelers to the new advertisement of the Goodrich Transportation Co., running elegant steamers to nearly all prominent points on Lakes Michigan, Superior and Huron.

THE value of the exported bread-stuffs from this country in the eleven months of the present fiscal year exceeded those of the corresponding period of last year by $1,875,092. The largest increase was in wheat and oats.

In New York City, C. A. Buddensick, the criminal builder, was found guilty, June 18, of manslaughter in the second degree, as charged in the indictment on which he was arraigned. The penalty is from one to fifteen years in State's Prison. Notwithstanding he is making efforts for a new trial, there is little doubt but that he will meet with deserved punishment. The testimony given against him was of the most damaging character.

PERSONAL.

H. CORDELL, head miller at Gilbert & Barber's mill at Lake Geneva, Wis., called on us June 9.

JOHN M. HILL, of New York, called on us on his way to take a position in the Pillsbury B mill at Minneapolis.

THE headquarters of The Millers' National Insurance Company have been removed to 205 La Salle street, Chicago, Ill.

R. BIRKHOLZ, M. E., of Milwaukee, and Mr. Zaun, the mill-owner at Cedarburg, Wis., called at this office recently.

MR. FENDER, of Kirk & Fender, Minneapolis, made us a brief call during June.

R. J. OLIVEY, head miller of Thornton & Chester's mill, Buffalo, N. Y., has gone to Europe for a few months. His friends made him a handsome present before leaving.

ROBERT M. HUBBARD, general agent of the Minneapolis Miller's Asssociation, died at Ashland, Wis., at noon on the 15th inst.

C. F. HALL the gentlemanly editor of *The Modern Miller*, of Moline Ill., made us a pleasant call June 20.

MR. JOHN D. NOLAN, publisher of *The Miller*, and Mr. P. G. Monroe, Gen, Western Manager of the American Railway Publishing Co., called on us recently.

MILWAUKEE AND MANUFACTURING.

There are few cities which have so many advantages of practical importance in the eyes of manufacturers as Milwaukee, and we hope that many eastern capitalists will visit our city during the present summer, not only for the purpose of a sojourn here to enjoy the pleasures and beauties of this greatest of western summer resorts, but to examine carefully the excellent field we have here for manufacturing institutions of all kinds. Most of those now in operation here, and they are many in number, will be found to be doing a profitable business. The city is growing rapidly. The people generally are frugal and industrious. There are no Blue Mondays here among the laboring classes. The working man, if he drinks at all, generally confines his potations to a temperate amount of lager beer. This steadiness in the habits of the working men in Milwaukee, is highly advantageous to both employer and employee. The transportation facilities by rail and water are first class, as can be seen at a glance by referring to any map. Real estate and rents are much cheaper here than in any other place we know of any considerable importance—much cheaper than in Chicago, Indianapolis, Detroit, St. Paul, Minneapolis or St. Louis. Taxes are comparatively lower than in most any other city. The climate is good; the city the healthiest on the list, and as for beauty—where is there a handsomer city? We have visited many, but take it all in all, we prefer Milwaukee. Milwaukee has the reputation abroad of being a slow-going but substantial city, which has been true; but in the last few years it has made rapid strides in the way of improvements, and real estate is increasing in value, so it stands to reason that the sooner intending investors establish themselves here, the less it will cost to start with, and the surer the profit by increased value.

As a location for the successful and profitable manufacture of flour, Milwaukee is unexcelled. As good wheat as can be had in Minneapolis, can always be procured here nearly as cheap and at times cheaper than in Minneapolis. Steam power is necessary, of course, but already steam power has been introduced to the leading flour mills of Minneapolis. Coal can be delivered cheaply, and the best of facilities for the receipt of wheat and shipment of products are at the very doors of all our mills. We believe the ledgers of our millers will show as great a profit from the manufacture of flour in proportion to capacity as can be found in Minneapolis or St. Louis. The largest mill-building establishment in the United States is located here, and in short every thing desirable to make the milling business pleasant, convenient and profitable. In conclusion we would say to parties in the East or elsewhere, having money and brains to invest, come and visit Milwaukee and carefully examine the advantages offered here for the establishment of manufactories of various kinds.

STRENGTH OF TIMBER BEAMS.

The formulæ given by Tredgold are too abstruse for general purposes. There is, however, one given by Nicholson which is simple, and not far from the truth. A number of experiments were made on pieces of various woods, each one inch square and a foot long, and the weights which broke them recorded. Then as this weight c is to the length of any given beam in feet l so is the weight the beam will have to bear (in lbs.) w to the breadth b multiplied into the square of the depth d of the intended beam; or, $c : l :: w : b \times d^2$. Any of these three being given, the fourth is easily found. The breaking weight of Memel fir he gives as 330, that of oak he gives as 810; but this last seems too much. Suppose there is a warehouse 16 ft. wide, the girders of which are 10 ft. apart, and each superficial foot is to carry 3 cwt., or 336 lb. Then as each girder supports $16 \times 10 = 160$ ft. superficial, and as each foot is to carry 336 lb., the total weight to be carried is 53,760 lb., distributed over the whole, or half this, 26,880 lb., in the center. Then, 330 : 16 : : 26,880 : 1,303, or the breadth multiplied into the square of depth. But this is breaking weight, and no timber ought to be used of less strength than four times this. Then $1,303 \times 4 = 5,212$, the least amount we ought to reckon upon. Now we have our choice either to assume a breadth or a depth. Suppose we are confined to 17 in. for the latter. Then $\frac{5,212}{17 \times 17} = 18$ in. very nearly. If we assume 15 as our breadth, then $\frac{5,212}{15} = 347$, the square root, which is nearly 19 in.; so that we may have a girder 18 in. wide and 17 in. deep, or one 15 in. wide and 19 in. deep, as we please. — *The Architect.*

DESCRIPTION OF WADE & WARDELL ROTARY ENGINE.

This engine consists of a solid, cast iron cylinder, having a core at the center of sufficient diameter to serve as a steam chest or supply chamber. The cylinder is slotted lengthwise for its full length, at four equal distant points, each slot being deep enough to accommodate one of the four sliding piston valves, beneath each of which is a port communicating directly with the centrally located core or supply chamber. To this cylinder are attached two heads, one on each end, of a larger diameter than the cylinder, and slotted radially to correspond with slots in the latter, thus giving support to the piston valves at each end while they are out and working. Exactly at the center of one of these heads, the steam supply pipe enters, reaching into core or supply chamber mentioned above, and to the other head is attached the main shaft. Surrounding the revolving cylinder and of equal length, is placed a stationary ellipsoidal casing, being longest in its vertical diameter, and in its horizontal diameter just equal to the diameter of the revolving cylinder. This casing reaches from inside face of head, to which shaft is attached to inside face of head through which steam pipe enters. The vertical or longest diameter of ellipsoidal space is less than the diameter of heads. The piston valve mentioned above, are each of same length as the revolving cylinder, and of width sufficient that, when pressed out against the inside of ellipsoidal casing, a portion of their width still remains in slot in the cylinder, thus supporting the valve for its full length as well as having it supported at each end by the slots in the heads. These valves are each cut away a trifle on one side or face, for the greater portion of its width and length, being left full thickness at the outer edge. Located within the core or supply chamber at the center of revolving cylinder are two automatic cut-off or expansion valves, which are connected directly with the governor, by a stem passing lengthwise through steam pipe, by which they are operated to cover and uncover the ports underneath each of the piston valves, as the load varies. The whole supplied with necessary stuffing boxes, adjusting screws, etc., for taking up wear and preventing leakage. A cut showing the appearance of this engine can be seen in the advertisement on another page, and circulars with full description, illustrations, prices, etc., can be obtained by addressing the manufacturers, Messrs. WADE & WARDELL, Cadillac, Mich.

MANAGING BOILERS.

"I thought you said that injector would feed my three boilers." "So I did, and it will." "Well it won't, and I know it, and I won't pay for it." "Won't you?" "No." "We'll see; where is it?" "Out in the engine-room, of course; but you don't want to trifle with the engineer." "No! why?" "Oh, you will find out." Imagine my feelings while passing from office to engine-room. "You are just the man I want to see. Here is this —— injector you said would feed these boilers, and the —— thing won't feed one." "Won't it?" "No." "Is it properly put up?" "Yes." "Well, if it is, it will flood them inside of one hour." "I'll bet you $10 that it's put up right, for I did it, and I know how, and that it won't supply one boiler." When arguments fail to convince there is one line always open—*i. e.*, money. It will do what arguments, ridicule and reason will not—bring a man to his senses. The $10 was promptly covered, and then we proceeded to inspect the injector. "There it is now—what do you say?" Heavens! Fan me with a coal shovel, or I'll faint. There was an injector that required 2-inch connections and the supply pipe was ¾-inch. No use of writing the language used, but the air was sulphurous around there for a time, and engineer and employer came in for their share. Enough to record here is, employer was informed that he could settle or stand a suit. He read instructions furnished with injector, and concluded that his side of the house was to blame, and settled. We kept Smarty's $10.

"What are you stopped to-day, for?" "Oh, the engineer let his water get low and burned the boiler, and the old man is getting it repaired. It will cost two or three hundred dollars, because he will have to pay a forfeit for not getting that job out on time." The above was overheard a day or two since, and inquiry revealed the fact that a $10-per-week-sweep-the-floor work-in-the-yard engineer had really burned the boiler, and that the whole loss would be at least $500. Did that employer learn a lesson? No, he could not see the point; and it is to be hoped that he will pass through the same experience again. Don't waste sympathy upon him—he is not worthy.—*Boston Journal of Commerce.*

PLEASANT PARAGRAPHS.

A SHREWD old lady cautioned her married daughter against worrying her husband too much, and concluded by saying: "My child, a man is like an egg. Kept in hot water a little while, he may boil soft, but keep him there too long, and he hardens."

STYLE IN KENTUCKY.—Kentucky Tailor, [taking measure for trousers] to customer—"Will you have one or two hip pockets?"
Customer—"Two."
Tailor—"Pint or quart size!"
Customer—"Quart."—*N. Y. Sun.*

A YOUNG Yorkville physician, who has just established himself and has very little practice, is noted for his braggadocio. One of the older physicians meeting him on the street, recently, asked him how he was coming on.

"I've got more than I can attend to," was the boastful reply. "I had to get out of my bed five times last night."

"Why don't you buy some insect powder?" asked the old doctor.

OBSTINATE AS A PIG.—A party was once discussing the obstinacy of a pig, when one of the party, who defended the pig, offered to bet that he would make a pig walk up a flight of stairs. The bet was immediately taken, the pig procured and placed at the bottom of a flight of stairs, and the bettor challenged to perform the feat or forfeit the bet. He placed the pig's head toward the top of the stairway, and then, seizing hold of his tail, pulling backward with a strong hand. The pig from his natural obstinacy, pulled the other way, and mounted the stairway and kept ascending till he reached the top. And thus the bettor won his bet, by proving the fact of the incorrigible obstinacy of the animal.

HE tapped the egg gently with his knife and it popped, and people all over the house began to examine the gas fixtures to see if the gas was properly turned off.

"This egg doesn't seem to be quite fresh," remarked Gilhooly, having opened the window.

"I 'spected dat egg wasn't all right," remarked the colored waiter.

"Why then didn't you tell me so?" exclaimed Gilhooly.

"Bekase, sah, I wasn't quite sure ob hit, and I's always willing to gib a gemmen de benefit of de doubt."

"But you told me the egg was perfectly fresh; that it was laid yesterday."

"I told yer dat bekase I didn't want ter be too previous-like in spiling yer appetite."—*Texas Siftings.*

A FINANCIAL TRANSACTION.—"Whist, Mickey—d'ye see dat yaller dog?" said a ragged street urchin to another last evening.

"Yis; dat's Alderman Murphy's Scotch tarrier—he's no good. Ye want to leave him alone, or the alderman 'll get ye run in."

"Who's to know it? We'll take him to de pound and get 50 cents for him, and tell de alderman we saw some boys takin' him away."

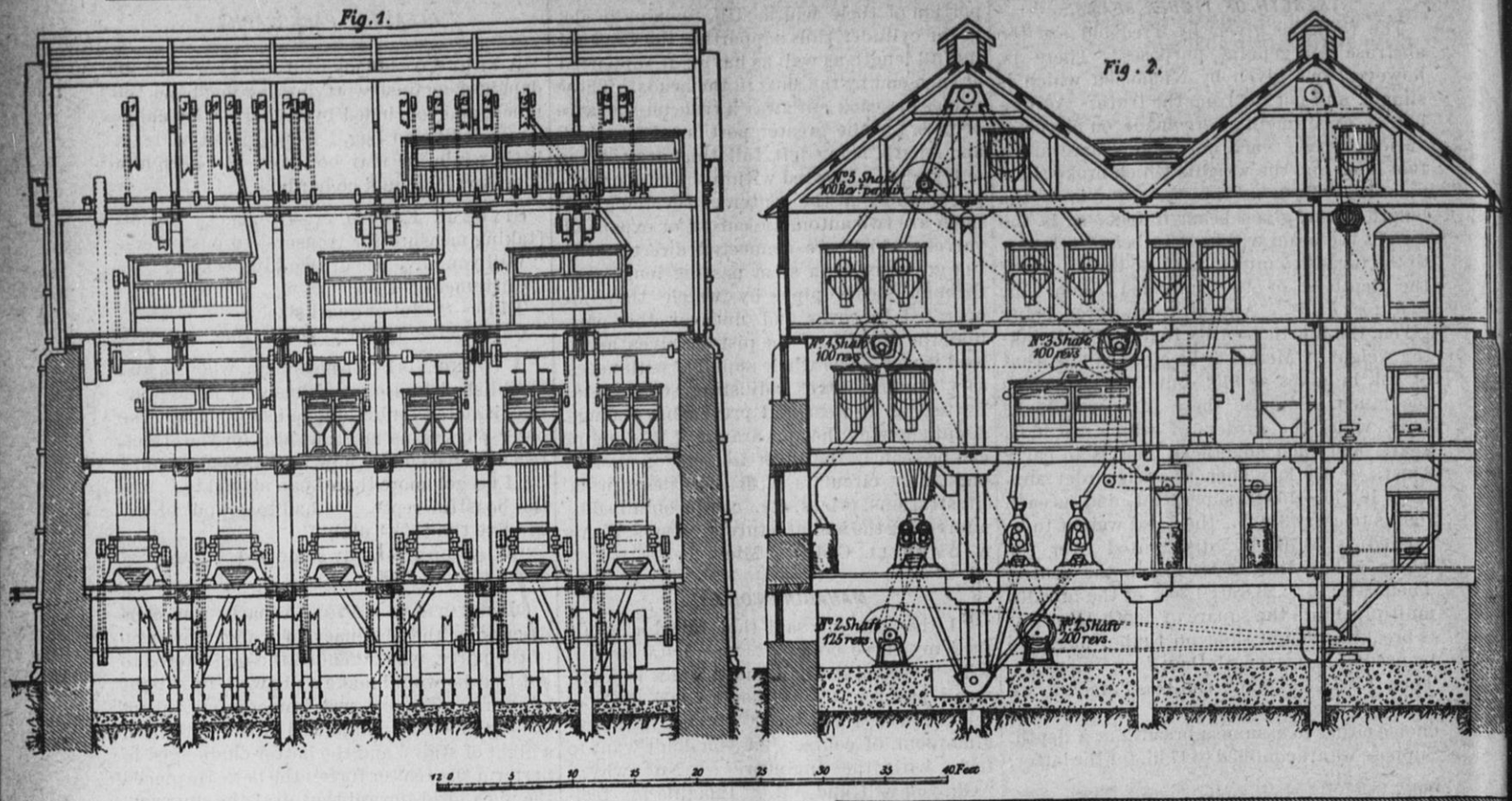
Half an hour later the dog was in the pound.

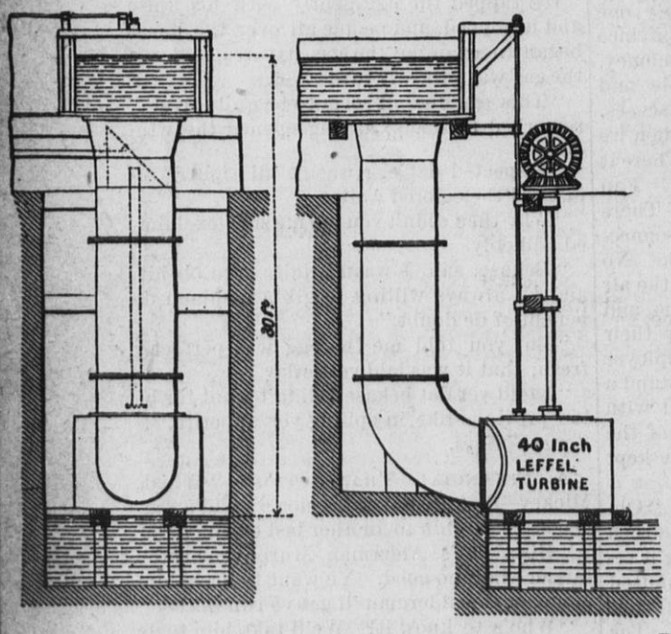
"My dog, d'ye say?" shouted the alderman. "Who dared to take my dog.?"

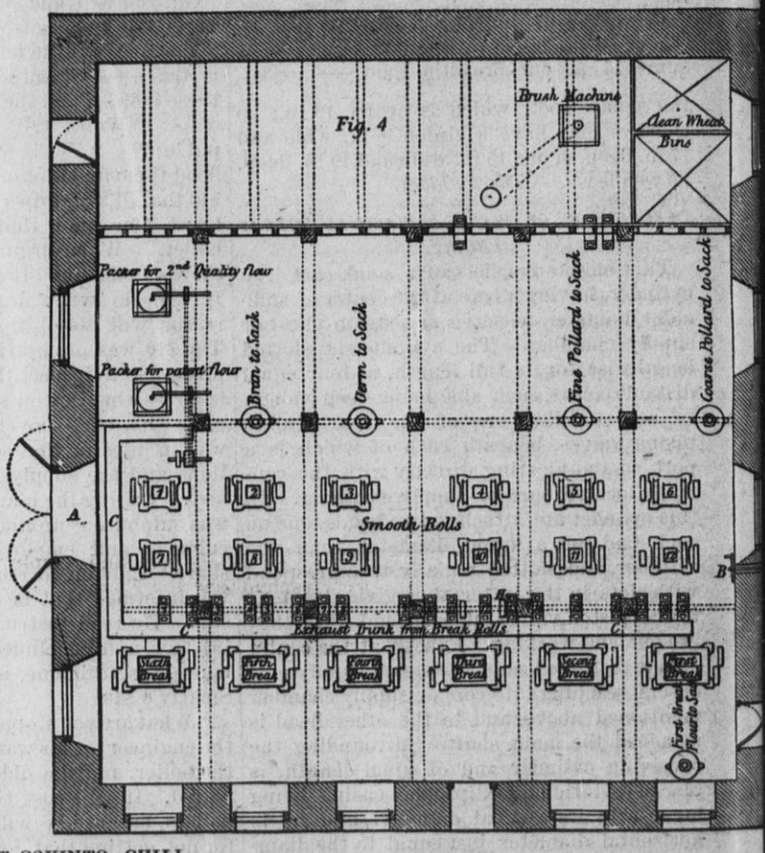
"I sawed de boys a-haulin' of 'im orf," said Mickey.

"Here's 50 cents for you my boy,"

Then the alderman went to the pound and paid $1 to get the dog out.—*New York Sun.*







ROLLER MILL AT COVINTO, CHILI.

ROLLER MILL AT COVINTO, CHILI.

Roller milling had become popular on the continent of Europe and in the United States some time before its adoption to any considerable extent in England. Thoroughness is a characteristic quality of the English people, but their conservatism and caution are equally marked, and doubtless, hindered in some degree the introduction of the new method which was regarded as a highly radical and startling innovation, and encountered a strenuous resistance. Within the last two or three years, however, it has made rapid progress among English millers and milling engineers, of that as well as of our own country are sending plants for the application of the new system to remote parts of the globe. One of these is the subject of the accompanying illustrations, which are reproduced from *Engineering*. That journal states that about $3,500,000 was spent by British and Irish millers in 1884 alone in converting their mills from the millstone to the roller system. The mill here described was erected at Covinto, in Chili, South America, by Mr. J. Harrison Carter, of Mark Lane, London, for Messrs.

Balfour, Williamson & Co., the largest firm of grain merchants in England.

Figs. 1 and 2 of the engravings give side and end elevations (in section) of the mill. The peculiar shape of the building was adopted to withstand frequent shocks of earthquakes which occur in Chili. The three lower floors are built in brick work, the walls of the ground floor being 4 feet thick, and the second floor 2 feet 6 inches thick. The top floor and the roof are built in wood. The wooden columns are connected with the beams and tie-rods, so as to allow a little movement should the building be shaken; this part of the building serves as the wheat cleaning department and is divided by a wooden partition. The warehouse for wheat is about 20 feet from the wheat cleaning part, and the flour store about 20 feet away on the opposite side. The three buildings are connected by a gallery. The wheat is carried across from the warehouse by a worm conveyor, in a wrought-iron trough, whilst the flour, which is sacked in 50-lb. and 100-lb. bags, is carried by natives to the door *A* on the roller floor (Fig. 4) which leads from the gallery to the flour warehouse.

The motive power is derived from a 30-inch Leffel turbine shown in the engraving (Fig. 3) and supplied by a waterfall of 30 feet. There is ample water, in fact more than is really required to drive the turbine. The turbine runs at 189 revolutions per minute, and gives out 165 indicated horse-power. The upright shaft of the turbine drives a pair of bevel wheels on to No. 1 line shaft in the mill, and the turbine is adjustable from the roller floor by a hand wheel. No. 2 line shaft is driven by a belt from No. 1 line shaft. These two shafts are fixed on the bottom floor and drive the roller mills, and No. 1 line shaft by a half-twist belt also drives on to No. 6 vertical shaft, which drives the wheat-cleaning machinery.

On the first floor (Fig. 4 the rollers are fixed. There are six break roller mills and twelve smooth roller mills. The first break roll on the right hand side is coarsely grooved on one side for the larger grains of wheat, and somewhat more finely on the opposite side for the smaller grains. This machine is fed by the wheat grader fixed above on the second floor. The grader divides the wheat into two sizes, which go to the corresponding sides of the rollers. After the wheat passes the first break roll it is raised by elevators to the second floor and the first break scalper, which is a double machine and takes out the first break flour. This first break flour is to a large extent the dirt of the crease of the wheat berry. The first break rolls are adjusted so as to touch the wheat slightly and open it across the crease, and thus liberate the dirt lodged in the crease. The overtails of the first break scalper go down again to the second break, and are passed on by the elevator to the second break scalper, and from there to the third break, and so on until the sixth break. The outsiftings of the sixth break scalper, are, however, kept separate from the products of the positive break scalpers and are treated independently. In some mills only four breaks are used, and in some as many as seven breaks are used to break down the wheat gradually, but Mr. Carter recommends 6 breaks. The overtails of the sixth break scalper are sent to the bran duster, and the overtails of the bran duster from the finished bran ready for the market.

The twelve smooth rolls are used on the reduction of the middlings, commencing at the right hand side. Nos. 6 and 12 do the first reduction, and so on, making six reductions in all.

The exhaust trunk *C* is connected with the break rollers and the fan on the second floor, and exhausts the damp air from the break rollers and discharges it into the dust room.

The sacking off of flour, as well as offals, i. e., thirds, pollards, and sharps, is done on the roller floor. Ordinary sacking valves are used for the offals, and "Eureka" sack-packers for the two qualities of flour—patent and second quality.

If preferred, the miller can make one straight run of flour, and not take patent, or the highest class of flour, out. It is found best from a commercial point of view, to take off the flour in proportions of 25 per cent. of patent flour and 75 per cent. of second quality, as a high price is obtained for the former, which is the cream of the flour, while the remainder is still a very superior baker's or "household" flour.

On the second floor are fixed, besides the scalpers, the wheat grader and bran-duster, one centrifugal which is used for dusting some tailings. There are eight sieve purifiers in four frames, and nine gravity purifiers. The sieve purifiers treat the fine middlings and dunst. The gravity purifiers are for the coarse semolina. The sieve purifiers are fed from the grading reel for middlings on third floor, whilst the gravity purifiers get their feed from the grading reel for semolina on the same floor. The dunst and air from each purifier blows into a dust-room opposite each machine, from which the offals (light fluffy stuff, are taken by a conveyor into a sack and the clean air is let out again into the mill. This is attained by means of a suitable drainer cloth, similar to ordinary sail-cloth.

On the third floor are all the centrifugal dressing machines. Four long reels, two for grading, as mentioned before, and two to redress all the flour before it goes to sack. On the top floor only one reel is fixed, which takes the break meal after it first comes from the scalpers, and sends the overtails on to one of the grading reels, whilst the outsiftings go on to the dusting centrifugals.

All the elevator tops are fixed in the center of one of the roofs, and discharge the various sorts of material for the different dressing machines.

There are only five lines of shafting to drive the whole machinery in the mill. Nos. 1 and 2 line shafts run at 125 and 200 revolutions per minute; Nor. 3, 4 and 5 at 100. The wheat-cleaning part only requires three elevators, one of which takes the wheat right up into the top of the house from the screw conveyor which drives it from the warehouse. The first elevator delivers into an ordinary scalping reel, which takes the loose dust out of the wheat, thence the wheat goes on to the zig-zag separator, from there on to a smutter, and is finished in the brush scouring machine.

There is also another elevator required to elevate the wheat, after it has been cleaned, into the clean wheat bins, but before it goes there, it passes over a magnetic separator, which takes out any magnetic substances, such as nails, screws, and wire. These hard substances, if not prevented from passing into the machines, would cut the silks and do serious damage. The third elevator lifts the wheat from the clean wheat bin, and drops it down on to the wheat grader, and from there to the first break roller.

The wheat bin is large enough to hold sufficient wheat for a day and night's grinding, as the wheat-cleaning machinery is only running during the day-time, and is double the capacity of the roller mill plant.

[We are indebted to Messrs. James Leffel & Co. for the use of the cuts, illustrating this article.]

CLEANING BRUSH FOR MIDDLINGS PURIFIERS.

Mr. C. Wehner, of Buffalo, N. Y., has obtained a patent on a recent invention in cleaning brushes for the silk screens of middlings purifiers, by which a more uniform distribution of the middlings over the screens and a quicker screening action is obtained.

The shaking boxes have the usual detachable silk screens. above which at the top part of the purifier are arranged longitudinal ways for the traversing carriage of a cleaning brush. The carriage is supported by grooved wheels on the ways, on which they are retained by upwardly extending guide rails. On the transverse shaft of the carriage is loosely supported the cylindrical body of a revolving brush. The body has longitudinal recesses into which are fastened leather strips, which are slitted from the edge inwardly and have enlarged openings at the inner ends next adjoining the body of the brush. Intermediately between the strips are arranged longitudinal rows of bristles.

The brush receives simultaneously reciprocating and rotary motion from transmitting mechanisms, so as to traverse over the screens. In the passages of the brush over the screens the slitted leather strips, having openings near the body of the brush, serve to uniformly distribute the middlings, while the bristles act on the meshes of the screen and open them.

When the cleaning brush arrives at one end of its motion a horizontal abutment strikes against a lug, and a bar is shifted in the direction of motion of the brush, so that a shaft is turned and a belt shifter moved in one or the opposite direction. The rotary motion of the brush is reversed when it arrives at the opposite end of the screens, at which point the horizontal abutmeut strikes against the lug of the bar, so that the latter is moved in the opposite direction. This motion is transmitted to belts, which are shifted so as to reverse the motion of the brush. Simultaneously with the traversing motion thus imparted to the brush, rotary motion is imparted to it by a fixed rack.

A LOAF OF BREAD.

[CONCLUDED.]

After breakfast, that morning Polly held a family council. "You see," said she, after repeating the praise of her bread, and the conversation that followed, "I propose, with your permission, to put Mrs. Miller's idea in practice. I shall go first to Mrs. Kemble and tell her how I happened to overhear them, and ask whether she is in earnest in wishing to buy home-made bread. If she is, I will give Mrs. Barlowe, Mrs. Miller, Miss Partridge and Mrs. Thomas the same opportunity, and I shall follow their own suggestion and charge more for it. If a baker's loaf is worth eight cents my loaves are certainly worth ten."

"But the work," objected Mrs. Reynolds. "You will wear yourself out."

Polly laughed as she held up her shapely arms. "I am young and strong" she said, "I guess I can stand it."

"I'd rather you didn't have to do it," said Mr. Reynolds, slowly. "Iv'e been thinking I could get Cristofer to advance the money he offered for those grapes. He could have the next year's crop, or I could pay it off by degrees."

"And saddle yourself with a miserable debt in order that I may flaunt in silk attire," cried Polly indignantly. "No indeed, you've never borrowed from Uncle Cris. for your own necessities—you shan't do it for me!"

"He's your own uncle," said her father. "I don't think he would refuse." But in his heart he was quite as unwilling as Polly to borrow money from this well-to-do brother, whose career had been as successful as his own had been the reverse.

"He shan't have a chance to refuse," said Polly decidedly; "but he shall have the opportunity of helping me, nevertheless. I mean to turn my having an uncle in the commission business to good account."

"How?"

"I'll get him to send me my flour—at wholesale prices—and to be paid for later."

"Will you tell him what you are doing?"

"No, I don't want to advertise my undertaking till I've proved it."

"Then you'd better let me get the flour in my own name," said her father, putting on his hat with a farmer's patience, to plow and replant the ruined corn fields. He did not wish his daughter to do this thing, but he knew even better than she did, how long it would be before the damage could be repaired, and nothing better seemed to offer. If she could make a little money by it he would help, not hinder; but it was not strange that the contrast between his own lot and his brother's rose to his mind again throughout the long, hard-working day, and brought with it a sense of bitterness it had never brought before. They were own brothers, and Christofer's daughter had hardly known what it was to have an ungratified desire, while poor little Polly must go to work and earn her few clothes before she could be married. Who maketh them to differ?

Polly, however, was troubled with no misgivings when they met at the supper table that night. Her round of calls had been entirely satisfactory; Mrs. Dallas and Katrine had praised her prompt determination in terms so flattering that the girl blushed rosily at the repetition. They had insisted upon claiming a share of each baking, "to supersede Talufa's failures;" and Katrine had invited herself to be Polly's companion in the afternoon's visiting. Mrs. Kemble had been as generous and graceful and kindly as Mrs. Kemble alone could be; she expressed herself delighted by the unexpected fulfillment of her wish, and asked to be supplied with three loaves daily. The others had followed suit, and ordered loaves according to the size of their respective families. "Indeed," said Polly, all in a sparkle of glad excitement, "the only limit to my undertaking appears to be the size of my oven."

"And the measure of your strength," added her mother; "you haven't but one life to live, my dear, and you don't want to be a tired-out wife."

"I shan't be," answered Polly confidently; "you don't half know what a reserve force I have, mother mine."

And so it seemed to be. In spite of hard work—for bread-making is hard work, let who will deny it—Polly was never more "healthy and wealthy and wise," as the old adage hath it. Perhaps the early rising had its effect, for Polly was astir betimes in those August and September mornings. The Kembles and Barlows rejoiced in such breakfast rolls as they had never known before, and the Dallas cook enjoyed an immunity from that form of labor in which she had been peculiarly unsuccessful. Polly might have added many more customers to her list, for the fame of Miss Reynolds' home-made bread was soon noised abroad, but a recollection of her mother's warning decided the girl to confine herself to the half-dozen families with which she had started. She was not making a fortune by any manner of means, but the silver dimes would have grown too heavy for her purse, bit by bit, if they had not been exchanged for the materials wherewith Polly's fingers were busy through the long summer afternoons. Katrine was a more constant companion than ever, and without her aid, Polly was forced to confess that she would never have been able to accomplish all the work that the two rejoiced in together.

"Just forget that I am Jack's sister," said Katrine, trying to command forgetfulness of a fact that she was the first to remember. "Who cares whether it's 'good form'—(though why it shouldn't be, I can't for the life of me tell)—anyhow I mean to help with this sewing, and if you make a fuss about it, I'll never forgive you—not if you marry Jack ten times over!"

"Once is all I've time to make preparation for," laughed Polly, dropping her ruffles as she heard the clock strike, for a second "sponge" was set in the morning, and at four o'clock it must be kneaded and molded, and set for the second rising.

Jack complained that Polly's letters were not half so long as they had been, but no one told him of Polly's new industry—that was to be saved for a later telling. What girl could put such a story into heavy English for her lover. And Katrine kept the little secret, mentally resolving that the tale should be told—as Polly would never tell it—when the right time came.

The summer days were over before one knew it almost; October had come and gone, and gray November had begun its preparations for Thanksgiving. Polly was busier than ever in those days, for the first hint of holiday time seemed to bring Christmas-tide all too near. She had had a measure of succor for which to be thankful, though more than one planned for extravagance had to be given up with the grape vines. Her two silk dresses had resolved themselves into one modest black surah, and there were still many anxious calculations with regard to those indispensable articles of attire which no feminine ingenuity can evolve "without money and without price." Still she had the comfortable assurance of knowing that she had done her best, and the result was one that Jack need not be ashamed of.

Question and comment had long ceased in Polly's immediate neighborhood, but as curiosity died out in one quarter it sprang up in another. Uncle Cristofer, in making out his half yearly statements, was puzzled to account for the unusual number of barrels of flour that had been sent to his brother. Considering how badly the crops had turned out, it certainly looked as though Tom had been extravagant in this one item of home consumption, at least; unless, Tom, getting the flour at wholesale prices had been doing a little commission business on his own account. Some half-formed idea of looking into the matter, joined to a certain concession to family feeling, which Mr. Cristofer Reynolds occasionally made, induced him stop for an hour or two between trains as he was on his way down from Albany, where he had just completed a very advantageous arrangement with regard to an invoice of grain from the west.

Mr. Cristofer Reynolds, portly and comfortable, buttoned up in his expensive overcoat, felt a pardonable thrill of satisfaction as he compared his brother's surroundings with his own. This satisfaction became annoyance as the third ring of the door bell found him no nearer a welcome than the windy porch.

"Bah!" he exclaimed aloud, "I might have remembered the habit in these regions of never using a front door when a side or back door is attainable." Whereupon he set out on a voyage of discovery, and coolly disregarding the side entrance, which was also closed, appeared at the kitchen door in time to see his pretty niece on her knees in front of the oven, engaged in drawing out a succession of loaves of bread—such bread as gave him a sudden sensation of hunger, so brown and crisp did it look, and so sweet and appetizing did it smell.

Not until the pans were safely landed on the table, did Polly become aware of her unexpected guest, and her surprise and embarrassment deepened the glow in her pink cheeks.

Uncle Cristofer surveyed the picture in silence; the clean, well-kept kitchen, with its shining pans and skimmers ranged in orderly array, the clear, bright fire that felt decidedly comfortable on this cold November afternoon, the row of freshly baked loaves, and Polly in her well-fitting, dark cambric dress and white apron—Polly with bright eyes and flushed cheeks, as presiding genius of the whole.

"Is it for a regiment?" he asked with a twinkle in his shrewd gray eyes; "because if so, I'll join the volunteer corps."

Polly laughed at that, and gave him a warmer welcome than Uncle Cristofer had ever received at his brother's household, where his occasional visits were apt to be characterized with mutual constraint.

"Wait and see," she answered gaily, "pulling out the high-backed, chintz-covered rocker for his occupation. "Father hasn't come in yet and mother has gone up town on an errand, and I can't leave my bread just at present, so

you will have to choose between comfort in the kitchen, and solitary state in the parlor."

"The choice won't take long." Uncle Cristofer unbuttoned his overcoat and took the offered chair promptly.

Polly disappeared for a moment, but soon emerged from the pantry bearing a tray with a clean napkin, one of the well-preserved "best plates," a knife and a tiny pat of golden butter.

"Do you mean me to take my dyspepsia hot?" he asked as she broke the light, fresh rolls apart.

"Never mention dyspepsia and my bread in the same breath," said Polly. "Taste and see if I havn't improved on your crude material?"

"No doubt about that," replied uncle Cris. genially; "though even when that is granted the amount of crude material called for has been incomprehensible."

"Is the bread ready, Miss Polly?" asked a small boy, tapping at the window to draw attention to his presence; "mamma wants to know if you can let her have three loaves tonight? We've got a lot of company up at our house."

"I'm afraid not Harry. Tell your mother I'm sorry; she could have had them just as well as not, if I'd known it sooner." Polly deposited the loaves in the boy's basket, while her uncle watched her in amazement.

"So you've turned baker! How does that accord with being a lady, Miss Polly?"

"One might consider them synonymous terms. I found out long ago, that the word 'lady' came from an old Saxon word, *hlæfdie*, which means 'loaf-giver.'"

"And you've been baking up all this flour. and selling bread? What did you do it for?" he asked abruptly. "Can't your father take care of his family without your help?"

"I don't know why he should, if I can help," was Polly's quick retort; "but he hasn't asked for my assistance yet. I'm doing it for myself."

"But what for?" persisted Uncle Cristofer. "To buy finery with?"

Polly flushed hotly. The guess was true enough, in one sense, but she did not like the task of explanation. To her surprise Uncle Cris. came to the rescue.

"Didn't Tom tell me you were going to marry young Dallas this winter? I suppose that's what you wanted the money for—why didn't you come to me?"

"Why should I, when I could earn it for myself?"

Uncle Cristofer made a gutteral sound that might have meant anything, and rose from his chair.

"Is that your father coming? I'll go and meet him."

Polly was left with a little feeling of irritation that she could not altogether account for. Uncle Cristofer had not expressed any disapproval, and more than that could not be expected from him. "Indeed," she drew herself up proudly, "his opinion could make no difference in her action." Still it is always pleasanter when one's conduct meets with approval, and Polly's mind was in a whirl, and in that state her fingers invariably sought the ring, that, being large, could be twisted round and round. A sense of something missing brought her to a startled consciousness of the action. The ring indeed was there, but the seal, with its quaint device and motto, had disappeared.

The proverbial search for a needle in a haystack was not more hopeless than Polly's hunt for her lost treasure. She racked her brain to remember when she had last seen it, but in vain. To and fro she went, through house and kitchen, peering into every possible place, her mother came back while she was so engaged, and while sympathizing fully, advised the girl to wait till morning, instead of following the example of the woman in the Bible, who lighted a candle and swept diligently.

Uncle Cristofer did not appear again. His time was limited, and her father had walked down to the depot with him. Mrs. Reynolds undertook the distribution of the bread, while Polly was continuing her miserable search; but it was all to no purpose, and she gave it up after a while, though determining to rise with the first dawn in the morning.

The sense of loss was her first conscious thought as she woke, and she put her determination into practice promptly. Upstairs and down with careful broom and dustpan did she go, but all to no purpose. Her breakfast was a mere farce, over which she spent but little time. Mrs. Kemble and Mrs. Barlowe would have missed their fresh rolls for once if Mrs. Reynolds had not carried out her daughter's contract. It was, perhaps, nine o'clock in the morning, when flushed and tired, and disheartened, she admitted to herself that it was useless to look for it any longer. She was sitting at the foot of the stairs, her curly locks rough and disordered, where they peeped out from under her sweeping cap, her broom still grasped in one hand, the brush and dustpan at her feet, when the door opened without the ceremony of knock or ring; some one called "Polly!" and in another moment she had found herself—broom and duster and all—clasped in Jack's arms.

Katrine stood in the open doorway, beamed upon them seraphically for a few moments, and then discreetly disappeared.

"Has Polly lost anything!" she demanded, invading the kitchen, where Mrs. Reynolds ruled alone for the nonce.

"I should think so! She's done nothing but look for it since five o'clock, yesterday afternoon."

"And she never—nobody ever would guess where it was found, or who found it last night at midnight," cried Katrine, who was bubbling over with a delight that could not be suppressed.

"What!" exclaimed Mrs. Reynolds, "how is it possible for you to have found the stone from Polly's ring?"

"I didn't; but it found the way to the right person after all—Jack! It's really true! Jack came last night in the 11:30 train—dropped in upon us without a note of warning. All the rest were in bed, and I should have been there if Dr. Sevier had not been so interesting. He was the hungriest man—Jack, I mean, not the doctor!—you ever saw, and I took him down to the pantry, and fed him with cold meat and Polly's bread. The first thing I knew he was inquiring what foreign substance his teeth had run counter to—and there was the seal from his ring. Polly had actually baked it up in her bread, and, more than that, the loaf had come to us and the very slice had waited for him."

"Perhaps Jack didn't want to run off to Polly then and there! Of course I had to tell him the bread story after that. Polly will forgive me for forestalling her; but you see I really couldn't help it."

"And so Jack is home again," said Mrs. Reynolds, slowly. Jack's coming meant less happiness to her than to the others.

"Come and see him," insisted Katrine, who was too excited to be capable of repose. "They have had time to get used to it by now. They can't expect to monopolize each other forever."

It was a very different Polly from the disconsolate maiden who had been found sitting on the stairs and lamenting her loss. The ring was keeping its stone company in Jack's breast pocket, until such a time as the jeweler could prevent such adventures for the future; and Jack himself was urging his ability to take immediate care of the ring, and Polly, and all pertaining thereto.

It was a day of surprises, for the first mail from the city brought a letter that rounded the tale of Polly's bread-making adventure, giving it a climax quite as unexpected as even the loss and recovery of the seal:

"*My dear Niece:*—Accept the inclosed as a token of my appreciation of your pluck and independence.

"Your aunt desires me to say that she insists upon the privilege of providing your *trousseau*. The first wedding in the family demands more attention than you seem inclined to give it, and both your aunt and cousin will really feel hurt if you refuse them the opportunity of assisting you in your preparations. I am under orders from them to stop for you on my way home from Buffalo next week, and carry you off to the city for a shopping bout.

"As ever, your loving uncle,
"CRISTOFER REYNOLDS."

"The inclosed" was a receipted bill for all supplies ordered from Reynolds, Baxter & Co., and it was accompanied by a check for one hundred dollars.

"To think of its all coming from a loaf of bread!" cried Polly, with flushed cheeks and bright eyes.

"No," said Jack, "it came from a brave little woman, who, when things were bad, went to work to mend them."

Whereat Polly blushed more rosily, and denied that she had done anything unusual, and Jack found it necessary to carry her off into a corner to convince her. But the measure of his success it is not given to this chronicler to relate.—*Dorothy Holroyd, in Demorest's Monthly Magazine.*

MISCELLANEOUS NOTICES.

Short advertisements inserted under this head for one dollar each insertion, cash with order.

UNITED STATES MILLER.

PUBLISHED MONTHLY.

OFFICE NO. 124 GRAND AVENUE, MILWAUKEE.

Subscription Price .....$1 per year in advance.
Foreign Subscription.....$1.50 per year in advance.

MILWAUKEE, JULY, 1885.

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.

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.

☞*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.*

TO ADVERTISERS.

Milwaukee, Wis., July 1, 1885,

To Those Interested in the Flouring Trade:

THE UNITED STATES MILLER is now in its tenth year, and is a thoroughly established and much valued trade paper. It has a large regular list of domestic and foreign subscribers. It is sent monthly to United States Consuls in foreign countries, to be filed in their offices for inspection by visitors. It is on file with the Secretaries of American and European Boards of Trade for inspection of members. Aside from the above, thousands of SAMPLE COPIES are sent out every month to flour mill owners who are not subscribers, for the purpose of inducing them to become regular subscribers, and for the benefit of those advertising in our columns. Every copy is mailed in a separate wrapper. Our editions have not been at any time since January, 1882, less than 5,000 COPIES each, and are frequently in excess of that (see affidavit below). We honestly believe that the advertising columns of the UNITED STATES MILLER will bring you greater returns in proportion to the amount of money invested than any other milling paper published. Advertisers that have tried our paper for even a few months have invariably expressed themselves well satisfied with the results. Our advertising rates are reasonable. Send for estimates, stating space needed. The subscription price of the paper with premium is One Dollar per year. Sample copy sent free when requested. We respectfully invite you to favor us with your patronage. We shall be pleased to receive copies of your catalogues, and also trades items for publication free of charge. Trusting that we may soon be favored with your orders, we are,

Yours truly,
UNITED STATES MILLER.
E. HARRISON CAWKER, *Publisher.*

Affidavit Concerning Circulation.

STATE OF WISCONSIN, } ss.
MILWAUKEE COUNTY. }

E. HARRISON CAWKER, editor and publisher of the *United States Miller*, a paper published in the interest of the FLOURING INDUSTRY, at No. 124 Grand Avenue, in the City of Milwaukee, and State of Wisconsin, being duly sworn, deposes and says that the circulation of said paper has at no time since January, 1882, been less than FIVE THOUSAND (5,000) copies per month; further, that it is his intention that it shall not in the future be less than FIVE THOUSAND copies each and every month; further, that he has paid for regular newspaper postage at the rate of two (2) cents per pound on domestic and Canadian newspaper mail for the years 1883 and 1884 the sum of $423.74, showing an average of $17.65 per month for 24 months; the average weight of domestic and Canadian mail being 882½ pounds per month and the total number of pounds of such newspaper mail sent out during the 24 months ending with December, 1884, being 21,180 pounds. Six copies of the U. S. Miller weigh about one pound. The above postage does not include postage paid on local or foreign papers, Canada excepted.

E. HARRISON CAWKER.

Subscribed and sworn to before me this 7th day of January, A. D. 1885.

G. MCWHORTER.
Justice of the Peace, Milwaukee, Co., Wis.

THE United States committee on inter-state commerce, after taking testimony in the western states, is of opinion that something must be done to regulate the commerce of the country as between state and state.

WE desire all millers making a specialty of manufacturing rye flour, to send us their addresses. They will find it to their interest to do so, as we can probably put some business in their way.

STAGER'S Patent Automatic Damper and Steam and Fire Regulator (advertised elsewhere in the paper) is a most useful invention, securing, as it does, economy and safety in the use of steam power. Read the advertisement and write for full particulars.

WE desire to call the attention of our readers to our special offers on other pages to regular subscribers. We want every miller, millwright and mechanic in this great and glorious country to become enrolled as a regular subscriber on our list as soon after the Fourth of July as possible.

THE Wisconsin Millers Mutual Fire Insurance Co., of which E. W. Arndt, of DePere, is secretary, has done a very gratifying business since its first organization. The company has now announced its readiness to accept risks outside the State. No risks, however, will be accepted which are not considered *first-class.*

SOME of our contemporaries are making a great deal of noise about their circulation. We are glad to see them showing up what their circulation really is. The UNITED STATES MILLER has done this for years, and we do not think that our advertisers or contemporaries doubt that we do what we claim. We have in the past and do for the future pledge a circulation of not less than 5,100 copies of every issue, of the UNITED STATES MILLER. We print *more* sometimes, but *never* less than 5,100 copies.

THE O. A. BYRNS' COMMON SENSE ROLLER MILL.—The Byrns' Five Break Common Sense Roller Mill (for illustration see advertisement on page 89), manufactured by the VALLEY IRON WORKS, Appleton, Wis., is the invention of Mr. O. A Byrns, who has had long experience in milling both spring and winter wheat, and he has succeeded in building a roller mill that is believed to be near perfection. The Byrns roller mill with five sets of rolls requires no more room than two pairs of ordinary rolls, or one run of 4-feet millstones. This advantage will be appreciated by small or crowded mills. Only two driving pulleys are required to drive a five-roller machine. It requires very little power. The mill is strongly and compactly built. The rolls may be made of any desired length, from 6 to 20 inches. Persons contemplating the purchase of roller mills will do well to write to the VALLEY IRON WORKS, Appleton, Wisconsin, for full information.

WE acknowledge with thanks the receipt of advanced proofs of the Convention of the British and Irish Millers' National Association, held in Glasgow, June 16, 17, 18 and 19. These proofs arrive however too late for publication. It is stated in the report that over £2,000,000 (about $10,000,000) have been expended during the past year by British millers in milling machinery. Ex-Lord Provost Ure, of Glasgow, was elected president for the ensuing year.

MILWAUKEE NOTES.

The Reliance Mills, owned by C. Manegold & Son, having a daily capacity of 500 barrels, have shut down for a little while, during which some few improvements will be made and everything put in good shape for a long run. Mr. L. Eckel is the head miller, and takes great pride in turning out first-class work.

The Cream City Roller Mills, run by Messrs. A. W. Curtis & Co., after being thoroughly remodeled have started up. The Gray roller mills are used. The capacity of the mill is about 300 barrels per day. Steam power is used. The mill is now running twelve hours per day, and principally for export trade. Mr. Edward Phillips, an experienced miller, occupies the position of head miller, and Wm. Harrison that of second miller. Under the new management, and with its modern machinery, the Cream City Mill is sure to do a prospereos business.

The Gem Milling Co. has been making some improvements, and have everything in first class order, and have just started up for a long run on export trade entirely. The mill has a capacity of 300 barrels per day.

The Phœnix Mills, Messrs. E. Sanderson & Co., proprietors, have shut down for a short time to make needed improvements. They have just broke ground for the erection of an elevator, which will probably have a capacity of 250,000 bushels. The elevator plans are not yet completed. Another well known milling firm in this city are also contemplating the erection of a large elevator for private use, during the present season.

The Jupiter Mills and Daisy Roller Mills are running constantly. The Empire Mills and North-western Mills are idle just at present.

The Millers National Association wheat crop report, prepared by Mr. S. H. Seamans, the secretary, is universally considered the most reliable report of the kind published.

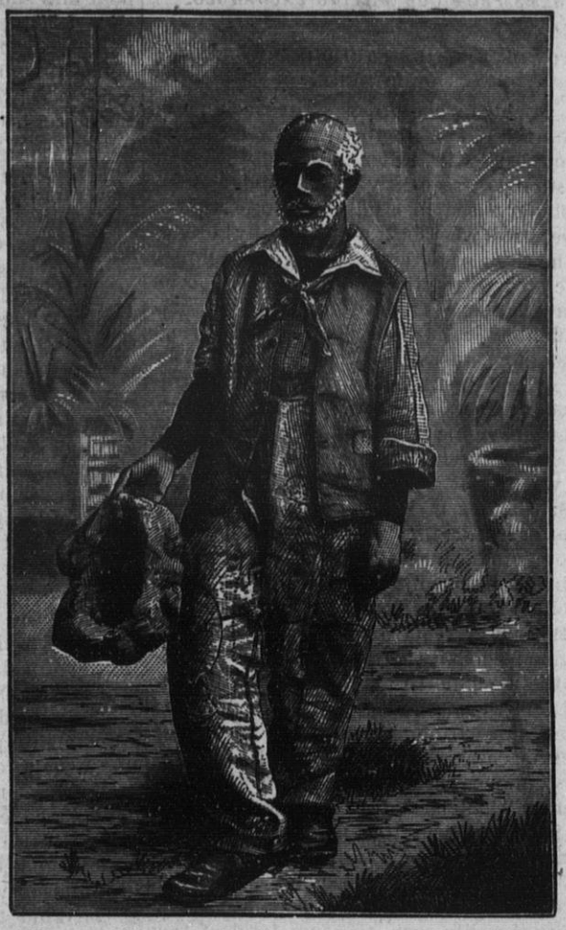
NEW PUBLICATIONS, ETC.

We have received from the Italian minister of agriculture at Rome, Italy, copies of the reports of the agricultural department of Italy for 1884 and 1885.

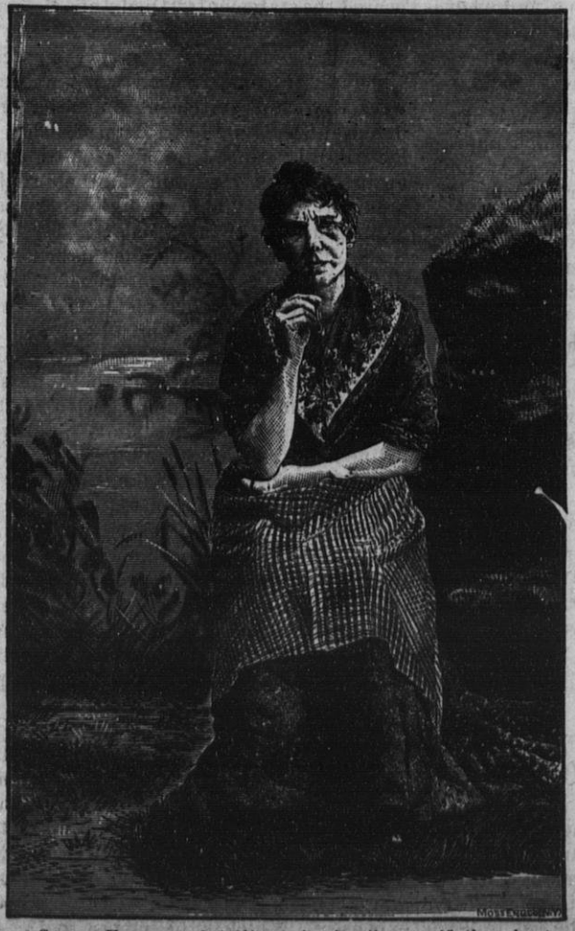
No. 19 of Ogilvie's popular reading is just out, containing six excellent stories. This house now claims that they give more reading matter for the money than any other in the United States. We recommend our readers to buy the book and see for themselves. The price is only 30 cents, and is for sale by all newsdealers, or will be sent by mail, postpaid, on receipt of price, by J. S. Ogilvie & Co., Publishers, 31 Rose Street, New York.

COMMENTS ON THE 1885 WHEAT CROP.

COL. BANGER, (Chicago Grain Gambler). Blast the luck! Them sneakin' English and Russians didn't fight after all, and the market's gone agin me. Gladstone's harvested my crop.



UNCLE REUBEN. Shco now. Dem hoppergrassers done harvested my crop.



MISS SALLY HAWKINS (of Missouri). Don't care if the wheat crop is spiled. Recken the 'baccy will come out all right.

MR. JACK Bings.—Well—there's a little consolation left in the jug anyhow, and fishin' is purty fair.

GEMS FROM OUR MILLING EXCHANGES.

POWER REQUIRED TO DRIVE MILLING MACHINERY.

A Michigan subscriber writes asking us how much power is actually required to drive a double 9" x 18" roller mill, and the same question is frequently asked about other machinery used in a mill. The question of power used, whether it relates to any individual machine or to the collection of machines which constitutes the modern flour mill, is an interesting one to the miller, though, unfortunately, it is one which admits of no satisfactory answer. "Circumstances alter cases," and in the above case, our correspondent states only one circumstance, viz., that the machine is a double 9" x 18. We may reasonably infer that it is a belted machine, but whether it has smooth or corrugated rolls; whether it is run on first break or bran; or is used for sizing or low grade stock is not stated. Even if he had been particular in stating conditions, it is doubtful if any conclusive answer could have been given, for the power required must vary with the judgment exercised by the miller in adjusting the machine to its work, regulating its feed and the tension of the belts. What is true of this particular machine is true of all other machinery used in the mill, and the safest guide is the catalogue of the manufacturer, in which he states the power which, in his judgment, based on his experience, his particular machines require. It is probable that in any mill, if the machines composing it are listed with the power the catalogues specify opposite each, the sum total of the column, even with no allowance for friction, would exceed the actual power required to drive the mill by a considerable percentage. This is because every manufacturer of any experience knows it is always best to err on the safe side, and that a machine with a driving pulley too wide on the face, with an inch or two in width of driving belt to spare, will give infinitely less trouble to the user than one where the above conditions are reversed. Another fact bearing on this point is, that most manufacturers realize the bad habit of American millers to crowd every machine to its utmost capacity, and make calculations accordingly.

It might serve a useful purpose if the power required to drive separate machines could be determined by experiment. This, however, can only be done by the millers themselves, and would involve an expenditure of time and money which few millers have time or inclination to incur. It would serve a much more useful purpose if those millers who have it in their power would take the trouble to ascertain how much power is required to drive their mills as a whole. In the case of steam mills, where the engines are arranged to allow indicator diagrams to be taken, as is the case with most automatic engines, this is a comparatively easy matter, and we repeat the offer made in a previous number, to afford every assistance in our power to the owners of such mills to make such tests whenever they desire. We have already published the results of one test of this kind, and shall have others made as fast as opportunity offers. It is important that every fact bearing on the construction and operation of the modern flour mill should be determined with all possible exactness, and the question of power required is one of the first and most important facts to be considered, because in nearly every case where a mill is built the cost of the power is one of the most important items in the operation of the mill. Again, it is important, especially in the case of water power mills, to know just how much work can be done with the power available. We know of several instances where a disregard of this fact involved the mill owner in serious difficulties and ended in financial disaster. There is altogether too little attention paid to this question of power, both by mill owners and mill builders, and whenever any of our readers have any facts which have any relation to it, they will confer a favor on the trade by making them public.

Too little attention is paid by millers to the condition of the running machinery in their mills, and comparatively few seem to realize that the time spent in keeping such machinery in the best possible running order will yield a handsome return on the investment in the saving of power required to drive the mill. It makes all the difference in the world whether the machinery in a mill is kept clean and well oiled, the bearings properly lined and fitted up, and the working adjustments properly made. A shaft out of line, a belt too tightly strained, a gummed up bearing, or a neglected oil hole count in dollars and cents on the coal pile, and besides, add to the fire risk of the mill. The miller who keeps watch of these little things, insignificant when taken singly, is worth two of the kind that sits on a barrel-head and talks learnedly about crease dirt and corrugations. A well kept and tidy mill will run with less power than a dirty one, and what is equally to the point, will make better flour and more money for its owner.—*Millwright and Engineer.*

CANNED CICADA.—We wish to draw attention to an American product which appears to have escaped the observation of speculators in foods, viz., the 17-year locusts. We have the promise of an exceedingly bountiful crop this year, and there's a lovely chance for a deal in them. Prof. Riley, entomologist of the department of agriculture, recently gathered a lot and had them served up for breakfast. They were dipped in batter and fried like oysters, and had an agreeable flavor. The professor says they are nearly as good as grasshoppers, on which he once lived for two days. Now, the scheme is this: Harvest a million or two bushels of them this year, dip them in batter, fry them like oysters, can them, and for the next sixteen years offer them as dainties under their classic name of "cicada." It might take a year or two to develop a hankering for them, but that assured the profit would be enormous, as many years would elapse before another crop could be secured.—*Milling World.*

SOLEMN AND SERIOUS TRUTHS.

There are a great many fine mills in the United States, and a great many fine millers running them, but if there is a single mill in which no further improvement is possible, or a single miller who has nothing yet to learn about his trade, we should like very much to see them. We were, not long ago, in one of the very best mills in the winter wheat section—one which is widely known by reputation and which really does much better work than the average. Yet the proprietor, who is also a practical miller, expressed much less satisfaction with the results he has obtained than we have seen manifested in a cheaply, poorly arranged, incomplete parody on a gradual reduction mill. On the contrary, his conversation plainly showed that the drift of his mind was constantly towards seeking out methods of improving his mill still further. It is this characteristic which has given his mill the reputation it now has, and it is this which will keep it in the van just as long as it remains under its present ownership.—*Roller Mill.*

THE WARNING FROM THE BAKE OVEN.—Not long since there moved to Chesterton a middle-aged man and his wife, together with a large family of children. They came from New England, and purchased a place on which stood one of the oldest and best known houses to be found in the whole country. They moved in early spring, and when May came, naturally began to explore the place more fully. One day Mrs. Charles, a large, whole-souled woman, with a strong religious temperament almost verging upon superstition, came upon an old bake-oven which had been used in early times, but long ago abandoned. As Mrs. Charles' family was large, she determined to make use of the oven, for the next Saturday's baking. She heated it, put in her dough, and the result was six magnificent loaves of very tempting bread. But on the bottom of one of the loaves appeared the statement: "Died June 15," in old-fashioned but well-defined text. The fact disconcerted the family, and their feeling amounted to consternation when week after week the same statement appeared on the bread—"Died June 15." Mrs. Charles, with her slightly superstitious turn, thought it meant her, and, as the date approached, gradually grew ill. So strong was the power of imagination, in fact, that the day before the fatal one named found her in bed a very ill woman and firmly convinced that the next day would be her last. The news of Mrs. Charles' illness spread abroad and finally reached the ear of an old residenter, who lost no time in getting to the home of the sick woman. He found her in what she thought her last hours, but quickly explained that, many years before, he had helped to build that bake-oven, and had used for one of the bottom slabs a part of an old tomb-stone that had been spoiled in the cutting. Everybody in the neighborhood, he said, knew about this peculiarity of old Hannah Kendrick's bake-oven and should have told the newcomers. It only remains to add that Mrs. Charles' superstition rapidly gave way, and her health as rapidly improved.—*Chesterton Times.*

There are men who say, "What's the use of putting a roof on your house? When the weather is pleasant you don't need it, and when it rains you can't put it on." So there are men who say, "We don't advertise when we are busy, because we have all we can do, and when times are slack we can't stand the expense." Which is the biggest fool?

NEWS.

The New London Electric Light Co. are putting in a 60 H. P. Westinghouse Automatic engine.

BURNED—June 10, L. Pound's mill at Lorain, O. Loss $12,000; partially insured.

Loring & Weber, of La Porte, Ind., are putting an 80 H. P. Westinghouse Automatic engine into their roller mill.

The Cleveland Electric Light Co. have put in two additional dynamos and a third Westinghouse Automatic engine.

The new repair shops of the Mexican International Railway, at Eagle Pass, Texas, are to be driven by a Westinghouse engine of 80 horse power.

Dakota farmers and elevator men are dissatisfied with the Minnesota crop inspection of their wheat and contemplate establishing their own market at Fargo.

E. G. Whiting, a professional inventor, died in Racine, Wis., June 5, aged 84 years. The Whiting plow, manufactured by the Case Plow Co., was one of his most important inventions.

W. I. Chamberlain, secretary of the Ohio board of agriculture, estimates the wheat crop of Ohio for 1885 at 20,900,000 bushels, according to reports received up to June 5.

The Beck, Bransford & Ekdahl Furniture Co. are increasing the capacity of their shops at Union City, Tenn. They are putting in a 125 horse power Westinghouse engine.

The Westinghouse engine finds its way into many peculiar situations. One of the latest is a 125 H. P. engine and a locomotive boiler mounted on a flat car, as a portable outfit to drive some special machinery. When in service, the car is jacked up from the rails, and the engine runs 300 revolutions without other foundations.

The Westinghouse Company, manufacturers of agricultural machinery, Schenectady, N. Y., are putting in a 125 H. P. Westinghouse Automatic engine. The foundation will be a pedestal, about eight feet high, to allow the engine to couple direct to the main line. The floor of the engine room will be correspondingly raised.

E. Balbach & Son, smelters, of Newark, N. J., are gradually changing their extensive works over to the system of independent power. They have at present in use some twelve Westinghouse engines, several of which run night and day, smothered in dust from the ore crushers.

Some of the ways of trade are past finding out. Westinghouse, Church, Kerr & Co., mechanical engineers, of New York, recently shipped two ordinary horizontal return tubular boilers, of 100 H. P. each, *by way of England*, to Australia, for the use of the Colonial Government.

The Jamestown Gas Co., Jamestown, N. Y., are preparing to introduce incandescent lighting into the business portion of the city. The system to be adopted is now under advisement, and the whole matter, both as to electric installation and the steam power, is in the hands of their consulting engineers, Messrs. Westinghouse, Church, Kerr & Co., of New York.

A LONG ENGINE RUN.—At the present time the Westinghouse engine claims to wear the belt for the long distance championship. A mild case is that of the Fulton Municipal Gas Co., of Brooklyn, R. I., who have two engines of 40 H. P., each of which runs six weeks at a time continuously.

Lombard, Ayers & Co., the oil refiners at Bayonne, N. J., have a 60 H. P. Westinghouse Automatic engine driving a fan, which was started some time last November, and has made 320 revolutions each and every minute without a let up, nights, days and Sundays, up to date. Mr. Leman, the superintendent, says that unless his belt laces bother him, he won't shut down till the spring of '86, say about 252,288,000 revolutions, "be the same more or less." Why not keep on till the end of the Democratic administration?

An artesian well has just been completed at De Pere, Wis. An immense vein of pure cold water flows from it sufficient in quantity, it is believed, to supply all the wants of a city of 5,000 inhabitants. This vein was struck at a depth of about 840 feet, over 400 feet of which was drilled through sandstone. Mr. E. W. Arndt, a De Pere miller, and other citizens of De Pere, have organized a stock company and will put down pipes to supply the city. It is further proposed to sink another well in a different part of town. The De Pere mills are running half time. Considerable of last year's wheat crop in that vicinity yet remains in farmers' hands.

The Cummer Engine Co., of Cleveland, O., have recently received orders for 170, 70, 100 and 130 horse power, outfits complete, for the Harney Peak Mining Co., of New York; Volney Q. Irwin, of Crawfordsville, Ind.; Temple Pump Co., Chicago, and the Forest City Carbon Co., of Cleveland, O., respectively. In each instance the competition was close, and the Cummer people consider the selection of their engine in these cases a very substantial endorsement of its superior merits, as about every style of automatic engine of any prominence was competing. They have also just shipped a 170 horse power engine to the Lowell Manufacturing Co., of Lowell, Mass., and have a 105 horse power engine about ready to ship to W. Kautzky, of Indianapolis. They report their sales for the Jonathan Mills' reel still on the increase, and that they now run up all the way to ten per day. Their orders, we learn, are coming in from all directions and are promptly filled. They started up a number of their Ballantine refrigerating machines this season in breweries in different sections of the country, and in every instance the machines are said to be giving the best of satisfaction.

The Westinghouse Machine Co, have spent a large amount of time and labor in ascertaining the requirements of lumber and wood workers, and in perfecting improvements in the applications of power. The lumber trade responds promptly to their enterprise, and is disposed to grant the Westinghouse Automatic engine a large place in its confidence. Among the more recent orders we note, James Bros.' saw mill, Kane, Pa., 125 H. P.; J. Cummer & Son, Cadillac, Mich., 75 H. P. for a band saw and 60 H. P. for planing mill; Henry Sherry, Sherry, Wis., 75 and 60 H. P., also for band saw planing mill; J. R. Davis, Jr., Phillips, Wis., 75 H. P. for planing mill; C. A. Beardsley, Chicago, furniture manufacturer, 75 H. P.; Campbell Bros. & Cameron, saw mill, Oshkosh, Wis., 60 H. P.; Richardson & Heins, Kansas City, planing mill, 60 H. P.; Jas. Atkinson, planing mill, Patterson, N. J., 50 H. P.; H. F. Williams, saw mill, La Grange, Ohio, 50 H. P., and many others.

MILLING PATENTS.

The following list of patents relating to milling interests granted by the U. S. Patent office during the past month, is specially reported by Stout & Underwood, Solicitors of Patents, 66 Wisconsin St., Milwaukee, Wis., who will send a copy of any patent named to any address on receipt of 50 cents:

Issue of June 2, 1885.—No. 318,989, dust collector, A. Ingraham, Minneapolis, Minn; No. 319,160, grain meter, J. Will, Audubon, Iowa; No. 319,166, crushing and grinding machine, J. W. Anthoine, Eufaula, Ala.

Issue of June 9, 1885—No. 319,528, grain and seed separator and grader, W. Tate, Winston, N. C.; No. 319,472, bolting reel, F. Ferrier, Vallejo, Cal.; No. 319,574, vertical centrifugal bolt or separator, L. Gathmann, Chicago, Ills.; No. 319,594, grain register, J. Martin and P. T. Baker, Danville, Ills.; No. 319,695, upright cenrtifugal flour bolt, L. Gathmann, Chicago, Ills.; No. 319,763, middlings purifier brush, J. Wegmann, Rochester, N. Y.; No. 319,786, conveyer for flour bolts, M. W. Clark, Parma, Mich.; No. 319,788, grain scourer, W. A. Cockrell, Cleveland, Ohio; No. 319,809, combined conveyer and separator, L. Gathmann, Chicago, Ills.; No. 319,822, automatic grain measure and register, P. Kaufmann, Hudson, Ills.; No. 319,909, machine for scouring and cleaning grain, T. Inglis, Leith, Scotland.

Issue of June 16, 1885.—No. 319,988, grain shoveling mechanism, J. S. Metcalf, Burlington, Ia.; No. 320,013, grain cleaner, L. O. and L. E. Stevens, Burlington, Ia.; No. 320,048, oatmeal machine, G. Cottrell, San Francisco, Cal.; No. 320,052, machine for packing bran, etc., F. Dorsey, Hagerstown, Maryland; No. 320,218, machine for sacking, weighing and registering grain, G. H. Caughrean, Pleasant Hill, Mo.; No. 320,221, flour and meal bin, R. Clarke, Dallas, Tex.; No. 320,282, feeding device for roller mills, G. W. Pierce, Springfield, O.; No. 320,356, grain separator, E. Huber, Marion, O.; No. 320,383, grain weighing and tallying machine, L. H. Murdick, Hartford, Mich.

Issue of June 23, 1885.—No. 320,485, machine for measuring and elevating grain, S. T. Daxon, Perryton, Ills.; No. 320,486, grain granulating machine, G. Malcolm, Tavistock, Canada; No. 320,707, conveyer for flour bolts and middlings purifiers, F. J. Schupp, Marshall, Mo.; No. 320,811, feeder for mill machinery, R. M. Nake, Kansas City, Mo., No. 320,831, Flax-seed separator, G. Adams, Sherburne, Minn.; No. 320,867 feeding mechanism for mills, P. Fuchs, Davenport, Iowa.

"I'M COMING, MOTHER."—In San Jose, Cal., not many days ago, one Mrs. William Kennedy was making anxious search for her little four-years-old, curly-headed son, who had disappeared for the moment from the family door-yard. Hurrying through the streets, looking and inquiring for the little runaway, her attention was directed to a crowd of people who were gazing, white and silent with awe, at a huge wind-mill tank, against which a long ladder was leaning. The eyes of the woman followed the gaze of the crowd, and this is what she saw: Eighty feet from the ground, holding on by his chubby legs and arms, could be seen the little fellow, extending his free hand towards some pigeons that were perched almost within his reach. His awful peril had stunned and stilled the helpless group beneath, which now parted as the mother came swiftly toward the scene. Then her firm, quiet voice was heard raised that the child might hear: "Come down, Carl, and mamma will give you a peach." The child heard, and looking over his shoulder perceived his mother, instantly began to descend, carefully clinging, round by round, and as he neared the last, he smiled at the upturned face of his mother and said: "I'm coming, mother," and in another moment was in he arms. And then that crowd separated into small parties of one each, and melted away into the distance, leaving behind them only an indistinct memory of moistened eyes and fluttering of pocket-handkerchiefs.

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S. F. McDONALD, Oxford Mills, Iowa.—A first class 100-barrel roller mill, with first class facilities in every way. Correspondents only wanted who mean business.

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The following are the titles of articles in this book: After starting the Fire; Alarm Whistle; Arrangements for Ascertaining the Water-line; Best time to Blow out; Blowing Out Partially; Blowing out Totally; Care of the Boiler when not in Use; Care of the Fire; Care of the Fire during short Stops in the Work; Causes of Foaming; Cleaning Out; Cleaning the Boiler; Cleaning the Grate-bars and Ash-pan; Decreasing the Draft, etc.; Defective Feeding Apparatus; Do not Stir the Fire; Dry Fuel: False Water-line; Feeding; Fire and Clean Out Rapidly; Firing into Two or more Furnaces; Formation of Scale; Fuel on the Grate; How to prevent Accidents; Loss of Heat; Low Water; Precautions before Starting a Fire; Precautions as to Closing the Dampers, etc.; Precautions when the Water is low; Precautions on Drawing the Fire; Progress of Firing; Proper Firing; Refilling the Boiler; Regulating the Draft; Repairs; Safety Plug; Safety Valves; Smoke from the Chimney; Steam Pressure; Test in the Boiler; The Float; The Gauge Cocks and Glass Gauge; The Steam Gauge; The Water; The Water-line; To Examine the State of the Boiler; Trimming and Cleaning outside.

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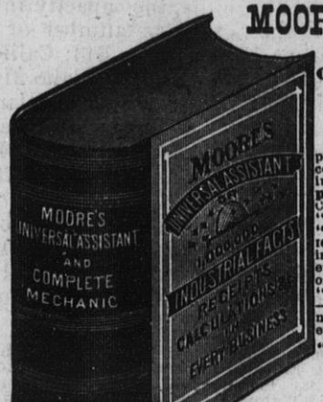

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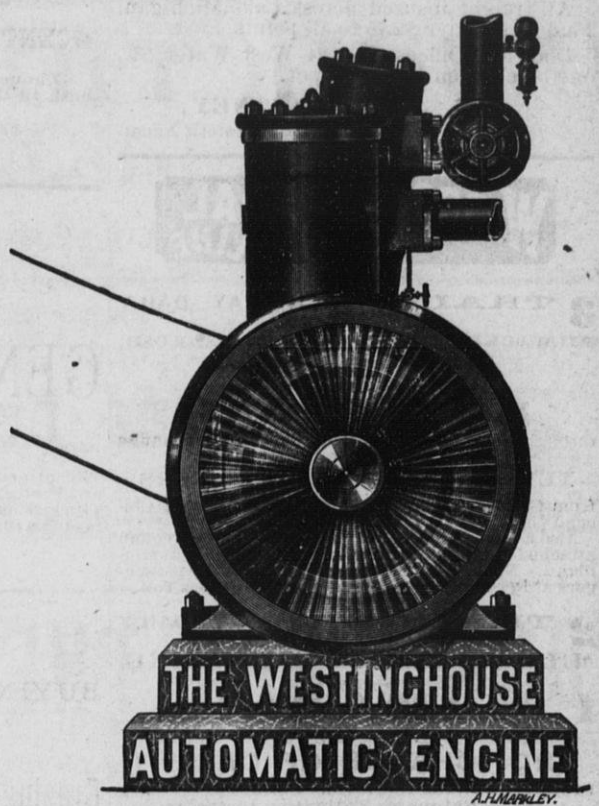
We admit that we suffer in common with other Engine Builders from the general business despression. We are willing, nevertheless, to publish the list of orders received during the month just closed, not for their number, but as indicating the expressed confidence of the public even in hard times. The list represents a little over one-half our monthly capacity.

List of Sales for May, 1885.

Badger Electric Light Co.	Chicago, Ill.	160 H. P.
" " " (2d order)	" "	160 "
Oliver Oil Co.	Columbia, S. C.	150 "
A. A. Andariese	Chicago, Ill.	125 "
Geo. B. Sackett, Irrigation	Berlin, Wis.	125 "
" " " (2d order)	" "	125 "
Arbuckle Bros., Coffee Roasters (2d order)	Brooklyn, L. I.	125 "
Church, Utley & Co., Paper Mill	Rock Falls, Ill.	100 "
Delta Lumber Co., Saw Mill	Thompson, Mich.	100 "
Union Switch and Signal Co. (4th order)	Pittsburgh, Pa.	75 "
Brussel Tapestry Co.	New York.	75 "
Eau Claire Water Works	Eau Claire, Wis.	75 "
" " " (2d order)	" " "	75 "
Richardson & Heins, Planing Mill.	Kansas City, Mo.	75 "
J. C. Reagan, Electric Light	Omaha, Neb.	60 "
" " " " (2d order)	" "	60 "
Jones, Denton & Co., Contractors	Yonkers, N. Y.	60 "
" " " " (2d order)	" "	60 "
G. Vollmer & Son, Furniture	Philadelphia, Penn.	60 "
Pennsylvan a Steel Co. (6th order)	Steelton, Pa.	50 "
Ryan Hotel, Electric Light	St. Paul, Minn.	50 "
Town of Union Silk Mills	Union Hill, N. J.	50 "
M. Brand & Co., Brewery	Chicago, Ill.	45 "
Duluth Electric Light Co.	Duluth, Minn.	45 "
" " " (2d order)	" "	45 "
A. G. Davison, Flour Mill	Solomon City, Kas.	35 "
Fiske, Thomas & Co., Elevator	Chicago, Ill.	35 "
Lowell Mfg. Co., Saw Mill	Lowell, Mich.	35 "
Gibbons & Henry, Saw Mill	Granville, Mass.	35 "
Lima Paper Mills	Lima, Ohio.	25 "
J. H. Oldham, Ginning	Greenwood, S. C.	25 "
Griffin & Wilkinson, Ginning	Fort Mills, S. C.	25 "
Chicago, Rock Island & Pacific R. R.	Chicago, Ill.	25 "
Brown Seamless Metal Co.	Cleveland, Ohio.	25 "
Imperial Guano Co., Fertilizers	Norfolk, Va.	25 "
P. Clement	Corvilliers, France.	25 "
F. E. Averill	Delft, Holland.	25 "
Fred. W. Wolf, Ice Machine	Weatherford, Texas.	25 "
Green & Bro., Hat Factory	Danbury, Cnnn.	25 "
Frank Burt, Threshing	Kalamazoo, Mich.	15 "
Dean, Sickler & Briggs	Peabody, Kan.	15 "
Jones, Denton & Co., Elec. Lgt. (3d order)	Yonkers, N. Y.	15 "
" " " " (4th order)	" "	15 "
M. R. Muckle & Co., Machine Shop	Philadelphia, Pa.	15 "
R. M. Bingham & Co., Hardware	Rome, N. Y.	15 "
Oliver Oil Co., Electric Light. (2d order)	Columbia, S. C.	15 "
A. R. McNeil, Farmer	Old Fields, W. Va.	10 "
E. W. McNeil, Farmer	Moorfield, "	10 "
A. M. Inskeep, Farmer	" "	10 "
H. V. W. Meyer, Farmer (2d order)	Madison, N. J.	4 "
Humeston & Shenandoah R. R.	Humeston, Ia.	4 "
Tippecanoe Paper Co.	Tippecanoe, Ohio.	4 "
Total, Fifty-two Engines		2,662 H. P.



SOME FACTS.

Up to May 1st, '85, twenty-one per cent. of our sales have been bona fide repeated orders (2 to 12) from actual users (not agents) and do not include about twenty-five exchanged engines, all of which are counted as single sales. About half of the exchanges were from defective engines,—the balance for increased power or automatic cut-off, the difference being paid in many cases. Nine engines (our earliest) were thrown out altogether. This is our record, with about 1500 engines running.

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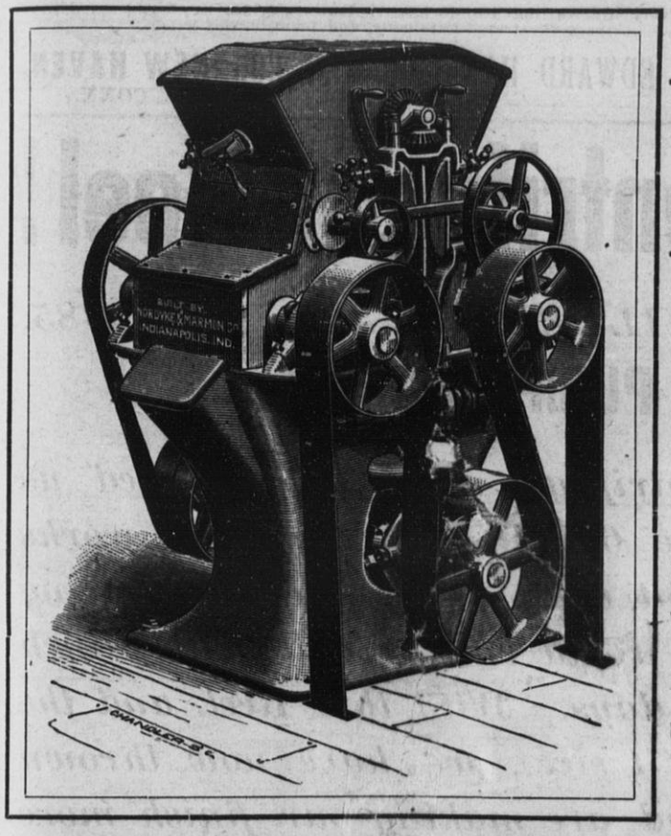

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We have always been victorious in the sharpest competition, and from the first day of starting we have kept the highest position among all roller mills, either located or represented in this region.

Yours truly,

G. W. COWEN & CO.

NORDYKE & MARMON CO., INDIANAPOLIS, IND. OFFICE OF ANCHOR MILLING CO., ST. LOUIS, MO., Oct. 9, 1884.

Gentlemen:—We have just been awarded all the first premiums on flour offered at the great Fair and Exposition. We made a clean sweep of them all, over all competitors, which includes all the mills in St. Louis, and all over the West, in fact the entries were open to the whole United States. We received 1st premium on Patent Flour, 1st premium on Straight Flour, 1st premium on Clear Flour. This embraces the entire list; the flour was made on your rolls, and you should make the fact widely known. Hurrah ! for the N. & M. Co., and Anchor Milling Co.

Yours very truly,

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Gentlemen:—In regard to the workings of our new mill erected by you, will say it is working fully up to and beyond our expectations. Our average work is fully 33 per cent. over your guarantee. Since starting our mill last July we have had no complaint of our flour from any market where sold. It gives universal satisfaction, and we have it scattered on the trade from Chicago to Galveston, Texas. Our yields are all that are attainable. We have tested it on both Spring and Winter wheats with satisfactory results on both varieties. Since the mill was turned over to us we have not changed a spout or a foot of cloth, nor have we found it required to make any changes. We have run as long as six days and nights without shutting steam off the engine, not having a "choke" or a belt to come off. The mill is entirely satisfactory to us, and for a fine job of workmanship, milling skill and perfection of system, we doubt if it is surpassed in the United States to-day. It is certainly a grand monument to the ability and skill of Col. C. A. Winn, your Milling Engineer and Designer. You may point to this mill with pride and say to competitors: "You may *try* to equal, but you will never beat it." Wishing you the success that honorable dealing deserves, I am,

Yours, etc.,

R. H. FAUCETT, Prest.

☞Letters on file in our office from a large number of small Roller Millers giving as favorable reports as above. A portion will be published as occasion demands.

SEE PAGES 115 AND 116.

The United States Miller

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The United States Miller

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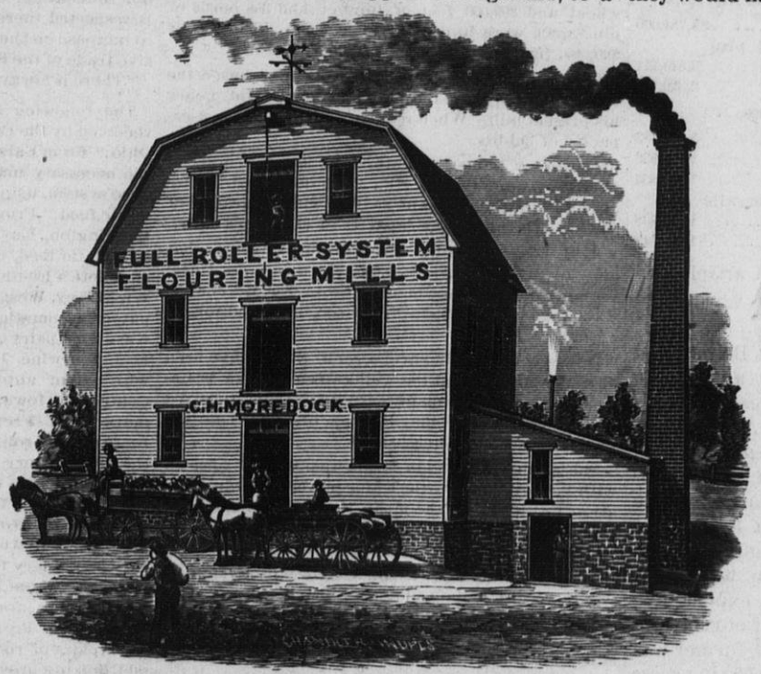
A FIFTY BARREL MILL.

The mill illustrated on this page is located at Jefferson, Greene county, Penn., about forty miles south of Pittsburgh, and bears the proud claim of being the first all roller mill built in that part of Pennsylvania. The owner, Mr. G. H. Moredock, is a young man, yet is imbued with the prevailing conservativeness for which Pennsylvania millers are noted. Mr. Moredock, after receiving various proposals, visited the mammoth mill building establishment of Nordyke & Marmon Co., at Indianapolis, Indiana, where he contracted for the machinery and engine outfit. There are ten pairs of rolls used in making the various reductions on wheat and middlings, while six scalping reels, a four-reel flour bolt and two centrifugals, make the various separations. Three purifiers, one bran duster, a flour packer, and some minor articles aid in making the outfit complete. All this is presided over by Mr. S. Carlisle, as head miller, who is a master of his business. The machinery and power cost, after being delivered and set up, the sum of $8,000, and the building swelled the sum total to $10,000. This mill has taken away the best trade of all the other neighboring mills, and is doing a heavy business, as the following letter will testify:



THE GREENE COUNTY ROLLER MILL, JEFFERSON, PA.

JEFFERSON, PA., Feb. 28, 1885.

Nordyke & Marmon Co., Indianapolis, Ind.:

Gentlemen—Although I am not in the habit of giving testimonial letters, I consider it my duty to do so in this case, because you have built me a MIGHTY GOOD MILL, and I am confident it is the best mill of its size in Pennsylvania. My flour is REALLY EXCELLENT, and has already taken the lead over ALL other brands of flour sold in this section. In fact, I have driven all other trade away, including Pittsburgh flour, which was formerly largely sold here, and my trade extends over three counties, and is still growing. My yield is large and there is no waste. The proportion of low grade is very small. All this is due your perfect milling system.

Great praise is also due your ROLLER MILLS, which are marvels of convenience, as well as your improved centrifugals and bolt chests. All your machinery is exceedingly handsome in appearance, and light running. Any of your customers are invited to call upon me and see my mill, for after they do so I am confident they will buy of you.

I am indebted to your millwright, Mr. Lash, and also to Mr. John Call, through whom I purchased my machinery, both being prompt and honorable in all their dealings.

Your truly,
G. H. MOREDOCK.

LATER.—I am going to hire a night miller, first of the week, and run the mill all night. I am compelled to do this to keep up with my orders.
G. H. M.

PROSPERITY.

It is a strong man that can bear prosperity. The assertion may appear strange and, to a certain extent, ridiculous; nevertheless, it is true and almost beyond dispute. It would probably be more in keeping with the popular idea if we took an opposite view and maintained that it were much more difficult to bear adversity, but then we should be maintaining a proposition that to our mind is untenable. It is no difficult matter to point to hundreds of men who have been absolutely ruined through a sudden slice of good fortune. It has burst upon them unexpectedly, and they have almost universally lost their heads instantaneously. If it was the luck of falling into a good position, they become petulant, stuck up, and desire to show their authority, instead of working on steadily and ploddingly, in order to gain increased reputation and conquests. Whenever fortune falls upon anyone there is especial need for calm and clear judgment. Oftentimes a golden opportunity is lost by men losing their heads in a moment of prosperity. Indeed, it sometimes seems to precipitate misfortune in consequence of incapability. Few have the power to turn every success to account. Too great success in young men often leads to misfortune. By some means or other they let slip the golden chance and never recover it again. They have too great faith in their own powers, and leave matters to others that, had they not tasted of the sweets of success, they would have done themselves. They become careless, believing that they have made their fortune and good name, instead of working steadily and carefully in the old groove of economy and energetic push.

Prosperity always brings with it new responsibilities, and it is a neglect of these that often leads to disaster. Great things generally spring from small ones, and it is only by using each advantage as a stepping stone that further success is secured.—Prosperity must be dealt with cautiously, and in order to fully appreciate it there should be a steady, earnest desire to work it out successfully. To bear prosperity we must not merely behave well in the presence of victory, but follow it up along the line, and out of a number of small successes consummate a great triumph. Prosperity is progress, therefore the truly prosperous will never be content to sit still, but will steadily press forward with a push, energy and enterprise at each succeeding stage.

When a man is unable to bear prosperity it soon becomes visible. He forgets himself, becomes puffed up, proud and vain. Thus he misses opportunities and allows advantages to pass, and ultimately becomes most objectionable and loses the respect of those he most desires. A good deal of allowance can be made when a young man forgets himself and falls into ways that lead him out of the true path of prosperity. But how many who have reached mature years do the same thing, and enter upon a sensational mode of life directly after success dawns upon them. Adversity often acts as a stimulant and spurs us on to greater exertion, but prosperity has a tendency to produce apathy and negligence. Some of the greatest

painters, poets and literary men did their best work when adversity was their constant companion. The man who can bear prosperity with calmness and dignity must have a well-balanced mind. He is like the ship well and evenly ladened, while the one who forgets himself and loses self-control is exactly like the ship without ballast—the least ripple or wind on life's ocean sends him to the bottom. Prosperity is not a toy which we can play with at will, but the trophy of a real battle that must be hardy fought in order that victory can be assured and enjoyed.

SOUTH AMERICA.

The population of South America, according to the latest accessible data, is about 30,517,380, a very large percentage of which consists of native Indians, Negroes, &c. Its area is about 7,375,893 square miles. The value of the exports from the United States to South America, of domestic merchandise, during the year ended June 30, 1874, was $30,430,154, of which the value of crude or partially manufactured articles was $12,035,738, and the value of manufactured articles was $18.394,-416. The following were the articles exported to South America, the value of which, respectively, exceeded $1,000,000:

CRUDE OR PARTIALLY MANUFACTURED ARTICLES.	
Breadstuffs	$5,784,000
Provisions (comprising meat and dairy products)	2,640,714
Wood, unmanufactured	2,399,451
MANUFACTURED ARTICLES.	
Iron and steel, and manufactures of	5,141,183
Cotton, manufactures of	2,926,936
Oils	1,492,833
Carriages, horse-cars and cars for steam railroads	1,313,138
Wood, manufactures of	1,056,443

The per cent. of manufactured articles exported to the United Kingdom was 8.8 and to South America 60.4.

The United Kingdom of Great Britain and Ireland stands in the forefront among the nations of the earth as the largest importer of our domestic manufactures. Although its population is only about 5,000,000 greater than that of all the South American states combined, and the area of these states is more than 7,000,000 square miles larger than Great Britain and Ireland, the value of our domestic exports to the United Kingdom was about $350,000,000 in excess of those exported to South America, and the value of our exports of manufactured articles to the former was upwards of $33,000,000, or $15,000,000 in excess of our exports of such manufactures to the whole of South America. These are very suggestive facts in view of the recent efforts of the Government to extend and increase our foreign trade.

NEWS.

BURNED, Courtland Flouring Mills, Seymour, Ind. Insured.

The first car of new Texas wheat arrived in St. Louis June 20.

W. H. Pace, Cave City, Ky., will soon build a 75-bbls. roller mill.

Wm. Bibb & Co., Westminster, S. C., are building a roller mill.

Kirk & Alexander are building a 100-bbls. roller mill at Westfield, Ks.

D. G. Rasor, of Lockington, O., will soon erect a 50-bbls. roller mill.

J. H. Wyman, Bangor, Mich., has just completed his 60-bbls. roller mill.

Goulding & Anderson are building a 75-barrels mill at Campridge, Minn.

Jaeggi & Schupbach, of Columbus, O., are building a 75-bbls. roller mill.

Charles Gallagher will build a 300-barrels roller mill at Cairo, Ill., this year.

John E. Wolfe & Co., Richmond, Ind., are remodelling to the full roller system.

Anderson Bros., of Gleburn, Tex., are building a 100-bbls. steam roller bill.

Union Milling Co., Union City, Ind., have contracted for a 100-bbls. roller mill.

F. L. Clark will build a roller mill at Spokane Falls, W. T. He has a fine water power.

The Minneapolis millers' picnic cleared about $400 which will go to the monument fund.

The capacity of the Humboldt mill at Minneapolis, will be increased to 1,000 barrels per day.

St. Louis millers have been favored with some good orders for flour from Cuba, Mexico and South America.

BURNED, July 11th, mill owned by Messrs. Clark & Yaryan, and operated by F. D. Brown, Richmond, Ind. Insured.

A. W. Krech has purchased the Holly mill in Minneapolis from Hinkle Bros. It is a 300-bbls. water-power roller mill.

South Australia, Victoria and New Zealand will have less than 30,000,000 bushels of wheat from the 1885 crop available for export.

J. Strachan's grist and saw mills, 8,000 bushels of wheat and 200,000 feet of lumber and 350 cords of pine wood were burned at Lisle, Ont. The loss is $20,000; insurance, $4,000.

C. F. Bean, of Stillwater, Minn., has purchased the Munch flour mill, on the Valley Creek stream, below his present mill. When remodeled it will have a capacity of 75 bbls.

Steward & Eames' elevator and flouring mills at Carlisle, Clinton County, Ill., were destroyed by fire July 23, entailing a loss of $65,000, with insurance of $32,500. The mill had a capacity of 400 barrels daily.

A. H. Rose, the millionaire California farmer, has gone by the board for $800,000. That is a good deal for an honest husbandman to owe. The Merchants' Exchange Bank, of San Francisco, is a creditor for $700,000.

Howes & Ewell, of Silver Creek, N. Y., have been officially notified that the well-known Eureka grain-cleaning machinery manufactured by them, received the highest award—the diploma of honor—at the Paris exposition just closed.

The milling district in Minneapolis is all torn up with improvements to the water power and transportation facilities. In the mean time most of the mills are idle and the employees not able to secure work on the improvements in progress are necessarily idle.

A boiler at Montzen & Son's grist mill at Mobile, Ala., exploded, demolishing the boiler house and parts of adjoining buildings. Henry Scott, Joe Richardson and L Matthews (colored), employees, were killed, Sally Matthews fatally injured, and Louis Fish (colored) slightly hurt.

The mill of May & Waterbury, at Fort Atkinson, Wis., was burned about 4 o'clock on the morning of July 8. There were 350 barrels of flour and 400 bushels of wheat in the building, all of which were burned. Loss on building and contents $27,500; insurance $12-500, of which $5,000 was in the Miller's National of Chicago. How the fire originated is not known.

The La Grange Mill Co., has been incorporated at Red Wing, Minn., presumably for the operation of the La Grange mill of that city. The incorporators are T. B. Sheldon, F. W. Hoyt, H. E. Perkins, F. Busch, E. W. Brooks and William Busch. The capital stock is limited to $85,000, and the corporation is to continue for thirty years, commencing with June 15.

The local flour dealers at Halifax, N. S., are greatly incensed at Upper Canadian and American dealers, because they have sent agents there to sell flour either at wholesale or retail, and have pledged themselves to purchase neither flour, oat-meal or corn-meal from any agent, miller or mill-owner who shall personally offer such goods in Halifax.

The annual excursion of the employees of the Geo. T. Smith Middlings Purifier Co. took place June 27. Two trains were required to transport the 1,600 participants from Jackson to Whitmore Lake, where a delightful day was spent. Dancing, games and athletic sports of various kinds were among the amusements indulged in. No accident occurred to mar the pleasures of the day.

"I've just come in from Kentucky," said a Chicago broker, on 'Change at Cincinnati, "and have been down there to sell wheat to the millers, and have sold 100,000 bushels in a short time. Of all the millers that I met during a five-days' tour, not one reported any offerings of wheat from the farmers. They are receiving our spring wheat, and it is giving satisfaction. Kentucky will not exceed 3,000,000 bushels in production of wheat this year, in my opinion.

The Geo. T. Smith M. P. Co. received, July 11, from their general agent for the continent of Europe, the following cable: "Paris.—Highest awards *hors concours* above all competitors for Geo. T. Smith Middlings Purifier and Centrifugal Reel, and silver medal, for collective display." The message refers to the decision of the jury on awards on the Smith Company's exhibit at the Millers' and Bakers' Exposition at Paris. Inasmuch as more than thirty different centrifugals and still a greater number of purifiers competed for the prize, and the machines were given a practical working test, inspected by a jury of twenty-four members, twenty of whom were Frenchmen, this is, perhaps, the greatest victory yet achieved by the Smith Company in a foreign land. In Europe Expositions are not managed as they are here. There such a number of persons are selected for jurors from among the most representative and best qualified experts as to render any imputation of unfairness, dishonesty or incompetency entirely without foundation. The judgment of such committees is respected there, and in this instance cannot fail to increase on the continent the already very extensive trade of the Smith people.

"There is always room at the top."

The following are among the many orders lately received by the Case Manufacturing Co., Columbus, Ohio: From Earsley & Cook, Herman, Minn., for all the necessary machinery for a full roller mill on the Case system, using 12 pairs of rolls with patent automatic feed; From Messrs. Smith, Stechley & Bolster, Bennington, Kas., for 14 pairs of rolls with patent automatic feed, and all the necessary machinery to complete a 100-bbls. mill on the Case system; From Wm. Hisey, West Branch, Mich., for 3 pairs rolls with patent automatic feed; From Jett & Son, Caldwell, Kas., for 4 pairs of rolls and other machinery; From E. J. Sourwine, Republic, Ohio, for four pairs rolls with patent automatic feed; From Wm. Bradley, Centreville, Iowa, for 2 pairs of rolls with patent automatic feed; From A. L. Strang & Co., Omaha, Neb., for 25 pairs of rolls with patent automatic feed; From the Montgomery Milling Co., Bangs, Va., for a complete outfit for a full roller mill; From W. T. Pyne, Louisville, Ky., for 9 pairs of rolls with patent automatic feed; From Woods & Dunlap, O'Fallon, Mo., for rolls, centrifugal reels, bolting reels and all necessary machinery for the enlargement of their milling capacity; From Dehner & Weurpel Mill-building Co., St. Louis, Mo., for 24 pairs of rolls with patent automatic feed; From T W. Kerr & Co., Hicksville, Ohio, for 2 pairs of rolls with patent automatic feed, in addition to a previous order; From the Empire Milling Co., Auburn, N. Y., for 10 pairs of rolls with patent automatic feed; The contract of Blair & Stewart, Chattanooga, Tenn., for all the necessary machinery for a full roller mill; From W. W. Allen, Fargo, Dak., for bolting chests and other machinery; An additional order from John Spencer, Wauconda, Ill., for 2 pairs of rolls with patent automatic feed; The contract of Davis & Greely, Lebanon, Ohio, for a full outfit of rolls, centrifugal reels, bolting reels, scalping reels &c., for a full roller mill on the Case system; From T. P. Francis, Salineville, Ohio, for 2 pairs of rolls with patent automatic feed; From A. J. Clinger, for additional machinery for his mill at Greenville, O.; From Sam'l Lewis, Jamestown, Ind., for rolls. Messrs. Deaninger Bros., "Old Red Mill," Adrian, Mich., was remodeled to the Case system three years ago; about four months ago it was destroyed by fire, and after all matters were properly adjusted, they concluded to rebuild, and have placed their order with the Case Manufacturing Co., for all the necessary machinery to complete the same. This making the third mill they have built on the Case system, is conclusive proof that they are well satisfied with the workings of the machinery.

THE ELDRED MILL AT JACKSON, MICH.

Another important addition has been made to the manufacturing industries of Jackson, through the very successful starting of the new 400 bbl. mill of the Eldred Mill Co., which was effected on Monday last. Aside from the value of this enterprise to the city and surrounding country, through the employment it gives to a number of men, and the effect of a new and live bidder in the wheat market on the price of grain, the event is of unusual interest to millers all over the country and to all engaged in the flour trade, by reason of the system of bolting and bolting machines used and the character of the flour produced, which competent judges pronounce superior in quality to any other made in the winter wheat states. The mill is so arranged that a large number of different classes of flour can be made at the same time and that special grades for particular purposes can be furnished suited to the use for which it is required. The highest quality of patent and family flours for home use and fine bakers and pastry grades will be made the leading brands, and dealers will be supplied in such quantities as they may need to meet the demands of their trade. Judging from the opinions we have already heard passed on the product of this mill we don't think we shall be far out of the way in predicting that its flour will at once become the prime favorite wherever it is offered for sale, and that every pound it can make will find a ready market at top prices. The mill building is 45x60 feet on the ground, four stories in height, with Mansard roof, and basement, 13 feet between joists. The machinery occupies only 32x41 feet on each floor and there is ample room around each machine. The small space which it was found necessary to devote to machinery is accounted for by the use of the improved bolting reels already referred to. None of the old fashioned, awkward, cumbersome bolting chests, with their long, heavy, power consuming reels, are to be found in the Eldred mill, but in their stead a machine known as the Geo. T. Smith Centrifugal, requiring little space, having immense capacity, running with merely nominal power, easy of access to all its parts and elegant in design and finish. Only ten of these reels are used for bolting all the flour made in the Eldred mill, whereas for a mill of its capacity on the old system, and with the common bolting chests, thirty reels, each sixteen feet long and thirty-two inches in diameter, would have been required. The space occupied by the Centrifugals is about one-third what would have been necessary for common reels, thus effecting a saving of a large amount of room for other purposes, or in the size and cost of the mill building, as the case may be. In the matter of power, and consequently reduced cost of fuel, the advantage of the Centrifugal over the common reel is as one to four, a consideration of considerable importance to millers at a time when the margin of profit on all mill products is so small as at present. But the chief argument in favor of the Centrifugals appears to be in the vastly superior quality of their work, the flour being brighter, clearer, stronger and more granular than that from common reels, while they make closer separations and a very much cleaner finish. This style of reel has become quite well known within the past two years, and its manufacturers, the Geo. T. Smith Middlings Purifier Co., are supplying them for complete bolting systems, as well as for use singly on special classes of stock to all parts of the country at the rate of more than three hundred per month. To return to the mill building and it's equipment; in the basements are two lines of shaftings for driving the rolls, an underground line to the elevator (which adjoins the mill building on the east and in which the cleaning machinery is located), three flour packers, and a barrel elevator, which delivers the filled barrels directly to the car. On the first or grinding floor are fourteen sets of double rolls, six of which are 9x24 and eight 9x14 inches. On the second floor are five No. 1 Smith Purifiers, and five special purifiers of the same make, working on the roller breaks; on third floor five No. 2 George T. Smith purifiers, and ten No. 1 George T. Smith Centrifugal reels; on the fourth floor are the scalpers for break and germ rolls and the heads of the elevators, twenty-five in number, which run down through all floors to the basement. The flour bins begin under the third floor and run through to the packing floor. The feed is spouted to the elevator building and packed there. The mill was designed by Mr. N. W. Holt, an expert, and a very successful one in planning new process flour mills. In this case he seems to have outdone himself, and has certainly excelled any of his previous efforts. Mr. Holt is in the employ of the Smith Middlings Purifier Co., and devotes his time to furnishing their customers with information on all matters pertaining to erecting or remodeling mills. As before stated the mill has run continuously and satisfactorily ever since it was started, which is a very rare if not unheard of circumstance. It looks just a little as if the long talked of mill which started up new and never required the cutting of a spout or the change of a cloth had at last been found. A large number of visitors have already inspected the mill, and the mill company are in receipt of scores of requests from all quarters of the country for permission to examine it and for information in regard to its special features. All who have so far been favored with a view of the mill are emphatic in their expressions of admiration for its completeness, simplicity, convenience of arrangement and especially for the equality of its work. We learn that it is the intention of the company to welcome all who come and to afford every visiting miller the fullest opportunity to examine the machinery used and to study the system on which it is arranged.—*Jackson Paper.*

AN ASTONISHER IN TRAVEL.—W. B. Valentine, of Painesville, Ohio, is the inventor of a unicyle which promises, when fully perfected, to astonish the world by its utility and the speed of which it will be capable. The vehicle consists of a wheel 12 feet 10 inches in diameter, which gives a circumference of 40 feet. The center of the wheel is pierced by a shaft, into which the spokes extend from the tire at a considerable angle. Suspended from the center of the shaft in the space between the spokes is the seat to be occupied by the operator. In propelling the wheel the operator works a treadle that is so adjusted as to utilize his full weight in ascending hills or traversing heavy roads. On each end of the shaft hangs an iron rod that extends to within a few inches of the ground. By an ingenious contrivance the lower end of these rods—which are denominated "safety rods"—can be shifted at the pleasure of the operator to positions near to or some distance from the tire of the wheel. The regulation speed will, however, be two revolutions per second, which is easily attained, and will represent a rate of almost a mile a minute.

PATENTS IN GREAT BRITAIN.—The first commissioners of patents in England were appointed in 1852. The applications then did not exceed 1,000, and in succeeding years rarely exceeded 5,000. A new act in 1883, reducing the fee, and in other ways making the process easier, so stimulated the demand by inventors for government protection that in 1884 the number of applications rose to 17,110; 79 per cent. of these were made by residents in Great Britain. Americans filed 1,181 applications, Germans 890, and Frenchmen 788. The department is more than self-sustaining, and for the year shows a surplus of $200,000. —*Bradstreets.*

A LETTER FROM J. M. CASE

OF COLUMBUS, O.

PUBLISHER UNITED STATES MILLER.

The George T. Smith Canadian "closing act" is not yet closed. Millers who have read the manifesto of the Smith Company, in relation to their Canadian litigation, are liable to be deceived by the same. It is a cunningly devised document, especially designed to cover up the real facts and to create a fear on the part of millers of the United States to purchase machines of other manufacturers than the Smith Co. The manifesto above referred to is untrue in the following particulars:

1st. The final adjudication of the matter has not yet been reached, and will not be until the October term of the Canadian Superior Court. 2d. The defense of Goldie & McCulloch was not a much more able one than the defense made by the defendants in this country when the decision was rendered against the Smith Company, but said defense of Goldie & McCulloch was a remarkably weak and inefficient one, in view of the fact that not a single witness was called by them. 3. It is untrue in representing that the case was heard by the Privy Council of England, when the facts are, the case was dismissed from this Court without a hearing, it not being regarded of sufficient importance to bring before the highest legal authority of England.

This manifesto does not set forth the importance of the fact that Judge Crofut in deciding upon the matter brought before him, stated that the decision of the Superior Court in the case had "no precedent and that he was unwillingly constrained to give force to the plaintiff's petition." The facts are, as is well known to the legal talent of Canada, that by some inadvertance, the Superior Court worded their decision in such a manner as to make all users of purifiers or patented articles liable for the profits made on such machines, which was not intended and which was contrary to the laws and decisions of Canada and of the United States, and has no precedent in any former decision, and for this reason Judge Crofut remarked that he unwillingly gave force to the plaintiff's petition, which he, in the decision, states is unjust and contrary to any precedent or any former decisions; but it is upon such flimsy pretexts as the above that the Smith Company are prone to manufacture scare-crows with which to intimidate the millers of the United States. The above facts I can substantiate with documentary evidence if it is necessary.

-I am, very truly yours, J. M. CASE.

A FEW WORDS ON MILL BUILDINGS.

The following is the Paper taken as read at the Convention of the National Association of British and Irish Millers, at Glasgow, on Wednesday, June 17, 1885, by G. F. Zimmer, M. I. M. E., Chief Engineer, to Mr. J. Harrison Carter, 82, Mark Lane:

Architecture has been defined as the art of planning and constructing buildings according to their intended use, and it is with the hope of having the mill buildings of the future brought more into harmony with that definition, that I submit my experience on the subject (gained on Mr. Carter's technical staff) to the millers of the United Kingdom. I am sure the experience of every milling engineer is that a large number of the new buildings, erected for roller mill plants, have been very badly designed. The custom, in many cases, has been for the miller to consult an architect, have plans prepared, and put the building into the hands of a contractor before consulting the engineer. Later on, when the mill building is advanced as far as the second or third floor, a rough plan is forwarded to the various milling engineers, asking for tenders. The consequence is, that the milling engineer has to arrange the machines in the allotted space, and he very seldom finds the building the best that could have been designed for his system, and it is not unlikely that he could have arranged the plant in less space, and have had more room round the various machines, if the drawings for the building had been prepared to his own directions. In the designs of the architect, the columns and beams are very often badly arranged, and thus a lot of valuable space may be virtually wasted. The correct, and I think by far the cheapest way would be for the miller to first ask the milling engineers for their tenders, and then decide as to whom the erection of the plant shall be entrusted. The engineer, who has received the contract should make out the plans for the building, and not the architect, as is generally done.

Architecture is founded upon three great principles, which ought to be immutable: (1) the *useful*, without which states and private individuals would be led into superfluous and ruinous expense; (2) the *true*, because it expresses in all its varied forms the great principles of construction upon which it rests; (3) the *beautiful*, which is the end of all arts depending upon design, and no less of architecture, the most useful. To secure that the first two, the useful and true, be attained, the design should be left with the engineer, while millers who are fond of outside artistic ornament should consult the architect, and this division of labor will ensure the best arrangement. This method, I may state, has been followed in the case of the plan before you (plan of Mr. Roger's mill at Bedford, in course of erection), Messrs. Usher & Anthony having carried out the building details.

If the milling engineer has the plans prepared for the architect he can get out all details, and have the wall-boxes and other fittings ready for the builder to build in whilst the walls are being put up. A more substantial job must be made in this way than if the walls had to be pulled to pieces after erection, for the purpose of fixing the wall-boxes, etc., in their proper places. The milling engineer can arrange the pitch of the beams and joists according to the sizes of his machines, elevators, etc., without wasting any space, and thus have the beams in the most suitable place for fixing the hangers, and thereby get the requisite strength to prevent vibration. The roof can be arranged so as to get the elevators in the most favorable position, with proper fall to the respective machines, whilst if the roof be designed by an architect too flat or too high, he will either get insufficient fall to the machines (which would always be troublesome), or he will get the elevators higher than necessary, and waste of power is the consequence.

Openings in walls and floors might be arranged to admit the machines whole, and thus save the necessity of taking them to pieces to get them to their proper floors.

Now, allow me in a few words, and also with the assistance of the plan before you, to state my ideas of mill buildings, according to the accepted definition of architecture, viz., "the planning and constructing of buildings according to their intended use."

A well-designed roller mill should have not less than four floors, but five or six floors will give a better arrangement. The ground floor, or basement, should only be used for elevator bottoms, spouts, and shafting. The scalpers might also be placed there in low buildings.

The height of the bottom floor depends upon the width of the building to get the proper fall to the elevators, and in a mill 30 feet wide, 10 feet high would be sufficient unless the miller prefer to have a special excavation or tank for the elevator bottoms. In this case 8 feet might do for the bottom floor. The first floor contains all the roller mills, break and finishing, all of which are driven by two lines of shafting fixed in the ordinary way below.

The first floor should have stronger beams than any other floor, as unless the roller mills are very substantially fixed, they are likely to vibrate, especially when driven with gears. As you will observe, there are no machines placed in the second floor except the sacking tackle.

It is not necessary to keep this floor empty, but it is a convenient floor to place spouting to connect the machines of the higher floors with the rolls

It is also very useful to store the whole night's grinding for the manager to examine in the morning, before trucking it into the warehouse. All the products, flour and offals, are taken off in the second floor. As I said before, if the mill be limited to height, the miller must dispense with these conveniences, and fill the second floor with machinery. If the second floor be not kept specially for sacking off, and the other already-mentioned purposes, the flour and offals can be taken off in the roller floor. The next floor is the most useful for placing purifiers and dust rooms. The two higher floors should be used for all dressing machines, and grading reels. The scalpers may either be on the same floor with the purifiers, or in one of the two top floors. In some cases it might be more convenient to use only the half of the second floor for storing and sacking purposes, and place the scalpers in the other half of the floor.

All the elevators are fixed in the centre of the building where they take the least room, and are in the most convenient position to be fed, and to distribute stuff into their respective machines on the top floors. All the machines should, if possible, be placed between the windows, to allow light to stream through the centre of the mill. Windows should be placed on each side of the building, especially in the purifier and dressing machine floor, as it is impossible for the miller to examine the purifying and dressing if there is not ample light. Long reels and other large machines should be placed either in the centre of the building, where they do not shut out the light, or against one of the back walls of the mill.

The machines should always be arranged with plenty of space round those parts which require the millers attention, and as the profitable working of a mill depends to a great extent on those in charge of it, and considering that the working millers are less likely to trouble themselves about the machines where they are difficult to get at, it is for the milling engineer to design the mill with a good clear space round the purifiers, rollers, dressing machines, etc.

The shape of a flour mill should be oblong, not square. In most cases, 30 feet is sufficient for the width. For a building of this size, one row of columns along the centre would be ample, and it is only a question of having beams of sufficient strength for the span.

Everyone who has erected a flour mill knows that columns often cause great trouble, and by keeping them in the centre of the building, in one line, they are out of the way altogether. I mentioned 30 feet for the width of a mill, but the length depends upon the size of the plant required. 30 feet x 40 feet would be about the right size for a mill to do five sacks per hour; 30 feet x 48 feet for a 6 sack; 30 feet x 56 feet for a 7 sack; 30 feet x 64 feet for an 8 sack; 30 feet x 72 feet for a 9 sack, and 30 feet x 80 feet for a 10 sack per hour plant.

If space be limited, the size of the plant might be reduced, and still be a good workable one, to—

30 feet x 32 feet for a 5 sack per hour plant;
30 feet x 40 feet for a 6 sack per hour plant;
30 feet x 48 feet for a 7 sack per hour plant;
30 feet x 56 feet for a 8 sack per hour plant;
30 feet x 64 feet for a 9 sack per hour plant;
30 feet x 72 feet for a 10 sack per hour plant.

These sizes will only answer for a building of sufficient height.

The size of the warehouse depends upon the requirement of the millers trade, but in any case it might be left the same width as the mill.

The mill and warehouse are of the same size, 30 feet by 40 feet with the wheat cleaning in between. The two walls separating the warehouse and the mill from the wheat cleaning are built straight up, and a tank is put on the top of the wheat cleaning part. The connections between these three separate buildings are three iron galleries outside the mill. There is no opening whatever from one part of the building to the other.

An arrangement similar to this is most favorable for insurance against fire.

The mill must be quite distinct from the warehouse, and it is far better to confine the mill itself into a small space than to use a

large building, half of which is used for the warehouse.

It is very objectionable to have the wheat dust in the flour mill, and the sacks standing about.

The floors in a new building should be beams and 3 inch planks joined together with wooden feather tongues. Iron tongues should never be used in a flour mill. Beams to carry planks on the wall side should be as thin as possible; 3 inch to 4 inch will be sufficient if they are high enough. 1¼ inch boards placed diagonally across the planks, with ¼ inch of felt between, is better as a covering than 3 inches ordinary planks. This is specially recommended for the roller floor to deaden the sound. A joist floor in a flour mill is not suitable for spouting, and in the event of a fire they burn away much quicker than planks.

The cost of joist and plank floors are about equal.

For lighting a mill, I should strongly recommeed electric light, which is the most brilliant, and in the long run the cheapest.

The only objection to electric light is that when the engine is stopped the lights will go out, but this can easily be remedied by having a special small engine to be connected with the dynamo in case the main engine has to be stopped. In my opinion the new small "Tower Spherical" engine is the most suitable one.

I have placed before you my ideas on the construction of mill buildings, and if the hints I have given lead to the mills of the future being designed so that there is a place for every machine, and every machine in its place, they will be better handled by the operatives, better results will be obtained, fewer accidents will happen, and in the keen competition those who have mills of this description cannot fail to succeed, if with this properly designed mill building they match an equally well considered roller system.

PROSPECTIVE INCREASE OF GRAIN DUTIES IN AUSTRIA-HUNGARY.

REPORT BY CONSUL-GENERAL WEAVER, OF VIENNA.

From the inclosed clippings, taken from to-day's *Neue Freie Presse*, you will see that the increased entry duties on grain, as recently adopted by the German Reichstag, viz., from 1 mark to 3 marks per 100 kilograms on wheat and rye, and other grain in somewhat similar proportions, has created no little excitement in this Empire, but particularly in Hungary, where it is feared that their chief industry will suffer materially thereby.

As somewhat the same project is now before the French Parliament, including moreover an increased duty on animals, the agricultural condition of Hungary is becoming quite desperate and her statesmen with great unanimity are ready for retaliation.

In the Hungarian Reichstag yesterday, as will be seen from the telegraphic account in reply to the interpellation of Count Emanuel Andrassy, the minister of commerce, Count Paul Szechenyi, announced that the government had already considered the subject of increased grain duties, and he hoped that before long a project to this end would be laid before the Reichstag, which declaration was received with general approbation.

The translation of the entire article would be very desirable, but lack of sufficient clerical force at present prevents; consequently I must confine myself to the main portions of the interpellation of Count Andrassy and the reply of Count Szechenyi.

Count Andrassy said:

America was the first state to lay down as a principle that the cost of the war of Independence should be paid by Europe, and she realizes this principle by raising the duties on a gigantic scale. The consequence was that America, by increasing her duties, not only developed her industry, but in fact had the expenses of that enormous war paid by Europe. Later on France followed this example on a smaller scale, when, after the Franco-German war, the question of the payment of the thousands of millions of contributions was raised, and France increased her duties on the German frontier. At present France and Germany lay down a particular principle. According to this principle the duties on certain articles of commerce are increased under the pretext that the produce of the ground has diminished, even to the extent that the country is unable to meet competition any longer, and therefore all those that carry thither their products must contribute to cover their expenditures. On the other hand, it is asserted that by raising in this manner the value of the soil, the welfare of the citizen will be increased. Another principle which I consider still more beneficial is that the states have pronounced the doctrine that the friendship of a neighboring state should not be expected when the welfare of its own citizens are in question. France and Germany have already adopted in principle this conception. In the last session of the chambers, Germany has already increased the duty on rye one mark and that on wheat three marks. If we look around in this monarchy, especially in our native country, considering the conditions predominating, we notice that also with us the value of the soil has decreased. No other remedy remains than to do what France and Germany have already practically done, and that we must employ energetic and proper means and not half measures. This we are compelled to do by the conditions that surround us. For, if we allow the importation of the cheaper products of America, Russia, and the neighboring states, which now can no longer be placed on the German and French markets, we will be inundated by them. In view of such a compulsory situation we must also increase our duties. I know that Germany is going to extend still further her protective duties. She is not satisfied with the rye and wheat duties, but will also increase the duties on wood.

As is known, the exports of wood from Austria-Hungary to Germany amount annually to 31,000 car-loads, valued at 12,000,000 to 15,000,000 florins. This article cannot support further expenses. If now Prussia increases her duties on wood the result will be very damaging. Therefore, as I am an adherent of that system which protects the interests of its citizens, I hold it unconditionally necessary to take the same position here, like Germany and France, and to proceed upon the principle of increasing the duties where this is necessary. I am convinced of the beneficial working of such a step, especially should a state which desires to continue in good relations with us have arranged with us in respect to the conclusions made and so rapidly completed. From these considerations I take the liberty of addressing to the minister of commerce the following interpellation:

In view of the fact that France and Germany, proceeding on the principle of relieving the burdens of their citizens, have already concluded to increase the duties on several articles, partly in principle and partly in fact, as has already been done in the German Reichstag, I interrogate the minister for agriculture, commerce, and industries: Does he intend to announce upon the first occasion, and immediately, that Austria-Hungary also declares with all resoluteness that it is determined in principle to increase the duties on certain articles for the material interests of the country, and also upon the same grounds as France and Germany have done?

Count Paul Szechenyi, the minister of commerce, replied:

With the permission of the honorable House, I will at once reply to the interpellation addressed to me. First of all, I must be allowed to attach a few observations to the motive. It is said that Germany and France proceed upon the principle of lightening the burdens of their citizens.

According to my comprehension this was not the actuating motive of these powers, but they were induced to protect themselves against competition, and by the increase of duties cause the prices of these articles to appreciate, whereby the income of their citizens might be increased. [Laughter on extreme left and cries of "That is it."] Gentlemen laugh, indeed; but if they consider properly the question and answer, they will perceive that an important difference exists between the lightening of burdens and increase of income. I do not deny that a relief is therein included, but it remains, however, of two different sorts. It is natural that if one state accepts an outspoken protective system the neighboring state commits a great mistake should she ignore the same. In view of the existing conditions it is absolutely necessary that Austria-Hungary, following the example of France and Germany, should enter upon the same course and apply upon the raw products pressing upon us from the east the same duties which other states lay upon the imports of our raw products. [Approbation.] These regulations must not be taken with a view of lightening our burdens, for, according to my convictions, our burdens thereby will not be increased; for this would be only possible should a decrease of taxation take place in connection with the increased receipts of duties. I myself would desire that this should be accomplifhed at the earliest moment, and I am pursuaded that every nation would bring it about were it possible. For to-day as a reply to the interpellation I would declare briefly and simply that the Hungarian government has already certainly considered and undertaken the necessary steps for the increasing of the duties. I hope the time will not be long before I shall be able to law the corresponding project of law upon the table of the House. [Great applause.]

The table given in the article on "the German corn laws" shows that the value of the exports of grain, flour, etc., from Austria-Hungary to Germany in 1883 amounted to 114,600,000 florins against 135,900 000 in 1882 and 93,200,000 in 1881; that consequently the question of increased duties is one of vital importance to this Empire, as the increased duty not only renders more difficult the competition of Austro-Hungarian grain on German markets, but they even fear that in consequence of the German markets being shut to American and Russian grain these may be thrown upon the Austrian markets, unless the protection at present existing should be correspondingly increased. Hence no reasonable doubt can be entertained that the grain duties of this country will be increased in the near future. The entire article is full of valuable information, and I regret exceedingly that lack of time absolutely prevents its translation.

LITTLE girl on a visit to St. Louis: "Oh, mama, I think this must be heaven." "Do you, pet? Why?" "Don't you see, mamma, all the ladies and gentlemen have wings; but they are on the sides of their heads instead of their backs." "Hush, darling, those are not wings."—*Boston Post.*

UNITED STATES MILLER.

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H. O. PARKS, ASSOCIATE EDITOR.

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In Memoriam.

ULYSES S. GRANT.

The death of General Grant, though expected, has sent sorrow and grief throughout our land. No name is better known the world over. The American people have lost their great general and their great citizen; the laborers of the United States have lost one of their truest friends; the Government's well tried servant, twice the people's choice for the highest gift in their power, is dead.

General Grant saved the nation through war, and when peace followed the surrender of Lee, the people looked to him as the one man to take the place of Lincoln.

He took the helm of the United States when the ship of State was amid the breakers, and piloted her to a harbor of safety. He brought the country out of the chaos of financial troubles, and after serving a second term as President left the presidency with as bright prospects for the nation as could be wished.

As a military general, he had a horror of bloodshed, and shrunk from the sacrifice of human life. He was great as a soldier, but greater yet as a citizen. He was more of an American citizen, than he was a mere general—he was a civilian in its loftiest American sense.

His expression: "Let us have peace," is recorded on the pages of his country's history. He was incapable of ill-will; he knew not hatred to his fellow citizens or his fellow-man. He prayed for unity for his country. He harbored no enmity, nor did he ever feel jealousy of his brother officers in the army. He was magnanimous to a fault. Appomattox, with Lee's surrender, is rendered more glorious by the forgiving, Christian spirit that Grant made manifest in the terms of the surrender.

The paragraph which General Buckner says that General Grant wrote cannot be too often printed. It is promotive of forgiveness of the past troubles and dissensions, and, if studied, as it will be more than ever, since his death, will be conducive to a full restoration of "peace and good will" between all sections of the country. Like "oil upon the waters" it will aid in calming the turbulent waves of passion and prejudice:

"I have witnessed since my sickness just what I have wished to see ever since the war—harmony and good feeling between the sections. I have always contended that if there had been nobody left but the soldiers we should have had peace in a year. — and —, are the only two that I know of who do not seem to be satisfied on the southern side. We have some on ours who failed to accomplish as much as they wished or who did not get warmed up to the fight until it was all over, who have not had quite full satisfaction. The great majority, too, of those who did not go into the war have long since grown tired of the long controversy. We may now well look forward to a perpetual peace at home and a national strength that will screen us against any foreign complication."

Never did General Grant appear grander than, when in England, he thanked the English workingmen at Manchester, who waited upon him with an address, for their manly sympathy, and for the "kind words that went out from Manchester" for the success of the American Government. The ring of true Americanism sounded through his speech of thanks to those workingmen:

"I recognize the fact that whatever there is of greatness in the United States, and, indeed, in any other country, is due to labor. The laborer is the author of all greatness and wealth. Without labor there would be no government, no leading class and nothing to preserve. With us labor is regarded as highly respectable. When it is not so regarded, it is because man dishonors labor. We recognize that labor dishonors no man; and no matter what a man's occupation is, he is eligible to fill any post in the gift of the people. His occupation is not considered in selecting, whether as a law maker or executive of the law."

His solicitude for others, and the desire to prevent suffering by or to them, were the marked characteristics of his conduct and bearing through his long and painful illness. His self-abnegation has scarcely ever been equaled—he was always studious of others' feelings and regardless of his own, and thus awaited the end with an unflinching courage based on Christian fortitude and resignation.

A lady in this city, intimate with the family of the deceased, and who not long since visited them, remarked to the writer that General Grant was a realization of that finest of all sentiments, the very perfection of a true Christian spirit so beautifuly expressed by Eliza Cook:

"Should fate do its worst, and my spirit oppressed,
O'er its own shattered happiness pine;
Let me witness the joy in another's glad breast,
And some pleasure must kindle in mine."

The great soldier and the great citizen has gone from among us, mourned as no other American was ever mourned, yet our grief is mitigated by the reflection that his pain has ceased and his sufferings have ended. He is happy. He merited the encomium: "Well done, thou good and faithful servant." To him and of him, we can truthfully quote the solemn dirge:

Close his eyes, his work is done,
What to him is friend or foeman,
Rise of moon, or set of sun,
Hand of man or kiss of woman?

As man may, he fought this fight,
Proved his truth by his endeavor;
Let him sleep in solemn night,
Sleep forever, and forever.

Fold him in his country's stars;
Roll the drum and fire the volley!
What to him are all our wars,
What but death be mocking folly.

Leave him to God's watchful eye;
Trust him to the hand that made him;
Mortal love weeps idly by,
God alone has power to aid him.

(Written for the United States Miller by John W. Hinton.)

IT is reported that Hon. Alexander Mitchell of Milwaukee, has purchased the "Queen B" mill at Sioux Fall, Dak.

PARTIES desiring to purchase a good flouring mill cheap—A BARGAIN—will do well to read J. I. Case's advertisement in this issue.

JOHN THORNTON, Esq., head miller for Messrs. S. T. & R. Coman, at Fox Lake, Wis., made us a pleasant call, July 27th.

AN average wheat crop in Germany is about 72,000,000 bushels, and an average rye crop 218,000,000 bushels.

THE largest grain storage depot in St. Petersburg, Russia, was recently totally destroyed by fire. The loss is enormous.

WORK is rapidly progressing on the new Sanderson grain elevator in this city. It is quite probable that another elevator will also soon be built on the canal.

L. F. HODGES, of Milwaukee, and La Crosse and Winona parties, recently purchased five elevators and seven warehouses from the Fargo Southern Elevator Company for $50,000.

A MILL Machinery Corporation has been organized in this city under the name of the SUPERLATIVE PURIFIER MFG. CO., which will manufacture Purifiers, Bran Dusters, Wheat Scourers, Scalpers, and the American Centrifugal Bolter.

JAMES LOOMIS, ESQ., who has been representing Edw. P. Allis & Co. at the New Orleans Exposition, has taken a vacation to recuperate his health. He will spend some months at Las Vegas, New Mexico. We hope to see him return strong and hearty.

THE Illinois State Fair will be held in Chicago Sept. 14—19, and the American Fat Stock and Dairy Show from Nov. 10 to 19, also in Chicago. Premium list and full particulars can be obtained by addressing Hon. Chas. F. Mills, Sec'y State Board of Agriculture, Springfield, Ill.

THE wheat crop of Minnesota is represented to have suffered 10 per cent. by recent storms, but in Dakota the harvest is turning out well. The statistical agent for Nebraska states the crop will exceed previous estimates, and places the total at 16,000,000. The Washington department thinks the yield in Nebraska will reach 20,000,000 bushels.

THE readers of the UNITED STATES MILLER will be glad to learn that the Wisconsin Central Railroad has secured most desirable terminal facilities in Chicago. It is probable that definite terms will soon be made for permanent terminal facilities in Milwaukee, and then this new line to the Northwest will be one of the grandest lines in the country. The energy and ability of the promoters of the Wisconsin Central are deserving of the highest commendation.

DEATH OF D. G. TEPPER.

It is with deep sorrow that we announce the death of D. G. Tepper, late editor of *The Millers' Journal*, by suicide, in New York City, July 16, 1885.

Mr. Tepper was a highly accomplished and extremely pleasant gentleman, and made warm friends wherever he went. He was but 39 years of age at the time of his death. He leaves a family consisting of wife and eight children, said to be very slightly provided for. Mr. Tepper was of so pleasant and social a disposition that one would think he would be the last to take his own life. The following extract from the *New York Sun* gives the particulars concerning the dead editor.

David C. Tepper, an English journalist, came to this country from London a few years ago to better his fortune. He had hard work to support his wife and family of eight children. He finally got a place at a small salary, as secretary of the *Millers' Journal* Co., and had an office in top loft of 36 Broadway, where he wrote articles for the *Millers' Journal* and carried on also a small business selling flour mill machinery. Models of machinery were scattered all around the loft.

He got deeper and deeper into debt, and finally moved his family to Port Richmond to secure cheaper lodgings and reduce expenses. His wife went to Europe to visit her relatives a month ago, and he became lonesome and despondent in her absence. He passed Monday night pacing the floor of his room, but was apparently in good spirits when he came to the city yesterday morning with his eldest son, Edward, who is 15, and another son of 13 years. A few minutes after they got to the office Tepper sent the younger lad out with a message to his employer's main office, at 125 Broadway, and then took $40 in bills from his pocket and handed it to his other boy.

"Take this, Ed," he said, "the children may need it at home."

Then he sent him on an errand. When the boy got back he found his father lying dead on his back on the floor. Beside him lay a 32-calibre revolver with a single cartridge shell in it. He had stood up beside a desk and fired the bullet into his mouth. It pierced the base of the brain and killed him instantly.

Coroner Messemer gave the undertaker permission to remove the body to his shop in Ninth street. In the suicide's clothes were found two railroad tickets, $2.25 in money, and some office keys. His son Edward cried bitterly over the dead body. He told the coroner that his father had never carried a revolver before and must have bought it secretly. The suicide was for a number of years editor of the Panama *Star and Herald*. After that he was the editor of an Australian newspaper, and in 1882 he went back to London to take charge of the *Corn Trade Gazette*. He gave up the place, in a short time, and started for this country. Word of his death was cabled to his wife yesterday afternoon.

GEMS FROM OUR MILLING EXCHANGES NOT POSTED ON "SHIPSTUFFS."—Why is it, do you suppose, that every new young man that tries his hand at editing a milling journal invariably starts out upon the hypothesis that millers are a set of dumb fools, who should be taught something about making flour? We know this to be the case because we started out years ago upon the same basis, and will a fairly good new hat that we taught the millers a good many things they never dreamed of before and have not realized since. Why, bless you, we just reeked with valuable information; it oozed from every pore of our organism; we were enthusiastic in our self-imposed mission; we confidently looked forward to a revolution which should be the result of our labors, but things didn't revolute worth a cent, and finally it dawned upon us that the milling industry was not inclined to give, bore we down never so hard upon our little lever. It took sometime to convince us that some of our knowledge was not exclusively our own, but when that conviction penetrated and permeated us, it went through us like a powerful cathartic. It came about in this way: It was before the day of roller mills, and not long after the purifier was introduced. We were endeavoring to convince an old miller that by the employment of a rigidly hung runner an absolutely perfect and even granulation of the wheat berry could be accomplished. We *knew* we were right about this; could demonstrate the correctness of our position with mathematical exactness, and for every objection raised by the old dusty—whom, by the way, we regarded with pitying compassion for his ignorance—we had a remecy. We couldn't convince the old fellow that we were right, he couldn't convince us that we were wrong, and finally the conversation drifted into the discussion of mill prodncts. We fought a little shy here, as we were not very well up in such matters, and allowed the old man to have his own way. He asked us no questions, and in agreeing with his ideas we felt ourselves on pretty safe ground. Finally the old man, in the most innocent manner imaginable, asked our opinion of "shipstuffs." "Ah!" thought we, "old fellow, we'll paralyze you now with the extent and variety of our knowledge; we'll show you that in other lines of journalism our knowledge would stand us in good stead;" so we replied that for knees, ribs, etc., we unhesitatingly gave the preference to oak. It was remarkable for toughness and durability, and where used imparted and assured great strength. "What's that got to do with it?" he asked. "Got to do with it?" we echoed, "why everything." "As how?" he asked. "Why," said we, "if you go to build a ship ——." "Whose going to build a ship?" said he, "I ain't, and you'd better take a walk to some feed store." We didn't heed his advice, but we did a heap of thinking.—*From the Milling World.*

MILLING IN FRANCE.—Regarding the situation of the French milling industry, a number of the *Economiste Francaise* says, in a recent issue:—"French mills number at least 25,000, with 30,000 pairs of stones, 200,000 persons employed, and 200,000 horsepower. The yearly production aggregates 67,500,000 barrels, worth $456,000,000. The cost of producing this amount of flour is about $48,000,000. Twenty years ago French milling took first rank in Europe. Now it is seriously embarrassed, as may be evidenced by the imports and exports from 1872 to 1882, which show 325,808 barrels increase in the former, and 544,417 barrels decrease in the latter. French millers have disdained the new Hungarian milling machinery, secure in the possession of the millstones of La Ferté Sous-Jouarre. As a result, Hungarian flour, is shipped to Paris, despite the tax and expensive transportation. J. Michelet, of Paris, in an excellent pamphlet on the state of milling, estimates that the expense of bringing a metercentner of Hungarian flour to Paris is $3, but it is sold higher than French flour, owing to its excellence. In the last ten years the Buda Pesth roller mills have averaged 14 per cent. dividend. One mill averaged 27 per cent., and on one occasion paid 40 per cent. The salvation of French mills is not through protective tariffs, but progress and improvement." We quite agree with this latter remark, but it is worth noting that, whatever the dividends of the Pesth mills were in previous years, in the present year very few, if any, mills pay 14 per cent., and several will be fortunate if they pay 5 per cent., so largely has the trade fallen off, especially with England. Orders, indeed, are unobtainable at almost any price, so we are informed by our Pesth correspondent.—*Millers' Gazette* (London.)

THE largest steel vessel ever floated in the great lakes is the steamer Tioga, just built for the Union Line at Buffalo. She cost $225,000, is 302 feet long, and the freight hold is in seven water-tight compartments, with a tonnage of 2,000.

AMERICAN ROLLER MILLING.*

MR. PRESIDENT AND GENTLEMEN OF THE CONVENTION—It was with great reluctance that I accepted the invitation of your committee to read a Paper before you. Being an entire stranger in this country, such an introduction seemed not unlikely to militate against a favorable opinion of me, as I might probably in my ignorance of British milling, say something which would excite hostile criticism. I have, therefore, concluded that it would be safest for me simply to recite, as nearly as I can, the experience of American millers in their several steps toward their present plan of milling, and only draw such conclusions as such experience will warrant. My doing so may possibly result in saving some millers in this country from some mistakes into which American millers have fallen. I shall not attempt to give accurate dates, nor can the details of machines be given on this occasion.

We will take up our subject in 1871, when our first successful attempt was made to manufacture a superior grade of flour from cleaned middlings. Previous to this time, middlings had been partially cleaned and reground; the result being a flour that could be mixed in with the first flour without lowering the grade. In 1871 a grade of flour was made from the purification of middlings, which sold for say $8 per barrel more than the flour heretofore made from the same material. This large profit excited the cupidity of every miller who heard of it. Little flour, however, of this quality was produced, for up to this time operative millers were appreciated in proportion to the small amount of middlings they made in grinding—in fact, you might say the less middlings they made, the better millers were they considered. Now however, a change began to take place. The miller who could make most middlings was the most sought after; and everyone began to experiment to see how he could dress his stones so as to make more middlings. Furrows were widened until in some instances they were more than two inches wide; in other cases intermediate furrows were cut through the lands. The draft of the furrows was increased; this being carried so far on some millstones as to give their leading furrows two inches draft to the foot of the diameter of the stone. Next they attacked the face by breaking away around the eye of the stone, so that no reduction of wheat could occur until it passed outside of this circle. Some millers went so far as to cut a circle 32 inches diameter in a four foot stone. Then they bosomed the remainder to within four inches of the skirt. I knew one miller who bosomed the stones quite out to the skirt, leaving them like two inverted saucers. These experiments showed that such a proportion of middlings could be produced as to make, when re-ground under stones, 50 per cent. of middlings flour, but this system of grinding left the bran very thick, and necessitated its being re-ground. For several years this was done with millstones, but this was sacrificing the quality of the second and third grades of flour with a view of making more and more patent. Every increase in the quantity of middlings necessitated more purifiers being employed, finer bolting cloths, and greater perfection in stone dressing, as well as more careful attention being paid to their system of separations—and many live millers spent freely one month what they made the month before, and a good many of them what they also expected to make for several months to come. This, however, was not true of all millers. In those days, as in the present, there were not a few who said they were only waiting, and their time would come when the new process had fallen flat, and they would then make *their* improvements; some of these millers are *still* waiting.

The large percentage of middlings thus produced, had the germ and pieces of broken wheat mingled with it. These were too valuable to be wasted, and purifying them would not prepare them to be made into a high grade of flour. A new departure was therefore necessary, and smooth rolls were introduced to break these down, to release the flour particles and flatten the dirt so that it could be removed by reels and purifiers. This gave another boom to the mill-furnishing trade; and although it reduced the bank account of the miller at first, yet it was such a success from the start that it gave the miller heart to overcome the next difficulty by which he was faced.

A better method was required for cleaning bran, and this led to the introduction of corrugated rolls for the purpose. These were taken into favor more rapidly than any machinery required for the other intermediate steps had been, and their use became general about the year 1880. In this year the Milling Exposition was held at Cincinnati, and the best system of purification came to the front. You may have thought that I had forgotten this branch of the subject; but neither I, nor any other American miller is likely to forget that. The success of Mr. Christian, and Mr. Pilsbury and others, in their introduction of purifiers had drawn the attention of inventors throughont America to the fact that a sure fortune awaited them if they could invent a really first class purifier; and every week or so at this time, a new machine was offered to the trade which was bound to make the miller's fortune if he only adopted it; and guarantees were freely given as to the results these machines would produce, and that they were no infringement of existing patents. This continued until more than fifty different purifiers were in the market. I need not say more on this subject than that most of these machines had a short life, and that millers found to their sorrow the worthlessness of the guarantees which had been given.

The question of purification is now understood by American millers to be one of the first importance; and the more they study it the more they see how much difficulty there is in economically accomplishing perfect purification. And there is no doubt the difficulty and expense arising from this part of the process had delayed the general adoption of high milling for a long time, as, in their effort to save money, many millers had bought cheap machines several times over before they bought efficient ones. In new process milling a perfect purification is a necessary condition of financial success, as no system of reducing middlings to flour while the dirt is in them will give good flour. Practically you might as well have reduced the wheat to flour in the first instance, for without perfect purification nearly all you might have gained by gradual reduction is lost. This fact got to be well understood by the best American millers whilst they were still reducing their wheat by stones; and this, together with the improved system of bolting which had been arrived at, made the introduction of corrugated rolls for reducing wheat a much less difficult undertaking than it would have been had purification and separation been less perfectly understood. The reason for this is very plain, for in not a few mills they had to make almost no changes in their bolting and purifying machinery, and had only to substitute corrugated rolls for the millstones hitherto used. This change produced a great saving of power, and required but a short stoppage of the mill. In reference to the power saved I can give my own experience in a case where the only change that had to be made was the substitution of the rolls for millstones every other part of the machinery remaining. In this case the out-put was more than doubled with the same power.

The subject of cleaning wheat had also received much attention during these nine years, and millers reached two conclusions, broadley speaking. The one was that it was necessary to clean the wheat thoroughly from all impurities without disturbing the bran, and the other that this could be accomplished best by using separate machines for each part of the process. Thus separators, smutters, brush machines, and cockle cylinders came to be regarded as essentials in any mill claiming to make good flour, and the days of using one combined machine for the entire cleaning of wheat ceased altogether.

In the foregoing account of the changes in our mills I have not mentioned many of the experimental machines that were adopted only for a short time—such as smooth rolls, for first breaking the wheat and then passing it to stones; corrugated rolls, for breaking wheat before passing it on to stones; small stones, 16 inches diameter, for reducing wheat; iron discs, for reduction of wheat, which met with more favor than some of the others mentioned here; disintegrators, for wheat and bran. Also wheat heaters, many different makes of which were experimented with. By mentioning wheat heaters in this connection I do not mean to condemn their use, for I believe a wheat heater which would give an equal heat throughout the body of wheat would be a desirable machine.

We come now to speak of the system at present generally adopted in the States, and which has now been at work a sufficient length of time to demonstrate its success on all kinds and conditions of wheat, and under all changes of climate. So far as my knowledge extends there is not a single mill in the States, with an average production of twenty-five barrels per day, that is not using the system of gradual reduction and purification. There are not ten that I know of, making this quantity, which are not making their reduction by rollers. There are, of course, many mills that have not been overhauled that are doing a little work in gristing; but of those which are doing merchant work, those millers who will not overhaul, have to quit. I say this to you, because several times

*This is a paper read by Mr. M. W. Clark, of the Geo. T. Smith's Middlings Purifier Co., of Jackson, Mich., before the British and Irish Millers Association in Glasgow, June 17, 1885.

since I have been on this side of the water such question as these have been asked:

"Is roller milling a success?"

"Will it do on winter wheat?"

"Will it work on soft wheat?"

"Will it do good work on wet wheat?"

"Do not you think it has seen its best days?"

These questions are probably suggested to thoughtful men, as well as those who desire an excuse for delaying to make changes, and also to those who think a dollar in their hands is worth ten in someone else's, on account of the failures that occur now and then amongst millers having the roller system. I would ask, was there ever a time in stone milling when there were not occasional failures amongst millers? In the United States it is found that speculation is more often the cause of failure amongst millers than anything else. Undoubtedly it is expensive to build a roller mill, and every locality does not offer the trade to warrant the outlay being incurred, and it is not every miller that has the necessary capital to spare to buy a good roller plant, and a poor roller plant is dear at any price. Sometimes, too, it is found in the United States that roller mills built in consequence of the glowing accounts given by the salesmen of mill furnishers, of the great profits immediately to be realised, do not turn out as was expected; for even these gentlemen have been known to make mistakes, I am sorry to say.

One other fact is, that you can buy a roller plant and yet not get a roller mill.

You may have all the rolls, purifiers, bolting reels, centrifugals and wheat cleaning machinery, and yet be a long way from a profit. A complete system of handling the separations may still be absent, for no mere "rule of thumb" will do in planning for high milling separations.

PROGRAMME. The programme, therefore, of the separations is a thing which wants to be studied before even a brick is laid, if you are building a new mill, and when you have got that to satisfy you, and see exactly what machines will be required to carry them out thoroughly, you can then begin to design your building to contain these machines to the best advantage.

But even a well-programmed mill, with the best of machinery, requires "brains" to run it; and the operative miller must be a man with all his wits about him, who takes a genuine interest in his work, and seeks to make every machine run as the manufacturer intended it.

CORRUGATIONS. In the selection of machinery for a roller plant the first question to be decided probably is, What corrugation shall I employ? In the states there are two classes of corrugation claiming the attention of the public: the sharp corrugation, which first gained its reputation on the harder spring wheats, and the round, or Stevens, corrugation, which was first introduced on softer wheats, but has since been adopted also by many hard wheat millers; and there are various corrugations which are more or less modifications of these. Some of these are so constructed that if you run the rolls in one direction you have a sharp corrugation, and if in the other you have more nearly the action of a round corrugation.

ROLL ADJUSTMENTS. The next point to be attended to is the adjustment of the rolls —a point which in many cases has not received the attention it deserves for in not a few mills the whole strain is thrown on some trumpery little bracket utterly unfit to receive it, whilst a massive iron framework is introduced in other parts where there is no strain at all to contend with. Those who have carefully examined the action of various makes of roller mills will bear me out when I say that very few of them are so constructed that they keep their adjustments, as to alignment, when the wheat is let on, however nicely they may have been adjusted whilst they were empty.

SCALPERS. As to scalpers, experience has led some in the States to believe that in no case can ordinary centrifugals be advantageously employed for scalping, as the beaters break up the scalper portions of the chop.

SEPARATIONS. With reference to separations, it is well established that certain of these can be best accomplished on ordinary reels, whilst in many separations the centrifugal is a very great gain, and is practically indispensable to produce best results.

CENTRIFUGALS. With regard to this, however, the main difficulty is that many makes of centrifugals in America do not give an even dress to the flour on both sides of the reel. Millers will acknowledge that this is a very important point, and they can test for themselves whether the machines they are using give this result or not. Experiments with centrifugals have shown that the best work is done where the material travels in a direct line from the face of the beater to the surface of the silk, thereby equalizing the quantity and quality of the dress round the whole periphery of the reel; the more perfectly the air is excluded from the reel the more perfectly this is attained. The introduction of air into a reel makes the beaters act as fan blades, and drives the specks through as well as the flour. Another difficulty to be contended with is the tendency to accumulation of the material in the bottom of the reel, thus decreasing its capacity and increasing the wear of the cloth.

DOUBLE WORM CONVEYORS. The importance of double worm conveyors to give an easy control of the cut-off is universally acknowledged in the States, whilst in many European mills the importance of these adjuncts has yet to be appreciated. There may be a few reels in a mill in which you can do with a single conveyor; in the majority of reels, however, a double conveyor is absolutely indispensable to good results.

In the use of centrifugals, builders generally have found the advantage of having the conveyors side by side, with a perfect adjustable cut-off, to avoid leakage between them, and enable the operator to make an absolute separation wherever the slides are set, and thus prevent the uncertainty of a perfect division of products so often found in double worms one above the other. The admission of air into centrifugals greatly increases this difficulty.

The large amount of bolting done in the short length of a centrifugal reel makes this a matter of more importance than would at first sight appear, as according to the proportion that this certain or uncertain cut-off bears to the whole length of the reel, so is its money value increased or diminished. Thus if the uncertain cut-off extends 12 inches on a reel six feet long, one-sixth of the whole capacity is practically useless.

PURIFIERS. Of purifiers, as a representative of the Geo. T. Smith Middlings Purifier Company, I would desire to say but little, but one essential point to obtain a perfect purification, is that a sufficient quantity of material should be fed to the machine to thoroughly and evenly stock it at all times, and under all conditions of grain or atmosphere. This may require returns from the machine itself to itself, but it may be generally made to come from other machines. Another feature that should be carefully observed to avoid waste, is that middlings should not be handled after dusting before passing to the purifier, especially by worm conveyors. This is one reason why a programme should be made before the mill is built, so as to avoid the use of worms in conveying the middlings. It may be well also to note that a good deal of difficulty is often experienced in mills from the fifth break middlings, in a six-break mill being run in with the other middlings, whereas from their different character they require separate treatment.

REDUCTION OF MIDDLINGS. The reduction of middlings can be accomplished either by stones or rolls. Some millers find it hard to understand how anyone who has tried rolls for his middlings can be contented to use millstones; and the persistency with which many whom they consider good millers adhere to millstones for middlings reduction, after having experimented with every kind of rolls, gives rise to a good deal of wonder, as every one agrees that middlings reduced on rolls produce a flour of much better color, than any millstone could. This is true as to color, especially if the purification is imperfect, as the use of millstones on impure middlings is certain destruction to the flour. May not the explanation be that those who use millstones regard color as only *one* factor in the question? Anyone who cares to make the experiment will, I think, find that middlings perfectly purified, reduced on millstones will give a sweeter flour, and one which retains the moisture longer when baked, although it has a yellower tinge, than the flour from the same product reduced on rolls. Is not the cause of this that, after having obtained the most perfect purification possible, there always remains among the middlings some proportion of germ of the same size as the middlings? When reduced on millstones this germ is also reduced and incorporated with the flour, giving it sweetness and a yellowish tinge, whereas, when reduced on rolls, the germ is flattened out and eliminated in the dressing process. When the flour is intended for family use, that produced in this way is perferred, on account of, these qualities, as the bread when baked shows as good a *color* as the roller flour, and in addition has this sweetness and retains its moisture. Scratch rolls produce in some degree the same effect as millstones, but the reason why so many millers prefer millstones is because of their large capacity, and the consequent saving of space in the mill, and as many mills have millstones already in them. Where color is the one thing aimed at, rolls will always have the preference. I do not desire to be misunderstood; I am not an advocate of stones against rolls. I have only sought to explain why I think the one is preferred in some cases to the other. The experiment I have suggested will enable every miller to

ascertain for himself whether I am right in my conclusions, and he can then make his reductions in the way that will best suit his trade.

LOW GRADE. The treatment of low grade is perhaps the most difficult problem which the miller has to face. Too many millers are content to produce the low grade and then to begin to think how to treat it. Probably the better plan is to begin to prepare for it at the commencement of the process, and to finish in the early stages all the dirty portions possible, rather than to wait till you have a variety of products to treat together as low grade.

DUST COLLECTION. The subject of dust collection has received great attention in the States during the past few years, and most of our better grade of mills now have automatic dust collectors for the purifiers; both from the points of view of safety and economy this has been a great step in advance.

PACKERS. In American mills the flour is packed by automatic machines into either bags or barrels ready for delivery, and as in all cases these mills are fitted up to be automatic, the number of men required to work them is reduced to a minimum.

One essential in the favorable working of the mill, when the machinery is of the best, and the programme as near perfection as possible, and the operative millers thoroughly up to their work, is that provision should be made in the elevators and spouting to avoid choking, and thereby avoid the necessity of shutting down a mill, as this is wasteful, and it is difficult to bring it readily back to perfect work.

It is no uncommon thing to meet with millers who say that when they go into a mill they can judge of the work it is making by examining some particular product. In America it used to be the bran-heap, and I understand that in this country it frequently is so to-day. It does not need much reflection to show that you may so overdo the cleaning of your bran as to largely reduce the value of your flour. The same holds true of the middlings. In my experience I have found that the working of a mill depends on so many parts of the process, each contingent on the other, that where the results of any one part of the process are not satisfactory, the shortest way to find out what is at fault is to begin with the motive power, see that it is up to speed, look at the wheat cleaning, the breaks, the separations, purifications and reductions, before you can deal effectually with the point which seems to be at fault. When flour is found to be specky, some millers at once attribute it to the numbers of the silk being wrong, and want a change made there; but it quite as often arises from the way in which some portion of the reduction is made, and can be cured by adjusting this; or, it may arise from imperfect wheat-cleaning, or various other causes.

In conclusion, to make roller milling a success the following are the requirements:—

1st.—Location.

2d.—Good wheat cleaning.

3rd.—Perfect reductions on machinery capable of fine adjustment.

4th.—A perfect arrangement of separations.

5th.—A perfect purification.

6th.—Such a construction as enables the operator to have a perfect control of his work.

Last, but not least; an operator who knows what he is about.

In the proportion to which the mill attains to these requirements, so it will be a financial success.

ITEMS OF INTEREST.

A SCIENTIST lecturing in Philadelphia on coal said, it takes a prodigious amount of vegetable matter to form a layer of coal; that it is estimated that the present growth of the world would make a layer only one-eighth of an inch thick, and that it would take a million years to form a coal bed 100 feet thick. The United States has an area of 440,000 square miles of coal fields; 100,000,000 tons of coal were mined in this country last year—enough to run a ring around the earth at the equator 5½ feet wide and 5½ feet thick, and there is enough coal in the United States to supply the whole world for a period of 1,500 to 2,000 years. When coal is burned for illuminating purposes at least 90 per cent. is wasted. In the heating of houses 67 per cent. is lost, and in manufacturing 60 per cent. of the energy is made use of. The question of exhaustion of the coal supply is not important. The anthracite coal in Pennsylvania would last 250 years, while the bituminous coal in the same district would supply the world 57 years and the United States 350.

A CORRESPONDENT of the *New World*, describing how every foot of soil is utilized in France, mentions the method pursued to supply the country with fuel by the growth of Lombardy poplar. The correspondent says: "In going from Paris to Geneva, via Dijon, we pass through the best portion of France. For hundreds of miles every inch of land is cultivated. The abrupt hillsides are in grape vines, and the flat land is in grain. Here we see the phenomenon of double crops—a crop of grain and vegetables growing under a crop of trees, The Normandy poplar-trees are from an inch to three feet in diameter. They are planted thickly, but give no shade. They are trimmed within six feet of the top. The boughs, which are cut off every year, make faggots enough to warm France. We often see men and women cradling wheat or hoeing beets in the midst of a wood giving no shade. When you look across the country the tall, boughless trunks look like black streaks painted against the sky. They make the view very picturesque. Wood is sold in France for a sixth of a penny a pound. It is worth as much as corn in Kansas by the pound. So when the Kansas man burns corn he is no more extravagant than the Frenchman who burns faggots."

TURTLE oil is suggested as a substitute for cod-liver oil. The oil is of a yellowish color, and at the ordinary temperatures in this country forms a thick, finely granular fluid, in consistence something like olive oil partly congealed. A gentle heat renders this oil clear and transparent. It possesses little odor or taste and does not quickly turn rancid. Taken in warm milk it is not so objectionable as cod-liver oil. *The Pharmaceutical Journal* is informed that turtle oil has been used with the most beneficial results in all cases where cod-liver oil was indicated, in persons to whom the nutritive process was defective, in children of strumous disposition, in the sequelæ of scarlet fever, in measles and other acute specific diseases. It has proved of the greatest service in scrofulous affections of the eyes, nose and other parts, and has been most beneficial in chronic bronchitis, gout, rheumatism and syphilitic affections; but more particularly useful in phthisis pulmonalis in all its stages. Turtle oil is borne well by the stomach, causing neither nausea, eructations, dyspepsia or diarrhœa.

THE BARLEYS OF DIFFERENT COUNTRIES.—An interesting investigation has been made by L. Marx, to determine what country produces barley richest in proteid (nitrogenous matter), he having for this purpose analyzed more than 400 samples from different countries and from the harvests of six years. The mean percentage of proteid matter, as given by him, are given as follows: Russia, 12·76; Baden, 12·38; Sweden, 11·97; Danubian Provinces, 11·68; Brunswick, 11·49; North Germany, 11·21; Bavaria, 10·75; Alsace 10·70; Hungary, 10·72; France 10·55; Hesse, 10·44; Wurtemburg, 10·38; Denmark, 9·91; England, 9·69; Austria, 9·61. Some of the Russian Barley gave as high as 16 per cent. of proteid matter; the maximum of Baden was 15 per cent. the minimum 10·60 per cent. Bohemia and England seldom exceeded 10 per cent. Of 68 samples of Bavarian barley examined, six gave over 12 per cent., the remainder under 10 per cent. Of the French barleys, those of Auvergne gave the lowest yields, those of Champagne and Burgundy being up to the average of Bavaria. The percentage of nitrogenous ingredients in Hungarian barley varied more than in any other kind, the numbers ranging between 9 and 12. Thick-skinned grain is usually poorer in nitrogen than thin-skinned, though this is not invariably the case. The quantity of phosphates in barley, though very variable, bears no relation to the percentage of nitrogenous ingredients. Marx considers that chemical analysis is the only means of judging of grain, if the brewer requires regular fermentation and sound yeast.

A NOVEL use, says an Eastern paper, is being made of oyster shells by a Hartford, Conn., man, who is coining money in his new enterprise. The shells are placed in a patened mill and ground. It has a capacity of five tons a day. By an ingenious arrangement sieves are kept at work assorting the dust into fine, coarse, and insufficiently treated. The fine and the coarse are taken by elevator belts to the floor below, where, through canvas chutes, regulated by wooden slides, barrels are rapidly filled. The product is sold for chicken feed. Twenty tons and more are sent yearly to San Francisco, orders are filled from Western States, and Bermuda and the Sandwich Islands have been supplied.

THE oldest water works in the United States are supposed to be those of Bethlehem, Pa., which were built in 1754, by Hans Christopher Christiansen, a millwright, a native of Denmark. The water was taken from a spring issuing from magnesia limestone near the banks of the Menogassi creek, as it was then called. The water was conducted 350 feet through an under conduit into a cistern, whence it was pumped by a lignum vitæ pump of 5-inch bore through bored hemlock logs to a hight of seventy feet, into a wooden tank in the village square.

MODERN STRIKES.

The workingman sees things from a point of view not quite what it was twenty or even ten years ago Although arbitration has failed to do good, the sliding scale has been more successful, and its greatest success lies in the circumstance that it has taught the workingman much that he did not know before. So long as employers kept their books secret, so long did the workers believe any cock-and-bull story told them concerning profits, and the injustice with which capital treated labor. The regular publication of the selling price of iron has opened the eyes of iron makers to facts, the existence of which they did not previously suspect. The result of this, and the spread of information in some other directions, has been that strikes are now seldom, ostensibly at least, directed against capital in the old and bitter fashion. In other words, when 40,000 colliers turn out in the north of England they strike, not against the colliery proprietors, but against the consumer. They ask for more wages, or that wages shall not be reduced, according to circumstances. The masters reply that they cannot afford to comply with the men's request, because prices are too low. The men answer that this is quite possible, but that the masters ought to raise the prices, and to compel them to do this they strike. The workingman is shrewd enough to see that when coal is sold for 7s. a ton the masters cannot pay as much wages as if coal was 10s. It is no longer strikes against capital with which we have to do, but strikes against the consumer. The colliers insist that the iron maker shall pay more for his coal. The iron maker insists that the shipbuilder and the railway company shall pay more for plates and rails. This would lead to larger expenditure on ships and railways, dearer freights and higher fares. For these things the strikers care nothing at all. But the old parrot cry that capital is getting an undue share of profit is dying out. It is not dead, for such theories die hard; but it is moribund. The question is shall we be better off when it is gone? Is there anything encouraging about its decease? The answer must, we think, be in the affirmative. It is a hopeful sign that men admit that low prices are the cause of low wages. It is a great thing that even the leaders of trades unions concede that masters really do tell the truth when they say that they cannot work at a profit and comply with the demands of the men at the same time. It shows that the hard outer crust of self-deception has at last been penetrated, and it leads to the conclusion that, with a little more teaching, the workingman might learn that his master—that is to say, the capitalist—is as powerless as the man to determine what the selling price of any thing sold shall be.—*London Engineer.*

RAILROAD "SPOOKS."

Mechanics have to deal with such solid matters of fact, and so little with mere speculation, that it seems strange to find any of them given to superstition. Yet we occasionally hear of instances in which mechanics have exhibited their belief in unlucky omens, and even in the appearance of spirits, which are not of the ardent kind. We have known of the refusal of a whole body of workmen to start a new shop on Friday, and the horse-shoe has been nailed over many a shop-door, "just for luck," by those who would resent the imputation of being superstitious. A story is now being circulated about the queer antics of a ghostly engineer upon the Pennsylvania Railroad. An engineer who had been in the habit of slowing up and blowing the whistle when passing his own house was killed in a collision. His successor could not prevent the engine from going through the same performance every night when passing the house. Some unseen power helped him at the throttle lever and started the whistle blowing. One night he and the fireman both grasped the lever, and held on to it while passing the house. Suddenly the lever was wrenched out of their hands, and pulled out the utmost limit. Away went the train, the engine shrieking, and, before they could get it stopped, it ran upon a switch in Altoona, and wrecked two or three cars that were standing there. Then the engineer, not being able to satisfy his superiors on the road that the ghost alone was responsible for the damage, left, and took a position on another road. This is the essential part of the story, but we will not vouch for its accuracy, leastwise not as far as the ghost is concerned.—*American Machinist.*

NONSENSE.

My hair is eighteen years older than my whiskers," said a lawyer, "and I cannot understand why my whiskers should turn gray first." "Because you have worked so much more with your jaws than your brains."

"The matter is that the rotten thing is full of moths, you miserable —" "Mots! do you say?" indignantly interrupted the dealer. "Vat do you egspect to vind in a $7 overgoat? Humming birds?"

No tears left. They were holding a funeral in a little town in Missouri, and two or three Eastern drummers went over to the church out of curiosity, and afterwards followed the body to the grave. It was noticed that no one—not even the near relatives of the deceased—even shed a tear, and that evening one of the drummers asked an explanation of the undertaker.

"Oh, that's easy enough explained," he replied. "The shrinkage on Missouri Pacific has cleaned this county out of $200,000 within the last two years, and we haven't any tears left to shed for nobody nor nothing."—*Wall Street News.*

The Supreme Court of Pennsylvania has decided that unless persons look both ways in crossing a railroad track they can not obtain damages for injuries they may receive. This gives cross-eyed people a decided advantage over those who can see straight, and in some measure mitigates the affliction of being cross-eyed. Life is full of compensations.—*Boston Courier.*

The cogitations of an inquisitive boy. I notice however much a girl struggles when you try to get a kiss, if she hears her pa's step approaching she always lets up on the struggle long enough to nab the kiss before the old man appears.

I notice no matter how homely a woman may think her husband is, she always takes it as a gospel truth that her new baby is the prettiest in the world, and "looks just like its father."

He wanted his pa to know. How quietly everything was getting on in the Tuffboy family! The cat was napping on the rug. Tuffboy, Sr.. was napping behind his news a[illegible]er, and the maternal head was dozing the spectacles off her nose. Just then Jimmy came rushing in like a whirlwind on a summer afternoon.

"I say, dad, I've got a dandy curve."

"A—a—what, sir?" started his father.

"A dandy curve. The fellers say no kid can knock me out of the box."

"Knock you out of the box? What does the boy mean?" queried his mother.

"I don't know; it's all Greek to me."

"Oh, dad! What do you sit over on the ball ground for all this week?" said Jimmy.

There was no more napping in that family for a while.

A sudden change in values. "Where are you going with the puppies, my little man?" asked a gentleman of a small boy whom he met with three puppies in a basket.

"Goin' to drown them," was the reply.

"I want a pup for my little boy to play with. What do you say to letting me take one of them?"

"I'll sell you one," spoke up the kid, with American enterprise. "I'll sell you this yeller one for fifty cents, the black one for seventy-five cents, and the spotted one is worth one dollar of any man's money."

"I think my little boy would like the spotted one best, but you ask too much for it. You had intended drowning all of them, but I'll give you twenty-five cents and save you the trouble of drowning the spotted one."

"Twenty-five cents for that spotted purp!" exclaimed the boy. "I can't stand it; taxes is high; rent is high. It costs good money to go into the roller rink. Oh, no; I can't take less than $1."

"But you intend to drown——"

"Take the black one at seventy-five cents."

"My little boy wouldn't like the black one."

"Take the yaller one at half a dollar. He's dirt cheap."

"My little boy wouldn't like his color."

"Well, then, you'd better tell your little boy to play with his toes," and he continued toward the river. "No party can deadbeat his way on me these hard times."—*Baltimore Times.*

"Are you interested in the subject of steamboat navigation, sir?" said a wheezy old man with a wandering eye, as he took a seat and made himself at home in the private office of a State street business house the other day

"No, sir, I am not," said the head of the firm, rather curtly.

"If a man was to tell you that he could build a ship that would cross the Atlantic in twenty-four hours, what would you say?" inquired the old man, leaning forward to catch the answer.

"I'd say he was a confounded fool," responded the merchant with emphatic promptness.

"Well, sir, I can build that ship."

"You can?"

"Yes, sir, I can."

"Then, sir, permit me to strengthen my previous remark by saying that I consider you a blamed sight bigger fool than my first observation indicated."

"Why so, sir?"

"Because you don't build it. Good day, sir."

The old man picked up his hat and slid out.—*Chicago Ledger.*

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Milwaukee, Wis., August 1, 1885,

To Those Interested in the Flouring Trade:

THE UNITED STATES MILLER is now in its tenth year, and is a thoroughly established and much valued trade paper. It has a large regular list of domestic and foreign subscribers. It is sent monthly to United States Consuls in foreign countries, to be filed in their offices for inspection by visitors. It is on file with the Secretaries of American and European Boards of Trade for inspection of members. Aside from the above, thousands of SAMPLE COPIES are sent out every month to flour mill owners who are not subscribers, for the purpose of inducing them to become regular subscribers, and for the benefit of those advertising in our columns. Every copy is mailed in a separate wrapper. Our editions have not been at any time since January, 1882, less than 5,000 COPIES each, and are frequently in excess of that (see affidavit below). We honestly believe that the advertising columns of the UNITED STATES MILLER will bring you greater returns in proportion to the amount of money invested than any other milling paper published. Advertisers that have tried our paper for even a few months have invariably expressed themselves well satisfied with the results. Our advertising rates are reasonable. Send for estimates, stating space needed. The subscription price of the paper with premium is One Dollar per year. Sample copy sent free when requested. We respectfully invite you to favor us with your patronage. We shall be pleased to receive copies of your catalogues, and also trades items for publication free of charge. Trusting that we may soon be favored with your orders, we are,

Yours truly,
UNITED STATES MILLER.
E. HARRISON CAWKER, *Publisher.*

THREE milling journals are now published in France.

IT is estimated that £97,500,000 are invested in flour-mill property in Great Britain.

THE Paris Miller's Exposition made the highest award for dust collectors to the Milwaukee Dust Collector Co.

A TEN-WHEEL locomotive weighing 165,000 pounds is on exhibition at the International Exposition in Antwerp, Belgium.

CABLES from Paris announce that Highest Awards have been made by the French Milling Exposition to the Geo. T. Smith Middlings Purifier and Smith Centrifugal Reel.

PERSONAL.

SIMEON HOWES, Esq., of Howes & Ewell, Silver Creek, N.Y., and Henry Hamper, salesman for the same company, called on us early in July.

GEORGE E. GAULT, Esq., formerly connected with the Simpson & Gault Manufacturing Co., Cincinnati, Ohio, has gone into the mill-furnishing business on his own account.

MR. CUMMER, of the Cummer Engine Co., Cleveland, Ohio, has resigned his position with that company, and will embark in a new enterprise in New York.

MINNNEAPOLIS NOTES.

Cooperage has become a very important business in Minneapolis, employing a great many men, and having a capacity for turning out about 16,000 barrels per day. The following is a list of the cooperage establishments with producing capacity and number of persons employed:

	Daily barrel capacity.	*No. hands employed.*
Hall & Dunn	4,000	168
Phœnix Barrel Co.	560	50
Stephens	300	25
Kennedy's	125	10
Doud & Son	1,000	40
Minneapolis Co-operative	2,750	100
Minnesota Barrel Co.	400	25
Hennepin Barrel Co.	2,250	90
North Star Barrel Co.	3,500	140
Northwestern Barrel Co.	1,250	50

The material used comes principally from Michigan and Wisconsin, the staves being of oak or elm, and the heads of basswood.

A very important business has grown up during the past few years in Minneapolis, which is the supplying of eastern and southern millers with hard spring wheat from the Northwest. As near as can be ascertained this business has increased from about 70,000 bushels in 1876 to 4,500,000 in 1884. Most of this business has been transacted satisfactorily to all parties concerned, but instances occasionally occur where unscrupulous dealers have shipped low grade wheat to fill high grade orders.

The following figures, which may interest the readers of the U. S. MILLER, are the official statements of the aggregate wheat production in the United States, and the total exports of wheat and flour for the twelve ending with the June following, the flour being reduced to its equivalent in wheat:

Year.	*Crop, bu.*	*Exports, bu.*
1879	448,756,630	180,327,536
1880	498,549,868	186,341,553
1881	380,280,090	121,914,655
1882	505,185,470	147,838,455
1883	421,086,160	111,534,182

The average exports of the five years were 33.2 per cent. of the production. The exports of the crop year ending with this month are not yet completed.

A BETTER OUTLOOK FOR MILLERS.

C. H. Seybt, of Highland, Ill., a prominent miller and representative of a syndicate of mills in this section, has just returned from his annual tour through England, Ireland, and Scotland in the interests of milling, and was a visitor on 'Change, in Milwaukee, July 18. Mr. Seybt is president of the Millers' National Insurance Company, chairman of the executive committee of the National Millers' Association, and chairman of the Illinois Millers' Association. Mr. Sebyt said that he had visited all the principal flouring markets of Great Britain and the continent, and stated as a result of his observations that the stock of flour in Europe is not as large as has been alleged. He said speculators are sick of speculating, because they have lost money during the past year. Flour ought to go up on the present outlook, and will go up before another wheat crop is harvested. The men over there know it, but they are afraid to buy before autumn on its merits. Leaving all political questions out of the field, one reason why European traders in flour do not buy is that they do not believe that the wheat crop in America is so extremely bad as they try to make out. They think Americans are speculative in figures and apt to run to extremes, saying that a crop is very good or very bad. Therefore they distrust the bad figures. As a matter of fact, however, there is an almost incredible failure of the crops in the winter wheat states—such a failure as I never expected to witness. When the crop is all harvested, and the actual amount of wheat thrashed becomes known, the European market will learn that the crop has not been underestimated. Flour will go up before long. I don't say that prices will be extravagant, because money is secure all over the world and extravagance impossible, but prices for flour will stiffen up considerably."

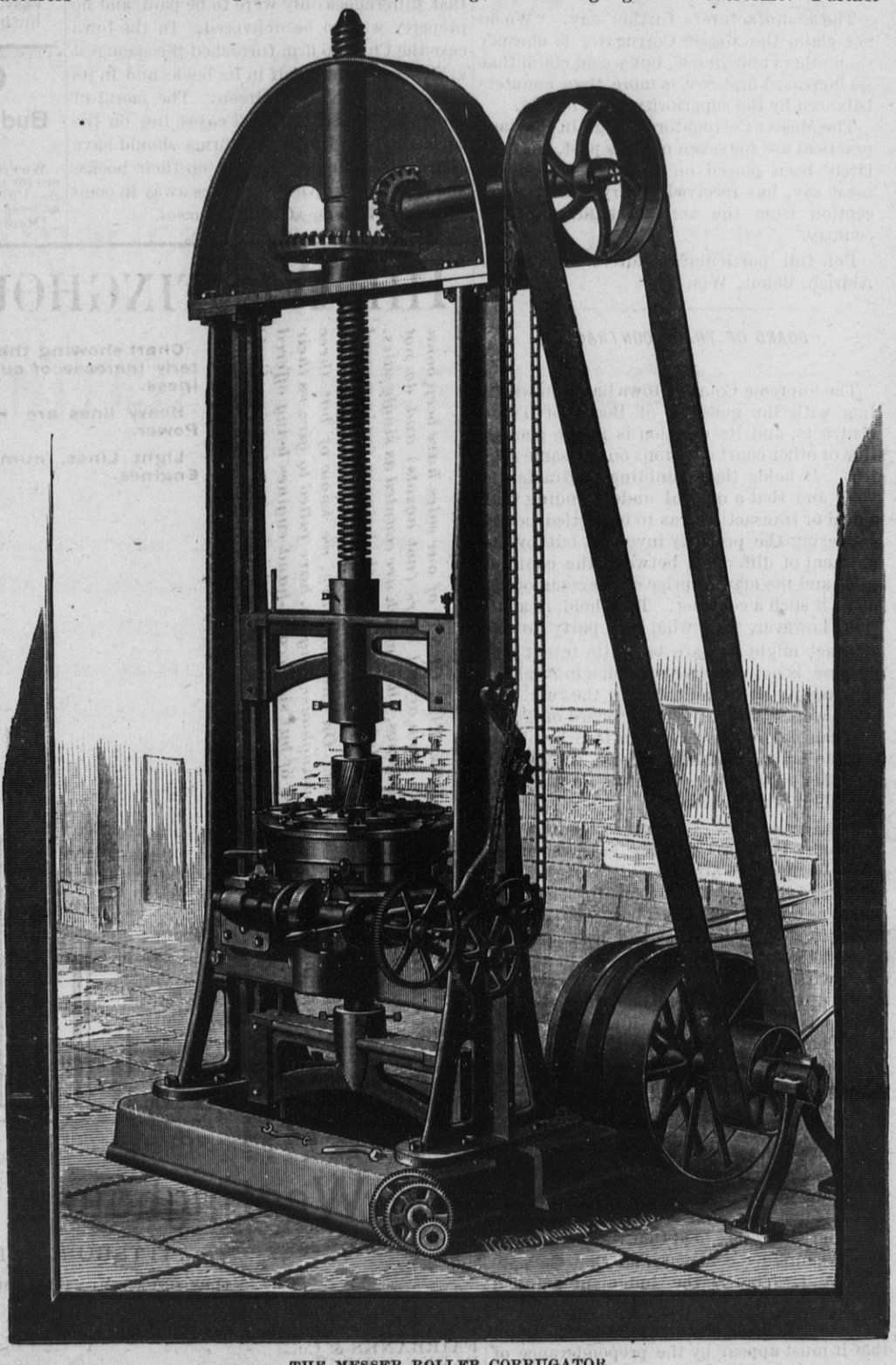
NEW ELEVATORS IN THE NORTHWEST.

The elevator mania has seized the wheat men. During the summer the Northwestern Elevator Co. will re-build the elevator burned at Crookston, Minn., and will put up six more houses along the Manitoba road, all of 30,000 bushels' capacity. Cargill & Bagley are about to open an elevator in Minneapolis, and in addition to the elevator system now controlled by them will erect ten, and Bassett & Huntington eight new 30,000-bushel houses along the Hastings & Dakota road. H. W. Pratt & Co. will also build eight or ten new elevators on the Hastings & Dakota road, including one each at Webster, Bristol, Groton, Bath, Aberdeen, Warner, and Malette, all of 30,000 bushel's capacity. Work on the Minneapolis & Northwestern elevator at Ada will commence this week, the lumber being nearly all on the ground. Besides all these there are two new elevators now being built at Duluth, with a capacity of nearly 3,000,000 bushels; the additional elevator to be built by the Canadian Pacific at Fort William, capacity 1,000,000 bushels; and the fifteen to eighteen elevators to be put up by A. J. Sawyer on the main line of the Northern Pacific and the Jamestown and Northern. If elevators were paying property and the late legislature had not passed a law placing great hardships upon their management, some capatalists might be induced to build a few in Minnsota or Dakota this season.—*St. Cloud Journal-Press.*

THE MESSER ROLLER CORRUGATOR.

The handsome illustration on this page represents the Messer Corrugator for corrugating mill rolls, the very latest improved machine tool of this class.

A brief description by the manufacturers will enable the reader to understand its working. "The roller to be cut is held firmly by both ends and travels straight up and down through an opening in the tool head which rotation simultaneously determines the degree of spiral. This rotation is accomplished by means of a worm operating on a large worm wheel, which forms the outside of the base of the tool-head. The degree of rotation of worm shaft being governed by a set of change gears, which can be combined similar to those used in screw cutting on lathe. The broad base of tool-head is graduated as an index plate, with sufficient number of circles, properly divided, to enable any practicable distributions of corrugations per inch of circumference, and thus making it certain that at the completion of roll there will be no extra wide or narrow corrugations. The tool head can be compared in a general way with a large Universal Combination Chuck with eight jaws; each of these jaws carries a tool. One motion of a lever moves all the tools forward to the work on the down stroke of the roll, while a reverse motion of same draws them back on the up stroke, to prevent wear or breaking. Besides this universal motion, each tool can be given an independent adjustment, if desirable. The tools used are of ordinary tool steel and as easily made as a chaser for cutting threads in a lathe. The setting of tools on the tool-head requires no special skill or experience; the arrangement being such that once put in the tool post it is bound to find its proper place. After making the starting cut on a roll, the tools need no further care until the roll is finished, as each tool is required to cut only one eighth of the face or circumference of the roll, the wear and consequent grinding of tools so common to chilled iron work are dispensed with and a smooth uniformly cut roll is the result. It is well known that on machines only using one tool it becomes necessary to grind and reset the same several times before a roll is finished. Grinding takes time, and proper resetting is a delicate operation, and the user will therefore appreciate the superiority of this method in this respect.



THE MESSER ROLLER CORRUGATOR.

On the machine is used cut gear to determine the spiral, and a patent index to set the tools ahead for each cut, thus a definite and fixed path is determined for each groove. When rolls are sent for the second re-cutting, the only grinding necessary is just enough to "true" the surface (on other machines the grooves must be entirely removed), and by using the same gears and index the old grooves can be retraced to the proper depth, will save time, and in the coarser corrugations, one-sixteenth to one-eighth of an inch of chill on the roll. This is an important point to users of geared roller mills, enabling the rolls to be re-cut many times, using the same driving gears, whose pitch circles have not been thrown enough to destroy the smooth working; while gears running on rolls recut by planers will work hard and noisy. It is also no little convenience to users of belt drive roller mills, not to be required to materially change adjustments.

On machines where roll is held by one end only, and operated upon by a single tool, there is naturally a strong tendency to spring away from the cut. By this method, the roller being held at both ends, the spring or torsion of the gudgeons is overcome. Furthermore, there being eight tools spaced diametrically opposite one another, each serves as a support to the other, thus relieving each from an unnatural and injurious strain.

Besides being used as a corrugator, this machine is very efficient as a means for scraping off old rolls before grinding, which

makes a marked saving in emery wheels.

The most prominent merit of this corrugator is the quantity of work which can be accomplished with it. Six rolls can be cut per day by a good live man, on rolls not coarser than 16 per inch, and the workmanship be correct."

The manufacturers further say: "We do not claim the Messer Corrugator is cheaper than others now in use, but we do claim that its increased first cost is more than counterbalanced by the superiority of its merits.

The Messer Corrugator, though in constant practical use for seven months past, has only lately been placed on the market, and we must say, has received a very flattering reception from the very best firms in the country."

For full particulars address: Messer & Aldrich, Beloit, Wis.

BOARD OF TRADE CONTRACTS.

The Supreme Court of Iowa has been wrestling with the question of Board of Trade contracts, and its decision is in the general line of other court decisions on the same subject. It holds that gambling contracts are void, and that a mutual understanding that a deal or transaction was to be settled, not by delivering the property involved, but by the payment of difference between the contract price and the market price of the commodity, made it such a contract. They hold, in addition, however, that what one party to the contract might declare to be its intent and purpose, is not evidence of such a mutual understanding as is indicated in the rule. In other words, one party to a Board of Trade deal can not evade its obligations by pleading the baby act, unless he can prove that the other party understood it as he did to be a gambling transaction.

In this case, J. N. Green, President of the Oskaloosa Packing Company, gave the notes of the company to Stiles, Goldy & McMahon, a Chicago Board of Trade firm, to reimburse them for margins advanced on 600,000 pounds of short ribs, which they had purchased on the Oskaloosa Company's account, in accordance with his order. The notes were discounted, or at least were held by the First National Bank of Lyons, Iowa — and, not being paid, suit was brought by the bank. In the lower court, where this suit was tried as to the facts, the jury found in their verdict that neither Green nor the Chicago firm, as a party to the short ribs deal, contemplated that there was to be an actual delivery of the property. Considerable correspondence between the parties appeared in the testimony, and this fact was made very clear on its face. The court therefore held that the transaction was a gambling contract, and that the note was void. This is the judgment affirmed by the Supreme Court in its decision.

In their decision, however, the Court affirm that it must appear by the preponderance of evidence that both parties understood it to be a gambling contract; the understanding of one party does not so taint a deal with the gambling element as to render it fraudulent and void. They clinch this doctrine by holding that a party to the contract is incompetent to testify as to his intentions in entering upon it.

This would appear to be sufficient grounds for the protection of ordinary Board of Trade transactions. In Wisconsin a law has been enacted affirmatively declaring that in order to constitute a gambling contract it must appear in proof that both parties considered that differences only were to be paid, and no property was to be delivered. In the Iowa case the Chicago firm furnished the strongest evidence against itself in its books and in its correspondence with Green. The moral of this case, like that in most cases, lies on the surface. Board of Trade firms should have transactions appear straight on their books, and should not give themselves away in compromising letters.—*Chicago Journal.*

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Fill Out and Return Promptly!

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OFFICE OF

Cawker's American Flour Mill Directory

AND

THE UNITED STATES MILLER.

MILWAUKEE, WIS., August, 1885.

TO OWNERS OF FLOURING MILLS:

We desire to revise and correct our list of ***Flour Mill Owners****, and therefore beg that you will answer the questions below by* ***return mail.*** *This list is used for the purpose of reaching flour mill owners by mill furnishers, engine and water wheel builders, flour and grain brokers, city bakers, insurance companies, publishers of milling papers, and in short by manufacturers of and dealers in everything used in or about a flour mill. You will therefore perceive that it is of great value to* ***you*** *to be properly entered in our list. If you are not already a subscriber to the* ***United States Miller,*** *we trust you will order your name entered on our subscription list at once. We have sent you sample copies of the paper at various times, and we think that you will certainly admit that it is worth the small sum of a* ***dollar a year.*** *We want you for regular subscribers, but whether you do subscribe for the* ***United States Miller*** *or* ***not, DO NOT FAIL TO ANSWER OUR QUESTIONS*** *by return mail.*

What is the name of proprietor, or firm, and name, if any, of mill?

Name..... Post Office.....

County..... State.....

Do you use water or steam power?.....

How many barrels of wheat flour can your mill make in 24 hours if you run up to full capacity?.....

Do you use the Roller or Stone system, or both.....

Do you make a specialty of making rye flour, corn-meal, oat-meal, buckwheat, or hominy?.....

Please enclose your business card and oblige us with the names of all mill owners who receive their mail at your post-office, and give us any information that will tend to make our work perfect.

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1.50 London Miller	2.50	5.00 Turf, Field and Farm	5.50	1.00 Mechanical News	2.00
1.00 Millstone	1.50	1.00 Miller Journal	1.50	1.50 Milling World, (Weekly)	2.00
1.00 Modern Miller	1.50	1.00 St. Louis Globe Democrat	2.00	1.00 Miller's Review, (with flour trier)	1.75
4.00 Hints on Mill Building(book)	4.00	1.00 Boston Globe Democrat	2.00	3.00 New York Weekly	3.25
3.20 Scientific American	3.50	5.00 Bradstreet's	4.50	1.00 Post-Dispatch, (St. Louis)	2.00
1.50 American Agriculturalist	2.00	4.00 Frank Leslie's Chimney Corner	4.25	3.00 St. Nicholas	3.60
4.00 Harper's Magazine	4.20	3.00 Frank Leslie's Illustrated News Paper	4.25	1.00 Milwaukee Sentinel	2.00
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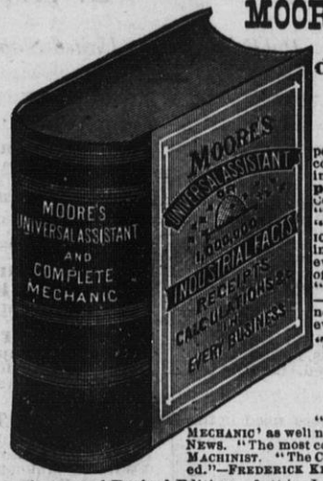

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AMERICAN WORKMEN THE BEST IN THE WORLD.—Those who have defended the privilege of importing (passage prepaid) foreign workmen under the belief that it confers a great boon upon manufacturers in obtaining cheap labor, will do well to read the following extract from the *New Haven News*, which relates a bit of experience in importing foreign workmen.

About four years ago, Col. Farry, President of the Bridgeport Cutlery Company, while on a tour through Europe visited many of the cutlery establishments in Germany, at Hamburg, and in England. The manufacture of razors being in a primitive state in this country, he decided that he could do no better than to bring over some of the workmen to the United States. The workmen in Sheffield, England, were, as a rule, members of the trades unions, and Col. Farry had considerable difficulty in engaging the men whom he wanted. A few months later he had the satisfaction of seeing forty of them with their families sail for this country, accompanied by the secretary of the trades union. In Germany and Hamburg he engaged sixty men, and at once shipped them and their families to this country. Separate rooms were fitted up for the newly arrived razor makers in the shops at Bridgeport, the Germans being in one part of the works and the English in the other. Col. Farry said: "I had a great deal of trouble with my men at first. I did not have nearly as much trouble with the Germans as with the English. The latter demanded a separate work-room apart from all the other workmen in the factory. If one of the men in my employ wanted to enter the room while they were at work they would throw down their tools and would not resume their labors until the visitor had closed the door behind him. I was the only man in the entire shop whom they would let into the room without stopping work. A peculiar feature about them was that they would not work after 12 o'clock noon Saturdays. Whatever money was left after buying the week's supply, the men would go on a spree with until the last cent was spent, which was usually about Tuesday morning. *American workmen are the best in the world.*"

THE FUTURE OF MILLING IN INDIA.—The following is an abstract from a recent report of the Austro-Hungarian Consul at Bombay: "The firm of Ganz & Co., of Budapest, have achieved a striking success with their roller mills. This firm sent two skilled engineers to Bombay with some of their machines; a native capitalist offered to set up these machines at his own cost, and to give them a trial. At the end of a few days the imported machinery had been sold, and on this large orders followed quickly. I had urged the advisability of importing machinery of this description, feeling convinced that a great market could thus be opened for an important branch of our home industries, without any fear of raising up a dangerous rival to the milling interests of Hungary. The cultivation of wheat in India is growing apace, and people here are fully alive to the urgency of ampler means for milling. Still flour ground from Indian wheat is not acceptable to European consumers, from its yellow color and peculiar aromatic flavor; only when mixed with European flour could it be placed on the European market. Indian flour will partly serve for native consumption, and the demand should certainly keep pace with the yearly increase in general prosperity, and will also, in all likelihood, enter into future competition with American flour in the far East.

WE have frequently referred to the unreliability of cast iron columns for supports to buildings in case of fire. Not long since at a fire in Berlin the cast iron columns let a building fall, and the authorities forbid the further use of them in building, but allowed wrought iron to be used. Then a Munich architect demonstrated by actual test that cast iron was more reliable than wrought iron. The fact is, that a column built of good brick is reliable as against fire, and is about the only material known that is so. A good oak column probably comes next — at any rate is greatly preferable to either cast or wrought iron. A pillar made of the white oak that grows in what is known as the "slash lands" of the West and South, lathed and plastered, is fire proof, and will last until brick that is kept inside of a building, where the sun's light and warmth never falls upon it, has crumbled into dust.

COLUMBIA College Professor—"As a student of practical mining, what spade do yon consider the very best?"

Student—"Why, the ace, of course."

(Suppressed sensation.)

IT is difficult to understand why a wife never asks her husband "if the doors are all locked" until after he is snugly covered up in bed.

INJUNCTION

AGAINST

The Geo. T. Smith Middlings Purifier Co. and Others.

CIRCUIT COURT, MILWAUKEE COUNTY.

ALVA H. KIRK, WILLIAM J. FENDER, SAMUEL L. BEAN, AND THE GEO. T. SMITH MIDDLINGS PURIFIER COMPANY, *Plaintiffs,*

vs.

MILWAUKEE DUST COLLECTOR MANUFACTURING COMPANY, *Defendant.*

* * * * * *

IT IS HEREBY ORDERED, that the Injunctional order made in this cause, dated the 6th day of June, 1885, be and the same is hereby continued in force in all respects until the trial and final disposition of the cause.

Dated June 25th, 1885.

By the Court,
CHARLES A. HAMILTON, Circuit Judge.

COTZHAUSEN, SYLVESTER, SCHEIBER & SLOAN,
Attorneys for the Milwaukee Dust Collector Mfg. Co.

FLANDERS & BOTTUM,
Attorneys for Licensors.

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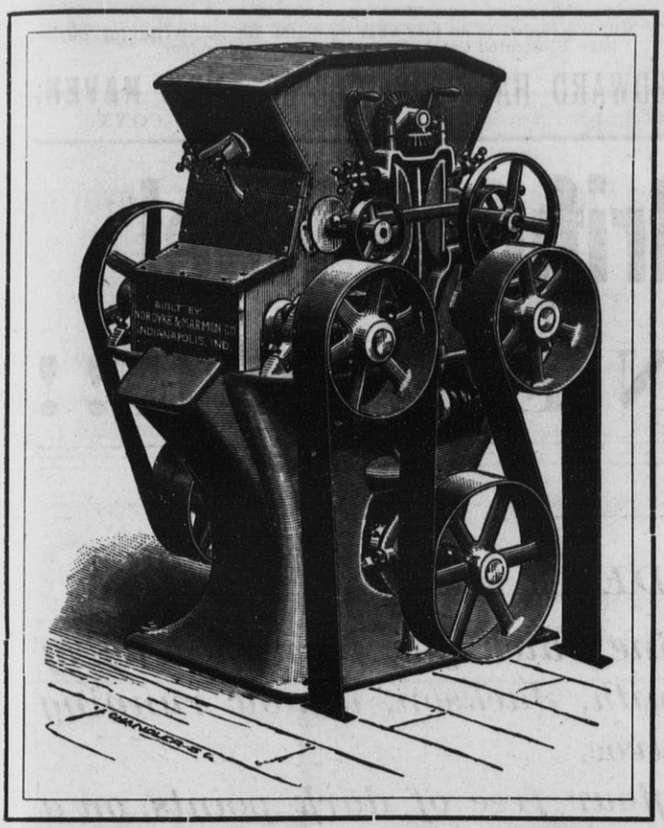

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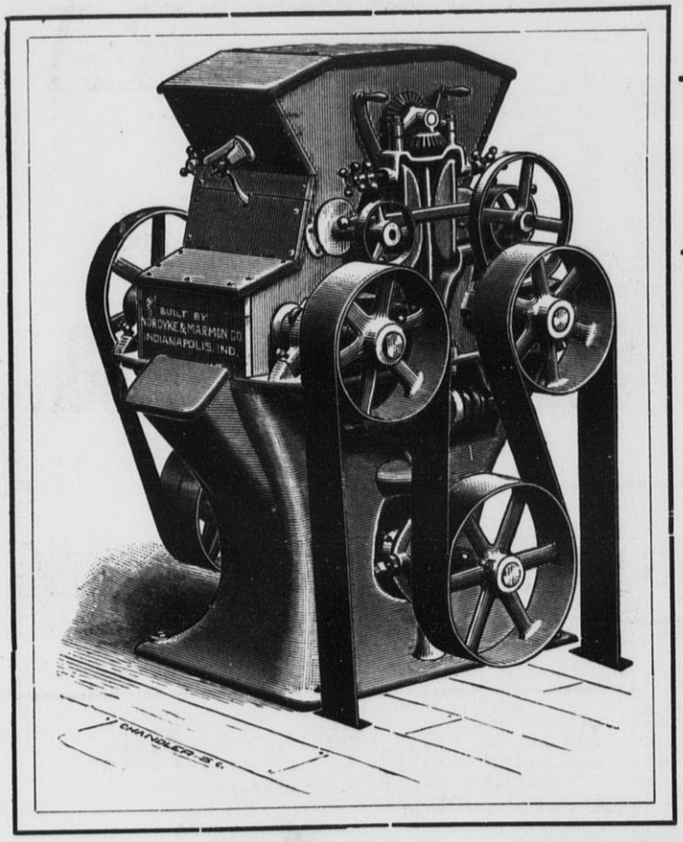

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[Written for the U. S. MILLER.]

THE MILLER AND THE MAID.

Across the heath and down the hill,
A-back of patient Dobbin,
The farmer's daughter rides to mill,
And mocks the thrush and robin.

For saddle she 's a sack of grain,
She side-wise sits and chirrups;
A finger in old Dobbin's mane
Is good as forty stirrups.

The miller comes—a merry blade—
And tips his hat to greet her;
"What wish you here, my pretty maid?"
"I' ve brought a sack of wheat, sir."

"And have you gold to give for grist?"
"Not I, we 're poor, a-lack, sir;
But, take your toll—a tenth, I wist—
From what is in my sack, sir."

He lifts her lightly from the seat,
And laughs—a merry miller:—
"I cannot take my toll in wheat,
I must have gold or silver;

But since you 've brought no coin nor scrip,"
He smiles and fondly eyes her,—
"I 'll ask no toll, but, from your lips
One kiss;—who 'll be the wiser?"

The maiden blushed and bowed her head,
And with her apron fingered,
And pouted out her lips of red
Where countless kisses lingered.

"A single kiss!"—(she smiled in glee,
As one would say: "I 've caught you;")
"My father said your toll would be
A tenth of what I brought you."

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THE FIRST LOCOMOTIVE BELL.

"Did you know Captain Ayers?" said a well-known railroad man to a friend yesterday. "Well, he was famous for two things. He was the conductor of the first through train on the Erie from tidewater to the great lakes, and he was the inventor of the bell-rope by which train men signal the engineer. He was familiarly known as Poppy. Trains on the Erie, when Capt. Ayers was first employed, were few and far between. Passengers never thought of buying tickets, but paid fares on the train. In case a passenger was obstreperous and refused to pay up, there was no way of stopping the train to eject him, and so people were frequently carried from one station to another without paying anything for it.

"Poppy Ayers was running a train between Piermont and Turner's, which was the western terminus of the road at that time. The engineer of the train was a big, burly German, who, like all engineers in those days, regarded himself as master of the train, the conductor being simply a machine to take fares. One day Poppy had been bothered more than usual on his train by stubborn passengers, and he got to thinking how he could establish communication between himself and the engineer while the train was in motion, and an idea struck him. When he got to Turner's he obtained a section of clothes-line long enough to reach from the engine to the rear of the train. He tied a stick of wood to one end of the rope and fixed it in the engineer's cab, so that when he ran the rope back over the train and pulled on it the stick would be agitated. Then he explained to the engineer the idea, and told him whenever he saw the stick move up and down he must stop the train, for there would be some one on the train who ought to be thrown off. This innovation was resisted by the engineer as an infringement on his rights and the dignity of his office. It was virtually placing the train at the order of the conductor—a thing that could not for a moment be tolerated. So when the train started he removed the stick of wood that dangled near his head and tied the rope fast. Poppy Ayers persisted in tying the wood on the rope and the engineer persisted in ignoring his authority, until one day Poppy, after tying the wood to the rope and hanging it in the cab, turned to the engineer, and, taking him by the throat, exclaimed:

"Now, you pig-headed idiot, which will you do, let the stick alone and stop the train when I pull the rope, or will you take the d——dest licking you ever heard tell of?"

"The engineer weakened and said he'd mind the signal, and he did. Shortly after that Poppy fitted a cow-bell in the cab and threw out the stick of wood. Whenever the cow-bell sounded the train was brought to a stand in short order, and some passenger knew that he must either come down with his fare or get hustled out between stations, regardless of circumstances. At one stroke Poppy Ayres subordinated the engineer to the conductor, and increased the revenue of the company."

THE HOUSE OF THE FUTURE.

Are we realizing the great change that is taking place in the domestic architecture of the large cities. The apartment house, sometimes called the Paris Flat, is a thing of yesterday; yet how immense they are, and how numerous they have become. Certain social reform dreamers have been telling us of the possibilities of the associated home, where a hundred families can live under one roof, with a common kitchen, laundry, and dining hall. They have pointed out the economy of washing and cooking by machinery; but all this was to be done by means of associations, and the organization of phalanxes and communities. But, lo a marvel! We have the associated home where many families live together with comforts and conveniences the isololated house could not afford; but these great buildings are being erected by capitalists, and not by the committees of associations. New York city has the *Florence*, the *Victoria House*, the *Haight House*, and at least a hundred other immense buildings furnishing luxurious suites of apartments. And on Eight avenue, opposite the Central Park, an enormous structure is to be erected covering a whole block. It will have an interior court-yard, a great restaurant, four elevators, and every possible luxury in the way of fine living and beautiful appointments, all furnished at a cost very much below what would be required in a private house. The man of the future is going to be much better housed than were his ancestors. The American citizen can dwell in a palace superior to any occupied by emperor king or queen, and yet not costly. The feature of the architecture of the future will be these great residential palaces which amount to veritable communities, and are the precursors of great social reforms.

A TRADE-TEACHING SCHOOL.—A trade school is in successful operation in New York City. It was founded in 1881 by Col. R. T. Auchmuty, an architect of that city. In this school are now taught plumbing, plastering, brick-laying, stone-cutting, pattern-making, carpentery, wood-carving and fresco-painting. This institution is intended partly to take the place of the apprentice system, affordirg intelligent instruction and practical experience in the handling of tools, at a nominal cost, to young men. The old apprentice system, through the opposition of trades unions, and from other causes, has to a considerable extent, fallen into disuse in the United States. The thoroughness of the apprentice system in Europe is practically unknown here, and unless something be done, and speedily, to counteract the growing tendency toward laxness, we shall soon be obliged to rely for skilled labor, in the mechanic arts, on importations of foreign workmen. The undertaking of Col. Auchmuty appears to be a step in the right direction. Its success thus far has given good grounds for believing that it will continue to grow in usefulness, and that eventually the system will be extended to other sections. The development of this enterprise will be watched with interest by all persons engaged in industrial pursuits; by the manufacturer no less that by the workman.

DRIVING BELTS.

BY MR. JOHN TULLIS, GLASGOW.

When coming before this convention the first thought that struck me was, "Can a man trained to the tanning, currying, and belt-making business be mechanical enough to make himself understood by practical millers and engineers?" Then, upon second consideration, I came to the conclusion that practical men would understand my shortcomings best and help very much to make my rough places plain. Therefore, I venture to say that a modern flour mill is now one connected machine, so much so that from the time the wheat is subjected to the first operation, it must travel onward from one grade to another until it is ready for the market. A single hitch of half an hour with one machine or one belt will disarrange the entire mill. A flooding will occur here and a scarcity there, upsetting the calculations of those millers whose delight is to see a continuous flow of the whitest and finest of flour, coming in such a steady volume that from week to week they can tell almost to a bag how much they can manufacture. To the miller, therefore, the best of belting is a very important consideration, and little hints regarding the preserving of it may be of some use. All users of motive power are anxious to have the best, the simplest and the least troublesome system of transmitting that power, and at as reasonable an outlay as possible. The question for consideration is, "Whether belts or ropes are the best and cheapest method?" Both of the systems have their admirers and advocates, and both have proved worthy of much patronage. First cost is often quoted when comparing ropes and belts. There is no doubt but that main belts are much more expensive than driving ropes of cotton or hemp. But we must also look at the first cost of rope pulleys, and compare them with the price of belt pulleys. When these values are considered, I believe the belt-driven mill will be started for very little more money than a rope-driven mill. If the speeds, diameters, and widths are properly calculated —giving 1 in. of width of belt, traveling at 500 ft. per minute, 1 horse power to transmit —the result will be eminently satisfactory. Well made, properly stretched leather belts will run as straight as a line, last for thirty years, and be good for cutting up into smaller sizes after that. A mill engineered after this fashion has a long and comfortable life before it.

Main Driving Belt.—The belt is a soft and most elastic transmitter of power. It absorbs less power in itself than ropes. A number of textile ropes on one pair of pulleys never pull all together as one. Each individual rope has a traveling speed of its own; consequently, there must be a loss of power, whereas a belt transmits the power from one pulley to another in one solid grasp. Belts and ropes both drive well when the distances from center to center are great, and the pulleys large in diameter. But a rope has no chance against a belt when the shafts are near each other, or the pulleys less than 4 ft. 6 in. in diameter. Under these circumstances a good belt will give splendid results, while the best of ropes are a constant annoyance. Main-driving leather belts should be manufactured so that when the joint is made, while the belt is in its place, it ought to present the appearance of an endless belt. After having been taken up once or twice during the first year, good belts, such as these, require very little attention during the subsequent years of their long life. If the belt is driving in a warm engine room, it ought to get a coating of currier's dubbin three times a year. All belts having much work to do ought to present a clammy face to the pulley, and this condition can be best maintained by applying one coating of dubbin and three coatings of boiled linseed oil once a year. This oil oxidizes, and the gummy surface formed gives the belt a smooth, elastic driving face. A belt looked after in this way will always run slack, and the tear and wear will be inconsiderable. On the other hand, dry belts have to be kept tighter, because they slip and refuse to lift the work. The friction of the running pulley "burns the life" out of the belt while this slipping is going on. The driving face is made as hard as millboard, and is well polished. Bushes are ground down, shafting worn, oil consumed, the belt killed and condemned, because the disease has been misunderstood. If a belt is wanted to do more work than was originally intended, by, say, an addition to the machinery of the mill, a very good plan of getting power is to run a second belt upon the top of the one in use. Do not connect them in any way, and the outside belt will work for itself, and do a large proportion of the driving.

By way of experiment, I have made four 6 in. single belts, running independently on the top of one another over 4 ft. driver and driven pulleys, transmit over 80 horse power, the belts traveling at a speed of 1,800 ft. per minute. Each of these belts did its own share of the work, and while running over its own circumference each gained a little over 30 ft. per minute upon the one below; so that the outside belt traveled over 90 ft. per minute more than the inside belt. The best leather for making belting is proved to be that known as "orange tan." This leather is made from the heaviest and best grown Highland ox hides. During the process of tanning, instead of swelling, as is the case with all bark tannages, this leather becomes thinner in substauce, and weighs 45 per cent. less than if tanned with oak bark. The breaking strain, according to Lloyd's proving house test, is 45 per cent greater than oak-bark tanned leather. There are life and spring in it not found in any other leather. For driving machinery this leather stands first. Long belts should never be made heavy, because the weight makes them swing to a certain extent. The heavier the belt, the greater the oscillation. Double orange tan belts will work as steady as ribbons up to 350 ft. long.

The Singer Manufacturing Company, when designing their new Glasgow factory, were nearly deciding in favor of ropes for the long distance driving. However, after testing the orange tan leather as to weight, working, and breaking strain, the decision was, "There's nothing like leather." There can be seen working at this factory every day between thirty and forty main driving belts up to 30 in. wide; nearly a dozen of them are long, being 150 ft. by 19 in., and of double orange tan. They run as straight and as steady as a line, and have only once been taken up.

Now comes the answer to the question often asked as to which side of a leather belt ought to run next the pulley. It is well known that by running the "grain," or smooth side next the pulley, there is a considerable gain in driving power. However, by using the boiled linseed oil, as before mentioned, the flesh will soon become as smooth as the grain, and the driving power fully as good. A belt working with the grain side next the pulley really has a much shorter life than the belt running on the flesh side. The reason is, the one is working against the natural growth of the hide, while the other is working according to nature. Take a piece of belt leather and bend it with the grain side inward, and then bend it with the flesh side inward; you will see at once that with the flesh side inward, the leather is much more pliable. Another simple example is, if you take a narrow cutting of belt leather, pull it well, and, when you lay it down, you will at once observe that it naturally curves flesh inward. Nature, therefore, comes as a teacher, and tells us to run the flesh side next the pulley, and practice proves this to be correct.

Plain Leather Chain Belting.—Arched to suit the curve of the pulley, patent leather chain belting is proving to be one of the best belts ever invented. According to this manufacture, the entire face of the belt comes in equal contact with the entire face of the pulley. No unequal strain comes upon the rivets, as they have a level bed to lie upon. The belt is made a little thicker at the edges than in the center. It can be made to suit any curve of pulley. All that is wanted is a templet of the pulley on which the belt has to work. This class of belt transmits 25 per cent. more horse power than a flat belt of the same width. Many engineers are in doubt on this point. In practice, however, the truth of this statement has been proved to be quite correct. A flat belt always retains a cushion of air between itself and the pulley, which prevents perfect grip. This air escapes through the spaces in the chain belt, and the edge leather takes full charge of the power which it has to run.

I will only mention one example. Mr. John Smalley, of Mellor, Lancashire, was troubled with a 28 inch flat double belt not being able to transmit the power of his engines, therefore a quantity of the machinery had to stand idle. A belt of this class was made specially to test this question. That belt is now doing over 25 per cent. more work than the flat double belt could do. It works very steadily, driving as easily as possible. It is the most rapidly joined belt of any. The links have only to be interlocked, the rivet connection made, and then you have an endless belt which runs so straight and steady that it looks like what a belt ought to be. Quite a number of these belts are driving three and four roller mills, and are considered by the millers using them to be "perfection."

Half-Twist Belts.—This class of drive is sometimes the cause of much annoyance. A short belt has a poor life, and if the power wanted demands a wide belt, then the strain upon the outside of the twist becomes so great that bevel wheels and upright shafting have to take the place of a belt. In using ordinary flat belts for this class of drive, it will be observed that a large portion of the

belt assumes a slack appearance on the inside of the twist, which leaves the pulley and does not work. Several plans have been tried to overcome this difficulty, such as splitting the belt up into two or three widths and securing them with cross connecting straps. But none has been so successful as the patent thicksided and tapered chain belt. The links may be 1 inch deep at the one side, tapering to ⅝ inch deep at the other. By this formation a twist belt can be made to any width. It comes in contact with every inch of the pulley. The strain is taken up by the heavy side, the slackness is taken out, and the belt seems to work as well as if there were no twist to contend with.

Cotton Belts.—These are very good for many sorts of drives, such as those of paper mills, dye works, wet spinning flax mills, and all sorts of works in which steam and water are present in abundance. They also answer well for outside driving. At our own works we have our own make of cotton belts transmitting power across yards from one building to another, in all weathers, with no other covering than a coat of boiled linseed oil, applied every two months. In warm countries these belts do remarkably well. The objectionable fraying of the edges has now been cured by applying our patent projecting leather edge. This edging is very securely riveted on with the copper wire machine, and is so placed that it meets the thrust of the shifting fork, and saves the cloth from being cut.

Jointing Belts.—Whether the belts are new or old, a properly made joint is of the first importance to all users of belting. The number of belt fasteners in the market is legion, some of them worthy of attention, and many of them not. A well-made butt-joint, with the lace holes punched in row of diamond shape, answers the purpose fully as well as any. Care should be taken that the holes do not come in line across the belt. A good lace, properly applied with all the strands of the lace running lengthways of the driving side of the belt, will last a long time and costs little. If a lap-joint is made, time should be taken to thin down the ends of the lap. Joints of this sort should be made to the curve of the smallest pulley over which the belt has to work. This plan removes the strain from the back of the lap, because the outside of the joint will be ¼ inch to ⅜ inch longer than the inside of the joint. Double or single belting, lap-jointed without being curved, makes the joint so very stiff that every time it travels on and off the pulley, a hinged sort of action takes place immediately beside the joint, and in a very short time the belt is torn across, and often condemned for being made of bad leather, and yet the goods may be of the very best quality.

Accumulations or Lumps on Pulleys and Belts.—Dust should never be allowed to gather into a cake either on pulley or belt, for if so, the fiber of the leather gets very much strained. The belt is prevented from doing its work, because this stranger defies the attempts made by the belt to get a proper hold of the pulley. When I see a belt so handicapped, I begin to think of the sufferings of a friend with a vicious corn.

Belts and Ropes Coming off the Pulleys.—When a bearing gets heated, the shaft naturally becomes heavy to turn. The belts or ropes having already the maximum power in hand they are designed to cope with, they refuse this extra strain, and will leave the pulleys at once or break. This accident directs the attention of those in charge to the belts or ropes, when time is taken up consulting as to what is to be done. Meanwhile the cause of all the trouble gets time to cool, and the source of annoyance is never discovered. Before a new start is made, all bearings are well lubricated. All goes smoothly, yet some one is blamed for the break-down.

Leather Ropes.—Ever since the introduction of grooved pulleys, leather has come up in various forms of driving rope. Up till now none of them have come to anything as against cotton or hemp rope. There is the ordinary cable-laid hide rope, the strands of which soon cut themselves into pieces by pressure and internal friction. There is also the "Combe" rope, which is made of a multitudinous body of long leather strands twisted together; the friction and pressure also soon cut them up. Then there is the V-shaped solid leather rope, which is much too stiff and hard. The bottom plies get all cut and broken by the outside strain. There is the V-shaped rope with two or more plies of solid leather, with friction sections riveted on these plies. The openings left between these sections are meant to make this rope more pliable, and less liable to cut. It has done some work, but is not a success. There is the square solid leather rope that is now being made, the faults of which are the same as those of the solid leather V-rope. However, there is nothing like perseverance. The outcome of this desire to improve is the patent V-shaped chain rope. This rope seems to possess all the qualities required to enable it to become the driving rope of the future.

1. It can be put on in a very short time, and can be shortened in a few minutes.
2. It offers four times the working contact of a round rope.
3. It will work well, whether long or short.
4. It will work well over small and large diameters.
5. This rope can be made to fit any form of groove.
6. Where textile ropes give trouble, we are willing to run a number of these ontwelve month's approbation.

My remarks are finished. I hope I havmade myself understood. I thank you, Mr. President and gentlemen, for your kind attention.

REDUCTION IN HOURS OF LABOR.

Hand in hand with increasing earnings has gone a corresponding reduction in the hours of labor. It is a positive fact that the working hours are shortest to-day in countries where wages and productiveness are highest. While the working week in England averages fifty-four to fifty-six hours, Germany's and France's week still average seventy-two hours, with many industries at seventy-eight hours. Massachusetts has fixed sixty hours by statute without having experienced any incursion by competing neighboring states, which still adhere to longer hours. It has been the common experience, wherever tried, that the shorter hours enable the workman to put more energy into his work. In the early part of this century, in English cotton factories, the week extended to seventy-four hours; from 1833 it was reduced to sixty-nine hours. From this it went gradually to sixty, and in 1874 to fifty-six and a half hours, which may be considered the normal working time of the week in Great Britain; altogether there are trades where fifty to fifty-two hours is the rule. In the United States, the extent of the working day in cotton mills is quoted by Mr. Atkinson as having been thirteen hours in 1840. This was gradually reduced to eleven hours, and since 1883 to ten hours in Massachusetts, with other states beginning to move in the same direction, the state of Rhode Island having adopted a ten-hour day within a month of this writing. In speaking of the building trade and of the normal working day of eight hours in the latter part of the middle ages, Thorold Rogers says: "Employers were very likely to discover that the laborer's resistance to an excessively long day was not entirely personal, and that the work might suffer from the workman's weariness and exhaustion." The excellence of the work, lasting through ages, when more recent constructions have disappeared entirely, is even a more eloquent proof of the soundness of the economic views of our forefathers than the voices which are raised from the grave of yellow parchment. Germany, then at the head of Europe in commerce and manufacture, the economic ruler of the world, the banker and trader of Europe, held to the same rules during its high tide of prosperity. All of which shows that reasonable hours are not at all incompatible with great activity and productiveness; nay, that they are a necessary condition to their achievement.—*Boston Herald.*

GRAIN ELEVATORS ON THE BLACK SEA.—The Russian Minister of Finance, Professor Bungé is at the present moment making a tour along the northern coast of the Black Sea, with a view to selecting sites for the erection of grain elevators. As is well known, Russia has suffered severely in the corn trade during the last few years, owing to the competition of the United States and India. On the spot the grain can be produced cheap enough, but for want of roads the peasants incur a heavy cost in getting it to the railway, and when the expensive railway rates are paid in despatching it to the nearest port, nothing of a mechanical nature exists there to place the corn on board the foreign vessel The result is, that the cost of transport eats up all the profit, and the amount reaching the peasant is so small that he is becoming more and more impoverished every year. To improve matters, a commission has been appointed to bring about increased facilities of railway transport, and the Minister of Finance is endeavoring this autumn to realize an elaborate scheme of elevator construction which has occupied his attention since 1882. In that year proposals for a monopoly were presented by a Paris syndicate, headed by Count de Morny, and representing a capital of a million sterling. The following year some Americans joined the syndicate, and the capital was doubled, but the Panslavist press denounced so vigorously the proposed monopoly that the Minister of Finance felt it unwise to oppose the all-powerful M. Katkoff. He now proposes to erect the elevators under government auspices, raising a special loan for that purpose, and the matter will no doubt be settled without delay.—*Engineering* (London).

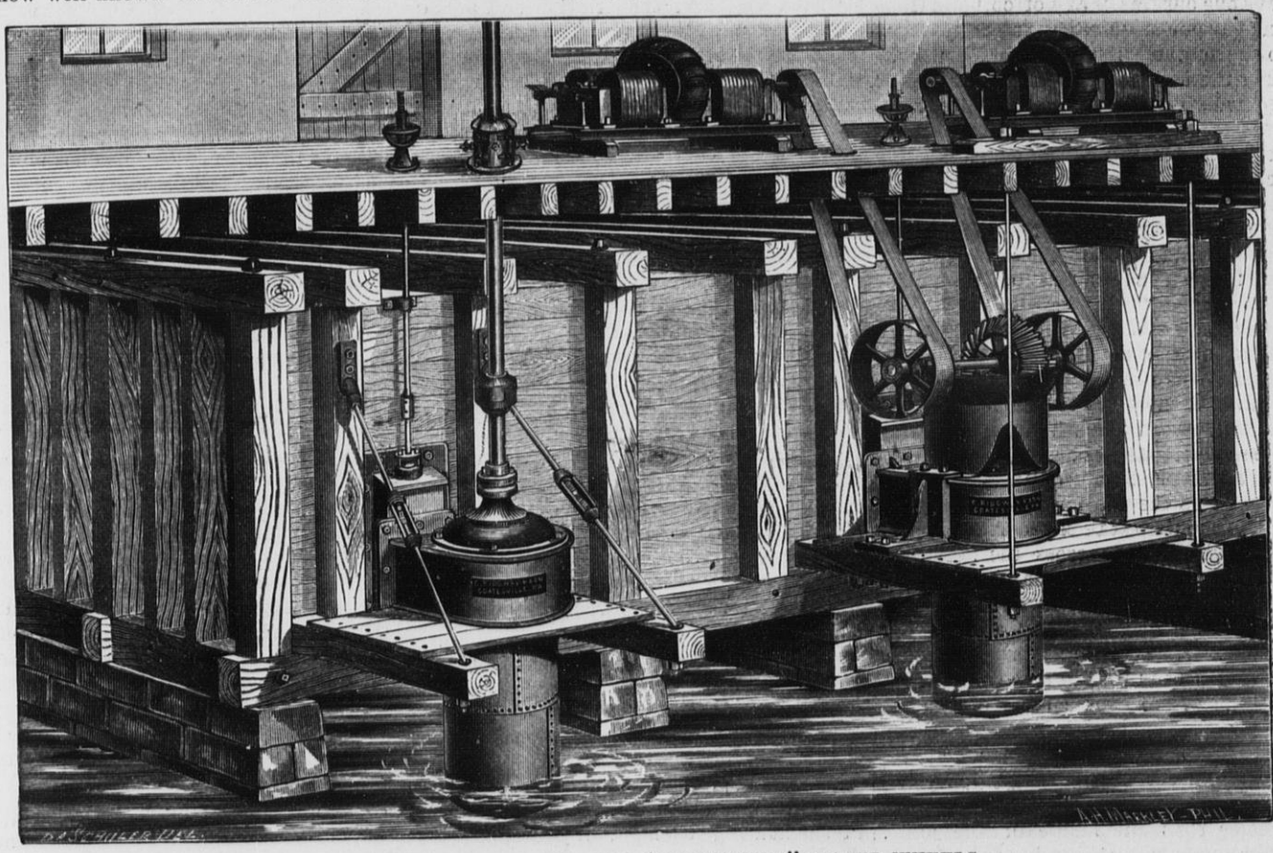
"PERFECTION."

One of the most important things about a mill is a good and reliable power, and it is in the selection of a motor that mill-owners find hard work to decide which one of the hundreds that are offered, to select. Most especially is this true if the desired motor be a water-wheel. Every water-wheel builder has the best, of course, and conclusively proves it, either by the length of time the particular water-wheel has held its own in the market, or by some other equally convincing fact.

There are new water-wheels coming to the front every day, and among those is one which has shot into the water-wheel world like a new planet, and in a few short years has taken there a most prominent position. This water-wheel is the "Perfection," made by C. Ridgway & Son, Coatesville, Pa., a wheel now well known to most of the mill-owners of the country, and a great favorite—hundreds of them having been sent to all parts of the country. The "Perfection" wheel is now so familiar to every user of water power as to need no description. In the accompanyiug cut we show, however, a new and very neat manner of setting two of them. The great feature of this wheel, of setting outside the water, renders it very well adapted to such a manner of setting. The cut is taken from a large paper mill in Pennsylvania. The penstock shown contains large flume wheels for driving the mill. It was desired to increase the power, and to do so necessitated either enlarging the penstock, which was a very costly job to undertake, or to replace the wheels with larger ones. The owners of the mill met Mr. Ridgway, the builder of the "Perfection" wheel, who increased the power in the manner shown at a very trifling cost. The wheel shown on the left is an ordinary "Perfection" furnished with a short draft tube. The wheel is simply bolted to the side of the penstock, and carried upon two pieces of timber, which latter are secured by the iron tie-rods. The wheel to the right shows a "Perfection" of a type known as the "Turret" wheel. In this wheel the power is taken off by bevel gears carried in a casting upon the case of wheel. This style of wheel, being moderate in cost, is found very handy and desirable, especially in places where millwrights are scarce, as no particular skilled labor is required to set it up, head-blocks, upright shafting, &c., being done away with.

The "Perfection" wheel admits of almost any kind of setting. In ordinary cases water is brought to them in square trunks that any carpenter can construct, and in the South, where the wheel has a great and growing popularity, the mill owners themselves and farmers' boys set them up and put them to work. The Messrs. Ridgway publish and send free to every user of water power, one of the handsomest water-wheel books we have ever seen, it being filled from cover to cover with fine illustrations showing almost every conceivable manner of setting water-wheels, together with hundreds of letters from parties using their wheels, and lots of other matter that every water-wheel user should be conversant with. This cut is one of those selected from this water-wheel book, and is a fair sample of the others to be found there.

The Messrs. Ridgway state they have put in the latest and best machinery for cheaply manufacturing this water-wheel, and are now naming extraordinary low prices, to suit the economical spirit of the times.



MANNER OF SETTING TWO "PERFECTION" WATER WHEELS.

JUST A FISH STORY.

I must confess that I do not like a liar. This assertion, coming from me, may have a strange sound—may smack somewhat of foreign accent—but it is a fact. Oh, there is nothing like truth. The old Romans were so fond of truth that many of them kept out of politics; and a noble Spartan once said that he would rather steal than to tell a lie. Come to think of it, he was right. Stealing is more profitable.

The other day I met my friend Dave Granger. Dave's great merit is his love of truth, but somehow, I have begun to doubt him. He has not said anything to cause this loss of confidence, but the great faith I once had in him shakes a little sometimes. After Dave and I had sat down to a table and had begun to talk, the conversation took a serious turn.

"Dave," said I, "you never saw any speckled trout in Arkansaw, did you?"

"Well, yes."

"I have always understood that the water in this State is too warm for them."

"It is as a rule, but a man named Hicks, who lives out here in the hills, raises bushels of them, but it involves great expense. I'll tell you how he worked it: On his farm there is a beautiful little stream. He attempted to stock it with trout, but soon discovered that the water was too warm. Not discouraged, he proceeded to cool the water. He started an ice factory, and every morning now, during the summer, he deposits ice in the different pools. Well, sir, it would tickle you to see the fish. When the wagon draws up to a pool the driver yells 'Ice' and the fish come flying out from under the rocks. They get up on the ice and carry on in a perfect flutter of glee. Beats anything I ever saw."

"You know Hicks, do you, Dave?"

"Know him? Why, he doesn't live more than two miles from my house."

"Does he allow anybody to catch the trout?"

"He will give you all you can catch with a hook."

"Believe I'll go out some time."

"Won't do you any good."

"Why?"

"The fish won't bite for anybody but Hicks."

"They won't?"

"No, sir; you couldn't get a nibble."

"How do you account for it?"

"Gratitude."

"What?"

"Gratitude, I tell you. They know Hicks. They know how much he has done for them. Why, sir, he can pull them out as fast as he can throw in. You ought to see them look up in his face and smile. One day I was with him. Two of the biggest trout I ever saw began to fight for the hook. One of them got it and the other one, determined not to be outdone, came out on the bank and laid down. I never saw such gratitude."

It is not Dave's eccentric declarations that shakes my faith in him. It must be his careless manner of relating a story.—*N. Y. Mercury.*

NONSENSE.

Brown—"What a sad looking fellow Smith is! What is the matter with him, I wonder?"

Fogg—"Why, didn't you ever hear? He was disappointed in love."

Brown—"Got the mitten, eh?"

Fogg—"O dear, no; he married her."

"Does the smoke displease you madam?" said a smoker to a lady in an Austin street car.

"Very much, sir," answer the lady, tartly.

"Well," returned the gentleman, "that only proves what I have always said—that smoking was a mere matter of taste with different persons. It pleases me very much." He kept on smoking until he left the car.

The driver said that, if the man hadn't been an alderman, he would have put him off.

The rivalry between Houston and Galveston continues unabated. No matter what the residents of one city claim, the residents of the rival commercial center dispute the claim. A Houston man was in Galveston not long since, the guest of a resident of the latter city. The Galveston man frequently gave his Houston friend a cigar to smoke, at the same time deprecating the inferiority of the weed.

"Now," replied the Houston man, "you've been telling me all along how bad your cigars are. I want you to stop with me a day or so, when you come to Houston, and I will convince you that I can treat my guests to worse cigars than you ever smoked in your life. I'll give you cigars that will break you of the habit of smoking altogether."—*Texas Siftings.*

In early days, in Scotland, people that felt sleepy during the sermon used to shake off drowsiness by standing up; but poor human nature made this, at times, an occasion of display. At Old Monkland, a man who had on a rather gaudy vest stood up more than once, and threw back his coat, apparently to let his vest be seen. Mr. Bower, the minister, said at length: "Noo, John, ye had better sit doon. We have a seen your braw waistcoat."

A pious lady met Homer Martin one Sunday morning on the way to take an excursion steamer.

"Are you not going to church?", she asked.

"No ma'am," said he.

"But, of course you like to go to church," said she.

"I like it immensely," said the wag, "but I can re-train myself."

Cucumbers for Indians.—"The Indians are making considerable trouble out West," remarked a passenger on a bridge car to his neighbor.

"So I see," was the brief reply.

"Well, sir, I have a first-class scheme for wiping out the rascals."

"With a sponge?" said the other with a sneer.

"No, sir; I would convert — "

"Pooh! that's no good. It won't work."

"Hold on a minute! I would convert the entire reservation into a cucumber patch and turn the red men loose."

"I should think that would increase the number of Indians," piped out a little man with weak eyes who sat opposite.

"How so?" asked the astonished schemer.

"It would double 'em up," said the small man with a smile.

"All out here!" yelled the brakeman, and and the council of war broke up *sine die.*

"It is a poor Rule," etc.—"How is it, Mr. Brown," said the mill owner to the farmer, "that when I came to measure those five barrels of apples I bought of you, I found them nearly a bushel short?"

"Singular, very singular, for I put them up in some of your own flour barrels."

"Ahem! Did, eh? Well, perhaps I made a mistake. Fine weather, isn't it. Let's imbibe.

A Tender-hearted Husband.—"Yes, I've a mighty good man, Mrs. Callaper, but he's an awful tender-hearted body."

"Is he? Well, I wouldn't have thought it."

"La me! you don't say?"

"He never could stand up under trouble of no kind, like me."

"That's very strange."

"Why, bless you ma'am, it just about breaks his heart to tell him the sugar box is empty, and it fairly gives him a spasm whenever the flour gives out."

Didn't Leave His Address.—"I understand that Mr. Wilson has retired from business," remarked the bill collector to the clerk.

"Yes, sir," replied the clerk.

"I wonder what is to be done with this little bill of mine?"

"I don't know, sir," answered the clerk. "I think—"

"Where can I address Mr. Wilson? If he doesn't pay, I will sue him. Where is he to be found?"

"I can't say, sir. He—"

"So he has gone away, has he, without leaving his address? The old schemer."

"Yes, sir. He is dead."

"Nellie, let's you and I play inventor."

"How shall we do it, Tommy?"

"Why, you be the inventor and go in and get some cookies out of the box, and I'll be capitalist and eat them all."

"But, what will I get out of it?"

"Why, you'll get all the fame; I'll tell mamma it was you who took the cookies."

An Upright Judge.—"I'll allow no man to call me a liar and go unpunished," said a Texas judge to a lawyer who had just committed that offense. "You are fined $10, sir.

"It's the truth, though," replied the lawyer, as he paid the money.

"I don't care if it is the truth," retorted the judge. "A court of law is no place to tell the truth."—*Drake's Magazine.*

Share and Share Alike.—Gentleman—What are you doing nowadays, Uncle Rastus?

Uncle Rastus—Ise workin' fo' Sam. Jones, sah.

Gentleman—What at?

Uncle Rastus—Pickin' blackberries up on old Mrs. Brown's pasture lot.

Gentleman—Don't Mrs. Brown object to it?

Uncle Rastus—She don't know it, sah.

Gentleman—What does Sam. pay you for picking Mrs. Brown's berries?

Uncle Rastus—He 'low me half what I pick.

"FUTURE" TRADING IN FLOUR IN SCOTLAND.

Messrs. Alex. and Robt. Tod, great millers of Leith and Glasgow, Scotland, have adopted the plan of selling flour for future delivery, which will no doubt compel all the large Scotch and English millers to follow their example while the smaller millers will have to do the best they can to hold their own against this new departure. Messrs. Tod say in their circular:

"Very great changes have taken place in the wheat and flour trades during the last few years. Amongst others is the option of buying wheat for delivery in different months at different prices; and were this method adopted with flour it would enable us to cut the price more closely for each month than is possible under the present system. Also, were a plain sack used and the flour weighed gross, as is done with all foreign flour, this change would, we feel convinced, tend very much to simplify and facilitate business and prove to the advantage of the buyer as well as the seller. We propose in future to offer our flour as above indicated; but if instead of a plain bag and gross weight (as we suggest, and which we think will prove more advantageous to the buyer), the present plan of a branded sack and net weight is preferred, we shall be quite agreeable. In that case the price will be 1s. more. These branded mill bags we shall buy back at 1s. each as heretofore, and the plain bags at 4½d. each, when returned to us in good order. We do not propose any change in the existing rates of discount for cash, which at present low price of flour are extremely favorable for the buyer. While we venture respectfully to suggest this change, we do hope it will commend itself to your judgment."

The delivery prices of flour for July, August and September are the same, after that they advance three pence a month, making a total increase of a shilling for the January over the July, August or September figure.

Bad Workmanship in setting up is found in want of alignment and valve-setting, and these re errors easily corrected by intelligent engineers. All the skill of the latter, however, is neutralized if the fault is in the design of the engine. Frames often appear to be solid, yet buckle and spring badly, and, what is of common occurrence, the parts are out of balance. Of all defects most likely to be met with, this is the commonest. Centrifugal force and its action at various speeds is a subtle thing, by no means easily controlled or provided for. At one velocity an engine is noiseless, and at ten revolutions higher or lower, it jars the nighborhood. The weight of parts, and the velocity at which they move, affect the question, and the most perfect fitting and alignment can be neutralized by unbalanced details.

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

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

For estimates for advertising, address the UNITED STATES MILLER.

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

MILWAUKEE, SEPTEMBER, 1885.

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

MILWAUKEE AMUSEMENTS.

ACADEMY OF MUSIC— Performances every evening, Wednesday, Saturday and Sunday matinees.

GRAND OPERA HOUSE.—Performances every evening, and Wednesday, Saturday and Sunday matinees.

DIME MUSEUM—Performances every hour from 1 P. M. to 10 P. M. every day.

SLENSBY'S VARIETY THEATER—Performances every evening, and Thursday and Sunday matinees.

MILWAUKEE EXPOSITION opens Sept. 2.

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IT is claimed by good authority that the losses by fire in the United States and Canada for the ten years, ending with 1884, amount to the enormous sum of $900,000,000.

PROPERLY qualified millers, desiring to secure good situations in South America, should read Edw. P. Allis & Co's advertisement, under the head of Special Notices.

THE permanent exhibition of the manufactures and products of the soil and mines of the United States at Rome, Italy, will open Nov. 1, 1885, under the auspices of the Ministry of Agriculture, Industry and Commerce.

A track will be laid down past the mills on the canal connecting with the Milwaukee & St. Paul Railway system at an early date. The shipping and receiving facilities will then be as good as could be desired.

MILLERS about to add improvements, will do well to read the advertisement of the Valley Iron Works, Appleton, Wis., on another page. The Byrns Three and Five Break roller mills are giving great satisfaction in the mills where they have been introduced.

THE total value of exports of breadstuffs for the month of July was $8,714,305, of which $3,378,234 was wheat, and $2,855,652 in wheat flour, and the remainder consisted of barley, Indian corn and corn-meal, oats and oat-meal and rye. The total value of exports of breadstuffs for the seven months ending July 31, 1885, was $85,558,982, against $80,546,131 during corresponding months of 1884.

PERSONAL.

We have been favored with calls from the following gentlemen connected with the trade during the month of August: Col. W. W. Huntley, of Huntley & Hammond, Silver Creek, N. Y.; Mr. R. J. Quale, representing Howes & Ewell, of Silver Creek, N. Y.; L. V. Rathbun, Esq., of Rathbun Bros., Rochester, N. Y., W. J. Stemler, of this city, John E. Poor, of The *Miller and Manufacturer*, of Cincinnati, O.

FOREIGN NOTES.

A new dust collector has been placed on the market by Messrs. Lampitt & Co., of Warwick, England.

The Milwaukee Dust Collector Co. has opened an office in London at No. 59 Mark Lane, Rooms 1 and 2.

Thomas Perry & Sons, of Bilston, England, recently cast a roll for imparting a surface to linoleum floor cloth 29 inches in diameter, 13 feet 1 inch in length, and weighing over 15 tons.

John Fiechter & Sons, a well-known mill-furnishing house in Liverpool, England, have failed. They formerly had a branch house in Minneapolis, we believe.

The National Association of British and Irish Millers are still tinkering with the mutual insurance question, and the stiff rates charged by the regular companies seems to be highly encouraging to their enterprise.

The awards of the *Milling Exhibition* in Paris, do not seem to give the majority of exhibitors any better satisfaction than those of our Cincinnati Millers' Exhibition in 1880, and the "kickers" are numerous and active.

The Miller, of Chicago, recently made the statement that "after a thorough and prolonged test the porcelain and smooth rolls are being discarded in the leading mills in Pesth (Austria-Hungary) and buhrs put in their place." English and Continental papers positively deny the truth of the assertion.

Several contracts have recently been made by Australian millers for the erection of all roller millers. It has been learned by long experience that stone-made flour will not stand a long sea journey nearly as well as roller-made flour, and the last year's Australian flour exports have fallen off considerably.

The efforts in England made to give young men a technical education in milling and brewing are meeting with marked success, as shown by the superior examinations held recently. Out of 21 candidates presenting themselves for examination, only two failed to pass.

A considerable number of millers in England are adding extensive bakeries to their mills. We think it is only a question of time when many mills in this country will do likewise. The custom has been in vogue for a great length of time on the Continent. The two trades seem to work well together.

Foreign trade papers show that there is great activity among engineers and mill furnishers, especially in great Britain and France. A number of new mills are being built and a great many old ones are being remodeled and fitted up with the latest improved machinery. There are, no doubt, a number of mills in Great Britain to-day that are fully as well equipped for business as the best in this country. The greatest drawbacks are, first, their inability to secure a sufficient quantity of good wheat, even in quality, second, the heavy imports of American flour, which stands in high favor with British bakers.

The Mannheim Elevator Co. has recently completed an elevator at Mannheim, Germany, capable of storing about 800,000 bushels of wheat. It cost about $500,000. *The Miller* (London) in commenting on this substantial structure and the elevator system of the United States, strongly urges the extensive introduction of the grain elevator system extensively into Great Britain. In concluding its argument, it says:

"The provision of extensive grain storage is bound up with political and social questions of the greatest moment. Is it certain that this country will always be mistress of the seas? And what if she ever found herself face to face with a blockade of wheat, just as China had a recent experience of a blockade of rice? The answer is that her population would be exposed to one of the most appalling famines known to history. Yet, by the help of well-stored elevators, such a contingency might be robbed of much of its terror, and the country be helped to tide over a fearful crisis."

NEWS.

Taggie & Shupbach are building an 80 bbl. mill at Columbus, Neb.

A stock company will build a $15,000 mill in Grass Valley, Missoula Co., Mont.

D. S. Bowman's mill at North Georgetown, O., was recently struck by lightning and destroyed.

100 bbl. mills are being erected at Crandon, Minn., for the Crandon Milling Asssociation, and at Fisher's Landing, Minn., for Thompson and Johnson.

Charles A. Gambiell, of Baltimore, died at the Continental Hot l, Aug. 23, under peculiar circumstances. It is believed that he accidentally poisoned himself.

Messrs. Widmeir & Weirmiller, of Lansing, Ia., have begun the erection at Devil's Lake, Dak., of a flour mill 38x50 feet, three stories high, having a daily capacity of 100 bbls.

Wm. Johnson & Co., of New Richmond, Wis., have a canal below their mill nearly completed, whereby they will secure an 18 foot head of water. It is the intention of the firm to raise it to 20 feet next season.

G. W. Batch, a grain dealer and capitalist of New York, has perfected arrangements for opening a bank at Duluth. It will be organized under the laws of the state and will have a capital of at least $200,000.

Berry & Gale Bros., 40 barrel water-power mill, at Lavalle, Wis., was destroyed by fire Aug. 21. Insurance on building and stock $6,000, which it is said will not nearly cover the loss. The fire was started by incendiaries.

M. E. Moore, Waterville, Kas., is rebuilding on the site of the old mill that was destroyed by fire at that place last fall. The Great Western Mfg. Co., Leavenworth, Kas., has the order for the principal part of the machinery.

One of the leading concerns of Brownington, Mo., is the Brownington Milling Co., which has recently erected an improved roller mill, containing five double sets of rolls and two runs of stone for corn, with a capacity of fifty barrels per day.

The machinery for the Cheney, Oreg., elevator, now on the ground, consists of a new 30-horse power engine and boiler, smutters, fanning mills, scales and all necessary belts, sheaves, trucks, cups, etc., complete for an elevator of 200,000 bushels handling capacity.

The town of Kearney, Neb., has a water power equal to that of 600 horse-power, which is being improved by the Kearney Canal Company. The canal is sixteen miles long, and the water will be brought into a natural reservoir on the hillside, containing forty-three acres of land. This reservoir will be thirty feet in depth in the deepest place, which will be sixty-seven feet above the Union Pacific Railway trac . This will, when completed, be a fine location for a large flouring mill.

On the evening of Aug. 21, Oscar Rudolf, an employee in the grist mill at North Freedom, Wis., was married to a Miss Crawford, of the same place. Saturday morning the bridegrom stepped into the yard adjoining his home for the purpose of shooti g a chicken for dinner. A few moments after his departure his bride heard the report of her husb nd's rifle. Running to the doorway she found her husband dead, a bullet having crashed through his head from one temple to the other. The gun, still smoking, was lying by his side, and the supposition is that death resulted from the discharge of the piece either while Rudolf was loading or in consequence of its falling from his hands. The tragic event caused a great sensation in the village, as Rudolf was widely known and highly respected, and universal sympathy is felt for the bride so suddenly left a widow. Rudolf was about 25 years of age.

The contract for the new elevator at Washburn, Wis., has been let by the Chicago, St. Paul, Minneapolis & Omaha Railroad company to J. T. Moulton & Son, of Chicago. The contract price is $225,000, and work is to begin immediately, bids for the lumber to be used in the structure having been asked for from the lumber firms here. Transportation of material and supplies has already been arranged. This elevator will be of the same construction and nearly the same size as elevator B at Duluth. Its capacity will be nominally 800,000 bushels, though it will be able to hold somewhat more than that, and will be used entirely for the storage of corn. Owing to the formation of the bottom of the bay at Washburn, the house must of necessity be built on crib work raised twenty feet from the bottom of the bay which makes the construction more costly than it otherwise would be. For these under-water cribs alone, 2,000,000 feet of 12x12 timber, 10,000 cords of rough stone, and an immense quantity of iron bolts will be needed. The elevator will be ready for the shipment of corn next season. Capt. R. D. Pike, of Bayfield, has contracted to furnish 2,000 cords of the stone for the elevator. This will give employment to about fifty men at the quarry until the close of navigation.

The following are among the many orders received by the Case Manufacturing Co., Columbus, O., since our last issue:

From M. Doan & Son, Anamosa, Ia., a full line of rolls etc., for a complete r ller mill of 75 bbls. capacity; from Chas. Haney, Wilber, Neb., through A. L. Strong & Co., Omaha, Neb., for all necessary machinery for the remodeling of his mill to the roller system; from Geo. Weisel & Co., Alexandria, Neb., through A. L. Strong & Co., Omaha, for a lot of machinery for some changes in their mill; from Cameron & Dean, Brookfield, Mo., for rolls; from P. H. Rhynard, St. Henry, O., for two pair rolls, with patent automatic feed; this is in addition to a previous order from this gentleman; from David Cooper, East Bloomfield, N. Y., for rolls; from H. M. White, Warrenton, Va., for additional machinery; from W. H. Bonesteel, Janesville, Wis., for 2 pairs of rolls; from James Allen, Greenport, N. Y., for rolls; from J. T. Burkett, Waterloo, Ia., for a line of machinery to be placed in the mill of Bridgeman & Reever, Columbia, Dak.; from A. L. Strong & Co., Omaha, Neb., for a line of machinery for the mill of D. D. Emerson, Loup City, Neb.; the contract of H. Winnifeld, Canton, O., for a full line of rolls, centrifugal reels, bolting reels, etc., for a full roller mill on the Case system; from Messner & Mathews, Pleasant Plain, Ia., for additional rolls; from C. D. Wood, Winnimac, Ind., for 2 pair rolls with automatic feed; from B. A. Haycock, Richland, Iowa, for 2 pair of rolls with patent automatic feed; from A. L. Tone, Lewis Centre, O., for rolls; from W. A. Huffman Implement Co., Fort Worth, Tex., for 1 Little Giant break machine to be shipped to. L. P. Adamson, Weatherford, Tex.; from Holmes & Johnson, Goshen, O., for 8 pair rolls with patent automatic feed; from the Demopolis Oil Co., Demopolis, Ala., for 2 pair rolls with patent automatic feed; from Freeman & Alford, Shoals, Ind., for machinery; from A. L. Strong & Co., Omaha, Neb., for 6 pair of rolls with patent automatic feed; from Kerfoot Bros., Des Moines, Iowa, for 1 pair of rolls with patent automatic feed to be shipped to Chickasaw, Iowa.

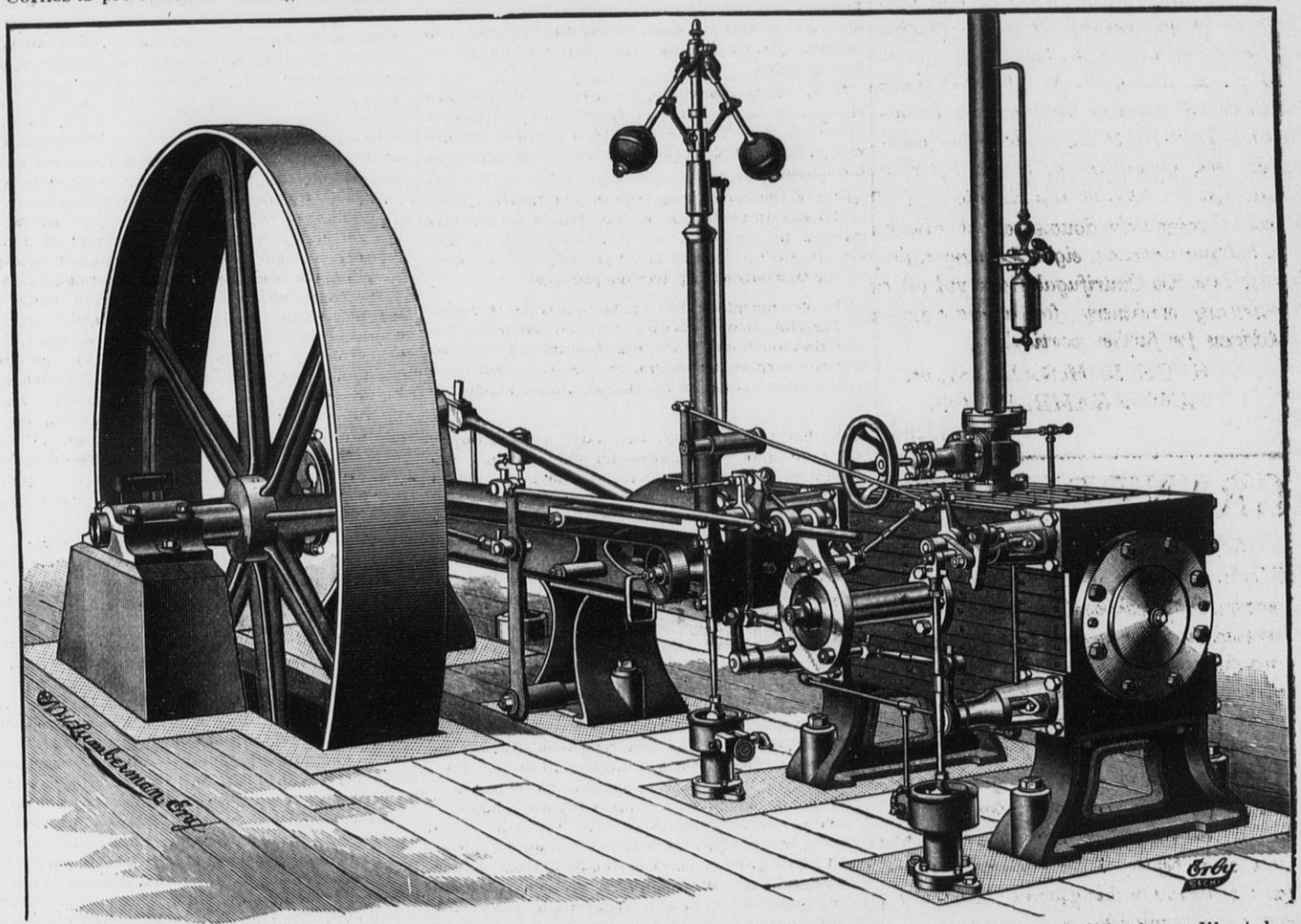
The *Grayville* (Ill.) *Independent* for July 30 says:

One year ago last May, the announcement was made that the milling and grain firm of Lanterman & Stewart had suspended payments with liabilities of $50,000, and assets estimated at $30,000. In 1877 and 1878, a panic in the wheat and flour markets caused the firm a loss of many thousand dollars, which, together with heavy expenditures made from new and improved machinery and large additions to the mill, put upon them a heavy debt, which they had, up to the time of the suspension, been gradually reducing, and the suspension would not have been necessary but for the death of Mr. Stewart, which had occurred but a few weeks previous, making necessary an immediate settlement of the partnership business. In August following, Mr. Lanterman succeeded in executing an agreement between himself, as the surviving partner, and the creditors, in which he agreed to operate the mill for the benefit of the creditors for one year from the 1st day of July 1884, and during that time to pay one year's interest on the entire indebtedness, the creditors on their part obligating themselves that no suit should be brought against Mr. Lanterman, surviving partner, during the time, to collect any of the debts. During the year the mill made above expenses about $5,000, which, taking the bad year and other things in consideration, was doing well. An effort was made to continue the agreement for another year, but the refusal of several of the creditors to agree to it, made it necessary to make the assignment, which was completed Monday, Messrs. J. B. Jolly and T. G. Parker being the assignees. The creditors are nearly all residents of Grayville and vicinity, the number being in the neighborhood of fifty. The mill has been shut down, which will prove very unfortunate for the city and community, and is to be regretted. An exchange business will be continued by the assignees, however, until the mill is disposed of. On August 19th, the property, consisting of the mill, two warehouses, and valuable city lots, will be sold for the benefit of the creditors. Mr. Lanterman has the sympathy of the community, and the belief is general that the has made every effort in his power to save the creditors from loss.

THE REYNOLDS' IMPROVED CORLISS ENGINE.

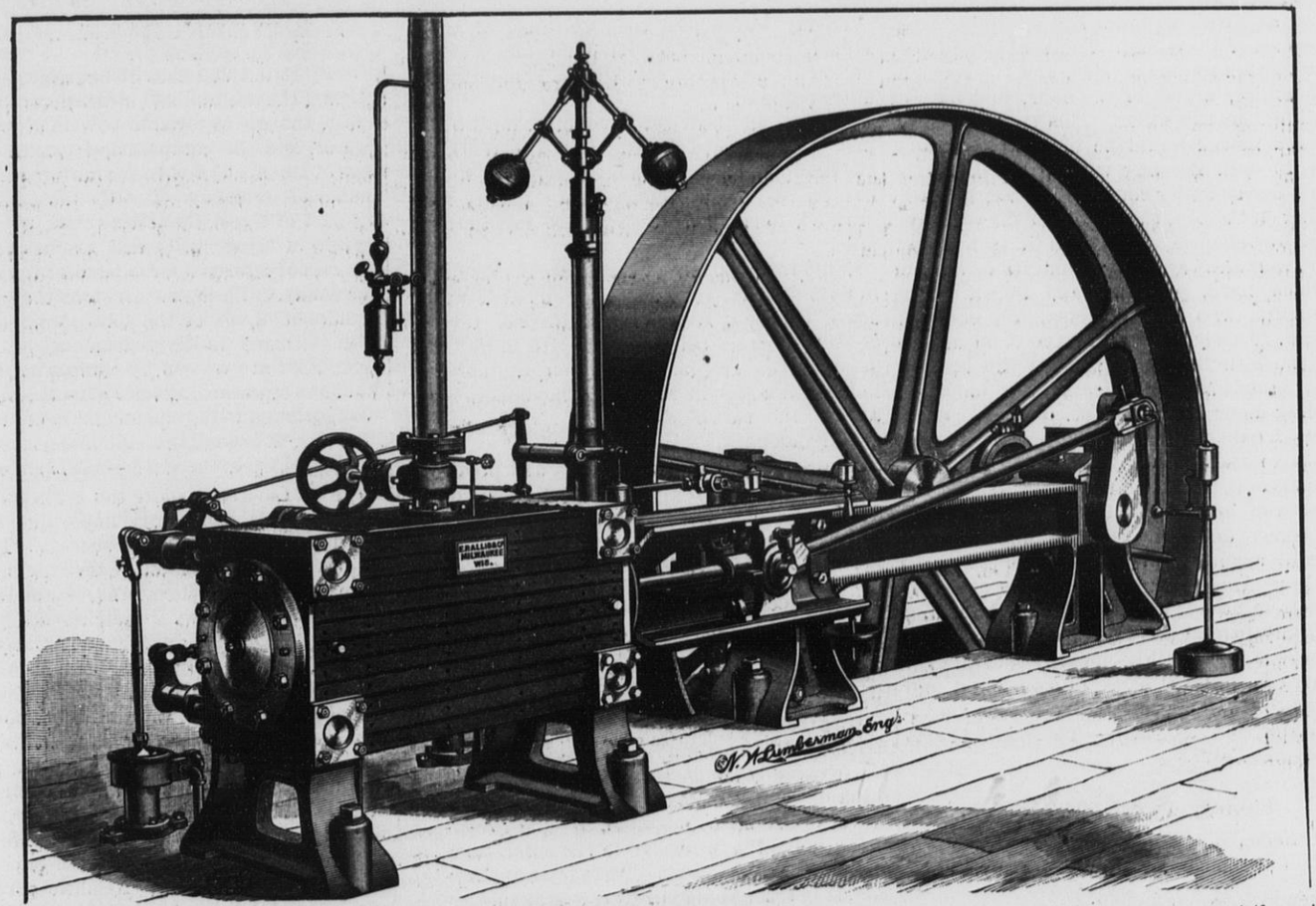
The use of steam power in flour mills and other factories in the west is so common, and the cost of fuel in most locations is so important an item, that steam users are vitally interested in everything pertaining to that economy in fuel, which is in the majority of cases an absolute necessity. In addition to the matter of economy there are also the accompanying requirements of regularity of motion, simplicity, strength and durability in use. In meeting all these essential requisites the Corliss type of engine has been the most uniformly successful, and its enduring popularity is manifest proof of its superiority to other types of automatic engines. And as the Corliss is pre-eminent among automatic engines so is the Reynolds' Corliss pre-eminent among the engines which are designated as Corliss engines. It was the pioneer Corliss engine built in the west, and its success has been uniform from the start, and the demand for it shows no signs of abatement. The accompanying illustrations and the following description are taken from the handsomely illustrated catalogue just issued by the builders. The makers say: "Aside from the superior material and workmanship, and the high degree of skill employed in constructing these machines, the principal features of the Reynolds' Corliss engines are, the peculiar liberating devices of the valve-gear, and the arrangement of the regulating mechanism. There is *no other* arrangement of the governing device that has the delicate sensitiveness, perfection, and accuracy of control, as that found in our machine. This is easily explained by the fact that the regulating mechanism is entirely independent of the valve motion and the least possible power is consumed in operating it.

"The general appearance of the engine will be best understood by reference to the illustrations. The cylinder which is firmly bolted to the frame, is cast of hard, close, iron, and arranged with the exhaust chambers completely separated from its walls, thus lessening the loss from condensation within the cylinder to a very appreciable extent; it rests on heavy cast iron cylinder feet, which are secured to the foundation by heavy anchor bolts. The frame or bed is made in two pieces, which are accurately fitted and securely bolted together—one piece containing the slides and forming the cylinder front cylinder-head, the other portion being cast solid with the main pillow-block. The pillow-block is very heavy and strong, having a broad bearing on the foundation and secured by heavy anchor bolts, same as the cylinder end; it is also provided with effective means for taking up wear, in the main journal. At the center of the bed, and directly under the slides, is another support, which gives additional solidity to the frame, and renders any springing or vibration impossible. The main shaft is of wrought iron and made from selected scrap, its diameter being about one half the diameter of the cylinder. The journals and bearings are of ample proportions to insure the greatest strength and longest wear, with the least possible friction. The crank-pin, cross-head pin, piston rod and all pins for the valve connections are made of steel; they are finely finished and perfectly fitted to standard guages. The entire machine is so carefully and strongly built, that it has been successfully run at speeds hitherto considered impossible for engines of this type. The piston is as light as consistent to have proper strength, and has unusually large wearing surface. It is provided with improved elastic packing that will make a perfect steam joint, and at the same time move with the least possible friction and wear. The design of the cross-head is such that its support on the sides is directly under the vertical center of the cross-head pin, thus completely avoiding the springing and final breaking of the piston rod—an accident that frequently happens to engines where the cross-head pin is placed forward of the vertical and horizontal center of the cross-head, which is done on many engines having a vertical cross-head. Any wear upon the cross-head gibs or slides is readily taken up by the improved adjustable devices peculiar to this engine. The main connecting rod is usually strong, and its straps, gibs and keys are heavier and stronger than those of any other engine in the market. The crank is exceptionally deep and massive, is bored so as to have a forcing fit upon the shaft, is pressed to place by a powerful screw press, and secured by a steel key. The steel crank pin is likewise pressed into place and firmly riveted on the back side of the crank. The governor or regulator is of the well known fly-ball type, but embodying in its details many improvements, especially adapting it to the engine and the cut-off employed, its sensitiveness to attempted changes of speed, and its promptness in accurately adjusting the cut-off to meet changes of load and steam pressure, leave nothing to be desired. The joints are composed of the best bronze gun metal



working upon steel pivots, the automatic connections are direct and positive, and although entirely independent of the cut-off valves, as regards holding or driving them, the regulator maintains perfect control of these valves, and determines the points of cut-off with unfailing accuracy.

"The most distinctive feature of this engine, and from which it derives the name of the 'Reynolds' Corliss, more particularly than in any other detail, is embodied in the design and construction of the valve-gear. The valves themselves have *double* the wearing surface ordinarily found on the Corliss valve, thus entirely and effectually preventing the cutting and wearing of the valves and valve seats, which will occur where small wearing surfaces are exposed to continuous pressure and motion. The valves are simple cast iron blocks of cylindrical form, and are so arranged that they require no springs to hold them in place; they rest in their seats perfectly free to move, and entirely unhampered by yokes or other contrivances; they are driven from one end by simple **T** heads, formed on the inner ends of the valve stems, so that there is absolutely nothing inside of the steam chest but the valves themselves, and each one composed of *one* piece of iron only; by taking off the back bonnets (by removing four tap bolts) any one of the valves can be taken out without disturbing or altering a single adjustment of the valve-gear The fact will be appreciated by engineers who are running engines they are compelled to dismantle every time they examine the valves and valve seats. The wrist-plate, to drive the four valves, is mounted upon a large substantial bearing, bolted to the side of the cylinder, and drives the valves my means of four small connecting rods. The exhaust valves are at all times positively connected with the wrist-plate, and the steam valves are always opened by positive connection, but are closed by means of the vacuum dash-pots. The steel catches for opening and liberating the steam valves are made of hardened steel and arranged so as to give *eight wearing surfaces on each piece*, without re-dressing or re-tempering. This is a novel and valuable feature found on no other engine, and a very important one where engines are located out of the reach of a machine shop. The liberation of the valves for cutting off steam, is effected by means of hardened steel blocks which are controlled by the regulator, and to the peculiarities of this device, as found only on our engine, is due its remarkable uniformity of speed. In the construction of the ordinary Corliss valve-gear, the old style crab-claw and liberating hook is used, and this as usually constructed, varies the pressure upon the regulator to effect liberation; thus at early points of cut-off, the pressure required to detach the hook is very great; and with late points of cut-off, the pressure to effect liberation is much less. With the arrangement used on the Reynolds' Corliss engine, the pressure required upon the regulator to effect liberation is very much less than with the old crab-claw, and in addition it is *absolutely* uniform for all points of cut-off. As a result the cut-off is prompt; and in strict accordance with the indications of the regulator. The general proportions of the valve-gear, steam ports, etc., are the results of matured experience, and are well calculated to insure the maximum economy of performance."



Further particulars, and a copy of their new catalogue, may be obtained by writing to Messrs. Edw. P. Allis & Co., Milwaukee, Wis.—*From the Miller and Millwright.*

A WORD TO AMERICAN MILLERS.

The time has now come when it is advisable to suggest to American millers one or two things that need their earnest and speedy attention. A short harvest in America, a good one in England, the past low prices of flour, the determination of English millers to spare no pains to exclude American flour from our markets, all these and several other things combine to make the coming time one of crisis. English bakers want American flour, and if possible will have it; but we are never sure unless we order direct or from very large agents that we can get the article we require, and we appeal to American millers to assist us. But to do this two things seem essential on the part of the millers across the Atlantic; first, simplification and continuity of their brands; secondly, some method of sealing up the flour so that when we receive if from our flour factor in England we may be absolutely certain that no one has tampered with it. American brands, even from the best mills, are a perfect mystery to us. The same flour comes to this country with different names. A flour known in the north under one brand is known in the south under another very different. This should not be allowed to continue. Every large milling firm that exports flour should select some system of branding, either using numbers or letters or fancy names, *and stick to them*, and as far as possible let us have the same fixity of quality. Let the qualityof every brand never vary, so that we may buy a par-

ticular brand without fear of being deceived as too often we are now. We order a stone and get a brick. The same flour should never bear two names.

Now, as to sealing the flour. There is so much fraud both in mixing inferior English flour with good American and palming the mixture off in American sacks, as American flour, that it is surely the interests of American millers to stop this. Again, in some cases English flour *in toto* is sold as American by being placed in American bags. To remedy this state of things, we would suggest to our American friends the following: — Let each export miller secure a trade mark for use in this country, and under our present patent law, the cost is trifling. Next, let them so pack their flour as to have only one means of being emptied and by use of a string tie up this, and with *a leaden seal* securely fasten the ends of the string. This seal should bear the trade mark on one side, and the name of the miller, brand of the flour, and date of milling, on the other. This could be so arranged that it would be impossible for any one to open the bag without breaking the seal. Every miller could put his secret mark, either on the bag, the string, or the seal, and then by judicious keenness on this side detect any fraudulent attempt at imitation, and, in case of need, prosecute and imprison the scoundrel who seeks to steal his name or brand. Lastly, let export American millers advertise in the trade papers of this country their brands and trade marks, and modes of sealing flour in *facsimile*, so that every Englich baker by looking at his trade paper, could compare the wood engraving of the leaden seal with the real seal itself. Let American millers invite English bakers to send any doubtful seals to one of their English agents. By some such simple means as these, American millers would be perfectly safe from fraud, and consolidate their flour so firmly in our markets that nothing could remove it. We shall be glad to hear what the American millers have to say about our suggestions. Our pages are open for ventillation of this subject. — *The British Confectioner and Baker.*

INCREASE OF RAILROAD SPEED.

President Graff, of the American Society of Civil Engineers, in his address at their recent annual meeting, said:

There has been considerable advance made in the rate of speed upon most of the principal trunk lines. We have to record the fastest short distance, ordinary daily travel, made in the world to the Baltimore & Ohio road, on that part of its line between Baltimore and Washington, where a distance of forty miles is daily covered in forty-five minutes, being an average rate of fifty-three and one-third miles per hour.

A speed equally wonderful, when the long distance traveled is considered, is being daily accomplished upon the Pennsylvania Railroad from New York to Chicago, a distance of nine hundred and twelve miles; the average running time made is a little over thirty-eight and one-half miles per hour.

From a table recently published, we learn that the Pennsylvania road runs trains from New York between Germantown Junction and Philadelphia, eighty-four miles, at the average rate of forty-nine and four-tenths miles per hour. The fastest English trains for about the same distance (eighty miles) are run at the rate of forty-seven and one-eight miles per hour. Upon the French roads, for runs of about the same distance, the fastest record is forty-four and one-third miles per hour.

By way of comparison of the early and present locomotives and speed of travel, the Baltimore & Ohio Railroad, over whose tracks we have been brought to this spot, will afford a good example.

The first locomotive built in this country to carry passengers was constructed by the late Peter Cooper, and commenced running in 1830. Its weight was less than one ton, drawing one car containing thirty-six passengers, at the rate of thirteen miles per hour.

To-day trains pass over the road of the same company between Baltimore and Washington at the rate of fifty-three and one-third miles per hour.

The last and heaviest locomotive built has just been finished by the Baldwin Works, Philadelpha, weighs about sixty-four tons has ten driving-wheels, and a capacity to draw 500 tons up a grade of 105 feet to the mile.

Cable roads for street traffic are increasing in number, and are now in use in San Francisco, Chicago, Detroit, and Kansas City. Several lines are being constructed in Philadelphia; the general plan which originated in San Francisco in 1873, with modifications to suit the particular locality, is the one usually adopted.

The elevated road just completed in Brooklyn is, I believe, the only one of that kind finished during the past year.

ITEMS OF INTEREST.

To correctly judge of flour for its strength is difficult; the ordinary means of washing out the gluten, and judging by the quantity and color of the same, is in a degree misleading, and the only safe test is undoubtedly the baking test. Evidently recognizing this fact, the flour merchants and millers of Manchester invariably make this test, and seldom think of selling flour without showing samples of bread made therefrom, so that the buyer can judge the former from the color, texture and size of the loaf. This is an innovation, it is true, be ng only a few years old; it was brought about by the keener competition of foreign flour, and the introduction of of improved roller milling. Perhaps we shall shortly see this system introduced in London, which, as a flour center, is more important than either of the above named. London is, however, very conservative in these matters, and it will take some time before such an innovation is entertained. But what an interesting, not to say instructive, sight it would be to see samples of bread made from London-made flour and from foreign flour side by side.—*Millers' Gazette* (London).

THE *Western Druggist* says there is a largely increased demand for the gum of the eucalyptus tree, on account of its effect in removing scales in steam boilers and in preventing rust and "pitting." Extensive eucalyptus forests are to be planted in California with the object of supplying the demand.

MILLING STATISTICS IN GERMANY.—According to the most recent statistics of the German Empire the number of establishments with the number of employes for each mill and the total of the respective classes is as follows:

Mills employing from	Number of mills.	Total number of employes.
6 to 10	626	5,055
11 to 50	568	10,661
51 to 200	31	2,558
201 to 300	2	539

In 39,288 mills the help employed varies between 1 and 5, and the total number of these employes amounts to 87,639. In addition to this we are told 11,596 mills which are operated by the owner alone without any help whatever. The motor power offers some interesting figures, in which water seems to predominate:

Wind motors are given as	18,565
Water motors are given as	33,069
Steam motors are given at	1,797
Gas and hot-air motors are given as	18
Locomobiles are given as	37

A very instructive series of figures indeed, as showing the economical utilization of the cheapest, though unreliable powers of wind and water, and the comparatively small per centage of steam engines in the milling establishments of Germany. But the most interesting part of these statistics treats of the ownership of these mills and teaches in a short series of figures a large lesson in political economy. Thus we are told that the ownership of 51,000 of the total number of mills in Germany is divided among 108,007 persons; 1,004 are owned by companies, the stockholders representing 8.300 persons; agricultural societies with a membership of 1,692 own 78 mills; 20 belong to communal corporations and 9 belong to the state.—*Milling World.*

ON the St. Lawrence route the grain shipping trade needs some very important improvements to make it a full success. The tranship service at Kingston is unsatisfactory, there being neither elevators nor sufficient storage places. The river freights are too high, and the wharfage charges at Montreal in excess of those at New York, Boston, Portland, Philadelphia and Baltimore. However detrimental this may be, the limited exports of grain through the St. Lawrence are chiefly due to the small import trade of Canada. It is evident that a vessel which takes a cargo to one of the Atlantic ports can ship our grain on lower terms than a vessel that goes to Montreal in ballast. To take the grain export trade of the West from the Atlantic ports, Canada has spent lots of money on canals, but it has failed in its object for the above named reasons.

EXPORTS OF BREADSTUFFS.—A statement lately issued from the bureau of statistics shows that, during the twelve months ending June 30, 1885, the quantity of Indian corn exported from the United States was 51,351,585 bushels, against 44,799,061 bushels during the preceding twelve months. But the value of the corn shipped last year was only $27,624,123, against $27,333,558 the previous year. That is, while the quantity increased by more than six and a half millions bushels, the value increased by less than three hundred thousand dollars. Of wheat the export last year was 82,449,014 bushels in quantity and $71,088,456 in value, against 68,241,759 bushels in quantity and $72,901,191 in value the previous year. That is, while there was an increase last year of more than fourteen millions bushels in quantity, there was an actual decrease of not greatly less than two millions dollars in value.

In the case of wheat flour the showing is somewhat better. The export last year was 10,347,629 barrels, valued at $50,619,158, against 8,708,152 barrels, valued at $48,325,582, the year before. The total value of the exports of breadstuffs during the last fiscal year was $155,014,860, against $155,507,907. There appears therefore, a difference in favor of the previous fiscal year in the value of breadstuffs exported but the difference was a small one—of less than half a million dollars. During the last six months, however, the value of the exports was about eight and a half millions greater than during the corresponding period of the previous year. This, in view of the low prices, is a very gratifying improvement.

A Novel Invention.—The New York *Shipping List* states that a patent has been issued to a Gentleman of Gallipolis, O., for an invention that seems fair to rank with the sewing machine, the telephone, etc. It consists of a pair of scales which announces, with unerring correctness, the value of any number of tons, pounds or ounces at any price. For instance, a ham is placed on the scales, its weight is 12¾ lbs, and the price is 12½c per lb. A sliding weight is moved along the beam until it balances the ham. In the notch where this weight stops will be found the worth of the meat in dollars and cents to a fraction. Again, suppose a child comes to the grocery for 50c worth of tea that is selling at 78c per lb. One indicator is set at 50 and the other at 78. The tea is poured into the scoop until the scales balance, when the amount is found to be as correct as if several minutes of valuable time had been employed to weigh it and figure out the price in the old way. The invention can be applied to druggists's scales, stock or letter scales, and will, doubtless, cause a revolution in the scale business generally. A New York gentleman, who saw the first model at work, describes it as perfectly wonderful in its operation, and yet so simple in action that a child can learn to use it in a few moments.

THINGS WORTH KNOWING.

Indestructibility of Gold.—Gold may be said to be everlasting, indestructible. The pure acids have no effect upon it. Air and water are alike prohibited from working its destruction; while to baser metals they are decay, to gold they are innoculous. Bury it through long ages, and when the rude tool of the excavator again brings it to light, while everything around it, and originally associated with it, has returned to dust from which it sprang; while the delicate form which it adorned has become a powder so impaplable as to be inappreciable; while the strong bone of the mighty warrior crumbles as you gaze upon it; while his trusty sword lies a mass of shale rust, the delicate tracery in gold which adorned it, or the finely wrought tiara which encircled the lofty brow of the fair damsel, is there in its pristine beauty, perfect as when it left the workman's hands and became the joy of her fleeting moments. Yes, days, years, centuries, have rolled by; mighty empires have risen and fallen; dynasties that dreamed their power was to be everlasting have passed away; armies have marched, conquered, and become nerveless with decrepit old age; cities teeming with population and commerce have become the dwelling place of the owl and the bat; the very pyramids themselves, raised in the pride of power, and destined to be forever, have crumbled, and are crumbling, and yet that thin filament of gold has stood unchanged through all these mighty changes. It has withstood triumphantly the destroying hand of time; it is to-day what it was three thousand years ago. Surely it is a noble metal worthy of all admiration.—*By Sir Henry Vivian.*

Mill Girders.—In a recent paper on mill architecture in the *Journal of the Franklin Institute*, Mr. John Hexamer gave some excellent hints. Speaking of girders he said: "Girders should be solid. When it is necessary to use compound girders, they should be tightly bolted together, so as to leave no intervening spaces. In storehouses, etc., where there is but little vibration, girders may be inserted in the wall by placing them either on brackets or a short distance into the wall, with beveled edges, without any further anchoring. In mills where the amount of vibration is great, Woodbury advises to securely bind the beam to the wall, by embedding in the masonry a flat cast-iron plate with a transverse fin upon each side near the end, one to secure the plate in the wall and the other in a groove across the under side of the beam, firmly secured by wedges driven in at each side of the fin. The bricks in the wall for about five courses above the beam, should be laid dry, and the upper edge of the beam slightly rounded, and an air space should be provided at each side of the beams. Under no consideration should the old-fashioned anchorage of fastening the girder on the outside of the wall with a large anchor plate be used, as when the beams burn through, the leverage brought to bear on the wall will overturn it."

Excellent Interest Rules.—The answers in each case being in cents, separate the two right-hand figures of answer to express in dollars and cents.

Four per cent.—Multiply the principal by the number of days to run, separate right-hand figure from the product, and divide by nine.

Five per cent.—Multiply number of days, and divide by seventy-two.

Six per cent.—Multiply number of days, separate right-hand figures, and divide by six.

Eight per cent.—Multiply by number of days, and divide by forty-five.

Nine per cent.—Multiply by number of days, separate right-hand figure, and divide by four.

Ten per cent.—Multiply by number of days, and divide by thirty-five.

Twelve per cent.—Multiply by number of days, separate right-hand figure and divide by three.

To find the time in which a sum of money will double itself at a certain rate of interest divide seventy-two by the rate of interest and the result will be the number of years. For example, at four per cent. money will double in eighteen years; at eight per cent. it doubles in nine years. The rule is correct to within a fraction of a year for all rates from three per cent. upward.

THE RATE OF RECESSION OF NIAGARA FALLS.

Writing to Nature, Mr. Edward Wesson, of Providence, R. I., discusses the question of the rate at which the Niagara Falls recede southward, uses as a basis the outlines of the falls as determined by the New York Geological Survey of 1842, the United States Lake Survey of 1875, and by Thomas Evershed for the New York Commission in 1883. He finds as the mean of the measurements of a number of sections along perpendiculars from the contone at the date of each survey, for the Canadian falls, 2½ feet per annum for the 33 years ending 1875, 7½ feet for the 8 years ending 1883, and 2½ feet for the 41 years ending 1883. The American fall, measured in ten sections, gave a total mean recession of 37½ feet in the 41 years ending in 1883, which is at the rate of about 10 inches per year. Mr. Wesson says: "I do not know that I have seen any estimate attempted of the relative volumes of water passing over the two falls. From such imperfect data as I have referring to depth and swiftness I should think that the rate of erosion for each fall gave some approximation to the volume of water discharged over each; that is to say, 2¾ feet per annum for the Canadian fall, 5-6 foot per annum for the American fall, would signify that the former pours over its brink three times as much water as the latter. At the rates of recession above shown it is evident that at no very remote age the two falls were united in one, and the entire width was about the same as that of the present Canadian fall alone. Moreover, the mean width of the fall, from the time it commenced its work at the "hights," 7 miles below its present position, according to Lyell's statement as to the gorge of Niagara River, was not greater than the present Canadian fall. Adding together the present work done by both falls, we should have about 3½ feet per annum as the backward work performed when the entire volume poured over single fall of the width of the present Canadian fall. At this rate 10,000 years would seem sufficient time for the cutting out of the present gorge terminating at the "hights" toward Lake Ontario, instead of Lyell's estimate of 35,000 years. All attempts to calculate the rate of movement proceed on the assumption that the hardness of the limerock and shale, the volume of water and the height of the fall were for the whole distance much the same as they now are; I merely use these same assumptions. It in no wise reflects on Lyell's judgment that he should have erred so greatly in attempting to estimate the rate of regression, while yet the contour of the fall at different periods had not been fixed by triangulation. He was ever the first to lay aside a conjecture when he could lay hold of something more solid in its stead, and it was by his candor and sound judgment in discussing natural phenomena that my interest in such matters was chiefly awakened. The statement made by him that Hooker, his guide in 1841, reported that an indentation of 40 feet had been made in the American fall since 1815 seems to contain the basis on which he estimated the rate of regression for both falls, as this amounts to a little over 1 foot per annum. A reference to the results given by me show this to have been approximately correct for the mean rate at the American fall, but wholly inapplicable when applied to the much more important Canadian fall. A consideration of his section of the Niagara River leads me to suppose that the falls in the earlier part of their history worked even more rapidly than now in undermining the brink.

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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.

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. SEE COMBINATION OFFERS ON OTHER PAGES.

☞*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.*

TO ADVERTISERS.

Milwaukee, Wis., Sept 1, 1885,

To Those Interested in the Flouring Trade:

THE UNITED STATES MILLER is now in its tenth year, and is a thoroughly established and much valued trade paper. It has a large regular list of domestic and foreign subscribers. It is sent monthly to United States Consuls in foreign countries, to be filed in their offices for inspection by visitors. It is on file with the Secretaries of American and European Boards of Trade for inspection of members. Aside from the above, thousands of SAMPLE COPIES are sent out every month to flour mill owners who are not subscribers, for the purpose of inducing them to become regular subscribers, and for the benefit of those advertising in our columns. Every copy is mailed in a separate wrapper. Our editions have not been at any time since January, 1882, less than 5,100 COPIES each, and are frequently in excess of that (see affidavit below). We honestly believe that the advertising columns of the UNITED STATES MILLER will bring you greater returns in proportion to the amount of money invested than any other milling paper published. Advertisers that have tried our paper for even a few months have invariably expressed themselves well satisfied with the results. Our advertising rates are reasonable. Send for estimates, stating space needed. The subscription price of the paper with premium is One Dollar per year. Sample copy sent free when requested. We respectfully invite you to favor us with your patronage. We shall be pleased to receive copies of your catalogues, and also trades items for publication free of charge Trusting that we may soon be favored with your orders, we are,

Yours truly,
UNITED STATES MILLER.
E. HARRISON CAWKER, *Publisher.*

THE census just completed shows that St. Paul has 111,397 inhabitants and Minneapolis 129,200. Minneapolitans feel jubilant over the result.

THE *Manufacturers' Record*, Baltimore, Ohio, is responsible for the assertion that 166 new flouring mills have been built in the Southern States since January, 1885.

IT is now conceded that on account of the dry weather in Great Britain the crops of wheat, etc., will fall considerably below the estimates made heretofore.

THE contract has been let for building the line of railroad for the Wisconsin Central Railroad from Schleisingerville to Chicago. The grading is to be completed by Dec. 1.

THE Pennsylvania Millers Association will hold their regular annual meeting at Bethlehem, Pa., Oct. 13, next. Valuable papers will be read and an excursion made among the mountains by rail.

THE Wisconsin State Fair will be held at Madison, Sept. 7—11. The Managers have spared no effort or expense to make the State Fair this year, one of the very best ever held.

WE have received the initial number of *The Black Diamond* a paper published in the coal interest in Chicago, Ill. It is neatly printed, well edited and will, no doubt, prove a valuable auxiliary to the trade it represents.

THOSE of our readers who may have use for a boiler purger will do well to consult H. P. Graves' advertisement on another page. This purger has been in use in the office where the UNITED STATES MILLER is printed (Riverside Printing Co.) for the past year, and it has given entire satisfaction.

THE Fifth Annual Milwaukee Exposition opens Sept. 2. The attractions, we are assured, will be greater and grander than ever. Every resident of Wisconsin should, if possible, make it a point to visit this Exposition. The information and amusement there to be obtained is well worth the cost and trouble of a visit. Railroads will give excursion rates, we understand, to parties desiring to attend.

THE WHEAT CROP.

According to the August report of the U. S. Department of Agriculture, the crop of winter wheat is 215,000,000 bushels, and probable spring wheat 142,000,000, making a total wheat crop for 1885 of 357,000,000. It is estimated that taking into consideration the large surplus left over from the 1884 crop, that there will be from 120,000,000 to 130,000,000 bushels of wheat available for export, most of which will, no doubt, go abroad in the shape of flour. The crops of corn, oats, etc., are larger than usual, so there will be no dearth of grain for feeding stock. The quality of winter wheat is very good; while that of spring wheat is probably below the average. The prospects do not point towards high prices.

WORTH THINKING ABOUT.

Do you think because you are a miller, blacksmith, or machinist, that it is necessary to carry the marks of your trade on your clothes and person from your place of labor through the streets to your home or boarding house? Is there anything particularly edifying to the friends you may meet upon the street, male and female, in the sight of dirt-begrimed clothing and skin? We do not believe there is, and we do not believe that any person ever yet advanced their interests by neglecting to keep themselves tidy. Let the mechanic who has been in the habit of carrying the marks of his trade around with him everywhere and taking a sort of pride in his general untidiness stop and think a bit and run over in his mind the list of his fellow-workmen who have been, as he thinks, especially fortunate in securing promotion and better positions generally, and if his memory serves him rightly, he will remember that those were the very chaps that used to wash up and take off their overhauls before leaving the shop and starting for home, and that they were always considered regular "old grannies" because they used to be so particular about taking care of their tools and disliking to lend them. It does not make a man any the worse mechanic for being neat about his person, and argue as you will, the world as it goes has a greater respect for a neat, clean person than it has for a dirty one.

GEO. T. SMITH MIDDLINGS PURIFIERS AND IMPROVED CENTRIFUGALS AT THE STATE FAIRS.

The Geo. T. Smith Middlings Purifier Co have perfected arrangements to have their recently improved centrifugal reel, with scalper attachment, in practical operation at each of the following named State and district fairs on the dates following:

Michigan, Kalamazoo, Sept. 14–18; Ohio, Columbus, Sept. 1–5; Tri-State, Toledo, Sept. 8–13; Northern Indiana, Southern Michigan, South Bend, Ind., Sept. 22–26; Indiana, Indianapolis, Sept. 29–Oct. 4; Iowa, Des Moines, Sept. 4–11; New York, Albany, Sept. 10–16; Nebraska, Lincoln, Sept. 11–18; Pennsylvania, Philadelphia, Sept. 23–Oct. 7; Wisconsin, Madison, Sept. 7–11. At both the Southern Expositions at Louisville, Ky., which opens Aug. 15, and which continues until Oct. 24, and the St. Louis Exposition, from Sept. 9–Oct. 24, large and interesting exhibits of centrifugals, with and without scalpers, purifiers and dust collectors, will be made. The Company will be pleased to have millers and mill men make their headquarters with them and have their mail forwarded to their care, if they desire, while they are visiting the exhibitions at any of the places named above. The exhibits will be attended by men whose especial business will be to entertain visitors and furnish information concerning the machines, without regard to whether inquirers are intending purchasers or not.

MILWAUKEE NOTES.

The Val. Blatz Brewing company is erecting a large elevator at the corner of Broadway and Division street. The building is to be 60x120, and 90 feet high, and will have a capacity of 400,000 bushels of barley. A malt kiln, 50x60 feet, is also being erected, and will be supplied with the latest improvements for drying malt.

The task of compiling the statistics of manufacturing interests of the city has been completed by City Clerk Porth. The following recapitulation of the capital invested in and the value of the products of the city's various manufacturing enterprises will be of interest:

During the year the total value of iron products and manufactured articles of iron in the city reached $3,130,500, and the value of leather and manufactured articles of leather was $4,500,400.

There were 3,300 wagons, carriages and sleighs manufactured, representing a value of $412,700.

There were 960,420 barrels of beer manufactured, valued at $6,045,336; and 400,000 gallons of whisky, at a total value of $500,000; 3,907,000 gallons of vinegar were made, all being valued at $426,560.

The product of woolen fabrics is estimated at $115,000; of earthenware, $33,500, and of drain tile, $38,000.

The number of cigars and cigarettes manufactured during the year was 49,318,800, estimated at $1,397,436, while the total amount of all other tobaccos manufactured was 3,637,000 pounds, an aggregate value of $858,000.

The flouring mills of Milwaukee show up well, having turned out 1,057,953 barrels of flour during the year, representing a money value of $5,094,479.39.

All other manufactured articles are classed under one head, and the value of their products is estimated at $11,413,359.63.

The total value of the real estate and machinery used in the local manufacturing enterprises is $8,395,066.58; of the stock and fixtures, $7,552,851.23, showing a total investment of $15,947,917.76. The amount of wages paid for labor performed in the enterprises cited above during the year, was $6,210,165.72, while the number of men employed is set down at 15,156.

The total value of the products of the local manufacturing interests, according to the reports received by the city clerk, is $34,069,271.02, while the total amount of money invested, including wages paid, during the year, is $22,158,083.48.

Grain Inspector Black was severely injured Aug. 20th, by being thrown from his buggy.

The Jos. Schlitz Brewing Co., are erecting a house for the exclusive purpose of bottling beer. It will be a one-story building 17 feet high and 164 feet wide by 340 feet in length. The building will cost $100,000 and will have railroad connections in the building with all railroads entering Milwaukee. When completed it is said that it will be the largest and most complete bottling plant in the world.

W. J. Stemler, one of the brightest young millers ever graduated from Milwaukee flouring mills, is spending a few weeks vacation here with his many friends.

[Written for the U. S. MILLER.]

"THE MILL IS CLOSED TO-DAY."

Yes, mister—the mill is closed to-day.

Why?

O yes; I see you're a stranger in town. Well, sit down on the old mill steps and I'll tell you about it. My name 's Jim, and you see, I've been workin' in the mill for Mr. Bowers nigh on to six year, and he says he reckons I know the run of things 'bout as well as he does himself, although he's a mighty clever man. Well, Bowers' wife, one of the most pleasin' women you ever saw, died last spring, and though they'd been married nigh twenty year, they had only one child—one of the sweetest little girls you ever saw, 'bout four years old. She had the same soft blue eyes and fair hair her mother had, and after the wife died, Mr. Bowers sort o' center'd all his affections on little Jessie, and I tell you, he's a man what's got a big heart in him. Seems as if he couldn't bear to have that child out of his sight a minit. He used to take her on his shoulder every morning and bring her down to the mill, and when he had a bit of time he'd play with her, and tell her baby stories, and when she'd get tired he'd fix up a nice little bed for her on the top of the flour sacks, where he could see her, and let her go to sleep. Yes, lots of times I've seen him slip up to that child while she was sleepin' and kiss her hand so gentle 's not to 'wake her. Oh, I tell you, stranger, he really loved that child *too* much; don't b'lieve God wants us to love anything in this world too much—leastwise it looks so to me.

Did she die?

O, yes; little Jessie 's an angel now, if there be any. This is Monday, and last Thursday mornin' 'long 'bout eight o'clock, I stood in the mill door and saw Mr. Bowers and little Jessie comin' down the street to the mill. They both seemed in high spirits and were chasin' butterflies 'round among the dog-fennels and daisies, and havin' a jolly lot of fun. Bime-by they got to the mill, and she said: "Good mornin', Jim; how do," just as cheerful like as could be. Then all of a sudden she drew her face down long as could be, and says: "Jim, I've got somethin' just awful to tell you." "Well, what is it," says I, drawing down my face as long as I could, and tryin' my best to keep from laughin', for she did look so cute like when she drawed her face down sort o' solemn. "Jim," said she, "you know that pretty wax doll you gave me last Christmas?" "Yes, little Miss," says I, "What about it?" "Well, Jim," says she, "she 's gone; she 's been gone for the last three days, and I've looked just *everywhere* for her and I *can't* find her, and it makes me feel so bad, for I loved Dolly so, and you gave her to me." "O never mind," says I, sort of cheerful like. "May be she 's gone and fell into the water and got drowned," says her father. Little boys and girls and dolls must keep away from the water or they're like enough to get drowned." "Oh, I don't believe my Dolly's drowned. It would be just *awful* if she was—wouldn't it Jim?" "Yes, 'twould," says I, "but never mind; if Dolly 's really gone, you may get another some time." "I don't want any other," says she, "I just loved that Dolly, and never could love another, if she 's gone" Well, then we sort o' changed the subject, and, after an hour or so, she says: "Papa, I'm sleepy." "All right, my darling," says he "come and get up here and take a nap," and he fixed up a nice place for her on the sacks and covered her up and tenderly kissed her, and as he was about to turn away, she says: "Papa, do you *really* think my poor Dolly 's drowned?" "Oh, no," says he, smiling, "dolls don't get drowned. Even if she had fallen in the water she'd float, and may be somebody would find her." "Well, papa dear" says she, "kiss me again before you go; and I do hope poor Dolly will come back to us." He kissed her gently, and she covered up her pretty little face and, I suppose, went to sleep.

Pretty soon we heard some one outside holler "Whoa," followed by a sort of a crash, and we ran out and saw that Farmer Jones had, in coming along past the mill, with a big load of wood on his wagon, struck a big stone with his hind wheel and broke the axle. We turned in and helped him to rig a pole under the axle, to drag on the ground, so that he could get his load to a place near by where he wanted to unload it. We were gone, perhaps, twenty minutes. We went back to the mill; Mr. Bowers glanced at the spot where he had left little Jessie asleep. She was not there. "My God! where is Jessie?" he almost screamed, and his face turned 'most as white as flour. He seemed to feel that minit, that summat was wrong. Now, right by the side of the mill-stones and over the place where the water runs away from the wheels, a window was open, (it was a pretty warm day). We ran to the window and looked down, and there, in the sort of eddy made by the water as it ran out, we saw the body of poor little Jessie, floating round and round. She, most likely, had gone to look out of the window to see if she could see her doll in the water. We both run around to the side of the mill, but Mr. Bowers was ahead of me, and he plunged in (the water wasn't more'n three feet deep,) and seized her poor wet little body in his arms and brought her out. He ran with her to the doctor's house close by, but it was too late. She was dead. Her father did not shed a tear or speak a word, but there was that in his face which I hope I may never see again —it was a sort of a look of despair—a hopeless sorrow—a broken heart.

Well, on Sunday they buried her. The children sang at her grave and strewed flowers upon it, but her father still carried that awful look upon his face. This morning, I went up to the house and saw him walking among the flower beds, and as he walked his foot struck against something and knocked it out in sight. He stooped to pick it up. "O Jim," said he, "It 's Jessie's doll!" and he threw himself on the ground and burst into tears. I reckon the tears must 'a got into my eyes, too, for I had to turn away and as I walked down here towards the mill, everything seemed to be sort o' blurred like, and I don't remember rightly how I got here.

Yes, stranger, the mill is closed to-day; and as I said before, little Jessie 's an angel in heaven, if there be any.

CAWKER.

THE EFFECT OF OIL IN BOILERS.

When oil is used to remove scale from steam-boilers too much care cannot be exercised to make sure that it is free from grease or animal oil. Nothing but pure mineral oil should be used. Crude petroleum is one thing; black oil, which may mean almost anything, is very likely to be something quite different.

The action of grease in a boiler is peculiar, but not more so than we might expect. It does not dissolve in the water, nor does it decompose, neither does it remain on top of the water, but it seems to form itself into what may be described as "slugs," which at first seem to be slightly lighter than the water, of just such a gravity in fact, that the circulation of the water carries them about at will. After a short season of boiling these "slugs" or suspended drops seem to acquire a certain degree of "stickiness," so that when they come into contact with the shell and flues of the boiler they begin

to adhere thereto. Then under the action of heat they begin the process of "varnishing" the interior of the boiler. The thinnest possible coating of this varnish is sufficient to bring about overheating of the plates, as we have found repeatedly in our experience. We emphasize the point that it is not necessary to have a coating of grease of any appreciable thickness to cause overheating and bagging of plates and leaking at seams.

The time when the damage is most likely to occur is after the fires are banked, for then, the formation of steam being checked, the circulation of water stops, and the grease then has an opportunity to settle at the bottom of the boiler and prevent contact of the water with the fire-sheets. Under these circumstances a very low degree of heat in the furnace is sufficient to overheat the plates to such an extent that bulging is sure to occur. When the facts are understood it will be found quite unnecessary to attribute the damage to low water. — *The Michigan Manufacturer.*

GRAIN CROPS IN CANADA.

TORONTO, Ont., Aug. 17.—The report of the Bureau of Industries on the wheat, oats, and barley crops of Ontario, based on returns made by 1,000 correspondents up to the 5th inst., has just been issued. The fall wheat crop just harvested has been a good one, both in yield per acre and quality of grain. The average will be about as high as that of the fine crop of last year. The condition of the spring wheat crop throughout the province, though somewhat inferior to that of fall wheat, affords ground for hope of a fair average yield, in spite of a good many adversities. Seeding was generally later than usual, and growth was further retarded by cold, dry weather in May and early in June. Cutting will not be general until the 20th. In the Western Peninsula wheat is exposed to rust, midge and wevil. Barley, except in a few localities, has been generally heavy and well matured, but the color of the great bulk of the crop has been materially damaged by storms. Probably not far from three-fourths of all the barley in the province was exposed. The accounts of the oat crop are uniformly favorable from every section, and give promise of a high average, though not equal on the whole to the bountiful yield of last year. The following is a comparison between the yield of last year and the estimated yield of this year of the crops: Fall wheat, 1884, 24 bushels per acre; 1885, 23 and a fraction; spring wheat, 1884, 20 and a fraction; 1885, 18; barley, 1884, 27, and a fraction; 1885, 28; oats, 1884, 38.9; 1885, 38.3.

The following extract from *The British and Foreign Confectioner and Baker*, will sound pleasantly to the American flour exporter:

The hold American flour has gained here is due alone to its merits, and not to long forward sales or long terms of payment. We have authority for saying that the best grist flour yet offered in Scotland will not yield more than 94 to 98 loaves per sack, while American pure winter wheat flour from America will give 98 to 100 loaves, and spring flour 102 to 105 loaves per sack. Bakers who put brains and common sense into their business are governed by that difference in outturn, more especially when it is accompanied by better color, better flavor—qualities found inherent in high grades of flour from single milled American wheat. Of what value to the baker we would ask, is long terms of payment, or an inferior article?

TWEEDLEDUM AND TWEEDLEDEE.

You go upon the Board of Trade
Where margin merchants meet,
And take some little options
On January wheat;
You watch the little ticker,
Till the hands swing round the ring,
Then you'll find your little boodle
Has gone a-glimmering.
That's Business.

You go into a faro bank.
You buy a stack of chips,
And watch the cards come from the box
Which the dealer deftly flips,
When your head is dull and aching
At the breaking of the day,
You see that fickle fortune
Has gone the other way.
That's Gambling.

—*Columbus Bohemian.*

MILLING PATENTS.

The following list of patents relating to milling interests, granted by the U. S. Patent Office during the past two months, is specially reported by Stout & Underwood, Solicitors of Patents, 66 Wisconsin st., Milwaukee, Wis., who will send a copy of any patent named on receipt of 50 cents.

Issue of June 30, 1885.—No. 321,007, Crushing-roll, Henry J. Chapin, New York, N.Y.; No. 321,030, Roller-mill feed mechanism, William Hutchinson, Ottawa, Ontario, Canada; No. 321,045, Metallic Grinding-ring, John G. Mole, Batavia, Ill.; No. 321,108, Bran duster and cleaner, Levi S. Hogeboom and Henry B. Smith, Three Rivers, Mich.; No. 321,129, Automatic Grain-scale, John F. Milligan. St. Louis, Mo.; No. 321,209, Automatic weighing and sacking machine, F. M. Gladish, Aullville, Mo.; No. 321,286, Combined truck and bag holder, Ebenezar J. Earl, Charlotte, Mich.; No 321,387, Combined Electrical weighing scale and flour and bran packer, Charles W. Roth, Evansville, Ind.; No. 10,617, (Re-issue), Flour bolt, Noah W. Holt, Buffalo, N. Y.

Issue of July 7, 1885.—No. 321,427, Rolling-mill, Chas. F. Elmes, Chicago, Ill.; No. 321,481, Grain-scales, Alfred J. Bule, St. Louis, Mo.; No. 321,551, Roller Grinding-mill, William H. Wakeford, Baltimore, Md.; No. 321,600, Driving mechanism for Roller-mills, John V. Hecker, New York, N. Y.; No. 321,875, Bolting-reel, Abraham N. Wolf, Allentown, Pa.

Issue of July 14, 1885.—No. 322,080, Mill for hulling grain, Diedrich Uhlhorn, Jr., Grevenbroich, Germany; No. 322,264, Mill feed regulator, Henry R. Deler, Freeburg, Ohio; No. 322,257, Process of drying grain, Henry I. Chase, Philander F. Chase and Henry G. Chase, Chicago, Ill.; No. 322,252, Method of drying grain, David M. Bunnell, Brooklyn, N.Y.; No. 322,305, Grain-bin, John Mason, Francesville, Ind.; No. 322,358, Bolting reel, Robert L Downton, St. Louis, Mo.; No. 322,400, Grinding mill, Ambrose W. Straub, Philadelphia, Pa.

Issue of July 21, 1885.—Holder for bags, Andrew N. Barnes, Rondout, N. Y; No. 322,466, Recleaner for grain and seed separators, Abraham Miller, Newark, Ohio; No. 322,700, Wheat scouring and cleaning machine, Frederick Dorsey, Hagarstown Md.; No. 322,715, Bran-duster, August Heine, Silver Creek, N. Y; No. 322,773, Grinding-mill, Alphonso L. Anderson and William T. Anderson, Tolland, Conn.; No. 322,820, Grain Separator, Israel Hess, Goshen, Ind; No. 322,824, Seed-cleaner and huller, R. Brent Hutchcraft, Paris, Ky.

Issue of July 28th, 1885.—No. 323,035, Grain scourer, J. L. Harvey, Plover, Wis.; No. 323,040. Reduction mill, H. C. Ingraham, Woodbridge, N. J.; No. 323,057, Grain tryer, T. Meylor, St. Louis, Mo.; No. ———, Grain cleaner and grader, S. R Backus, Toledo, Ohio; No. 323,143, Bolting reel, A. Heine, Silver Creek, N. Y.; No. 323,221, Grain dryer, D. E. Sibley, Chicago, Ill.; No. 323,224, Mouth-piece for pneumatic lifting apparatus for grain conveyors, L. Smith, Kansas City, Mo.; No. 323,225, Mouth-piece for pneumatic grain transfer apparatus, L. Smith, Kansas City, Mo.; No. 323,226, Pneumatic grain elevator and transfer apparatus; L. Smith, Kansas City, Mo.; No. 333,247, Bran-duster, J. W. Wilson, Brookville, Kan.; No. 323,317, Pneumatic apparatus for grain conveyors and attachments, S. Goodrich, Akron, Ohio.

Issue of August 4, 1885.—No. 223,509, Oscillating grain-meter, George B. Howland, Chicago, Ill.; No. 323,561, Feed-mill, Thomas C. Cadwgan, Springfield, O.; No. 323,533, Automatic grain-weighing machine, Carl Reuther, Hennef, Prussia, Germany; No 323,579, Clothing for Bolting reels, Augu t Heine, Silver Creek, N. Y.

Issue of August 11, 1885.—No. 324,029, Flour-bolt, John Koelner, Terre Haute, Ill.; No. 324,047, Rotary head for grinding mills, Thomas L. Sturtevant, Framingham, Mass.; No. 324,182, Grain dryer, Heinrich Stollwerk, Cologne, Germany; No. 324,187, Flour bolt reel, Vandiver Teague, Lenoir, N. C; No. 10,634, Grinding-mill, Walter. C. Westaway, Beloit, Wis., (Re-issue).

Issue of August 18, 1885—No. 324,363, Grinding-mill, Mortimer C. Cogswell, New York, N. Y.; No. 324,392, Device for dressing mill-stones, Edwin W. Lockwood, Nevada, I.; No. 324,473, Combined grinding-mill, bolt and purifier, Chas. F. King, Covington, Pa; No. 334,556, Oat-meal machine, James C. Holloway, San Francisco, Cal.; No. 324,595, Bolting-reel, Henry F. Requier, Asnieres, France; N. 324,668, Combined bag-holder, scale and truck, Jasper Dollison and Ja's Long, Salesville, Ohio; No. 324,737, Grain-dryer, Jesse R. Sitler, Axtell, Kansas.

Issue of August 22, 1885—No. 325,093, Wild pea and oat separator, James M. King, Rochester, Minn. No. 325,128, Centrifugal bolting reel, Edgar A. Squier, Tiffin, Ohio; No. 325,170, Ventilator for grain-bins, Ben. F. Harrell, New Marion, Ind.

LONDON FLOUR REPORT.

The Trade is steady at about last week's prices. American Millers continue to hold up their quotations for forward shipment, and very little business can be concluded on C. I. F. terms, meanwhile harvest operations continue under the most favorable conditions, many fields are already cleared, and another week of hot sunshine and drying winds will see most of the 1885 wheat-harvest safely housed and threshing commenced. The new wheat, samples of which have already been shown, is of fine quality, but it is doubtful whether much will be fit or ready for grinding before next month. Meanwhile Minnesota flours are becoming scarce on the market, and as bakers will require a large proportion of this class for mixing with the new English flour, the present low price should induce operators to get into stock without further delay. There seems little chance of Minneapolis millers being able or willing to sell this strong flour at anything like present spot prices, and another few weeks will, probably, see this grade almost off the market with, in consequence, a material rise in value. WM. KLEIN & SONS.

London, Aug. 15, 1885.

Under date of Aug. 22, Messrs. Wm. Klein & Co., (London) say: In spite of a heavy drop in New York quotations the last week has seen little alteration in the price of flour on the spot, the business done however has been on a very reduced scale; American C. I. F. quotations may be called fully 1/- per 280 lbs. lower than this day week but are still above the low prices, ruling for the generality of brands on the spot and there is little or no disposition to buy forward at an advance. On the other hand the stocks of spring wheat flour continue to decrease, and being already in small compass and strong hands, there should be no risk in buying them at present prices both for present and future delivery. Harvest-operations continue freely in most district, but thundershowers have delayed carrying in some localities so far, however, no damage is reported.

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OFFICE OF

Cawker's American Flour Mill Directory

AND

THE UNITED STATES MILLER.

MILWAUKEE, WIS., August, 1885.

TO OWNERS OF FLOURING MILLS:

We desire to revise and correct our list of ***Flour Mill Owners****, and therefore beg that you will answer the questions below by* ***return mail.*** *This list is used for the purpose of reaching flour mill owners by mill furnishers, engine and water wheel builders, flour and grain brokers, city bakers, insurance companies, publishers of milling papers, and in short by manufacturers of and dealers in everything used in or about a flour mill. You will therefore perceive that it is of great value to* ***you*** *to be properly entered in our list. If you are not already a subscriber to the* ***United States Miller,*** *we trust you will order your name entered on our subscription list at once. We have sent you sample copies of the paper at various times, and we think that you will certainly admit that it is worth the small sum of a* ***dollar a year.*** *We want you for regular subscribers, but whether you do subscribe for the* ***United States Miller*** *or* ***not, DO NOT FAIL TO ANSWER OUR QUESTIONS*** *by return mail. Address*

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What is the name of proprietor, or firm, and name, if any, of mill?

Name ..... Post Office .....

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Do you use water or steam power? .....

How many barrels of wheat flour can your mill make in 24 hours if you run up to full capacity? .....

Do you use the Roller or Stone system, or both .....

Do you make a specialty of making rye flour, corn-meal, oat-meal, buckwheat, or hominy? .....

Please enclose your business card and oblige us with the names of all mill owners who receive their mail at your post-office, and give us any information that will tend to make our work perfect.

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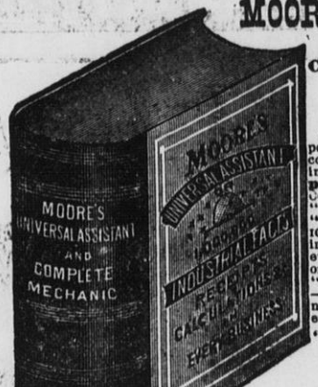

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The United States Miller

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PULL IT WHEN IT'S RIPE.

Say hesitating, anxious one,
Why vacillating stand,
And let the best chance of your life
Go slipping through your hand?
Why not brace up your weak back-bone
And show the proper stripe,
By reaching for that chance at once
And pull it when it's ripe?

A million men have failed, because
They were too slow or fast,
And millions more will do the same,
As long as men shall last.
Why should there be so many folk
Of such unhappy type?
There wouldn't be, if men would watch,
And pull it when it's ripe.

HOW STARCH IS MADE.

The Indianapolis *Sentinel* describes a visit to the Franklin Starch Works of Thompson, White & Co., where so called non-chemical starch is made.

The works are located in the north-east part of the city, on a ten-acre lot, usually known as the Old Fair Grounds. The buildings cover three acres of ground. The main building is 150 by 200 feet, two stories high. Just south of the main building is a large crib with a capacity of seventy thousand bushels of corn.

Near the east side of the main building are the large vats for the reception of the coarse feed, and a little farther south are the gluten vats—two in number, sixteen by two hundred feet, and about four feet deep. Near the south-east corner of the main building the corn is carried by a belt from the crib to the sheller, which has a capacity of over one thousand five hundred bushels a day, and is run by a separate engine of forty horse-power. After the corn is shelled it is carried to the "cleaner," where all the dust and dirt is removed. It is then by means of an elevator deposited in a long bin in the upper story. By means of separate spouts the corn is conveyed into fourteen large "steep tanks" holding six hundred bushels each. After being covered with hot water it is allowed to remain six days, or until it is sufficiently soured. It is then by a screw conveyor and elevator taken to the millstones hopper. Just before it reaches this point it passes through a revolving wire screen, which separates the corn from the water.

It is then conveyed to the mills, four in number, being mixed again with water, and after going through two sets of four-feet millstones it passes below to the "shakers." These are vibrating boxes, open at one end and covered with a wire and satin sieve. Here the starch and gluten are separated from the solid particles of the corn which is called "coarse feed." This descends into a well and is pumped up by means of a powerful force pump, and run off into vats for its reception, where it is drained and ready for sale. After passing through the "shakers," the starch and gluten is conveyed to the "run house," receiving on its way a stream of water. The run house is a room one hundred feet square, containing fifty-six troughs, about eighteen inches wide and one hundred feet in length. These runs are slightly inclosed, and while passing through them the starch settles to the bottom, while the watery part passes off and is run into the gluten vats. The starch is then conveyed to the agitator wells, and, being mixed with cold water, is throughly agitated by means of a revolving rake. It is then pumped up and passes through a bolting reel, where all the impurities are separated, and the pure starch conveyed by means of pipes, to sixty-three settling tubs. The water is then drawn off, and the starch, pure and white, is conveyed to a large receptacle, where it is placed into the mould boxes.

After remaining in the mould boxes three to four hours it is cut into blocks about six inches square, elevated to the second floor, placed on cars, and run into the crusting room where it remains over night. The next morning the blocks are scraped, or rather the crust cut off with sharp knives, and are wrapped in blue or bronze paper, by one person, at the rate of eight hundred packages per hour. These packages are placed on cars with slatted frames, holding 392 packages each. About one hundred of these cars are used. As they are filled they are run into the dry room, which is kept at an average temperature of one hundred and sixty degrees by means of steam pipes. The starch is kept here until it is thoroughly dried into the prismatic form in which it is purchased in the market. The cars are run to the wareroom and the packages wrapped in blue paper or packed in boxes, while those in brown paper are conveyed to the packer and packed in barrels by means of a flour packer, at the rate of two hundred barrels a day.

The principal brands of starch manufactured by the Franklin Works are the "Acme," for laundry purposes, "Pure Corn," and "Powdered," for confectioners and baking powder manufacturers. All of these brands have a high standing in the market, and find ready sale in all the principal markets of the country. The machinery is all of the most approved pattern, and is, by various ingenious devices, made to do the principal part of the work. Still about fifty men are employed when the works are in operation.

To obtain a superior quality of starch the corn must first be properly steeped, and the operator in this department must have skill and experience. To secure starch from corn in paying quantities it must be properly ground. The next important point is in the sieving. The smallest hole in the sieve will admit impure matter, which it is hard to eliminate. Again, particular attention is required in the precipitation of the starch on the inclined plane. In the dry room great attention must be paid to the temperature; too high a temperature will produce a scorch, and too low a mould.

APPLICATIONS FOR SPACE.

Advices from New Orleans state that applications for space in the various buildings of the American Exposition, to open on November 10th, are daily pouring in from States, cities and large business firms in all parts of the United States; while the countries of Mexico, Central and South America, as well as important places in Europe, are sending in a large quota. In fact, where, at the outset, the filling of the oceans of vacant space caused the promoters of the enterprise no inconsiderable amount of anxiety, the situation has in the the past few months been entirely reversed, and the management deem it their duty to inform those intending exhibitors who have not yet applied for space to do so at once, ere it be too late. While this is, of course, a very gratifying state of affairs, that the management is able to announce, still it shows the necessity of city and individual exhibitors who have thus far failed to make their applications for space doing so immediately. There is no longer any question of the success of the American Exposition; it has been constructed upon sound business principles; it is operated by business men, to solve the commercial problem of the day—securing an outlet for our surplus manufactured products. The non manufacturing countries of Spanish and Portuguese America are looked to for the relief needed. At the coming Exposition they will contrast their resources with ours, and afford the opportunity of reaching an early understanding for the establishment of business relations of mutual advantage. This question of new trade relations for merchants of the United States necessitates prompt action on the part of our manufacturers and business men, in order that they shall be represented in the magnificent Exposition to take place in New Orleans, this winter.

ROLLER PROCESS CORNMEAL.

Richard Birchholz, writing for the *Millwright and Engineer*, says the best cornmeal upon the market at present is ground on corrugated rolls in a series of reductions. No stone can produce so even and granular an article, as it will flour a great part of the stock and the bran. The same dress of the stone best fit to convert corn kernels into meal is too fine to grind feed in required quantity and too coarse to grind rye flour. It is out of the question that it pays to have one stone or set of rolls for feed alone and one stone for meal and graham, rye and buckwheat flour. As a plant of a number of corrugated rolls (from 4 to 6 pairs) with the necessary scalpers is rather expensive, how can I produce a better article with stones and rolls combined? I find myself not always ready to answer my own questions, especially when asking myself how to become a millionaire a little more "sudden," but this question I *can* answer promptly.

The corn kernel consists of four characteristic matters, viz: The bran, the starch, the germ and the glossy, hard substance. The best cornmeal is free of bran particles, and contains but little of the starch and germ. The oil of the latter, amounting to 6 per cent., or three pounds per bushel, is the cause of the meal becoming rancid, not properly kilndried. Good meal made of yellow corn has a clear saffrony appearance, of sharp touch; the meal of white corn looks clear, transparent and glossy. The corn kernels are too large for any machine to grind them out in one reduction. The stone in grinding corn to meal, pulverizes a great part of the starch and the germ, the combined flour of both having a dirty, grayish appearance; it also chops up some of the bran; the finished meal has no rich yellow or white cast; it looks dirty, feels soft and slippery, and does not keep. Suppose we have a feed-grinding plant and besides that a stone to grind meal; then we need in addition a double corrugated roller mill, divided, one pair of rolls corrugated four teeth per inch, the other pair 24 teeth per inch. We furthermore find necessary a centrifugal scalping machine, clothed with heavy wire, 26 inch mesh (an old smutter or a bran-duster properly clothed will do the work), a five-foot scalping reel and a duplex cornmeal scalping machine. The corn is broken on the pair of coarsely corrugated rolls. By this operation a great deal of dust is set free; it is the starch falling apart. This broken mass is acted harshly upon by the centrifugal scalper, and the hard substance is polished; the starch and germ are both more or less loosened by the attrition of the parts among themselves, or on the wire cloth. The flour dropping through the meshes is of a dirty color and must be spouted to the feed. The tailings of this centrifugal scalper are to be spouted to the stone, which is bosomed out considerably, the grinding surface not to be wider than six inches around the skirt, the stones to be dressed to granulate. The meal of the stones is to go to the duplex scalping machine, which should be made to deliver five products, viz: flour, (which is to go to feed), fine meal, coarse meal, coarse gritz and bran. The latter is finished, the coarse gritz should be spouted to the fine corrugated roll, and after it passes the rolls elevated to the plain scalper, built on the top of the duplex scalping machine, which takes off the fine bran; the siftings are directed to the duplex scalping machine, where the flour is taken out.

The meal is very good and cheaply made. If it is desired to further improve it, then the miller will have to reach into his pocket and buy a small cornmeal purifier, to suck out the minute particles of bran. If he wants the meal for shipment and must needs keep it sweet for a reasonable length of time he will bob down serenely for more ducats to buy a meal drier.

The millers will readily understand that when grinding the corn three times, far less bran particles will be chopped into the meal. The stone grinds high, and the corrugated roll will cut the bran as little as any other corrugated roll does in comparison with stones. As the stone is dressed to granulate, it will be fit to grind rye and wheat for graham flour. It will of course be necessary to have an extra rye reel.

A BLACK INVENTOR.

A recent issue of the Montgomery (Va.) *Messenger* contains the following:

Minnes Haden, a worthy colored blacksmith of this place, has lately invented one of the most ingenious and valuable devices we have ever seen. Being a poor man and unable to employ a hand as striker, he cast about how he might do by machinery what heretofore could be done only by the hand of man. The result of his cogitations is a piece of very simply machinery by which the striking hammer is easily and effectively worked by his foot, while he has both hands free to hold his iron and use the small hammer. To a listener the blows come as naturally and as rapidly as if there were two men handling the hammers in the old-fashioned way, but there is a difference. The machine, by an easy motion of the foot on the treadle, strikes a harder blow than any man can strike, and can be made at will to strike as light a blow as may be needed. But the use of this simple and cheap device in the blacksmith's shop is not half. It can be just as easily used, and will find a large field of usefulness, in driving a drill for blasting rock. In its present form, without any change, one man can drive a drill perpendicularly as easily as three men now do the same work. By a very simple and easy plan hammers can be provided and attached, which will make it just as easy to drive a hole horizontally or at any required angle, and the whole work can be done by one man. The machine is portable and need not be very heavy. Mr. D. W. Frizzell has become a part owner of this invention. A caveat has been secured, and Mr. Frizzell is expecting to receive a patent as soon as the papers are made out.

GRADUAL REDUCTION WITH BURRS.

The discussion about millstones seems to become more settled, and, by all appearances, the millstone is not entirely thrown away. The millstones, as they are yet, were built and driven for different work. Then what is wanted at present? They were made to reduce the wheat to flour by one reduction, and for that work were they built and driven, but as soon as the wheat had to be reduced gradually, they did not answer the purpose. It was not the nature of the stone which did not answer, but it is the manner in which the stone is hung and driven. As soon as high milling came in favor, their faults were found out, but the reason was not altered. Their failure to gradually reduce lies in the cockhead which the stone swings on. To reduce wheat gradually on stones, the runner-stone has to run positively parallel to the bed-stone, no matter what the distance is between the stones, and to balance the runner so accurately that the variation is less than the thickness of a middlings kernel, is a difficult process, at least, even if possible. And if the runner don't run with that exactness, it will first pulverize the bran and then wear off one-quarter of the runner more than the rest of the stone, so that after a while the runner is untrue, no matter how straight it was in the beginning, and the miller has to straighten it again. It is the pulverizing of the bran which brought the stone into disrepute, and nothing else. Now, to do away with the cockhead and have the runner rigid on the spindle, there are two ways. The upper runner and the under runner will each work alike and do the work satisfactory, provided they are made right and substantially kept that way. The upper runner on this system is more liable to get out of order than the under runner. First, by the taking off for dressing and laying on again, and, second, the support is not so substantial. The under runner is not taken off for dressing, has a better and more substantial support, and better facilities for regulating it after dressing. Such an under runner, of 3½ feet diameter, will do more work than a common four-foot stone will do. The middlings may be reduced just as much as the miller wishes for till it gets reduced to the thickness of the bran particles, because the positive parallel distance does not pulverize the bran, and a careful miller will obtain a result which will satisfy any reasonable man.—*Northwestern Miller.*

HEATING FEED WATER BY EXHAUST STEAM.

It has been a commonly accepted doctrine, without any really distinct reason being given for it, other than usage or practice, that feed water for the steam boiler could only be heated to from 170 deg. to 208 deg. F. We have seen a great deal of energy expended upon the debating of this question, and always with the same general result, viz., that the feed-water heater, although an essential part of the apparatus for steam-power, was at the same time incapable of accomplishing anything more than our grandfathers accomplished in 1784, and that for the same reason the stone was carried in one end of the bag and the corn in the other, the man who attempted to show feed water higher than 208 deg. or 210 deg. must either be stretching the truth or yielding to the delusions of his imagination.

We have recently had some experience in this matter which has been valuable to us, and at the risk of stating a thing which is not so, or being mistaken, we propose to give some facts. We have often spoken and written upon the general delusion of throttling steam, carrying it around a variety of corners, angles, bends, and of the necessity, in working steam, always to work it as free as possible from the boiler to the end of the exhaust pipe. The same thing refers to some of the feed water heaters which are now in use. Their inventors or constructors, from a lack of knowledge, seem to suppose that

steam can be carried up and down, around and around, or can go through sundry gyrations in its course, with a presumptiveness on our part that the designer supposed that, with little obstructions in the passage of the stream, he was going to give out more heat to the water. But this is all wrong. The old idea holds good, and practice demonstrates its correctness; if the steam is to make a turn in its exhaust, give it ample room in which to do it, but the nearer a direct line the steam can flow the better, now only for the freedom of exhaust, followed by no back pressure, but as well for its giving out the heat it contains to the feed water, with which it comes indirectly in contact. It is no uncommon thing now to find positively no back pressure, free exhaust of the steam, and yet to find feed water going into the boiler at 214 deg. F., and not using a doctored thermometer to accomplish it either. In other cases as high as 220 deg.; we do not know but even higher than this has been secured.

The reader may naturally ask why and how. That is not for us to discuss; we are dealing now with facts, not with vagaries. Our own basis is, however, that with a rightly constructed heater, the steam shall not be driven through tortuous passages, shall not be deflected from a straight line or free egress, unless, if it has to turn, the area is largely increased over that of the first passage, which must be in excess of the total square inches of area of the exhaust pipe. When an engine exhausts under two, three, five or ten pounds above the atmosphere, there is a temperature accompanying the exhaust, especially where this is being moved rapidly, that gives a very considerable heat out to the water, in case the possibilities exist for the steam doing its work correctly. It is also likely that wherever the construction of a feed-water heater is such that the steam is tortured in its leaving the engine for the atmosphere, the steam is still further reduced even by a trifling back pressure (very much as direct steam is passed through pipes, valves, bends, etc., until it turns more and more to water) returning more and more to water, and reducing its sensible heat and its capacity for imparting heat to the feed water, with which it comes indirectly in contact.

If we take steam at the atmospheric pressure of fifteen pounds, we have 213 deg. sensible heat. If, now, we add ten pounds release, it certainly requires a little time for that pressure to equalize itself, or come down to the pressure of the atmosphere. In that case we have 240 deg. of heat for a time. Now, let us suppose the heater to be properly arranged so as to aid in partially condensing the steam, or at least by making a change of 30 or 40 deg., will it not aid to bring the steam to the heater quicker, something after the manner of an air pump, then it would if we allowed free flow, depending upon the pressure and the pulsation of the engine? Why not, then, utilize some of the difference between 212 and 240 deg.? We often hear men speak, when looking at the exhaust pipe, of the impossibility of heating feed water with exhaust steam at the atmospheric pressure. A quarter or half pound increase over atmospheric pressure carries with it a slight increase of temperature, and it is no uncommon thing for us to see exhaust steam shoot into the air from the top of a building, four, five, or in some cases twenty feet high. Is there not a difference between atmospheric pressure and the pressure of the steam whenever this occurs? If the actual pressure of the atmosphere if 14.7, it strikes us that 15 or 15½ pounds only are necessary to make quite a shoot of exhaust steam into the open air, and this makes a corresponding increase in temperature. Now, if the heater be rightly constructed, there is no difficulty, it seems to us, in accomplishing more than 208 or 210, or 212 deg, in the feed water for the boilers. We have seen the thing done, and know that it is being done every day, consequently it is past theoretical confirmation. It is not a matter of old usage or ancient practice, but a fact that to-day water, when confined, can be heated to exceed 212 deg. F., but in too many cases it is from 30 to 50 degrees below that amount, as we have over and over again proved in our last twenty years' experience in this line, and we believe there is a chance still for progress in the heating of feed water or of increasing the temperature wherever the engine exhausts under pressure of several pounds above the atmosphere. On the authority of the *Western Manufacturer*, in which journal the above article appears, it advances the opinions of one of the ablest scientists in the country.

REVIVAL IN THE FLOUR TRADE AT ST. LOUIS.

"Flour is on a boom," says the *St. Louis Republican* of Sept. 17, "and is dragging wheat with it, and the business portion of the exchange yesterday was the flour corner. Prices advanced sharply and everybody appeared to have all the business he could comfortably manage. The demand had at last overtaken the supply, and even passed it, and for the first time in many months, orders were liberal, both as to quantity and to price. The first cause of the boom was, of course, the improvement of the consumptive demand, but this, in turn, was based on a prospective advance in values, in the immediate future. Consumers have been running along from hand to mouth for the past three months, and when the usual fall demand came, stocks were phenomenally light and soon exhausted. Consequently it became necessary to buy quickly, and, in view of the firming up of the market, heavily. Orders thus came in to local millers in fine lots and with an entire absence of the hair-splitting bids that marked the business of a few weeks ago. Low freights to the East enabled the millers, for the first time in many years, to do an Eastern and even an export business. Stocks of flour have been decreasing rapidly, and it is estimated that the 150,000 barrels in store in St. Louis last week have been reduced fully two-thirds, with no apparent diminution of the demand. In consequence of this improvement in the flour trade the milling grades of wheat have advanced steadily, and yesterday prices were to a dot as millers wanted them—steady and even firm, with an occasional upward tendency of a half cent or so. The situation in St. Louis is in some respects peculiar. There are heavy stocks of No. 2 wheat in the elevators, approximately 2,500,000 bushels, three-fourths of it being in East side houses. Receipts are exceedingly light and becoming more so daily. Of the few cars of wheat coming in but a small percentage contain No. 2 wheat; practically none of the Western wheat received is of the milling kind; the Indiana wheat is all right but it stops on the other side. The mills on this side, therefore, are in a somewhat worse position than those situated in the country, across the river."

FORTUNATE MILLING OPERATIVES.

On the 28th of September the great Minneapolis milling firm of C. A. Pillsbury & Co. divided the surplus over a certain amount of earnings among their workmen who have been with them five years, in accordance with a practice inaugurated three years ago. Two years ago the amount thus given out was $20,000, last year is was $24,000, and to-day it was $27,000. So well has this co-operative plan worked, stimulating the interest among the men in the company's success, that another leading milling firm is thinking of beginning it next year.

STRONG LOVE REWARDED.—A little girl, eleven years of age, at school, was directed by her teacher to write a composition on "Strong Love Rewarded." The following is the composition:

"There was a young and handsome lieutenant, and a young, beautiful girl, and they loved each other; but their parents wouldn't allow them to get married. But one day the lieutenant won a large amount of money, and then there was nothing to hinder. They got married and were happy, but they didn't get children. So a war broke out and he was commanded to go and fight for his country. While fighting he was taken prisoner, and was in prison seven years. Then he came home, and who can tell his joy when his wife showed him seven little children she had got while he was away! In this way did strong love get rewarded!"

HE COULDN'T GET OUT TO VOTE.—A party of English tourists were coming from the Yosemite last week, when one of them, who had been dubbed the interrogation point of the crowd, espied a pair of brogans sticking in the face of the bluff, toes down. Nudging the coach driver, who chanced to be old Bill McClenathan, he asked: "Ah, driver, I wondah what the doose those boots are doing up theah?"

Old Bill scarcely glanced up, as he replied: "That's a man buried up there, and the boys were in such a hurry that they did not dig deep enough to get his feet in."

"Bah Jawve, that's very strange, ye knaw; I'll make a note of that, but I say, driver, the toes point down. He must be buried on his face, d'ye knaw."

"Yes," said old Bill, musingly, "he was an Irishman."

"But what's his being an Irishman got to do with his being buried face down?" asked the now thoroughly aroused Britisher.

Old Bill looked at him in a pitying manner for some seconds, and then, in a tone full of deep sorrow and astonishment at the tourist's ignorance, said: "Well, do you see, we've got a sort of superstition out this way, that on election day every dead Irishman gets out of his grave and votes, and so lately we've got to burying 'em on the top of the hill, face down, so that the more the corpse tries to dig out the deeper he gets in the ground."

"Oh, yes, I see," said the Englishman, gravely, "I'll make a note of that for my book."—*San Francisco Post.*

ON THE JACKETING OF WORKING CYLINDERS OF STEAM ENGINES.

By A. S. Greene, C. E.

Among the various methods for increasing the efficiency of steam engines, and one that has been almost universally adopted, particularly in engines using large measures of expansion and in marine compound engines, is the system of steam jacketing the working cylinders. There are various ways of effecting this, but the most usual is to cast a cylinder somewhat larger than would otherwise be done and then to fit steam-tight within it, a smaller working cylinder, thus forming an annular space surrounding and extending its entire length, and to which steam of the boiler pressure and temperature may be constantly supplied. The cylinder heads are also cast with double shells, live steam being admitted to the space thus formed, so that the working cylinder is completely surrounded in all parts with a space that can be supplied with steam of the highest pressure and temperature employed in the engine. By this means a part, at least, of the heat that would otherwise have been lost by the steam within the cylinder during expansion is retained, or, more properly speaking, the heat lost by the expansion steam while performing work is partly restored by the abstraction of heat from the steam within the jacket. That only a part of the heat is thus restored, is due to the fact that the cylinder shell opposes a certain amount of resistance to, and that a certain amount of time is necessary for, the transmission of heat.

Of course, all the heat that is supplied to the expanding steam from the jacket must first be obtained from the original source, namely the boiler; and the jacket being also subject to a further loss of heat from radiation from the exterior surfaces, it follows necessarily that the amount of effective heat for transmission into work by the medium of the jacket is much less than that drawn from the boiler to supply it. It is, in fact, a sort of "robbing Peter to pay Paul" process, with this disadvantage, that the amount received by Paul is very considerably less than that of which Peter has been robbed.

If it be really advantageous to reheat the expanding steam in the working cylinder, it would seem that some more rational and effective process, in which the resistance of the cylinder shell to the transmission of heat, and the loss from radiation, from the excess of exterior surface of the jacket over that of the actual working cylinder, would be avoided. This could easily be accomplished by supplying a small jet of steam from the main steam chest or steam pipe directly to the interior of the working cylinder, during the time of expansion, by means of suitably arranged and automatically operated valves. The ports for this purpose would necessarily be small; they need not be as large as the section of the pipe ordinarily used for supplying steam to the jacket, for the same amount of heat supplied in this direct way would certainly effect a much greater amount of reheating than could possibly be done through the medium of the jacket. If, as it is generally believed, the loss of heat within the cylinder produces a condensation of the steam, which, instead of being deposited as water on the inner surface, remains as a kind of mist distributed throughout the interior, then certainly a jet of hot steam mingled directly with this mist must be more effective in reheating and converting it into dry steam than the surface heating from the jacket.

The writer is well aware of the tenacity with which engineers, and particularly the builders of steam engines, cling to pet theories, especially after they have been so generally adopted in practice, and can readily understand that where profits are reckoned as a percentage of the labor and material employed in building machinery, the excess of these necessitated where the steam jacket is adopted would be a powerful argument in its favor; but from an experience in the use of steam, extending over a period of more than twenty-five years, he has reached the clear and decided conclusion that there is nothing to be gained by the use of the steam jacket, or any equivalent, that cannot be better and more rationally secured by other and more direct means.

The steam engine being a machine for the transformation of heat into power, steam acting simply as a vehicle for carrying that power, the entire question, outside of mechanical details, is reduced to a question of heat. As it is axiomatic that a part cannot be equal to or greater than the whole, it is hard to understand how a part of a given quantity of heat can be made to yield more work than the whole of it, or that a given quantity of heat indirectly applied can be more effective than when it is directly applied; and yet this is exactly what is expected of the steam jacket, the jacket being supplied with acertain amount of heat, only a part of which, it is well known, is to be effective within the cylinder, or in performing work. It is plain that, of the heat supplied to the jacket, the loss due to the resistance to transmission through the shell of the cylinder, is a loss which does not obtain when the heat is applied directly to the interior of the cylinder, and that the loss due to radiation from the exterior surfaces, which, though small compared to the total heat supplied to the jacket, must be vastly greater than that from the unjacketed cylinder, from the fact of the great excess of those surfaces, and the higher temperature constantly maintained beneath them. Again, the heat from the jacket, which is effective within the cylinder, must act in re-evaporating previously condensed steam, or in superheating, thus increasing the tension, and the steam of increased tension thus produced is subject to losses of the same character within the cylinder, as if supplied directly from the main steam pipe at first, though the limits between which the losses occur may be different with the jacket from what they would be without it. Although the heat is constantly maintained in the whole jacket at all times, it can only be efficient in a part of the cylinder which is on one side of the piston, for, on the opposite side, it is communicated to the vacuum space and must be a dead loss for as great a time as it is a gain. Hence, the supposed gain attributed to the use of the jacket, it is believed, must be imaginary or due to some other cause.

It has been observed on several occasions, when running engines with the starting valve slightly open to one end of the cylinder to prevent thumping, that, although during half the revolution communication was open directly to the condenser, causing a clear loss, the gain during the other half of the revolution was sufficient to apparently compensate the loss, so that the revolutions were not reduced, nor the coal consumption materially increased; and this in one case with the low-pressure cylinder of a compound engine, the valve being but slightly open and passing steam from the main steam pipe. A case is also remembered where a steam engine builder contracted with a mill owner to remodel an old engine and fit it for running his mill, for which he was to receive in payment the price of the coal saved in a certain time by the use of the remodeled engine, compared with that used by the engine of a rival builder, running the same length of time.

The remodeled engine was carefully supplied with steam jackets, and with all the necessary accompaniments, but after a few weeks' use, and when it came to determining, by careful and accurate measurement, the quantity of coal consumed on which to base the payment, steam was carefully excluded from the jacket and air admitted instead, simply as a non-conductor to prevent loss of heat by radiation. It is needless to add that steam was not afterwards used in the jacket and, notwithstanding this exclusion, the engine continued to work with remarkable economy of fuel.

Whether there is any advantage to be derived from the use of the steam jacket or not, there are several disadvantages with which it is inevitably attended. There is extra material and labor required in the construction, and liability to loss of castings from their extra complicated nature, which causes extra first cost, besides extra weight and space occupied, together with the liability to cracking from unequal heating in getting under way, which are of special importance in the case of marine engines.

It is the writer's opinion that the best place to utilize the heat of steam in producing work is within the working cylinder, and not outside of it, preventing, as much as possible, the losses of heat, not by the use of the jacket, but with light sheet iron to inclose a corresponding space to contain air, which inclosure should be sufficiently tight to prevent circulation of the air and loss of heat from convection, and then carefully and thickly felted, and cased with wood outside of that. With the cylinder properly clothed, it is believed, better results would be obtained than by the use of the jacket, and certainly many extra pipes, valves, traps and much annoyance, would be avoided.

CORN CRIBS.

Wintering corn in imperfectly built cribs is still a wide-spread habit, though it is well known that it is greatly deteriorating to the value of the stored corn. Such cribs are invariably infested with rats and mice, which damage the corn not only by what they destroy by eating out the chit or germ of the corn, but also by the effluvia arising from their nesting places, contaminating the corn all over. Bitter corn arises largely from fermentation of the cob when put in wet. Too compact storing causes mold in the corn, which finally gets damp and rotted. All this generally involves a loss large enough to pay from 10 to 15 per cent. on the investment necessary to build a permanent crib that would keep the corn perfectly safe from the deteriorating influences for years.

A crib, eight feet at the bottom, flared to twelve feet at the top, and covered securely from rain, will preserve corn perfectly if dry enough to crib, because the air circulates freely all around. If such a crib should be extended, say 100 feet, the case would, of course, be different, and a crib uniformly twelve feet wide is still more unfit for wintering corn. Twelve-feet cribs are not unusual in the dry climate of the West, and keep the corn perfectly in ordinary seasons. But in seasons when the corn does not ripen perfectly, or when a long spell of foggy weather falls in, penetrating the crib, the corn becomes damp through and through. If warm weather ensues before the wind dries out the corn, the germ is attacked, producing bitterness and mold, resulting at length in rottenness.

The fact that corn kept compactly in wide cribs, never dare be used for seed, is sufficient evidence that such are not calculated to season corn in the best manner for other purposes. It is, therefore, wise economy that every one build crib room enough to properly safe all corn that must remain with him after March or April.

In building a crib three things are chiefly o be taken into consideration. Immunity from rats and other vermin, provision against rain and snow getting in, and safety from heating by providing circulation of air.

Protection against vermin is obtained by elevating the crib eighteen inches above the ground on posts, placing an inverted tin pan on a large, flat, smooth stone, between the top of the post and the sills of the crib.

Danger from a leaky roof is averted by a proper inclination—not less than a quarter pitch—and by keeping the roof-boards, if so made carefully nailed. Grooved boards properly battened make the most perfect roof. For obvious reasons it should be a double-pitched roof, and extend over the side of the crib twelve inches to prevent the drip from driving on in top of the corn. If, before snow is expected, the crib be boarded tight from under the eaves, six inches below the top of the corn, this boarding to be removed early in spring, no danger from driving snow will be experienced. If, in addition, the side strips are put on diagonally, the drip will be distributed more equally along the outside and quickly dry.

To prevent heating or fermentation in the body of the crib twelve feet wide, the following plan will be found practicable and safe: Form a skeleton of six-inch fencing, two or three feet wide at the bottom and half the height of the crib, carried to a sharp peak at the top of the skeleton, running the entire length of the crib, and the spaces between the boards to be six inches wide. Thus the crib is virtually divided in two, allowing a horizontal and a vertical circulation of air through the center.

In a crib built in that manner, corn will never spoil unless it be put in wet.

CORN IN THE UNITED STATES.

As factor in the advancement of the material interests of America, and in the promotion of the general welfare of its people, the production of maize, or Indian corn, has played quite as important a part as any other one element.

Looking over the record of many years past, we find that while the production of this most prolific and useful staple has within less than a score of years risen from 300,000,000 bushels to near 2,000,000,000, the per centage of our exportation of it has in an almost inverse ratio declined. This, in so far as it goes, in encouraging, since, as this relative declension has been going on, the exports of the products of corn, meats, lard, etc., have been vastly enlarged. It shows that the production of live stock has outstripped the needs of our rapidly increasing population, and kept ahead of the growth of those things upon which domestic animals feed; and that thus we are marketing the cereal products of our soil in a manufactured shape instead of the raw. It is this utilization of our grain that enriches our lands and in many ways, necessarily, the material wealth and prosperity of our people. But even this remarkable and gratifying progress should not satisfy us. Instead of thus profiting from a part, we should profit from the whole. The true policy of the nation is to send out the products of the soil in a manufactured form. Why do we export in a raw shape five-sixths or five-sevenths of a 6,000,000 bale cotton crop, valued at, say, $125,000,000 and send out annually in a manufactured shape less than a couple of millions dollars' worth, while we are importing $40,000,000 of similar kinds of goods—who can tell? And echo answers: Who?

Our soil and climate are especially adapted to an immense production of Indian corn. In these respects nearly all Western and Central Europe cannot compete—may be counted out. Unlike the marvelous increase in the area which in the past decade has been devoted to its culture on this side of the Atlantic, it has there been contracted. Their home resources for bread and meat are steadily contracting, while those of America are far more rapidly expanding. The point we wish more particularly to make is to retain at home everything in the shape of cereals that cannot be converted into a compact manufactured form for export. Let us keep at home all that our land will produce, the grain itself, the excrement of cattle, the offal of all animals, and even their horns and bones. Give Europe bread and meat, but let the profits of the commission from the beginning to the end be placed to the credit of the loss and gain account of America, and not to that of the foreigner. This is "protection" in its essence.—*N. Y. Produce Exchange Reporter.*

A MEETING OF GERMAN MILLERS.

On the 27th of July last the Görlitz Branch of the Association of German Millers held a meeting in the town of that name, which had more than a local importance, inasmuch as a general invitation had been extended to all members of the parent association, and this invitation received, by all accounts, a hearty response. Among the guests was conspicuous Herr J. J. Van der Wyngaert, the President of the Head Branch. Görlitz, it may be mentioned, is, after Breslau, the most important centre of the province of Prussian Silesia, and it is probable that some part of the success of the meeting was due to the fact that that event synchronized with an important local exhibition which has proved a great source of attraction, seeing that, according to the latest advices, it has been visited by over 900,000 persons. It included several milling exhibits. The proceedings commenced at ten o'clock in the morning, in the Concert Hall, where Herr Th. Lehmann-Liebsgen, the President of the Görlitz Branch, welcomed his guests, and touched on the various circumstances that had induced the Görlitz Branch to invite their brethren to what would otherwise have been a local and semi-private meeting. They had taken this step partly on account of the abandonment of the annual general meeting, partly on account of their local exhibition, and also on other grounds.

The speaker then briefly sketched the history of the Association, which might, he remarked, celebrate its twentieth birthday in this present year, since the founding of the Association was due to a committee called together in 1865 in Dresden. Herr Van der Wyngaert, who still guided the Association, was even then placed at the head. In 1867 the first meeting of the Association took place in Berlin; in 1869 the first milling exhibition was held in Leipsic, and every year general meetings had been held, which had the advantage of enlarging the knowledge of those connected with the milling trade, and of enabling them to exchange notes. Later on followed other international exhibitions in Nuremberg and Berlin, which had been the means of stirring up a fresh departure in the art of milling, and thus it had come about that they had to report a highly satisfactory development of the milling engineer's art. Whereas formerly they could only look with envy on neighboring lands, especially southwards, where milling had reached a higher development—whereas in the first half of this century they could only buy high-class machinery abroad, and had English machinery and French millstones, to-day Belgium and France employed German engineers to erect their mills. They would hope for a much further extension of this development, and trust that they now stood, not at its end, but only at its commencement. And the Association had taken an honorable share in bringing them so far. Their inventors would lose spirit, if at their meetings they had not an opportunity of making their inventions known, and of hearing the views of practical men of them. Next year an International Milling Exhibition would be held at Augsburg. The speaker closed his speech by some remarks relative to the part played by the Association in representing the milling interest as affected by recent legislation.

Herr J. J. Van der Wyngaert then laid before the meeting the impressions he had brought back from his recent visits to the Antwerp International Exhibition and to the Paris International Milling Exhibition. In Paris he had seen much that was interesting, but yet little essentially new. The Antwerp Exhibition afforded very remarkable pictures of the industrial and decorative arts of many nations; and the great Machinery hall in particular was a sight which he had never seen surpassed in all his wide experience of shows and exhibitions.

A discussion of the private business of the branch, which then followed, was utilized by the guests for a visit to the Exhibition; and the day was fitly closed by a dinner, which was attended by two hundred persons —*The Miller (London).*

UNITED STATES MILLER.

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

MILWAUKEE AMUSEMENTS.

ACADEMY OF MUSIC— Performances every evening, Wednesday, Saturday and Sunday matinees.

GRAND OPERA HOUSE.—Performances every evening, and Wednesday, Saturday and Sunday matinees.

DIME MUSEUM—Performances every hour from 1 P. M. to 10 P. M. every day.

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MILWAUKEE EXPOSITION opens Sept. 2.

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WE acknowledge the receipt of the Seventh Annual Report of the transactions of the National Association of British and Irish Millers, from the secretary, Mr. J. H. Chatterton, of 61 Mark Lane, London.

WE have the pleasure to announce that we will issue Cawker's American Flour Mill, and Mill Furnishers Directory for 1886 about Feb. 1, 1886. Price, $10 per copy. We desire all who wish copies to send in their orders now, as only a very limited edition will be printed. The work will be issued in first-class style and the publisher will use his best endeavors to make it perfect. All communications in reference to it should be addressed to E. Harrison Cawker, publisher UNITED STATES MILLER, Milwaukee, Wis.

THE *Roller Mill* and the *Milling World*, of Buffalo, appear to be all broke up about milling newspaper matters in Milwaukee. We cannot speak for others, but we desire to say for the UNITED STATES MILLER that it does not now and never has considered the subject of consolidation with any other paper. It is a plain outspoken journal, pays its way, minds its own business, and to the best of its ability serves its readers and advertising patrons. Our patrons appear to be satisfied with the course taken by the UNITED STATES MILLER.

GIBSON'S GRADUAL REDUCTION MILLING.

We have received from the publisher, Mr. C. M. Palmer, of Minneapolis, Minn., a copy of the above entitled work. It is a handsome volume of 430 pages, and contains numerous diagrams. The author says: "This book is intended to be one which has distinctively to do with milling and milling methods, but not with milling machinery." This idea seems to be well carried out and we have no hesitation in saying that there is to-day no book in the English language which is of such practical importance to the operative miller as the one above named.

The price of this book is $3.00 per copy, sent postpaid to any address in the world, on receipt of price. See advertisement on another page.

ALL persons connected in any way with the milling industry will find it a blessing to have a copy of the UNITED STATES MILLER sent regularly to their address. We will send a sample copy of it free to all in the trade who may apply to us for a copy. You can examine it carefully, read our premium and book lists, and we believe that you will after a fair inspection feel that it is *to your interest* to subscribe. It only costs with premium, one dollar per year. The UNITED STATES MILLER has been published nearly ten years, and the experience and knowledge gained by its publisher in that time is a sufficient guaran- of a valuable paper.

MILL OWNERS should not fail to answer our inquiries on another page concerning capacity of mill, power used, etc., at once. It is to *your* interest to do so. Don't be behind others in making replies. We have taken the pains and expense to fix up a blank in the paper, so that you will have but little trouble to comply with our request. *No mill owner who considers himself of any importance* should fail to take advantage of this opportunity to be fully and correctly reported in Cawker's Flour Mill Directory for 1886.

MEETING OF THE SUB-EXECUTIVE COMMITTEE OF THE MILLERS' NATIONAL ASSOCIATION, IN MILWAUKEE, SEPT. 22, 23.

A meeting of the Sub-Executive Committee of the Millers' National Association was held at the Plankinton House, Milwaukee, on Sept. 22 and 23.

The following matters were discussed and acted upon:

REBATE ON JUTE BAGS.

Resolved, That the secretary is hereby authorized to enter into correspondence with the treasury department looking to removal of obstacles now in the way of collecting rebate; and further

Resolved, That the president appoint a delegate from Minneapolis who, with the secretary, shall proceed to Washington to personally lay the whole matter before the department, and secure such rulings, as shall relieve the export flour trade from the vexations, annoyance and unnecessary expense, in short, from the prohibitory restrictions attending the collection of rebate on jute bags.

Resolved, That the committee be empowered to expend such moneys as it shall deem necessary to secure the required result.

TRANSPORTATION DELAYS.

Claims involving delays in transit were presented by different members of the Association for the consideration of the Special Committee on Export. Upon careful investigation it was found that the delay was wholly the fault of the trans-Atlantic steamship companies, whose headquarters and property were in foreign ports and could not be reached by the ordinary process of law in this country. Past experience has abundantly demonstrated that the trans-Atlantic steamship companies are virtually out of our reach; most all of them sail under the British flag, and their American agents are, with some commendable exceptions, wholly irresponsible whenever any claim for damage is looming up. Past experience has also demonstrated that our British correspondents, if they go to work vigorously and act in unison, can compel these steamship companies to indemnify them for losses arising from negligent delays and other shortcomings. We therefore strongly recommend the exporting millers to insist upon it that their European correspondents must protect themselves against the shortcomings, failures and neglect of their steamship companies, instead of calmly charging up all damages to the American shipper.

The Executive Committee of the Millers' National Association, after due consultation with many of the leading flour receivers of Great Britain, respectfully submit the following recommendations to the exporting millers with the hope, that these rules and regulations will be generally adopted. We are fully aware that our recommendations will not do away with all the grievances and disadvantages, under which the flour export trade has been laboring, but we consider this an initiatory step towards a full understanding what the duties and rights are as well of the American shipper as of the European receiver.

REGULATIONS.

LIABILITY FOR DELAYS IN TRANSIT.

In case of c. i. f. sales, the miller or shipper having contracted the freight with a regular line, having regular advertised sailings, and having delivered the flour to the forwarding agent within the contract time, shall be free from all liability arising from delay in transit.

INSURANCE.

Insurance on flour sold on c. i. f. terms to be not less than 10 per cent. above the net invoice value. Any marine loss on c. i. f. sales will act as a release to the seller on that contract, or so much of it as is included in the shipment to which the loss occurs, and the seller shall not be obliged to replace any of said shipment by reason of the sale being made on c. i. f. terms.

Insurance on consignments shall be not less than 10 per cent. in excess of draft or bill of exchange against the same.

Insurance money collected from marine loss on consignment shall pay:

1. The draft against the consignment.
2. A reasonable commission, not to exceed 1½ per cent., for the consignee.
3. The balance shall belong and revert to the consignor.

CLAIMS ARISING FROM INFERIOR QUALITY.

If a flour shipment is not up in quality to the type sample, but comes near enough to it, so as to be considered a "fair tender," the purchaser is obliged to accept the shipment at purchase price less the actual difference in quality.

Flour consigned for sale when once sold by the consignee and delivered to the buyer, must release the shipper from further liability as to quality, condition or price. The custom now prevailing in some European ports of allowing purchasers to return flour on various pretexts, more or less time after delivery, is unjust to the shipper and contrary to sound business principles.

SALES

Of consigned flour, made in regnlar form and so reported to the consignor, shall be final. We shall not recognize the arbitrary right exercised in some ports of the purchaser releasing himself at his own convenience of a bargain on "next market day," or at any other time.

BILLS OF LADING

To ports which have no regular steamship connection with the United States, shall be considered through bills if made to principal ports with the reshipment clause inserted.

The above regulations will be printed in convenient form on slips, to be pasted into the cable codes of the exporting miller as well as his European correspondents, with the understanding that all future business must be done on the basis of these additions to the code.

The secretary of the Association, S. H. Seamans, Milwaukee, Wis., will furnish these slips upon application to the members of the Association.

Sub-Executive Committee Millers' National Association.

C. H. SEYBT, Chairman.

S. H. SEAMANS, Secretary.

AN INTERNATIONAL MILLING EXPOSITION IN GERMANY.

An international exhibition of machinery employed in flouring, oil and saw mills, and in baking, is to be held at the city of Augsburg, in Bavaria, under the auspices of the Millers' Association of Germany, commencing July 11, and closing July 25, next year. The annual meeting of the association occurs at the same place. The committee in charge invites manufacturers throughout the world to participate in the exhibition, and will extend the time for receiving applications from American exhibitors to the end of October. The exhibits will be classified as follows: (1) Motive powers, wind mills, water wheels, turbines, engines, boilers, gas and caloric motors, systems of transmissions of power. (2) Auxiliary machinery, grain cleaning machines, reduction mills, stone mills, stones and rolls, cylinders, bolting machinery, purifiers, aspirators, wheat heaters, mulay, circular, band and veneer saws, kneading machinery, etc. (3) Tools and apparatus, stone dressing machines and tools, elevators, hoists, scales, wagons and carts, ovens, illuminating and safety appliances. (4) Furnishings, parts of machinery, belting, elevator cups, bags, bolt-cloths, saw blades, etc., etc. A jury will make awards. All communications should be addressed: An das Comite der Internationalen Muellerei Ausstellung in Augsburg, Germany.

NO RIGHT TO STEAL AWAY YOUR EMPLOYER'S BUSINESS.—In Van Wyck vs. Horowitz, New York Supreme Court, special term, 29 Daily Reg., 305, the question as to the right of a party to use another name upon his business cards, etc., by saying "late with," etc., is discussed. In this case the defendant, who had been employed by plaintiff as a workman upon jewelry and in the repair of watches, set up in a business similar to that kept by plaintiff, and put upon his cards and upon a sign in his store, "Late with James P. Van Wyck." This use of his name the plaintiff sought to restrain, and the court granted a motion to continue an injunction, saying: The statement of the case evokes instant condemnation from the hearer, and an analysis of the thoughts which produce such instantaneous conclusions will show that it rests upon sound legal principles as well as upon the conscience of the hearer. The defendant has no right of property in the name nor in the reputation of that business which he seeks to use with his own name and business so as to give his own prominence at the expense of the other. If the defendant had been a stove blackener, or hostler, or an errand boy in the employ of the plaintiff, or a clerk discharged for want of fidelity or competency, he could with just as much truth advertise himself as "late with James P. Van Wyck." The extreme supposed cases are put to illustrate the danger of the counsel's position. It cannot be that a man who has sustained any position toward or had any employment for a well-known individual, that thereby he obtains the right to use that name in connection with his own, so as to advertise himself and his business at the expense of his former patron and employer, and to do it in a manner which is likely to, and often must, deceive as to the nature of the relations to him.

The motion to continue the injunction must be granted, because—

First—The defendant is, without authority, using the plaintiff's name, which is the use of another's property for his own benefit and to the injury of its owner.

Second—He is attempting to transfer to himself a part of the reputation of the store and business of the plaintiff, which also belong to the plaintiff as really and as truly as his name or his personal property of which he is the actual owner.

Third—The mode and manner of the use by the defendant of the name of the plaintiff are such as ofttimes to deceive, and because liable to deceive, and thus benefit the defendant at the expense of the plaintiff, such use must be held to be unlawful.

A DULL MARKET.—"How are sales today?" was asked of a broker Tuesday.

"Sails!" replied the preoccupied one, "well the Puritan has got a hole torn right through hers by the Genesta's bowsprit."

"No, not that, but your board—"

"Bored! Should think I ought to be; stocks flat as a shingle and streets deserted."

"They are a little off, eh?"

"Off! Yes, both my partners off all day to the races. Genesta's bowsprit off, bets all off. Of course everything is off, and no offers."

"I know the market is a little off, but good judges say—"

"Oh, yes, I know they say it was a foul, and the Puritan should be counted out, but there isn't going to be any corner in that market—you can make your bids and be sure the stock will be active—"

"What stocks do you refer to?"

"Why, yacht stocks, and it requires wind and newspapers to keep that up as well as the other fancies; so sail in, old man, sail in."—*Boston Bulletin.*

SELECTING WHEAT FOR MILLING PURPOSES.

The making of good flour is almost wholly dependent on the quality and condition of the stock used, no matter how good the mill or how skillful the miller. Operatives are, in many instances, unjustly censured for the poor quality of their flour, when the trouble is attributable to the wheat furnished, its character and its condition.

If the stock provided is Clawson and soft Fultz wheats, and the product goes into market in competition with flour made from New-York Premium and Long Berry Amber, the case is hopeless, for the best portion of the former, though selected and taken off by the best-known system of milling, will not compete favorably, for bread-making, with the *entire* flour product of the latter.

When the wheat furnished is duly understood and all competing flours are made from similar stock, there is then reason for holding the miller responsible for irregularities, except in cases where there is no competent judge stationed at the wheat door, and when the miller is so occupied with "tending mill" or roust-a-bouting, that he has no time to devote to the wheat as it is taken in. In this way much stock is allowed to enter the mill, that is utterly unfit to go into first-class flour. The bad effect of poorly-selected stock is not confined alone to the quality of flour, but has to do with the amount of flour produced from a bushel of wheat, the per cent. of grades, and consequently of profits.

Viewing the manufacture of flour from any standpoint, it would be well to adopt the following statement as a maxim: Among the most important qualifications of a practical miller are, knowledge of wheats, and a tenacity of purpose in grinding *only* when the stock is properly conditioned. *It requires sound wheat to make sound flour.*

You may scour sprouted wheat until the sprouts are taken off, bloated wheat until the germs are taken out, smutty wheat until all smell of smut disappears, heated wheat until the sour odor is no longer noticeable on the surface of the berry, and musty wheat until the bran is taken off. The wheat may be washed and exposed to the action of the sun's rays, kilndried and doctored in various ways, and by these cleansing processes greatly improved, but the damaged elements are not restored to original strength or proper condition for food.

As you value the reputation of your flour, beware of this kind of stock. If you are compelled to handle damaged wheat, it should be kept separate, milled separate, and the flour sold on its merits.

Irregular wheat, uneven in weight because of rust, mildew, winter killing, flies, etc., should be graded by atmospheric separation, the diseased portion ground by itself, and the flour-product sold on its merits.

Inquire among successful millers as to the importance of this, and you will find that it is regarded as a *secret* of success.

And while all have not equal facilities for following this principle strictly, yet all have sufficient opportunities to enable them to protect the reputation of their flour, and to make them successful manufacturers.

We have undertaken to present the fundamental principles of milling in this way, having a due appreciation of the shortness of life and its contingencies. Providence permitting they will be continued to the end. Should the cholera, poorhouse or insane asylum gather us in before the twenty-seventh letter of the alphabet is reached, they will perhaps be finished by some more competent person. Yet we will possess the happy consciousness of having done what we could while our lamp flickered.—From *The Roller Mill*, for September.

THE PENALTY OF IMPROVIDENCE.

In a recent conversation with an excellent gentlemen, who is superintendent of one of the finest manufacturing establishments in the world, he said to us that something must be done, or there would be revolution and blood. "Why," said he, with great earnestness, "we are unable to supply some of our best mechanics with work—men who have been with us for a long time. They are actually in want, and something must be done, or there would be revolution and blood." Now let us calmly look at this sad condition of affairs squarely in the face. Here are a number of "good mechanics" out of work and in need. They have had work for years at from $2.50 to $3.50 per day. During these years the firms have made money and saved it—laid it up for such a time as the present—and are, therefore, by this providence, able to weather the storm—span the hiatus. If these mechanics had done the same thing they would now have enough to supply them, and they could rest comfortably now, instead of riding on the jagged and ragged edge of want. "But," says the anti-monopolist and equalizer, "the factory made more, and labor did not get its share of the result of the combination of work and money." We do not know of any rule of equity to decide this question by; but this we know—that this very factory offered to share profits with their employes, and they declined, preferring a stipulated amount for their services. Here are men reported in want who have received from seven to ten hundred dollars a year, and never laid up one dollar of it—who have provided no homes for their families to live in, and have no bank account against a rainy day. This is a contingency against which no government can provide. There are but two powers in this or the other world that can do it. One is the man himself, by laying by a part of his income for such emergencies as sickness and being out of employment. God could do it, but he won't. Savings banks, life and accident insurance, investments in homes are the remedy. The capitalist insures his life to secure competence for his family in case of his death, and his factory to enable him to rebuild in case of fire. The workman should insure life and against accident, save money, buy a home, and be able to hail hard times as a time to rest.—*Carriage Monthly.*

THE WORLD'S FOOD SUPPLY.

Editor of the New York Herald:—Recent articles in some of the New York papers on the wheat situation contain some statements which are apt to mislead, and which in view of the facts and their importance to the wheat growers and merchants of this country (ignoring speculators), ought not to remain uncontradicted. Last year both farmers and merchants suffered from overproduction and consequent low prices—the latter being less than cost. This year a different state of affairs exists, and it is due to our interests as a producing nation that they should be widely known. They indicate an improvement in values which may partly offset last year's losses. I place at your disposal the best information which my correspondence and cable advices, as well as reliable home and foreign statistics, have furnished me. From these I am satisfied that the actual situation is correctly represented by the following figures:

	Bushels.
Estimated crop of wheat in the U. S., 1885	357,000,000
Estimated old wheat from crop of 1884	90,000,000
Total supply	447,000,000
Deduct—	
Pacific coast stock carried over	15,000,000
California new crop	25,000,000
Oregon new crop, overestimated	16,000,000
Washington Territory	4,000,000
Total	— 60,000,000
Leaving a supply east of Rocky Mountains	387,000,000
This Pacific coast wheat cannot come this way, and therefore must be exported to the extent of	45,000,000
Required for consumption and seed	15,000,000

We require on this crop, east of the Rocky Mountains:

	Bushels.
First, for consumption	300,000,000
Second, for seed	50,000,000
Third, for reserve, say	30,000,000
Total	380,000,000
Leaving for export from Atlantic ports	7,000,000
Add exports from Pacific ports	45,000,000
Or a total in flour and wheat of	52,000,000

So far as the supplies from other wheat growing countries are concerned at present the condition appears to be this:

	Bushels.
England's crop this year is	70,000,000
Or short from last year	10,000,000
France, deficiency on this year's crop	39,900,000
Italy, short eighteen per cent., or	27,000,000
Russia, short on an average crop at least	30,000,000
India, now shipping on her last crop, harvested in March and April, estimated at	24,000,000
Australia, shipping on her crop harvested in April, 850,000 tons, or say	14,000,000

There is no increase or decrease from other countries worth mentioning beyond the fact that Germany, Austria and Hungary are very short in their rye crops and not an average in their wheat crops. Russia is also deficient in her rye crop. The four above mentioned consume rye mainly for bread, and if this crop is short the result must be a greater demand for wheat. In Great Britain, the potato crop—the principal substitute for bread—is small and of poor quality. In view of this condition of things, having carried last year's surplus so long, it would seem wise to hold it longer, until demand overtakes supply, which is inevitable. E. R. LIVERMORE.

MILLER AND DIAGRAM.

Some controversy is going on as to the necessary qualifications of a miller to be able to diagram a mill. We think there are many successful expert millers who cannot, and perhaps could hardly be educated to be able to properly draw a diagram, though the plan be ever so firmly fixed in the mind; but such cases are undoubtedly the exception. Every miller superintending a mill of any size should have a diagram on paper, showing the location of each machine and the flow of material. It will be a great help to him, and any changes can be more intelligently made. If not able to draw, let him learn to understand such drawings. It would be a great advantage to be able to draft such plans. To be

successful mechanic or inventor nowadays it is necessary to be a draughtsman, and a successful, progressive miller is both a mechanic and an inventor. Many of our large and most successful mills are thus provided with such talent, and the more attention and study the managers of small mills give to these acquirements the better for themselves. When gradual reduction milling was first introduced and its details not yet perfected, the first plan or diagram upon which the mill was built was seldom adhered to very long, but it was enlarged and improved upon by progressive millers. Mill builders are quick to avail themselves of such experience, until now it is an easy matter to get a mill planned and built so as to be complete, and require no material change. It still remains a fact that, though we have a complete mill, we can better understand and manage it by being familiar with its diagram on paper.—*Millers' Review.*

ITEMS OF INTEREST.

TIDE MILLS.—A correspondent at Norwalk, Conn., writes that there are four tide mills within fifteen miles of there, and that in dry times this unfailing source of power is greatly appreciated by the farmers, long lines of wagons being seen waiting to have the grist ground. Two of these mills are said to have single-acting turbine wheels, with a simple flap gate to admit water to the pond. Our correspondent suggests that there are, probably, many more tide mills in use in the country than is generally supposed.

THE Pike's Peak Railway, which is expected to be in operation this year, will be the most notable piece of track in the world. It will mount 2,000 feet higher than the Lima and Oroya Railway in Peru. It is now in operation to a point over 12,000 feet above the sea-level. The entire thirty miles of its length will be a succession of complicated curves and grades, with no piece of straight track longer than 200 feet.

MAGNESIA IN BRICK.—The beauty and the finish of the red pressed brick has led, as every one knows, to its very extensive employment of late, in the construction of large buildings. So comparatively recent is its use that no sufficient test can yet be said to have been made of its merits. A serious objection to it has, however, been entered already. In many buildings exposure to the atmosphere has slowly resulted in the formation of a white crust or deposit upon the face of the brick, thus marring the symmetry and beauty of the entire structure. This is said to be due to the presence in the brick, or to the extraction from it, of a form of magnesia.

Now if this be true, it is important to inquire: First, in what particular form the magnesium is contained in the brick; second, what elements in the atmosphere effect the change which takes place; third, what is the change which occurs, and fourth, how can its occurrence be hindered. To these questions the following are suggested as probably correct answers. (1). Magnesite, or carbonate of magnesia, is the form in which this mineral is usually found in the clays used for brick-making. (2). Heat and cold both have a decided effect upon this constituent; the heat by evaporating what small quantity of water of crystallization it may contain and precipitating a white semi-amorphous powder; the cold by causing the deposit of the magnesium carbonate in large crystals which upon exposure to the atmosphere become opaque. (3). The change is practically a dehydration of the carbonate of magnesia with the formation of a white salt upon the exposed surface of the brick. (4). The means of averting its occurrence must largely be a matter of experiment. Considering that the presence of the carbonate of magnesia is not essential—is, in fact, detrimental to the red color of the brick, and presupposing that the process would not unfortunately affect other constituents, it would occur to the chemist that the occasional treatment of the exposed surface with a solution of citric acid might arrest the process and dispose of the already formed deposit. The *Architect* offers the suggestion for all it is worth.—*N. W. Architect.*

REDUCTION IN THE TRANSFER OF GRAIN.—Shippers have long felt that the present charges by elevators in Chicago, Buffalo and other cities are exorbitant. Various devices have been adopted in order to dispense with the elevators. The plan of transferring grain on the track was tried, but found unsatisfactory to both parties. An improvement in this method is described by the Chicago *Tribune*. A huge weighing hopper is attached to a car which goes from place to place. By means of this a carload of grain is taken up, weighed accurately, and transferred to another car in about ten minutes, and at a cost, it is said, of only one-tenth of a cent a bushel. Another means by which it is hoped to reduce the cost is by building floating elevators, in which many tons of grain can be weighed at a time. One is now being constructed at Cleveland, and it is proposed to build similar ones for other cities. All these movements point to a determined war on the elevator rates. A still more significant fact is the announcement that Williams & Co., of Buffalo, are prepared to handle grain in their new elevator at ⅛c. less per bushel than the association. Attempts are being made by the old syndicate to boycott this "outside concern" by warning all who ship to this firm never to expect to have any grain received by the regular elevators. These threats, however, will not prevent consignors from availing themselves of the reduction. Cheaper transfer is demanded, and this step toward it will certainly be encouraged.—*Bradstreets.*

THE AVERAGE OF FIRE LOSSES.—Fire insurance companies in computing the amount of premium for which they may profitably "write a risk," base their figures upon their past experience, keeping a record of classes and causes, together with losses upon each class, etc. These statistics are interesting, and should have extensive publication to the end that policy-holders may know the relative position their own particular risk takes with the many others. We venture the assertion that a miller who has lived in one community all his life without ever having seen a mill destroyed by fire, would discredit the statement that an average of one flour mill representing a cost of $12,000, is consumed by fire every working day, yet such is the fact, or, at least, that is the average given in the statistics for 1884. Dwelling houses burn at the rate of one an hour with an average loss of $1,396. Barns and stables fifty per week. Country stores, three per day, with a loss of $110,000 per week. Ten hotels burn weekly, with a loss per year of $4,400,000. Every other day a lumber yard goes up in smoke, each representing $20,000. Forty-four cotton factories, the loss in each case being 28,000; forty-three woolen mills, at $25,000 each; and forty-two chemical works, at 27,000 each, were destroyed by fire last year. Forty-two boot and shoe factories were consumed, the loss being $17,500 each. Theaters were lapped up by the flames at the rate of five per month, average loss, $19,000. Only about half as many court houses were destroyed, the cost of each being about $20,000. Georgia was the most unfortunate State, the aggregate losses being equal to the cost of maintaining the state government and paying interest on the state debt. Thirty per cent. of the losses last year were caused by incendiarism, ten per cent. by defective flues, and the balance by spontaneous combustion, hot pipes, exploding lamps and lanterns, lightning, matches, cigar stubs, etc.

The business in "futures" appears to be spreading rapidly. The latest departure in this respect is reported from Leith, where Messrs. A. & R. Tod, one of the largest firms of millers in the Kingdom, have issued a circular to their customers, saying that the very great changes in the wheat and flour trade during the last few years necessitate a change in mode of selling flour. They therefore propose to sell flour forward up to seven months, giving daily the quotations for each month, for each of their three qualities of flour, the offers being subject to return of post. They also propose to use plain sacks, and weigh gross; if named sacks and net weight is required the price to be 1s more. The discount, which is 9d per sack within two weeks, and 6d within four weeks, is reckoned from day of delivery. This is a new departure indeed, and not one of the best for small millers, who will find it difficult to go and do likewise.—*The Millers' Gazette* (London).

From Chicago to San Francisco.

The Chicago, Milwaukee & St. Paul Railway Company has sent out a little pamphlet of eight pages, which describes the trip from Chicago to San Francisco over its short line and connections, the Union Pacific Railway and the Central Pacific Railroad. The little book mentions many of the numerous important places along this route, and it indicates briefly and in a satisfactory manner what the accommodations and attractions for the traveler are. A running colored bird's-eye view map at the tops of the pages shows the comparative altitude of the many cities and points of interest. The distance from Chicago to San Francisco by this route is 2355 miles, and the time consumed in making the trip four and one-half days. In going from Chicago, about 600 feet above the sea level, one goes right up over the Rocky and Sierra Nevada mountains at a hight of 8000 feet, and down to San Francisco, less than 1000 feet. By this route through Northern Illinois and Central Iowa, the traveler passes Des Moines, Omaha, Cheyenne, Denver, Great Salt Lake, Carson City and Sacramento. Everything in the way of checking baggage, providing berths, eating, and other accommodations, is looked after with the most scrupulous care, the aim being first and always to secure the comfort of the passengers. Persons going from all parts of the East to the far West would do well to consider the Chicago, Milwaukee & St. Paul route, concerning which they may obtain minute information by addressing A. V. H. Carpenter, General Passenger Agent, Milwaukee, Wis.

[Written for the October Number of the UNITED STATES MILLER.]

FREE TRADE AND THE REBELLION.

By John W. Hinton, of Milwaukee.

The purport of the following paper is to expose and try to remove what the writer deems an erroneous impression, largely prevailing, to this day, that slavery was the principal, if not the *sole* cause of the Southern rebellion against the American Union.

Had there been no slavery in the Southern States, it is readily admitted that there would probably have been no rebellion. Yet the writer feels confident that he can make it plain, to any unprejudiced person, that the chief and only distinctively expressed cause and avowed purpose was the determination of the Southern Confederacy to have free trade with England.

Of the logical results, of the facts herein cited and the arguments adduced, the reader will be his own judge.

All the writer asks, is a careful and impartial perusal of the statements herewith submitted, and for the first time published.

(Extract from a lecture delivered before the students of Grinnell College, Iowa, at Lake Forest, Ills., etc., by John W. Hinton, proprietor of the Northwestern Tariff Bureau, Milwaukee, Wis.)

Gentlemen—Mr. Bright was very anxious to show to his countrymen immediately after the Southern rebellion broke out, that the tariff system of the North was not the principal cause of secession, or that import duties on foreign-made goods had aroused the hostility of the South. Dec. 4, 1861, he said:

"There is another cause which is sometimes in England assigned for this great misfortune, which is, the protective theories in operation in the Union, and the maintenance of a high tariff. It happens with regard to that, unfortunately, that no American, certainly no one I ever met with, attributed the disasters of the Union to that cause. It is an argument made use of by ignorant Englishmen, but never by informed Americans." * * * "Occasionally, there can be no doubt, their tariff was higher than was thought just, or reasonable, or necessary by some of the States of the South. But the first act of the United States which levies duties upon imports, passed immediately after the Union was formed, recites that 'It is necessary for the encouragement and protection of manufacturers' to levy the duties which follow, and during the war with England from 1812 to 1815, the people of the United States had to pay for all the articles they bought from Europe many times over the natural cost of those articles, on account of the interruption to the traffic by the English nation. When the war was over, it was felt by everybody desirable that they should encourage manufactures in their own country."

Now for the facts. As far back as 1808 South Carolina favored protection; one of her laws then read in its preamble:

"Whereas, the establishment and *encouragement* of domestic manufactures is conducive to the interests of a state, by adding new *incentives to industry*, and as being the means of disposing to advantage the surplus productions of the *agriculturist;* and, whereas, in the present unexampled state of the world, their establishment in our country is not only *expedient* but politic, in rendering us *independent* of foreign nations."

Gentlemen—Please remember that John C. Calhoun was then a strong Protectionist, but afterwards, when realizing the increasing power and prosperity of the North by the tariff, he turned free-trader and became the father of secessionists. I will now give some facts which, I am confident, will be of interest to you, young gentlemen, and, perhaps, instructive to many of you older gentlemen.

In December, 1812, John C. Calhoun, Henry Clay, Capt. Stewart, of the "Constitution," with many other Republicans, boarded at Mrs. Bushby's in Washington. Capt. Stewart, then 34 years of age, said to Calhoun, 30 years old: "I am puzzled to account for the close alliance existing between you Southern planters and the Northern Democrats," continuing:

"You, in the South and Southwest, are decidedly the aristocratic portion of this Union; you are so in holding persons in perpetuity in slavery; you are so in every domestic quality, so in every habit in your lives, living and actions, so in habits, customs, intercourse and manners; you neither work with your hands, heads nor any machinery, but live and have your living, not in accordance with the will of your Creator, but by the sweat of slavery, and yet you assume all the attributes, professions and advantages of Democracy."

Young Gentlemen—Mr. Calhoun's reply merits close attention:

"I see you speak through the head of a young statesman and from the heart of a patriot, but you lose sight of the politician and the sectional policy of the people. I admit your conclusions in respect to us Southrons. That we are essentially aristocratic I cannot deny; but we can and do yield much to Democracy. This is our sectional policy; we are from necessity thrown upon and solemnly wedded to that party, however it may occasionally clash with our feelings, for the conservation of our interests. It is through our affiliation with that party in the Middle and Western States that we hold power; but when we cease thus to control this nation through a disjointed Democracy, or any material obstacle in that party which shall tend to throw us out of that rule or control, we shall then resort *to the dissolution of the Union.* The compromises in the constitution, under the circumstances, were sufficient for our fathers, but under the altered condition of our country from that period, leave to the South no resource but dissolution."

The opposition of the South to the tariff was still more plain in 1824. Again Calhoun speaks:

"We must prevent the increase of manufactories, force the surplus labor into agriculture, promote the cultivation of our improved Western lands, until provisions are so multiplied and reduced in price that the slave can be fed so cheaply as to enable us to grow our sugar at three cents a pound."

Now listen to Henry Clay's comment on this:

"The gentleman would have us abstain from adopting a policy called for by the interests of the greater and freer part of the population. But is that reasonable? Can it be expected that the interests of the greater part should be made to bend to the condition of the servile part of our population? That in effect would be to make us the slaves of slaves."

I now quote from Calhoun's works, vol. 2, p. 396:

"This disastrous event (the passage of the tariff bill of 1828) opened our eyes (I mean myself and those immediately connected with me) as to the full extent of the danger and oppression of the protective system, and the hazard of failing to effect the reform intended through the election of Gen. Jackson. With these disclosures it became necessary to seek some other ultimate, but more certain measure of protection." * * * "In the fall of 1828, but a few months after the passage of the tariff act of that year, and at the meeting of the Legislature of the State, at the same period, a paper known as the *South Carolina Exposition* was reported to that body, containing a full development, as well on the constitutional point as on the operation of the protective system, preparatory to a state of things which might eventually render the action of the State necessary in order to protect her rights and interest, and to stay a course of policy which, we believed, would, if not arrested, prove destructive of liberty and the constitution."

James Parton, a free-trader, who had such a high opinion of the benefits to the country of the largest iron manufacturing city in it, as to designate Pittsburg as "hell with the lid off," summarizes the points of the South Carolina Exposition thus:

First—Every duty imposed for protection is a violation of the constitution which empowers Congress to impose taxes for revenue only.

Second—The *whole* burden of the protective system is borne by agriculture and commerce.

Third—The whole of the advantages of protection accrue to the manufacturing States.

Fourth—In other words, the South, the Southwest and two or three commercial cities support the government and pour a stream of treasure into the coffers of manufacturers.

Fifth—The result must soon be that the people of South Carolina will have either to abandon the culture of rice and cotton, and to remove to some other country, or to become a manufacturing community, which would only be ruin in another form.

Gentlemen—Against these surmises of impending evils of protection Calhoun held to but one remedy, "nullification"; latterly the South had but one, "secession" or rebellion. From 1812 to 1828, when secession was threatened, Jackson's avowal that, if it was attempted, "by the Eternal he would hang Calhoun higher than Haman," alone prevented the attempt. This anti-tariff feeling never died out among Southern leaders. Immediately before the rebellion it burst out anew. In 1860, Dr. Elliott, president of the Planters' College, Mississippi, published by subscription "Cotton Is King," to embody the views of the Southern leaders of secession. On the tariff question he said:

"The opposition to a protective tariff by the South arose from two causes: First, to secure the foreign market for its cotton; second, to obtain an abundance of supplies at a cheap rate. Let a system of free trade be adopted, the South would constitute the principal market for, and the fertile lands of the North supply, the cheap food demanded for its slaves."

* * * * * *

"If they could establish free trade, it would secure the American market to foreign manufactures, secure the foreign markets for their leading staples, force Northern men into agriculture, multiply the growth and decrease the price of provisions, feed and clothe their slaves at lower rates."

* * * * * *

"There was a fusion of interests between the planters of the United States and the British manufacturers, and to the planters the copartnership has been eminently advantageous."

In 1824, Henry Clay was well awaie of the compact between the South and the British manufacturers. He said in the United States Senate:

"The existing state of things presents a sort of tacit compact between the cotton-grower and the British manufacturer, the stipulations of which are, on the part of the cotton-grower, that the whole of the United States, the other portions as well as the cotton-growing, shall remain open and unrestricted in the consumption of British manufactures; and on the part of the British manufacturer, that in consideration thereof he will continue to purchase the cotton of the South."

Gentlemen—Let us turn to Mr. Bright again. In his speech, Feb. 3, 1863, before quoted, Mr. Bright said:

"Mr. Mann, an eminent person in the State of Georgia, says: 'With the failure of the cotton, England fails. Stop her supply of Southern slave-grown cotton, and her factories stop, her commerce stops, the healthful, normal circulation of her life blood stops.'" * * * "In one year from the stoppage of England's supply of Southern slave-grown cotton, the Chartists would be in all her streets and fields, revolution would be rampant throughout the island, and nothing that is would exist." * * * "Why, sirs, British lords hold their lands, British bishops hold their revenues, Victoria holds her sceptre, by the grace of cotton as surely as by the grace of God. Senator Wigfall says, 'If we stop the supply of cotton for one week, England would be starving. Queen Victoria's crown would not stand on her head one week if the supply of cotton was stopped.' Mr. Stephens, the president of the Southern Confederacy, says, 'There will be revolution in Europe, there will be starvation there. Our cotton is the element that will do it.'"

Speaking at the secession convention in 1860, held in South Carolina, Mr. Rhett averred that secession was an event of the day; that the storm had been gathering force for years, and emphatically asked: "Have the labors of Calhoun been forgotten, when he declared, a few years ago, for the secession of South Carolina, and that secession would be the consummation of their liberties?"

Gentlemen—You will please observe that Mr. Bright shrewdly omits allusion to the free trade clause in the Confederate constitution. Sec. 8, Art. 1, reads:

"No bounties shall be granted from the treasury, nor shall any duties or taxes on importations from foreign nations be laid to promote or foster any branch of industry."

The determination of the Confederacy to have free trade is proven by their embodiment of that clause in their constitution. I think I have shown you that the South meant to dissolve the Union rather than submit to a tariff, which encouraged manufacturers and protected free labor, first engendered in 1812, strengthened in 1828-30, was never abandoned. It culminated in rebellion in 1861, and I may justly add that the "compact between the cotton-growers and the British manufacturers," as stated by Henry Clay, and the "fusion of interests between the planters of the United States and the British manufacturers," as shown by Dr. Elliott in his "Cotton Is King," was the chief cause of the rebellion.

Now let me give you another proof, as it seems to me unanswerable in its plainness:

May 4, 1861. The Southern commissioners, Yancy, Mann and Rust, who were in London, assured Lord John Russell, the British premier, "that they had not seceded to preserve slavery, but that *they might have free trade with England*, and that two-thirds of the whole exports of the United States were furnished by the South, and that if England would recognize the Confederacy, British goods would be admitted duty free."

Very early in the rebellion Mr. Gladstone said at New Castle, England: "There was no doubt that Mr. Jefferson Davis had made a nation of the South."

"The announcement caused great sensation," said the London Times Reporter.

On the next day Mr. Gladstone said: "We may anticipate with certainty the success of the Southern states, so far as regards their separation from the North. I cannot but believe that that event is as certain as any event, yet future and contingent." Loud cheers greeted the remarks, which were renewed when it was asserted: "The United States was a mere Yankee invention, a thing of the past, which no longer had an existence in fact."

The Marquis of Salisbury was loudly applauded in the House of Commons when he said:

"That the people of the Southern states were the natural allies of England, as great producers of the articles we need and great consumers of the articles we supplied. The North, on the other hand, kept an opposition shop, in the same department as ourselves."

Napoleon Buonaparte was right when he termed the English "a nation of shopkeepers," while our member of congress was correct in saying:

"There is the entire Gospel from Genesis to Revelations of Great Britain; you fill their bellies and buy their wares, and they are content."

I cannot forbear quoting here, for the consideration of you young gentlemen, an extract from William H. Seward's speech, at Rochester, N. Y., Oct. 25, 1858:

"Either the cotton and rice fields of South Carolina, and the sugar plantations of Louisiana, will ultimately be tilled by free labor, and Charleston and New Orleans become marts for legitimate merchandise alone, or else the rye fields and wheat fields of Massachusetts and New York must again be surrendered by their farmers to slave culture and to the production of slaves, and Boston and New York become once more markets for trade in the bodies and souls of men."

When we remember that Bob Toombs declared he would could call his slave roll at the base of Bunker Hill, we cannot help thinking of the past.

And now, gentlemen, long after the rebellion was over, we find here and there still further evidence, and pardon me if I say what appears to me *conclusive evidence*, of the theory I am trying to illustrate to you, practically with facts. I must not extend these remarks much longer, lest I weary your patience, so will give but one more extract. It is from General Richard Taylor, of Louisiana, distinguished Confederate general. He says in his "Review of the War":

"We made two great mistakes. Had we avoided them we should have conquered you. The first was that we did not substantially destroy the protective features of the tariff in the winter of '57-'58 by an act which provided a rapid sliding scale to free trade. As a democratic measure we could have passed such a law and held it tight on you till it closed the furnaces, workshops, woolen and cotton mills, and steel and bar iron works of the whole North and West, and scattered your workmen over the prairies and territories. When the war was ready for you, you would not have been ready for the war. You could not have armed and equipped and put in the field a large army, nor built a navy. You would have been without supplies, machinery and workmen, and you would have been without money and credit. Our second mistake was in withdrawing our senators and representatives from your congress. How the h—ll we blundered in these two respects I cannot understand, except upon the hypothesis of an Overruling Providence."

As a conclusion I append here my remarks bearing upon this subject as delivered before the "Wisconsin Grange," at Madison, Wis., Dec. 12, 1883.

"My friends, to change the subject a little for a moment or so, I have been requested to say something about soldiers and their interest in the protection of American manufactures and American labor. It has been tauntingly said, outside of this room, that I dare not even attempt to show how our soldiers ever were, or could be, interested in this great tariff question. I accept the challenge. * * *

"Now, as to soldiers and their interest in the tariff, I have to say that every maimed or mangled inmate of our National Homes, every empty sleeve North or South, every grassy mound covering a Confederate dead, every monument that marks the sepulcher of our Northern patriot soldiers—the weeds upon their widows' brows, and every tear shed by their fatherless children, all, all attest the dreadful, terrible sacrifices that were made to the Moloch of free trade. * * *

"American soldiers need not to be told, they know full well, what a cruel and bloody record free trade has made; and they know, too, that its evil spirit is still smouldering above its holocaust of more than half a million of their slain comrades; and soldiers know, too, who it is that, at the present time, is trying so hard to revive that same destructive system that always has and will again, if enacted, send sorrow, and misery, and suffering into every mechanic's and laborer's home in this country, as free trade, or a close approach to it under a low tariff, has always done."

MILLING PATENTS.

The following list of patents relating to milling interests, granted by the U. S. Patent Office during the past month, is specially reported by Stout & Underwood, Solicitors of Patents, 66 Wisconsin st., Milwaukee, Wis.

Issue of Sept. 1, 1885. No. 325,254—Packer for bran and other articles, S. T. Lockwood, Chicago, Ill; No. 325,288—Centrifugal separator, A. H. Van Duzee, Leavenworth, Kan.; No. 325,327—Mill-stock feeder, G. Downie and A. F. Eisan, Marysville, Cal.; No. 325,521—Dust collector, J. M. Finch, Jackson, Mich.; No. 325,601—Roller mill, W. Griscom, Philadelphia, Pa.

Issue of Sept. 8, 1885. No. 325,713—Combined dust catcher and separator for middlings purifiers, J. R. Taylor and P. Lockwood, Marshall, Mich.; No. 325,788—Mill-stock feeder, G. Cottrell, San Francisco, Cal.; No. 325,833—Flour bolt, G. Halliday, Winnebago City, Minn.; No. 325,919—Grain scouring and cleaning machine, A. G. Deobold; Bloomington, Ill.

Issue of Sept. 15, 1885. No. 326,121—Roll for roller mills, J. W. Jackson, Denver, Col.; No. 326,175—Bolting chest, R. M. True, Cincinnati, Ohio; No. 326,176—Dust collector, P. Van Gelder, Sowerby Bridge, County of York, England; No. 326,253—Crushing and grinding mill, W. C. Stiles, San Francisco, Cal.; No. 326,264—Grinding mill, W. H. Browne, Brooklyn, N, Y.; No. 326,447—Feeder for roller mills, L. Nolden and A. E. May, Beardstown, Ill.; No. 326,509—Centrifugal reel, B. Kniffler, Cleveland, O.; No. 326,512—Feeder for roller mills, J. Mooney, East Saginaw, Mich.; No. 326,532—Rice-cleaning machine, W. B. Vardell, Charleston, S. C.

Issue of Sept. 22, 1885. No. 326,853—Oatmeal machine, G. H. Cormack, Rockford, Ill.; No. 326,893—Flour dressing machine, W. H. Williams, Wauseon, O.; No. 326,901—Centrifugal reel, E. R. Draver, Stillwater, Minn.

AGRICULTURE IN THE SOUTH.

The Chicago *Current* gives figures to show that the South has at length awakened to the importance of diversifying its agricultural productions. The gain in the production of corn between 1875 and 1884 was, it is stated, 109,124,000 bushels, a gain of 33.6 per cent., or but 3 per cent. less than the gain in the rest of the Union. The increase in oats was 29,399,500 bushels, a gain of 85 per cent., that of the rest of the Union being 62 per cent. The increase in live stock was quite as striking. In 1875 the South produced 5,193,300 sheep; in 1885, 12,640,323. The increase in the number of hogs was 6,497,216; of cows the increase was from 2,709,200 to 3,612,673; of oxen and other cattle from 6,140,800 to 9,423,337. Summing np, we find that the total increase in live stock numbered 18,819,138 head. Texas takes most of the credit for the increase in sheep, but there was a marked increase in the number of hogs in all cotton states.

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.

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. SEE COMBINATION OFFER ON OTHER PAGES.

☞*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.*

TO ADVERTISERS.

Milwaukee, Wis., Oct. 1, 1885,

To Those Interested in the Flouring Trade:

THE UNITED STATES MILLER is now in its tenth year, and is a thoroughly established and much valued trade paper. It has a large regular list of domestic and foreign subscribers. It is sent monthly to United States Consuls in foreign countries, to be filed in their offices for inspection by visitors. It is on file with the Secretaries of American and European Boards of Trade for inspection of members. Aside from the above, thousands of SAMPLE COPIES are sent out every month to flour mill owners who are not subscribers, for the purpose of inducing them to become regular subscribers, and for the benefit of those advertising in our columns. Every copy is mailed in a separate wrapper. Our editions have not been at any time since January, 1882, less than 5,100 COPIES each, and are frequently in excess of that (see affidavit below). We honestly believe that the advertising columns of the UNITED STATES MILLER will bring you greater returns in proportion to the amount of money invested than any other milling paper published. Advertisers that have tried our paper for even a few months have invariably expressed themselves well satisfied with the results. Our advertising rates are reasonable. Send for estimates, stating space needed. The subscription price of the paper with premium is One Dollar per year. Sample copy sent free when requested. We respectfully invite you to favor us with your patronage. We shall be pleased to receive copies of your catalogues, and also trades items for publication free of charge. Trusting that we may soon be favored with your orders, we are,

Yours truly,
UNITED STATES MILLER.
E. HARRISON CAWKER, *Publisher.*

MANITOBA wheat is reported to have been seriously damaged by frost.

IT is said that 1000 barrels of flour per day are made into pastry in Philadelphia bakeries.

WE have received from Messrs. Jas. Leffel & Co., of Springfield, O., a copy of their new wheel book, which is of much value to the users of water-power.

WE call the especial attention of our readers to the article in this number by John W. Hinton, on the subject of "Free Trade and The Rebellion." It is the first article on this subject that ever was published, and the question is treated in a most masterly and scholarly manner. We commend it to the careful perusal of all *thinking* men.

THE water was again let into the canal at Minneapolis, Sept. 21, and most of those mills which have been compelled to lie idle since July, started up again. It seems probable now that a very large amount of flour will be produced.

MILWAUKEE mills are now nearly all running again and a good deal of confidence seems to be felt by most of our millers in a fair business. Milwaukee mill furnishers are also driving business to full capacity. In fact, they have enjoyed a very good business throughout the year.

ANOTHER "long-felt want" has been filled, and Milwaukee all of a sudden finds the milling interest looked after by three milling journals, *The Miller & Manufacturer*, of Cincinnati having moved its headquarters to this city. We wish our new neighbors all the success they may deserve, but in the meantime our readers will bear in mind that the old, original and popular UNITED STATES MILLER may be found at the old stand, maintaining the "even tenor of its way." *Subscription price only one dollar per year.*

A SMALL host of millers, mill furnishing representatives and milling newspaper men from "all over" have been in Milwaukee during the past month and generally enjoyed themselves. We would like to say right here to intending visitors that Milwaukee is in all its glory from Sept. 1 to Oct. 15 as a rule, and the visitor that cannot make it pleasant and profitable to visit our city during these months is certainly hard to please.

WE HOPE HE IS FORGIVEN.

The publisher of the UNITED STATES MILLER recently sent a sample copy of the paper to a gentleman who until recently owned a mill in Tennessee, and we have received the following laconic reply:

RIPLEY, Tenn., Sept. 8, 1885.

My dear Friend:

I do not own a mill now; never owned but one; cost me $3,000; run it six years and lost $1,000; sold it on long credit for $2,000; never got my pay. The Good Book promises forgiveness to those who repent. I have repented in sack-cloth and ashes, and have promised never to buy another mill, and think the Lord has forgiven me for purchasing this one. So you see I do not want any more milling literature. Yours, ever. W. C.

MINNESOTA WHEAT GRADES.

At their meeting in St. Paul, Sept. 9, the Railroad and Warehouse Commission abolished the grades of No. 1 Hard and No. 1 Northern established July 10, other grades to remain the same. The grades now stand thus: No. 1 hard spring shall be sound, well cleaned, and weigh not less than fifty-eight pounds to a measured bushel, composed mostly of Scotch fife. No. 1 northern spring must be sound, well-cleaned, and weigh not less than fifty-seven pounds to a measured bushel, and shall be composed of hard and soft wheat. The change was brought about by agitation at Duluth. The effect of the change is claimed by experts to grade all good wheat No. 1 hard, and add 4 cents per bushel to the value of all such product.

FREE FOREIGN TRADE AND FETTERED HOME PRODUCTION.

We publish below a vigorous communication from Henry Carey Baird to a contemporary:

SIR—One of the most shallow and impudent frauds which has ever been permitted to dominate the minds of men and to dictate the legislative policy of States, is that thing which has falsely arrogated to itself the name of *free trade*. That it has been enabled, through false pretenses to do as it has, is anything but calculated to give one a high opinion of the capacity of the human mind to discriminate between truth and error, or to take a clear, full and comprehensive view of any question in the slightest degree complex or involving many elements.

The so-called free-trader, really only a *free foreign trader*, has by some unaccountable oversight been permitted to assume a position which could alone belong to an ideal, abstract, unreal community or country, wholly unlike those concrete ones existing among civilized men. This assumption involves ignorance of the fact that civilized society is, of necessity, an artificial one, and that purely abstract arguments, which do not deign to recognize that this society is *not an untaxed one*, are wholly unfitted to its conditions, and, therefore inapplicable to it, and unsound and fallacious when so applied. Hence the unjustifiable nature of the pretense of this so-called free-trader that he is a free-trader at all. How can he be such when he entirely ignores the fact that trade at home—the great trade—is not free and cannot be so, because of the overmastering necessity of taxation, and that this taxation finally falls upon the producers, against whom his whole system is intended to be, and is, a persistently aggressive and even slanderous warfare?

Here is the way in which this bogus free trade works in Great Britain:

"In a letter to the London *Economist*, Mr. Willam J. Harris, M. P.," says the *Iron Age*, "draws a very gloomy picture of the condition of the farmers in Great Britain, and he bases upon a series of figures which have not yet been challenged, a pretty sharp thrust at the manufacturing industries. He aims to show that in England the agricultural classes are bearing far more than they should of the burden of taxation, 'although free trade has put our farmers in direct competition with the owners of foreign virgin soil.'

"Mr. Harris estimates that the total valuation of the saleable produce of the soil of England and Wales is £112,511,490. On this the farmers pay in taxation of one kind and another £16,013,000. The labor bill amounts to £34,709,000 so that, deducting rents and tradesmen's bills, 'the amount left for the tenant farmer is nothing.' Mr. Harris concludes that the cultivation of the less fertile arable lands must necessarily be abandoned."

Here we have a government of a great and enlightened nation so lost to all sense of honor and justice to its own producers that it actually imposes upon them taxation to the extent of *over fourteen per cent. of the value of their products* towards the support of the realm and the different divisions thereof, while it allows

every foreign producer of like products to come into free and untaxed competition with these same home producers! Was ever any system of taxation more blundering or more wicked, or better calculated to destroy a nation? The very idea that the subject or citizen of a State may be deprived of such rights or privileges in his own State, while they are freely granted to foreigners in that State, is monstrous, and the government that is guilty of such a crime has thereby *ipso facto* abdicated all right to command the love and allegiance of its citizens or subjects or the respect of mankind.

And yet there are men in this country, and even journals in this State, that in the name of "free trade," and under the cry of "free raw materials," demand the adoption by our government of this same system of outrage upon its own producers. Will our people tolerate such a wrong as that anywhere from fourteen to twenty per cent. of the value of their products shall be levied in domestic taxation on our own producers, while perfect freedom from taxation is granted to foreigners in introducing like products into our markets here to compete with such taxed American producers? For one I shall not believe that they will commit any such injustice when once they see and appreciate the workings of the system, its fallacies, its false pretense, its shallowness and its iniquities.

HENRY CAREY BAIRD.

Philadelphia, Aug. 27.

A CORN MEAL ROLLER MILL.

Yesterday the mills of Blair & Stewart were started up and made the first meal. As this is a new departure in the process of making corn meal in this country, it would, perhaps, be interesting to know something of the process by which it is made. It is said that this is but the second mill built on the plan. The other is running in Brooklyn, N. Y., and has a daily capacity of 450 barrels per day, and will be increased to 1,000 barrels. The "Little Daisy," the name by which the Broad street mill will be known, has a daily capacity of 125 barrels or over 600 bushels. The reduction is made by what is known as the "roller process," which has given great satisfaction in the reduction of wheat.

The Case Manufacturing Company of Columbus, O., being aware of the superiority of that process for the reduction of wheat, determined to give it a trial on corn, and with that view they made one on the same plan for corn, and their most sanguine expectations have been more than realized.

The mill is a three-story brick. The lower floor is occupied by the engine and line shafting on which is fixed the pulleys for driving the machinery. The engine was built by G. W. Wheeland.

On the second floor are six roller machines, in which the corn is reduced by a gradual process; and a Barnard & Lea packer, where the sacking is done.

On the third floor are found one four-reel chest, and one single-reel chest, eleven set of elevators, one aspirator, one Barnard & Lea's corn cleaner and the meal and flour bins.

When the corn leaves the bin, in which it is stored, it is carried by an elevator into the third story and enters the cleaner, whereit is screened and fanned; after which it is passed to the first break, (or first set of rolls), where it is cracked or broken. It is carried in tihs condition up to a scalping reel on the third floor where the starch is removed and the hulls and flinty portions of the grain are passed beyond into the second breaks, or rolls, where it is further reduced and carried again into the scalping reel to be deprived of the finer flour, and so on until the process is completed. After the fourth reduction the bran is removed by a scalper, and then passes to the aspirator, where the fine bran is removed by a suction fan and the heavy particles passed again through another set of rolls, and all the coarse particles of bran are in this way deprived of all the meal they contain. It is then passed through another reel, after which it falls in a line by itself. The flinty portions of corn passed through the aspirator and deprived of the light particles of bran contained, and then passed through the fifth and sixth rolls or breaks, and then bolted on a No. 10 and 0 silk cloth, when it is ready for the flour packer. What is taken from No. 10 is called flour, and that from No. 0 meal.

The above machinery was set up by W. J. Brown, an expert miller, who has been in the employ of the company who built the machinery for the last eight years, and the work done is the finest thing of the kind in the State.

The meal and flour are of a pearly whiteness and free from the speck, and very fine meal is found in all meal ground by the old method.—*Chattanooga (Tenn.) Daily Commercial, Aug. 29.*

"A GLASS OF BEER" is the subject of the third in the series of articles on the great American industries that *Harper's Magazine* is now printing which appears in the October number. The facts of the industry are very remarkable. It stands sixth among all the industries of the United States in the amount of capital used, exceeded only by metals, cottons, woolens and worsteds, lumber and grist; and its growth is shown by the fact that whereas in 1880 the production of the United States was something over thirteen million barrels, in 1885 it was over eighteen millions. The United States stands third in the list of beer producing countries, Great Britain at the last general estimate brewing 1,000,000,000 gallons, Germany 900,000,000, and the United States 600,000,000. The census reported 2,191 breweries, employing 26,220 people, who earned wages of $465.21 yearly—an average higher than in almost any other industry. The article in *Harper's* promises a complete description of the processes of beer-making, from the raising of the hops to the barreling and bottling, and those who indulge in malt liquors will be interested in the many varieties of beer mentioned, from the ordinary "bitter" of England and "lager" of Germany and America to the frozen beer of Tasmania and the condensed beer manufactured in Switzerl nd for export. The writer points out that the words "ale" and "beer" are used indiscriminately in England, but that American brewers confine the word beer to *lager*, the product of what is known as the under fermentation process, and ale to the product of the upper fermentation process, which are carried on with different kinds of yeast and at different temperatures. The article is fully illustrated.

A NEW MONEY KING.

Mr. Phil. Armour, the Chicago pork king, has paid $24,000 for a seat in the New York Stock Exchange, and he says that he expects to get some return for his money. New York is thinking and talking about Mr. Armour, and for some time to come he is apt to get the credit of every sensational and unexplainable thing that transpires. He has graduated in a sharp school, but, withal, he has taught the school aforesaid much more than he has learned from its curriculum; but he is probably meeting trouble in the fact that his methods are so well known in Chicago that he finds it difficult to make anything count. The New York Stock Exchange is a new field and rich, and its members being as ready for a turn in wheat or hog products as in railroad shares, he may enjoy new opportunities of usefulness to the public. One would have thought that Mr. Armour's pork packing establishments and his beef packing establishments, with their dozen branches and hundreds of agencies, his elevator interests, his deals in wheat and corn, and so on, would have satisfied the ambition of even a very restless man well advanced on the seamy side of life; but no, he must buy a controlling interest in St. Paul to become a railroad magnate, and now he must buy a seat in the Stock Exchange to become a magnate of the street, all regardless of the text that "vaulting ambition o'erleaps its aim, and falls on 'tother side."—*Louisville Courier-Journal.*

ITEMS.

GRAIN dealers in Prussia report a very dull trade.

THE wheat area of Great Britain is rapidly decreasing, a falling off of 18 per cent. being reported since June, 1882.

THE *Vienna Baker* thus describes the process of making bread in Paris: About 8 P. M. a piece of old dough weighing four or five lbs. is mixed with 17½ lbs. flour and about 4 qts. water, and allowed to stand till 6 A. M. Then 17½ lbs. flour and 4 qts. water are again added and the mixture stands till 2 P. M. Fifty-three lbs. flour and 8 qts. water are added to the mass, and at 3 or 5 P. M., 220 lbs. flour and 13 gallons water with 12 to 18 lbs. yeast are mixed and kneaded with the previous compound. The dough, now weighing 440 lbs., is left till 7 P. M. when 510 lbs. flour and 17 gals. water, into which have been put 4 to 5 lbs. salt and 18 to 37 lbs. yeast, are added and thoroughly kneaded with the rest. It is customary to bake 5 to 6 times from the mass. For the first baking half the dough is used, and produces bread of dark color, sour taste and smooth crust, the latter quality being highly prized in France. For the second baking the remaining half of the dough is mixed with 290 lbs. flour and 17 gals. water, with 4 lbs. salt and 18 to 37 lbs. yeast. Half of this is taken and treated like the first baking, furnishing lighter and better bread. The third baking has the same quantities of flour, salt and yeast added, as is also the case with the fourth and others following. At each process the quality improves, the sixth and last furnishing the superfine products.

SECRETARY STONE, of the Chicago Board of Trade, has compiled the following statement, showing the amount of grain of all kinds in sight in this country and Canada on Aug. 29:

Wheat, bu	.....	43,136,974
Corn, "	.....	5,474,459
Oats, "	.....	3,863,526
Rye, "	.....	307,173
Barley, "	.....	114,878

According to these figures there was an increase during the past week, in the stock of wheat in sight amounting to 553,052 bu., in corn of 1,015,809 bu., in oats of 1,765,396 bu., in rye of 74,387 bu., and in barley of 1,646 bu.

The stock in sight one year ago amounted to 17,773,559 bu. of wheat, 4,127,227 bu. of corn, 1,909,938 bu. of oats, 710,089 bu. of rye, and 197,218 bu. of barley.

NEWS.

A new roller flour mill is to be erected at Remsen, Ia.

A 35,000 bushels elevator is being built at Wisner, Neb.

A large flouring mill is projected at East Portland, Ore.

Matt. McClurg is erecting a corn-meal mill at Knoxville, Tenn.

Gillespie Bros. are building a grist and saw mill at Millboro, Va.

A 125-barrels, roller flour-mill is now being erected at Devil's Lake, Dak.

At Hamilton, Va., J. F. Dodd is remodeling his flour mill to the roller system.

A flood at Dallas, N. C., has wrought some damage to the mill of E. L. Pegram.

T. J. Wren & Son, of Rutherford Depot, Tenn., have finished their 50 bbl. flour mill.

White & Bro., millers at Warrenton, Va., have dissolved, H. M. White succeeding.

J. H. & T. R. Batte have begun work on a steam grist mill and gin, at Caldwell, Tex.

At Mitchell's Station, Ala., Belser & Parker are putting up a grist mill and gin.

It costs the Minnesota boiler owners from $30,000 to $50,000 per year for boiler inspectors' fees.

Campbell & Rosser have just completed a 200-barrel corn-meal mill at Denmark, Tenn. Steam power.

Neace & Hill Bros. are erecting a 40-bbls. corn-mill (stone system), steam power, at Double Springs, Tex.

Burned, Sept. 10, Wm. Elliott's flour mill, three miles from Richmond, Ind. Loss $4,000; insurance, $1,300.

Messrs. Williams & Hardy will build a $30,000 flour mill at Montague, Tex. The contract has not yet been awarded, we understand.

The Case Manufacturing Co., Columbus, O., have just shipped two car loads of break machines, purifiers and rolls to England, and report the foreign demand for their specialties increasing very rapidly.

A Newport antiquarian claims that the old stone mill was built by one of the ancestors of Benedict Arnold, who constructed it that he might live out of the reach of unfriendly neighbors.

A number of mills have started with these reels for all the bolting, and report the best of results. They say they are receiving nothing but praise from the reels everywhere, and that the trade in them is constantly increasing.

The Cummer Engine Co. is also selling a great many of the Jonathan Mills universal flour dressers, which are being extensively adopted for the entire bolting in new mills; they have lately received orders for a full line of these reels for a new mill in California, one in Kansas, two in NewYork, and one in Pennsylvania.

The large flouring mill of Rush & Sprague, at Leavenworth, Kas., was totally destroyed by fire on the 18th inst. The mill was the largest in the State, and a little over a year ago remodeled to a complete roller system. The loss is put at $100,000, covered by insurance.

The Manville Covering Company, of Milwaukee, is a recent organization for the manufacture of boiler covering, etc., with offices at 72 Second street, Milwaukee, and 240 Lake street, Chicago. The officers are C B. Manville, president, J. M. Lyon, Secretary and treasurer. The factory at Milwaukee is a large one, and is now fully equipped for the filling of orders.

The Sumner Milling Company's mill, at Bridgeport, Ill., is stopped. The senior member of the firm, Mr. Breidenthal, declines to make a statement. The assets run near $100,000; liabilities to farmers, very small. The causes assigned are general business depression and short crops here for several years.

Articles of association have been filed by the St. Croix Elevator Company, of New Richmond, Wis., the capital stock being $25,000. The object is to construct and operate elevators on the lines of the Wisconsin Central and the Chicago, St. Paul, Minneapolis & Omaha Railway Companies.

The Georgia flour-mill owners held a convention in Atlanta, on Sept. 15th. The convention was called for the purpose of taking some action looking to the reduction in the present rate of insurance upon mill property. The millers claim that they pay higher rates than they should pay. Other matters of interest to the gentlemen engaged in this industry were acted upon.

The Cummer Engine Co., of Cleveland, O., has recently received the following orders for engines: No. A 56-H. P. engine for the Torrington Manuf'g Co., of Torrington, Conn.; 130-H. P. engine for the Baker Wire Co., of Des Moines, Ia.; one of 55-H. P. for the Journal Co., of Kansas City, Mo.; one of the same size for the Kansas City Times, also Kansas City; a 67-H P. engine for the Sike's Chair Co., of Buffalo, N. Y.; and one 89-H. P. for F. Baer, of Greensburgh, Pa.

Arrangements were concluded this week for making considerable additions and improvements to the Occidental mill, owned by McAlister Bros. & Co. Heretofore its business has been principally in the grinding of feed, but now machinery will be introduced for the manufacture of rye flour and bolted meal by the roller process and on a larger scale. The machinery to be added will be 3 sets of three-high rolls, 1 purifier, 4 fourteen foot reels, 4 six foot, 1 six foot and 3 five foot scalpers. With this the capacity of the mill will be as follows in ten hours: Rye flour, 40 bbls.; bolted corn meal, 10 tons; feed, 50 tons. A change has recently occurred in the firm, S. B. Chase retiring, the style McAlister Bros. & Co. being adopted. The members are Geo. and H. A. McAlister and J. B. Bassett, the latter gentleman being of the Columbia Mill Co.—*N. W. Miller, Sept. 18.*

The following are among the many orders received by the Case Manufacturing Co , Columbus, O., during the past month; From the Fleniken Turbine Co., Dubuque, Ia., for machinery to be shipped to B. M. Van Cort & Co., Zwingle, Ia.; from Simpson, Norris & Co., Johnstown, O., for a full outfit of breaks, rolls, and all necessary machinery for a complete roller mill on the Case system; from The W. A. Huffman Implement Co., Fort Worth, Tex., for additional rolls to be placed in the mill of L. P. Adamson, Weatherford, Tex.; from W. H. Mann, De Witt, Neb., for rolls; from Carnahan, Snyder & co., Coshocton, O., for a full line of breaks, rolls, purifiers, scalpers, centrifugal reels, bolting reels &c., for a complete roller mill on the Case system; from Johnson & Long, Eldorado, Kan., for all the necessary machines and appliances for a full roller mill on the Case system; from J. W. & L. T. Johnson, Friendship, Ind., for new machinery; from Davis & Greely, Lebanon, O., for additional machinery; from E. Kimbel & Co., Covington, O., for a complete plant of breaks, rolls, purifiers, centrifugal reels, scalpers, bolting reels &c., for a roller mill on the Case system; from Chas. H. Culver, Great Bend, Kan., for three pairs rolls with patent automatic feed, and other machinery; from W. T. Pyne, Louisville, Ky., for rolls to be placed in the mills he is remodeling at Sellersburgh, Ind., and Scottsburgh, Ind.; from A. H. Fairchild & Son, North Bloomfield, N. Y., for rolls to be shipped to E. Light, Avon, N. Y.; from Montague & Co., Chattanooga, Tenn , for a late improved centrifugal reel; from John Cullis, Auburn, Ont., Canada, for two pairs rolls with patent automatic feed; from Vance Graham, Camden, Ind., for a full outfit of breaks, rolls, purifiers, centrifugal reels, bolting reels &c., for a complete roller mill on the Case system; from Dehner Wuerpel Mill Building Co., St. Louis, Mo., for 23 pairs of rolls with patent automatic feed and other machinery for the mills they are remodeling at Jonesboro, Ill., Mascoutah, Ill., and the full roller mill they are building at Garfield, Kan.; from Geo. Slade, Goodrich, Mich, for rolls.

ROLLS AND STONES.—A FRENCH VIEW.

In an article of earlier date we quite advisedly said that the struggle between the new and old system of milling had incontestably been judged to be in favor of the new or roller system. This fact is proved by the numerous recent milling exhibitions, at which the roller mill is presented under all its various aspects. But if the question of principle is decided, that is to say the replacing partially or wholly of stones by rolls, everything is not yet settled; the proper application of rolls remains to be decided.

The adoption of rolls is now almost complete, but with regard to details the systems proposed by our engineers are too numerous and essentially very different. This profusion of systems is regrettable, and tends to render contradictory the statements of the various defenders of the new systems, to such a degree, in fact, that the principle itself becomes hidden. From this state of things the natural result is a sort of uncertainty and embarrassment in fixing their opinion on the part of the millers desirous of improving their plants. It is beyond doubt that any system, whether mixed or not, will give bad results if not ably worked, and erected with some regard to the exigencies of the situation.

The systems which are offered to millers may be divided as follows:

1. Stones to break the wheat, and rolls to reduce the semolina, etc. 2. Discs for the reduction of wheat, and millstones for the reduction of fine middlings, with rolls for reducing the tailings, etc. 3. Gradual reduction, pure and simple, with corrugated and smooth iron rolls. 4. The cutting up of the wheat by special machines, purification of the granules therefrom, and the reduction thereof by smooth rolls. 5. The degerming of the wheat, breaking it longitudinally through the crease (which is only partly carried out) and the subsequent reduction by rollers. 6. The use of disintegrators, such as Carr's and its imitators, or reduction by means of concussion.

Each of these various modes of reduction has its special value, and it only remains to pick out from them what may be specially suitable for special and determined cases, and reject all the rest.

It would seem advisable to counsel our small millers to preserve the greater part of their present machinery, to which it will suffice if they add the necessary adjuncts to render the transformation of their mill complete. In bringing to bear upon their style of manufacture the best assistance and utmost care, by having a useful combination of dressing and purifying machines, they will find it possible to obtain the best results, with regard to quality, which anyone can expect.

With regard to the relative qualities of roller and stone-made flour, it is evident that the former sells better than the latter, and that any difficulty in panification experienced with the former is compensated by other advantages, although stone-made flour is more tractable in kneading. We have never denied the merits of good stone milling, specially carried on for a special purpose, but it is evident that under such circumstances stones present more difficulties to the miller than rolls equally favored. For little mills, where the work done is always under surveillance of the master, and the motive power irregular, stones, assisted by rolls, can give good results; but in large new establishments, stones should not find a place.

There exist, as is well-known, doubts as to the results obtained by rollers from damp wheats; and it is regretable that roller mill engineers have not yet proved that rolls do better work on such wheats than stones. The case would be easy to prove if we experimented on wheat artificially damped; and we have no doubt that the roller mill would show less inconveniences than the stones. Positive proof on this head, however, is not yet forthcoming.

By simple practice, born of experience, the miller can tell up to what degree of humidity

the wheat can be properly reduced on stones, without undue heat and caking; certain qualities of stones are of course better than others for this purpose, whilst other qualities of stone lead to much trouble and inconvenience. In some cases, with damp and sprouted wheat, the stones will not work, except with additional power.

It will be remembered that in 1851 our wheat was so damp as to be entirely unworkable on stones; and it is to this experience that our remarks are directed. Some engineers pretend that to thoroughly clean the bran from such damp wheats, a very open, lively stone is required, specially and heavily dressed; other better inspired people think just the reverse. We are of opinion that good stones, well dressed, and fed moderately, in order to reduce the pressure on the meal, run no risk of caking or over-heating, except perhaps immediately after the stone has become polished.

We are a sincere partisan of simplification in milling and we do not despair of seeing Hungarian gradual reduction milling abandoned in favor of the French "Rational" reduction system of milling. Supposing sprouted wheat to be experimented upon by both stones and rolls, although both would meet with difficulties, the advantage would be in favor of rolls.

Whatever the system in use it is evident that the variation in the quality and condition of wheat from one year to another will necessitate modifications in both stone and roller milling; and that in the subject of dressing especially will millers have to observe these changes.—*Etienne Descourty in the Journal de la Meunerie.*

HOW TO PRESERVE TOOLS.

The following hints on the best means of keeping tools in good condition, which we take from the *Building and Engineering Times*, of London, can not fail to be useful.

Wooden Parts.—The wooden parts of tools, such as the stocks of planes and handles of chisels, are often made to have a nice appearance by French polishing; but this adds nothing to their durability. A much better plan is to let them soak in linseed oil for a week, and rub them with a cloth for a few minutes every day for a week or two. This produces a beautiful surface, and at the same time exerts a solidifying and preservative action on the wood.

Iron Parts.—Rust preventives.—The following recipes are recommended for preventing rust on iron and steel surfaces:

1. Caoutchouc oil is said to have proved efficient in preventing rust, and to have been adopted by the German army. It only requires to be spread with a piece of flannel in a very thin layer over the metallic surface, and allowed to dry up. Such a coating will afford security against all atmospheric influences, and will not show any cracks under the microscope after a year's standing. To remove it, the article has simply to be treated with caoutchouc oil again, and washed after 12 to 24 hours.

2. A solution of India rubber in benzine has been used for years as a coating for steel, iron and lead, and has been found a simple means of keeping them from oxidizing. It can be easily applied with a brush, and is easily rubbed off. It should be made about the consistency of cream.

3. All steel articles can be perfectly preserved from rust by putting a lump of freshly-burnt lime in the drawer or case in which they are kept. If the things are to be moved (as a gun in its case, for instance), put the lime in a muslin bag. This is especially valuable for specimens of iron when fractured, for in a moderately dry place the lime will not want any renewing for many years, as it is capable of absorbing a large quantity of moisture. Articles in use should be placed in a box nearly filled with thoroughly pulverized slaked lime. Before using them, rub well with a woolen cloth.

4. The following mixture forms an excellent brown coating for protecting iron and steel from rust: Dissolve two parts crystallized iron chloride, two antimony chloride, and one tannin, in four water, and apply with a sponge or rag, and let dry. Then another coat of the paint is applied, and again another, if necessary, until the color becomes as dark as desired. When dry it is washed with water, allowed to dry again, and the surface polished with boiled linseed oil. The antimony chloride must be as nearly neutral as possible.

5. To keep tools from rusting, take ½ ounce camphor, dissolve in 1 pound melted lard; take off the scum and mix in as much fine black lead (graphite) as will give it an iron color. Clean the tools and smear with this mixture. After 24 hours rub clean with a soft linen cloth. The tools will keep clean for months under ordinary circumstances.

6. Put 1 quart fresh slaked lime, ½ pound washing soda, ½ pound soft soap in a bucket, and sufficient water to cover the articles; put in the tools as soon as possible after use, and wipe them up next morning, or let them remain until wanted.

7. Soft soap, with half its weight of pearlash, 1 ounce of mixture in about 1 gallon boiling water, is in every-day use in most engineers' shops in the drip-cans used for turning long articles bright in wrought-iron and steel. The work, though constantly moist, does not rust, and bright nuts are immersed in it for days till wanted, and retain their polish.

8. Melt slowly together 6 ounces or 8 ounces lard to 1 ounce resin, stirring till cool; when it is semi-fluid, it is ready for use. If too thick, it may be further let down by coal oil or benzine. Rubbed on bright surfaces ever so thinly it preserves the polish effectually, and may be readily rubbed off.

9. To protect metals from oxidation—polished iron or steel, for instance—the requisite is to exclude air and moisture from the actual metallic surface; wherefore, polished tools are usually kept in wrappings of oil cloth and brown paper; and, thus protected, they will preserve a spotless face for an unlimited time. When these metals come to be of necessity exposed, in being converted to use, it is necessary to protect them by means of some permanent dressing; and boiled linseed oil, which forms a lasting film of covering as it dries on, is one of the best preservatives, if not the best. But in order to give it body, it should be thickened by the addition of some pigment, and the very best—because the most congenial—of pigments is the ground oxide of the same metal—or, in plain words, rusted iron reduced to an impalpable powder, for the dressing of iron or steel—which thus forms the pigment or red oxide paint.

10. Slake a piece of quick lime with just water enough to cause it to crumble, in a covered pot, and while hot add tallow to it and work into a paste and use this to cover over bright work; it can be easily wiped off.

11. Olmstead's varnish is made by melting 2 ounces resin in 1 pound fresh sweet lard, melting the resin first and then adding the lard and mixing thoroughly. This is applied to the metal, which should be warm if possible, and perfectly cleaned; it is afterward rubbed off. This has been well proved and tested for many years, and is particularly well suited for planished and Russia iron surfaces, which a slight rust is apt to injure very seriously.

Rust Removers.—1. Cover the metal with sweet oil well rubbed in, and allow to stand for 48 hours; smear with oil applied freely with a feather or piece of cotton wool, after rubbing the steel. Then rub with unslaked lime reduced to as fine a powder as possible.

2. Immerse the article to be cleaned for a few minutes, until all the dirt and rust is taken off, in a strong solution of potassium cyanide, say about ½ ounce in a wineglassful of water, take it out and clean it with a toothbrush with some paste composed of potassium cyanide, Castile soap, whiting and water, mixed into a paste of about the consistency of thick cream.

There seems little prospect that there will be any movement of grain out of Milwaukee port or Chicago until the blockade at Buffalo is raised. At present there is about 4,000,000 bushels of wheat in store at Buffalo, and the working elevators are so filled up that they can receive no more grain. There is very little grain going east at present, the receipts accumulating in the elevators. The schooner Guido Pfister, of Milwaukee arrived at Buffalo on September 29 with 48,000 bushels of wheat, but had not gone to an elevator up to evening. Arrangements are being made to open five or six more elevators which have been shut down for some time, among them the Brown, Lyon, William Wells, Swiftsure, and perhaps the Watson. It will take some time, however, to get them in repair.

THINGS WORTH KNOWING.

Insoluble Cement from Glue.—Inorder to render glue insoluble in water, even hot water, it is only necessary, when dissolving glue for use, to add a little potassium bichromate to the water and expose the glued part to the light. The proportion of bichromate will vary with circumstances; but for most purposes about one-fiftieth of the amount of glue will suffice.

Old whitewashed Walls are a difficult surface to make paper adhere to properly. In treating such a wall, the loose whitewash should be scraped off and a strong coat of glue size applied to the wall. After this has become dry, the paper may be put on. But this is not all. The paste used on the paper should also be specially prepared. Pure wheat-flour paste should be used, and to every pailful of it, thinned to the proper consistency, use about one pound of common sugar thoroughly mixed with the paste. Occasionally paper-hangers will have difficulty with this kind of work, but if they observe these hints, not forgetting the sugar, difficulties will be of rare occurrence.

NONSENSE.

"HAVE you heard the news, Pat?" said a jester to an Irishman.

"An' fhat's that, sor?"

"The devil is dead."

"Take that, sor, It's all I have by me, or I might do bether," said Pat, handing him a penny.

"What's that for?"

"I never send an orphan away impty handed, sor."

A PARTY WASH.—"Rebecca," the old lady shouted up the stairs, "vas you goin' to de barty?"

"Yes, mutter," answered Rebecca.

"Vas you gettin' reaty?" inquired the old lady.

"Yes, mutter," replied Rebecca. "Vill I vash for a high-neck or a low-neck dress?"

OUR TELEPHONE GIRL.—Calmly seating herself at the keyboard, she patiently awaited such a combination of circumstances as would provide her with a victim. Number after number went down, and her gentle "hello" flashed over wire after wire to every part of the city, and she caught snatches of all the conversations going on, but none of them seemed to dovetail into another until 535 was exposed on the board, and she had set the plug and called:

"Hello!"

"Hello! Give me Dr. Lightly quickly."

"All right, here he is."

"Hello, Doc!"

"Hello! who is it?"

"Saul Worthy."

"Why, hello, Saul! How do you do?"

"Quite well, Doc. Say, come down right away. There——" Here the girl broke the communication and switched on Jason Plodder whose wife had given birth to twins that morning, and whose midwife had advised that the doctor be called, as there were some alarming symptoms, and the reply the doctor received was:

"Well, Doctor, to tell you the plain truth, my wife gave birth to twins this morning, and she is not getting along very well." At this point Saul Worthy was restored to the doctor, who asked:

"Boys or girls?"

"Both boys," Saul innocently replied, referring to the infantile nephews who had fallen sick at his house.

"Begun early, eh? asked the doctor.

"Rather early!" Saul replied, not knowing exactly what the doctor meant.

"You have been married just two weeks, I believe," the doctor said.

"Two weeks yesterday," Saul replied.

"All right; I'll be down in a few minutes," and the doctor stopped at the office of an evening paper which was about going to press, and reported the news, and was delayed on his way to Worthy's by another case until after the edition was run off and distributed; and now libel suits and fights and such things are common occurrences in the city, and yet the girl seems happy.—*Through Mail Magazine.*

MR. ADAMS BATHES A MULE'S FEET.—Mr. Archibald Adams, a teamster, who resides on the Brownsville road, had an interesting and exhilarating experience yesterday morning. A week ago Mr. Adams bought a pair of plain, ordinary every-day mules at the rse market. Now, Mr. Adams is a careful man, and has a kind heart for animals. So when he noticed in the farmer's column of a newspaper a day or so ago that it was an excellent thing to wash the hoofs of horses occasionally in hot water, he came to the conclusion that he would try its beneficial effects on these mules. He got a pail of hot water yesterday morning, and hied himself away to the stable. The mules blinked at him with a mild, languid air, flirted their little tails about pleasantly and awaited their master's will. Mr. Adams set the pail of water down at the rear feet of one of the mules. The mule kept on looking pleasant. Then Mr. Adams lifted up one of the hoofs and placed it in the bucket, ——! ——! | ! —! | !—*Pittsburg Dispatch.*

Miss Bessie—Tell me, auntie, am I 25 or 26 to-day. It is funny enough, but I never can remember.

Auntie—Why Bessie, you ought not to forget when you were born; you are 26.

Uncle Joe (who is a little deaf).—Bessie born in twenty-six! Why, Jane, you are crazy; she wasn't born till fifty; she is only 35.

BOUND TO TAKE THAT FLY.—The latest fish story comes from Latourelle Falls, and is attributed to Eugene Protzman. The fish in the lake near the falls leaped several inches clear of the water to take the flies which "Protz" offered them. The other day he got his line entangled in the boughs of a tree which leans over the lake, and despairing of ever getting it clear, sat down on the shore in order to do the subject justice at his ease. He was much astonished to see a fine trout leap upon the sloping tree-trunk, wiggle along up it and then climb out on a limb, and then make a jump and fasten himself on a hook dangling in midair, where he kicked his life away in a most joyous manner.—*Portland Oregonian.*

THE BET WAS OFF.—A few days ago, after a couple of esteemed citizens who are close neighbors, had arranged to pass a few days with their families at a lake in Franklin county, one of them offered to wager a box of cigars that he would catch the largest fish. The wager was promptly taken, and the next day one of them put in appearance at a Lisbon street market and said to the dealer:

"Have you got a fresh trout weighing about five pounds?"

"I have, sir."

"Well, I want you to put him on ice and ship him to me at —— Lake. I propose to catch him on a hook out there."

"Very well, sir, I think I'll ship the two together."

"The two?"

"Yes, sir. Mr. —— (mentioning the other esteemed citizen,) was here an hour ago and bought one weighing eight pounds! It will take less ice to pack the two in the same box!" The fish were paid for, but the bet was declared off.—*Bangor (Me.) Commercial.*

MUST TAKE HIS CHANCES.—During a revival effort of the "boy preacher" in Chicago last week, an invitation was extended to all in the congregation who wanted special prayers offered up for them to arise. An old chap stood up, and the revivalist asked:

"What shall we pray for, brother?"

"Well, I am out $20,000 on wheat."

"Yes, but we can't pray for the price of wheat to go up."

"I don't want you to, I'm into hogs just now, and its pork I want to see boomed?"

The revivalist passed on to the "next."

Two illustrations of how men will not "let well enough alone" are given in the Arlington, Tex., *World*. One was where a plaintiff, having secured a $25,000 verdict against a railroad company was dissatisfied, and got only six cents on the next trial. The other instance was that of a man who was acquitted of murder, "and went the same day and got married."

HOW TO EAT A 'POSSUM.—Yer look at de 'posum an' smeck de lips, fer 'e be fine big fellow. Den yer take 'em an' go rite back hum, an' and jess fo' yer get ter de door yer take yer ax an' 'andle and put 'im cross 'e neck by pullin' ob 'e tail. Den yer tek 'im in 'ouse, an' de ole 'oman done leff great big fire place heap full hickory ashes. Yer takes de shubble and open big hole in dem pile er ashes an' draps dat 'possum in dar, an' wen yer take 'im outer dar he har des pull off des as easy, an' yer put 'm in some hot water an' 'srapes 'im wid er case knife, and he cums clean. Den yer takes out der intrals, hang 'im up and wash 'im good, den yer salts 'im down an' puts 'im away twel Monday morning. Monday morning cum, de ole woman tek 'im out an' parbile 'm good, den she git 'bout pek er taters an' den slices dem taters an' pile 'em all over 'im, and den she baks 'em twel de grease run all fru dem taters. Den she taks 'im out and puts 'im in de big dish an' sets 'im on de dinner-table, wid de taters pile all ober 'im. Yer cum ter dinner fum de fiel' an' yer walks in an' sets down ter de table, but yer doan' eat dat 'possum den! No, sah, doan' yer eat 'im den! Arter dinner yer takes him an' de taters and sets 'im up in de cupboard. Bimeby yer cums home from de day's hard work ter supper. You're mi'ty worn out, fer yer been wuking in de fiel' hard all day. Yer sets down outside de cabin do an' takes yer pipe and smokes. 'Fore long, Sam say, "Daddy, supper redy." But yer des set dar; yer doan' go in. Yer wait twel de ole 'oman an' de chillun git fru eaten and de chillun go off ter bed. Den yer knocks der ashes out yer pipe and goes in. Yer moves de leetle squar' table front de fier, an' puts yer char' close up dar by it. Den yer goes ter de cupboard and gets de possum and taters. Yer puts em on de table. Yer tell de old 'oman ter go on out, an' yer locks de do'. Den dar yer is, you an' de 'possum all by yerself together. Yer frows yer old hat on the flo', takes yer seat in dat char' by de table, and gibs yer attention to the 'possum.

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Fill Out and Return Promptly!

For it is of as much, if not of more, interest to you as to us.

OFFICE OF

Cawker's American Flour Mill Directory

AND

THE UNITED STATES MILLER.

MILWAUKEE, WIS., August, 1885.

TO OWNERS OF FLOURING MILLS:

We desire to revise and correct our list of ***Flour Mill Owners****, and therefore beg that you will answer the questions below by* ***return mail.*** *This list is used for the purpose of reaching flour mill owners by mill furnishers, engine and water wheel builders, flour and grain brokers, city bakers, insurance companies, publishers of milling papers, and in short by manufacturers of and dealers in everything used in or about a flour mill. You will therefore perceive that it is of great value to* ***you*** *to be properly entered in our list. If you are not already a subscriber to the* ***United States Miller,*** *we trust you will order your name entered on our subscription list at once. We have sent you sample copies of the paper at various times, and we think that you will certainly admit that it is worth the small sum of a* ***dollar a year.*** *We want you for regular subscribers, but whether you do subscribe for the* ***United States Miller*** *or* ***not, DO NOT FAIL TO ANSWER OUR QUESTIONS*** *by return mail. Address*

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Do you use water or steam power? .....

How many barrels of wheat flour can your mill make in 24 hours if you run up to full capacity? .....

Do you use the Roller or Stone system, or both .....

Do you make a specialty of making rye flour, corn-meal, oat-meal, buckwheat, or hominy? .....

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3.00 New York Weekly	3.25
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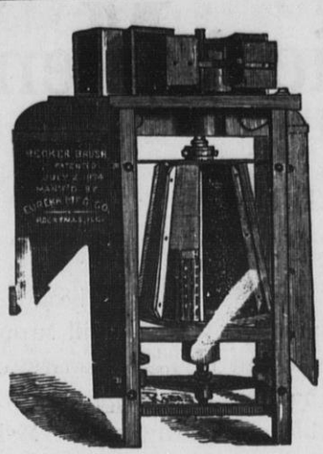
CORN MEAL MILLING.

BY J. M. CASE.

Parties interested in the manufacture of corn meal, are waking up to the importance of using rolls for that purpose. The meal thus made is of such a superior quality that it readily demands a higher price in the market, and has many other advantages, among which may be mentioned the facts that in all ordinary cases it does not require kiln-drying, since in the various operations through which it passes in the series of breaks, scalping, etc., it receives such a degree of ventilation as to remove almost the entire moisture, it is also so much more granular and free from flour, that it does not pack solidly like the meal made on the burr system, thus permitting the meal to be permeated by the atmosphere, and as a consequence prevents heating and souring. It is a known fact, that meal which has not been kiln-dried, is decidedly preferable to kiln-dried meal and where parties can purchase a meal that will not sour readily and which has not been kiln-dried, it is found more salable. We have recently put in operation a number of corn meal mills, and in every instance the parties have met with unexpected success. A mill started at Chattanooga, Tennessee a few days ago, and after the first day's running, samples were sent out, and in less than a week the mill had orders for more than it could possibly turn out, running night and day, making 125 barrels per day. The parties who first enter into this system of roller corn meal milling, will find that they will reap a rich "Bonanza." The writer has spent considerable time and has had considerable experience in corn meal milling, and at the earliest time possible will give to the public the benefit of this experience in the separations, etc. I have found that it requires an entirely different system of manipulation from wheat.

THE EIGHTH OF HIS NAME.

History relates that about 250 years ago Mr. William Fowler, with a few associates recently arrived from England, were traveling on foot from New Haven along the coast under the pilotage of Sergeant Thomas Tibbals, prospecting, when, on reaching the mouth of the Wopowage river, Milford, they were struck with the superior advantages and facilities for establishing a mill, and Mr. Fowler determined to secure them, and forthwith commenced and soon completed the erection of the first mill built in the colony of New Haven. The mill soon became widely known and acquired such a reputation and was of such importance to the whole community that upon its being injured by a freshet in the winter of 1645, it was voted in "General Court" that every man should help Mr. Fowler repair the mill. Since that day nine generations have successfully conducted its operations, and to-day the eighth William Fowler has completed the fifth mill in succession on the precise spot so timely discovered by his ancestor.—*From the Ansonia (Ct.) Sentinel.*



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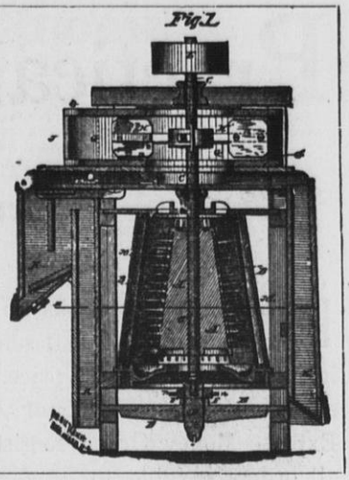

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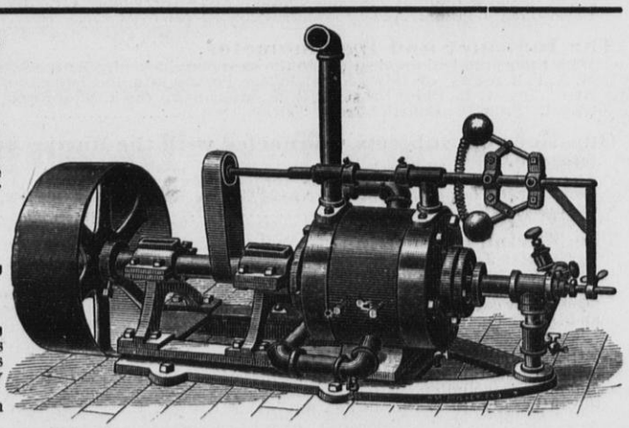

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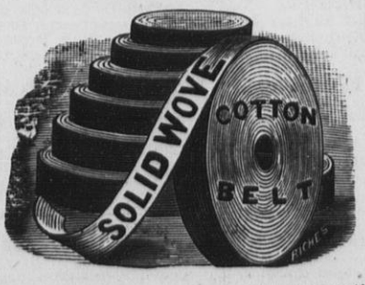

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We publicly announced sometime since that we had determined to no longer submit to the secret violation of our injunction by the George T. Smith Middlings Purifier Company. We say *secret*, for, while the Smith Co. and their associates ostensibly obeyed the injunction, and withdrew their advertisements and notices from the trade publications, they, in fact, have, in the meanwhile been secretly selling Dust Collectors, and in an underhanded manner endeavoring to injure our trade. Accordingly, proceedings for the punishment of the Smith Company and their associates were instituted a short time since. These proceedings were to be heard by order of the court on Tuesday, September 1st, the day also fixed by mutual stipulation for the trial of the action. When the day arrived, and the respective rights of the parties were to be weighed in the balance, we were confronted in court by an application on the part of the Smith Company and its co-plaintiffs, for a change of venue to the United States Court. This, notwithstanding the stipulation to try the case on that day. Under an Act af Congress the application had to be granted, and hence all proceedings are at a stand still, until the meeting of the United States Court in October. ***Millers and Mill-Furnishers may draw their own conclusions from this "Back Down." Comment is unnecessary.*** We only desire in this connection to repeat the warning heretofore given in regard to purchasing machines from the George T. Smith Middlings Purifier Company. The present situation is as follows:

1st. ***THE CHANGE OF VENUE DOES NOT AFFECT OUR INJUNCTION. IT IS STILL IN FORCE.***

2d. The George T. Smith Middlings Purifier Company has been enjoined by order of the court from manufacturing any Dust Collectors whatever under the consolidated patents now in force.

3d. The Milwaukee Dust Collector Manufacturing Co., are the sole and exclusive licensees, and no one is authorized to imitate the Prinz Dust Collector.

4th. Parties buying from any one but ourselves will be charged as infringers, and held liable as such.

5th. Everyone, who with knowledge of these facts, helps or assists the George T. Smith Middlings Purifier Company, Samuel L. Bean or Kirk & Fender, in violating the injunction may be made liable as a joint *tort feasor.*

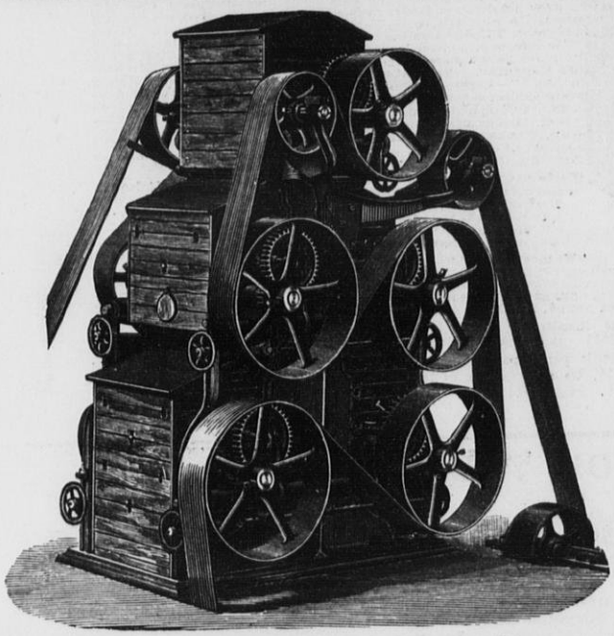
6th. No guarantee of the Smith Company ***can stop the operation of the law or save a violator of the injunction from IMPRISONMENT.***

After these repeated warnings we cannot be blamed if we prosecute ***CIVILLY AND CRIMINALLY*** all persons who assist the Smith Company and its associates in violating the injunction. Yours Respectfully,

Apply for prices, &c.

MILWAUKEE DUST COLLECTOR MFG. CO.

NOTE.—The Prinz Dust Collector has received highest honors and Silver Medal at Paris Exhibition and Silver Medal at Koenigsburg, Prussia.



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The **loudest and most piercingly shrill** whistle made. Can be heard from one to two miles. Exact size of a 50-calibre centre fire cartridge. Invaluable as a **signal on the farm or on the water. Every sportsman and every farmer should have one.** Sent free, by mail, for **25 cents** in stamps. **Order now,** and get our catalogue of **Guns, Novelties, etc.** Address **RENNIE, ALLISON & CO., PHILADELPHIA, PENN'A.**

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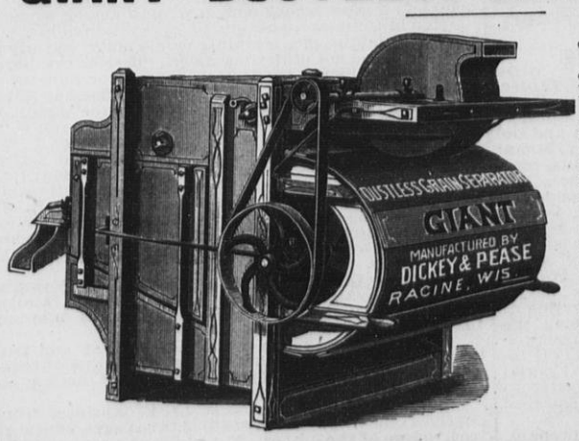

This Separator commends itself above all others for the following reasons:

1st. It is simple in construction; any one competent to run an ordinary Fanning Mill can operate it.

2d. Its height from the floor to the top of the receiving hopper is but *four feet three inches.* One of the main objections to other Separator betng that their Hoppers are too heigh up to admit of spouting into them from more than one biu without moving the machine.

The Dust, Chaf, etc., are taken out of the Grrin as the latter falls from the Hopper down on to the Hurdle or Sieves and is conveyed by spouts out of the doors or into a bin.

The Suction is regulated by Valves so that more or less chaff, light seeds, etc., may be taken out as desired.

This Separator has no equal in separating Oats from Wheat and Barley, and general cleaning of all kinds of Grain.

The "GIANT" is the most complete and at the same time the cheapest machine in the market.

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