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Published by  
E. HARRISON CAWKER. } Vol. 20, No. 1. MILWAUKEE, NOVEMBER, 1885.

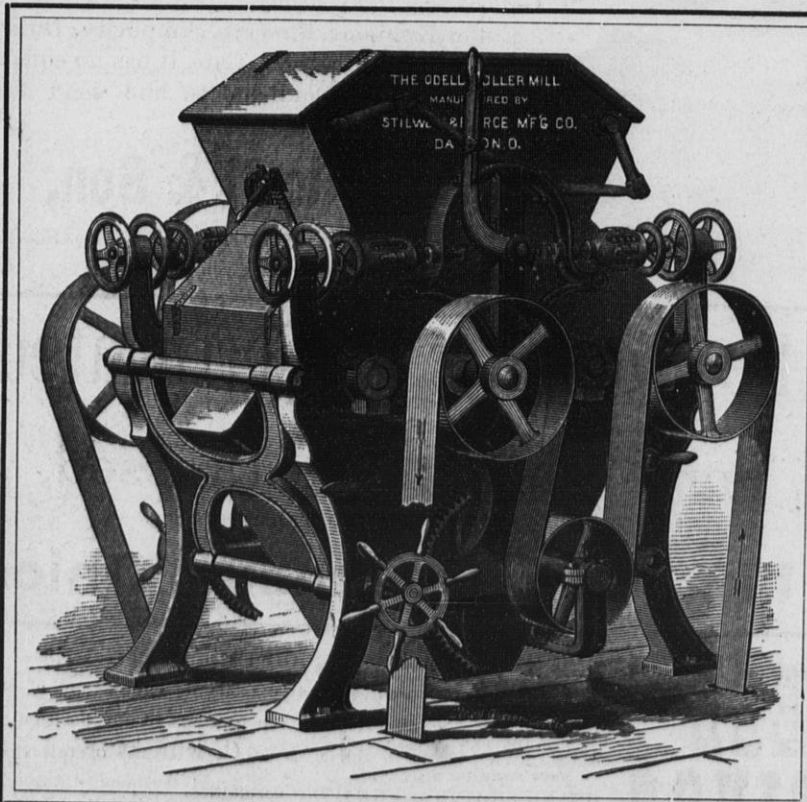
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**CAWKER'S**

American Flour Mill **AND** Mill Furnishers' Directory.

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Is now in successful operation in a large number of mills, both large and small, on hard and soft wheat, and is meeting with unparalleled success. All the mills now running on this system are doing very fine and close work, and we are in receipt of the most flattering letters from millers. References and letters of introduction to parties using the Odell Rolls and System, will be furnished on application to all who desire to investigate.

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2. It is the only Roller Mill in market which can instantly be stopped without throwing off the driving-belt, or that has adequate tightener devices for taking up the stretch of the driving-belts.
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4. It is the only Roller Mill in which the movable roll-bearings may be adjusted to and from the stationary roll-bearings without disturbing the tension-spring.
5. Our Corrugation is a decided advance over all others. It produces a more even granulation, more middlings of uniform shape and size, and cleans the bran better.

#### WE USE NONE BUT THE BEST ANSONIA ROLLS.

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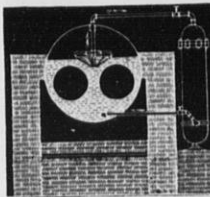
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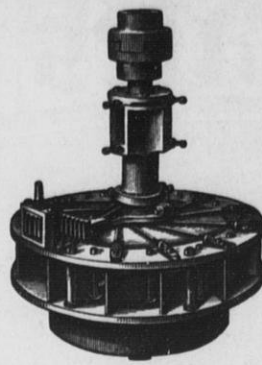
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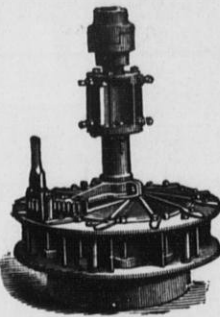
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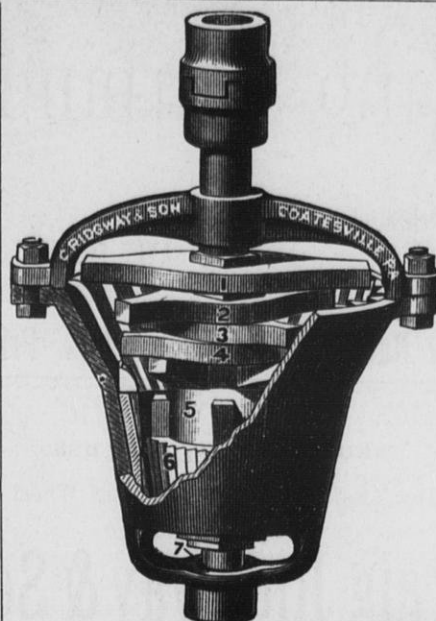
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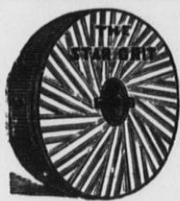
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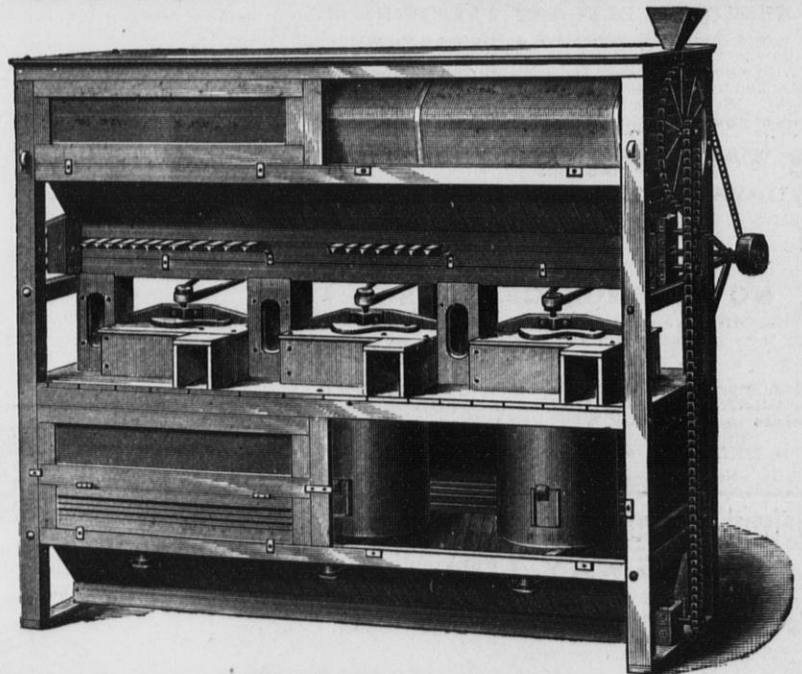
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**The Wilcox Tailings Cleaner**

THIS IS A NEW MACHINE WHICH MILLERS  
MUST HAVE.



**Immense Reduction in Low Grade!**

**TESTIMONIALS.**

**Indispensable in any Mill!**

Cream City Mills, Milwaukee, Wis., September 9, 1885.

The Cockle Separator Mfg. Co., Milwaukee, Wis.

GENTS: In regard to the Wilcox Tailings Cleaner that we are using on tailings, we take pleasure in acknowledging it as an improvement that millers must have, as the results are valuable upon several points. From its peculiar construction it adapts itself to handling tailings superior to anything we have ever seen. We hope it will have the success a good machine deserves.

Very truly yours,

A. W. CURTIS & CO., Proprietors.  
ED. PHILLIPS, Head Miller.

Rochester, Mich., September 11, 1885.

The Cockle Separator Mfg. Co., Milwaukee, Wis.

GENTS: I take pleasure in informing you that I have been running a Wilcox Tailings Cleaner for a few months, and find it truly to be the "Miller's Friend." It makes more perfect separations than any other machine in the market, and gets all the Middlings out of the Tailings, reducing low grade to about two per cent. If I could not get another machine like it I would not sell it for \$1,000.

Yours truly,

W. H. COWDEN.

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Manufacturers of Kurth's Patent Improved Cockle Separator, Richardson's Dustless Oat Separator, Beardslee's Patent Grain Cleaner, and Wilcox's Tailings Cleaner.

# The United States Miller



Published by  
E. HARRISON CAWKER.

Vol. 20, No. 1.

MILWAUKEE, NOVEMBER, 1885.

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

## PRACTICAL POINTS IN MILLING.\*

MR. PRESIDENT, MEMBERS OF THE PENNSYLVANIA MILLERS' ASSOCIATION, FRIENDS AND GENTLEMEN:

The world could thrive, were there a few  
Great industries forever still;  
But what a wall there would ensue,  
Were lost each miller and each mill.

Millers produce the flour of the universe. Not the rose of the garden, nor the lily of the field. Not the flower strewn promiscuously along our pathway, emitting its fragrance and shedding its beauty, to cheer and to elevate the human heart; but the flour of the golden grain, "the staff of life," the base of mankind's sustenance, daily satisfying the wants of every rational being. The one is a promoter, the other a supporter of life. The manufacture of flour is thus an industry which furnishes one of the foremost necessities of the human family, a fact which already exhibits the magnitude and importance of the industry's character. It is meet that an association of millers should be engaged in the discussion of so great a life's work, a subject foreign to the cause of milling is properly regarded out of place here.

In the choice of a subject, we did not overlook this fact. The practical points to which we desire to call your attention, appertain to milling solely and particularly, though we have taken the liberty to not designate any branch of the industry, nor any shade of system. Milling, in its widest sense, covers an extensive field, both as an industry and as an art and science; and, fully realizing this fact, we did not wish to confine ourselves to any particular topic, and hence shall make any applications esteemed as useful and instructive.

There is no intention to stigmatize theory, by only touching upon practical points. We wish to say here, that those who regard theory of no utility have not been students of the world's progress. They are not acquainted with the history of the greatest inventions of the day, whose inception has been the result of theoretical experiment. Experience made use of the knowledge thus obtained, and the world wonders at the achievements. But as a body of millers we want nothing doubtful. To learn from practical facts is the quickest and surest way to success. We look for effect. The conflict between systems to us is not the theoretical correctness of one over the other. There is more at stake than mere argumental conquests. Milling is not pursued for fame.

\* A paper read before the Pennsylvania Millers' Association, at Bethlehem, Pa., by Mr. Harry S. Klingler.

Glory, instead of profits, leaves a blank on the interesting side of the balance sheet. The discerning miller views the system and pursuit of milling from a business standpoint. It is dollars and cents—profits—which are the object of his endeavors. His interest centers in what his trade will most freely buy and most liberally pay for. The vital question to him is: What flour is demanded by my trade?

It matters little to the discriminating miller what his individual preference may be; he realizes that his trade must be satisfied, in order to dispose of his products. The public does not always like what the miller likes; or, in other words, the miller's views and the public's do not, in every instance, coincide. Prominent examples of this kind come to our notice frequently. Here is a miller who is very fond of his own flour. He regards it the very best he ever saw. He extols its virtues in language that is very flattering. It is flour full of the life-giving principle, not all starch, like modern flour. However, his patrons do not appreciate his declarations. They gradually desert him. They disagree, and withhold their patronage.

The public is not easily persuaded in this matter. Even inducements in the way of prices do not effect a much-desired change in taste. Each one clings with tenacity to his choice, often regardless of other considerations. In the land of the free, means permitting, people buy what they want. The dissenting miller expected a reaction in the public sentiment after a prolonged trial of modern flour. He watched and waited. With a serious look, he meant to say that his wayward customers would soon return, and with eagerness call for the "old reliable." This persistent miller is still watching and waiting, and his contemplations have not yet been interrupted by intruding inquirers. The dawn of the day of triumph has not yet appeared, and as time wears on, the prospects are less promising than ever.

We can take a lesson from other manufacturers in this respect. Every one engaged in an industrial pursuit is intent upon producing that quality or grade of goods for which there is a ready sale. Public taste is the miller's standard to which he must conform. If the flour is appreciated it will find purchasers. A sample test of flour, both in the dust and in the dough, is considered insignificant, as compared with the approval of a large and increasing patronage. The progressive miller has committed the rule: A ready sale at market prices is indicative of a good article; no demand at competitive values speaks in evil tones of the quality of the flour. Even should there be a difference of opinion as to

whether that which the public calls good, really is so, this can in no wise affect the policy of manufacturing the flour the public wants. The miller is no hygienist, and there is no mandate, either moral or legal, that makes it obligatory upon him to manufacture the goods he deems the best for the public health. True it is, that no one can conscientiously manufacture a flour which he knows will be positively ruinous to the health of every consumer; but if each miller would be compelled to mill that which he regards the best food for the human family, some of our best millers would be under obligations to forsake wheat flour milling entirely, and to manufacture Graham flour; others, rye flour; others oat meal; and others, corn meal. No code of ethics contains such a rule, and none can, and prove its correctness. To give the trade what it wants is the course to be followed by every shrewd and intelligent miller, because he knows he can thus maintain a demand for his product.

And, without digressing, permit us to say, that although public taste is not always in the right relative to flour, it is, at the present time, supported by scientific research. Modern flour is, without doubt, the most genuine article ever produced—tainted with less impurity and foreign substance, and lacking fewer of the original constituent elements of the albumen. The consumer tests the bread to judge of the flour, and it must be conceded that he is testing the flour in a manner that is most intelligible to him, or to any one else. Logically and practically, the best bread, other things being equal, is made from the best flour. In other words, the farinaceous portion of the wheat having been reduced to a form and condition in which its every original quality is susceptible of the highest development in bread, will demand natural methods and treatment, and must yield the best bread with proper handling. Modern flour, for which the greatest demand exists, comes nearest to this definition of the best flour, as has been demonstrated by actual practice.

Having come to a knowledge of the flour his trade wants, the miller is next concerned how to manufacture the desired flour. His anxiety is expressed in the question:

Which system of milling will most economically produce the flour that is in request?

If we recur to the past, we find that each system of milling had its time in which it flourished. As long as older methods competed with newer processes in the quality and quantity of flour, there was no change of sentiment and no advance in milling recorded. However, just as soon as novel features were

introduced which improved the quality of the mill's product, the era of development and progress became visible. Low milling lost none of its advocates until half-high milling demonstrated, beyond doubt, the superiority of its work. To-day half-high milling has lost its prestige, because high milling is giving better results. Irrespective of the prejudices of individual millers, gradual reduction is the accepted system of milling, furnishing the flour for which the greatest demand exists at the present time. The older systems are not extinct, but they do not produce the flour which is publicly recognized as the leading flour, and for which there is an universal inquiry. It matters little what the success, as to the quality of the flour, may be, of individual mills competing with each other; the product of the mills taken collectively, decides the question of superiority to every fair-minded seeker after the truth. Some may say that there are yet large quantities of the new process flour sold upon the market, and that there still exists a quiet but steady demand for this flour. Though this is true, it is equally true that the bulk of new process flour is sold at a concession in price, and that this trade is retained solely by the cheapness of the article. "Facts are stubborn things," and the facts are before our very eyes, that gradual reduction produces the flour which enjoys the largest demand at the highest price.

Inasmuch as gradual reduction has been practiced by different methods, the miller is rightfully desirous of knowing how to pursue this system the most economically. History combines the experience of the whole industry, and we have thus a fertile field from which to gather facts to guide and guard us in our judgment. Let us briefly rehearse the introduction of the gradual reduction system. In the past few years, the various devices which have been employed in the new system have been thoroughly tested. As soon as it became known that a gradual mode of reduction gave the best results, untiring efforts were made to adapt the burr to the new departure. Very few millers, who were the pioneers and heroes in the milling revolution, did not cling to the burr, and labor with devoted interest to accomplish the breaks upon the burr, or at least some of them. All plans failed, and the universal verdict was that the millstone was not adaptable to the uses of reduction in the break operations. The result of all the trials was that the burr was forthwith displaced as a break device, and was retained in some mills for the reduction only of purified middlings. To-day the millstone is yet largely used in hard spring wheat localities, and seems to succeed admirably in maintaining a reputation for grinding hard spring wheat middlings. In winter wheat districts, however, especially where soft wheat abounds, the tendency is apparently to discard the burr entirely. Mills which have for years adhered to the millstone for grinding clean middlings, are, one by one removing their burrs; this change of sentiment coming gradually after due deliberation and experience. Not only the burr, but other reduction devices failed in carrying out the aim of gradual disintegration. Reduction devices of various kinds were invented, and were tested in actual practice. They one and all failed, with the exception of rolls. Though there are reduction machines of more or less merit, in use on the first break,

all subsequent operations in our best soft winter wheat mills are performed upon rolls. Gradual reduction has been developed by rolls to its present high standard. The facts to which reference has been had, can be verified by a personal examination of the best mills of the day. An unbiased decision can not otherwise than accord to roller milling the honor belonging to that system of milling which is to-day producing most economically the flour that is in request.

The miller, having satisfied himself as to the flour his trade wants, and the system of milling capable of producing that flour, is confronted by the all-absorbing and everyday question: "What are you going to do about it?"

You will concur with our opinion that this is the most difficult question of all. The others that were answered were put in a general way, and the answer could be gathered from general facts. This question is directed to each miller individually, and has special reference to his peculiar circumstances. How diversified the wants, facilities, and abilities of different millers! One has, or wants, a large mill; another has, or wants, a small mill. One is situated in the city, with excellent railroad facilities and local trade; the other, in the country, away from railroad communication, and confined exclusively to a custom trade. One has large available resources, the other is limited in his finances. So each one must be governed by attending circumstances. You, no doubt, expect us to answer this question by the advice,—everyone build a full-fledged, genuine roller-mill. Though this advice would be proper, in order to place one in a position to manufacture popular flour, you will observe that the question has not been considered, whether such a project would prove a commercial success. The general elements of success would be present, but whether the local elements are assured, left entirely out of view. Telegraphy and railroading are a success as a system and an art, but the indiscriminate building of railroad and telegraph lines has, by no means, always been a business success. The quality of the flour depends upon the mechanical ability of the mill and the miller; the profits depend upon the commercial facilities of the mill and miller. Mechanical success can be achieved without commercial facilities and without commercial success, but then it would be valueless. We build mills to make them pay, not merely to demonstrate that a system of milling can produce a certain grade of flour. The question is fully answered as follows: Consistent with your ability and facilities, build, or remodel your mill to the system which will most economically produce the flour for which there is the largest demand. This rule can be adapted to the peculiar wants of each individual miller. It will be applicable to every one, though each one must use his own judgment in measuring his ability and facilities. It is a formula which will insure success, if success is dependent upon the miller's progress in reference to the improvements of his mill.

A citation of millers diversely situated, will permit an explanation in detail. In considering individual circumstances, individual preferences and prejudices must not be allowed to hide the fact established, that a genuine roller mill will manufacture the

most popular flour, commanding the largest and most lucrative trade. With the best equipped roller mill, then, as the ideal mill, we will proceed to examine the various millers in different locations. Our first subject is a would-be-mill owner of means, resident in a city or town, where there is a good local trade and excellent railroad facilities. Without hesitation, you answer, let him build a modern roller mill of the best type. Right! Next! Our next applicant is a miller who has a millstone mill in a thriving place, but his mill is idle half the time, and his flour is selling at a sacrifice. At the same time, the market is overstocked with the best of roller flour; and the latter is selling at hardly living prices. Furthermore, this unfortunate miller is still more unfortunate in not possessing any capital. He is certainly in a sorry predicament. He is not making anything now. If he mortgages his mill and puts in rolls, he will not make anything either, and probably fail entirely. Taking him into our confidence—by way of digression—we would whisper into his ear, sell your mill to an enthusiastic burr advocate. A twofold good would be accomplished,—an honest miller rescued from a perilous position, and a persistent miller given a graceful opportunity to reform. But, as regards the former's actions in the direction of improvements, this is no answer. He recognizes that a roller mill is the mill with which he can compete in the market; or, if he does not recognize this fact, it is true just the same. Let him keep in view the ideal mill of the day. Let him make the improvements his purse will permit, but let him make them in such a manner that the more he makes, the nearer he approaches the system which can manufacture the desirable flour. His every addition and change must be a step nearer to a complete roller mill; and the more steps he makes, the more capacitated, as a natural consequence, he will be, to cope with those who lead the trade. It will not do to let the mill stand unimproved, because it cannot be thoroughly overhauled. To stand still now, means to go back. Every little improvement, judiciously made, will enhance the value of the mill, and the value of the output. From a commercial point of view, it is infinitely better to make an effort to operate the mill by gradual and continued improvement, even if the profits are absorbed by the expenses, than to despair, and leave the mill idle, and thus not self-sustaining. In the one case, in the lapse of years, there are no profits and a depreciated property; in the other case, there are no profits either, but there is a remodeled and productive mill. Because this miller cannot make a complete roller mill out of his burr mill at once, should not lead him to think that he can never, by gradual addition, come to a first-class and approximately perfect plant. Let him do what he can safely, but let him do it well. Who has not learned the words of the poet, and realized their truthfulness, in the affairs of every day life?—

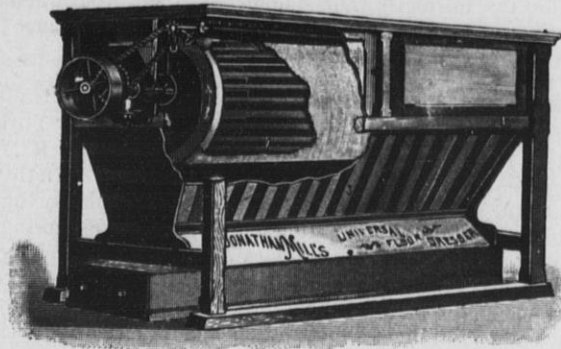
"Little drops of water,  
Little grains of sand,  
Make the mighty ocean,  
And the beauteous land."

Not a word of encouragement have we to say to those who expect a machine or two to fit them out for successful competition with the best equipped mills. They will be sadly dis-

(CONTINUED ON PAGE 14.)

# JONATHAN MILLS UNIVERSAL FLOUR DRESSER

GUARANTEED TO BE SUPERIOR TO ANY OTHER BOLTING DEVICE FOR  
CLEAR, CLEAN

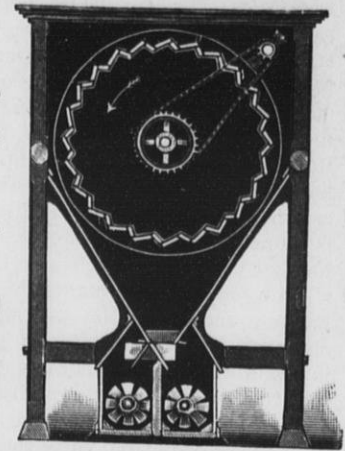


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They cannot be beat on any Stock, and are being extensively adopted for the entire Bolting in new mills.

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Slow Speed  
Occupies Small Space, and has Immense Capacity



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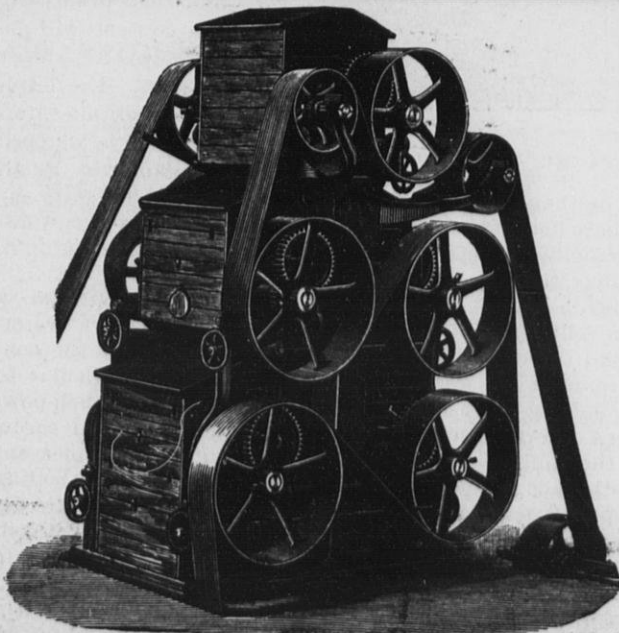
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A practical test of over two years proves that these Mills require less power and make more Middlings and less Break Flour than any other Roll in the market.

They are mounted on a strong Iron Frame, and the mechanism is compact, simple and easily adjusted. The accompanying cut shows our Five-Break Mill. Our Three-Break Mill is also giving the best of satisfaction.

Write for Prices and full information.

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Manufacturers of the Taylor Turbine Water Wheel and of Shafting, Gearing, Pulleys, and General Mill Work.

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**THE WILCOX TAILINGS CLEANER.**

Carefully patterned after the models of experienced millers, the WILCOX TAILINGS CLEANER is now on the market and is so successful under the test of practical working that it leaps at once into the ranks of the first-class standard machines of the day. It is claimed that by its use all the "Patent" can be drawn from the tailings, thus reducing the low grade to a minimum. It has very large capacity, is noiseless, does not shake, and requires comparatively little power. It is durable, with no liability to choke, the heavier the blast the cleaner the middlings, a strong blast not reducing the sifting capacity nor enriching the tailings. No cloth cleaners are required, the piling up of stock is unknown, while it requires no more attention than is needed to regulate air blasts. For enumeration of other good points, and detailed information, write the Cockle Separator Manufacturing Co., sole makers, Milwaukee, Wis.

**A GERMAN MODEL MILL.**

A plan for a model mill of 112 barrels daily capacity is proposed by Frederick Haake, a mill-building expert of Berlin, as follows:

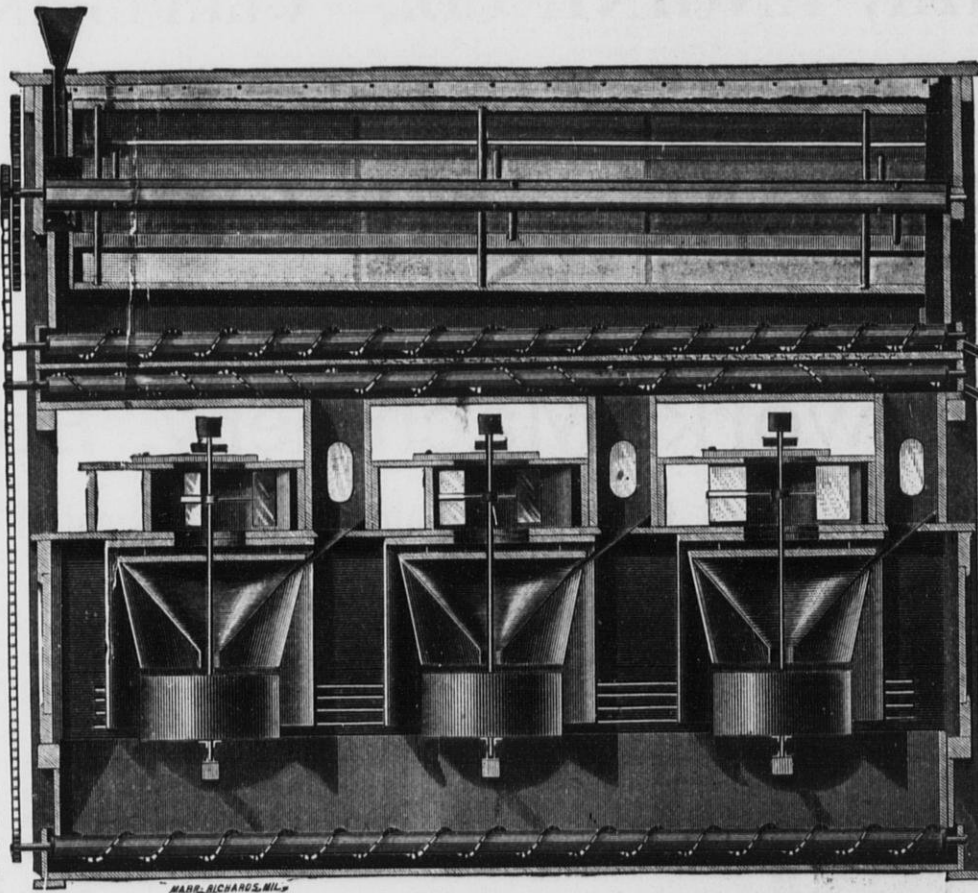
It will be understood that the mill-building has been constructed in the best possible manner with regard to strength, light, room, transmission, etc., and that a compound condensing engine is to furnish power. Grain is taken in at the basement, weighed and elevated to the top story. From the bins here it is removed to the weighing and cleaning machinery, as may be required, by suitable conveyors and elevators. For cleaning, it goes first to an aspirator with sieve

mechanism, thence through two trieurs to an ending stone. It is then elevated to the ending cylinder, passing afterward to a Eureka machine, and finally to a brush machine. After cleaning it is sent by elevator to the automatic scale, to show the weight lost in the process. From here it goes to a bin over the crushing or splitting rolls, and after passing through magnet apparatus reaches the preliminary splitting process. It then passes to a cylinder which removes the smut, and drops into an elevator which takes it to the last of these conveyors located behind the reels. By this it is carried to a bin over the grinding machinery. These bins or hoppers are in all cases double for greater convenience in returning material. The mill goods goes now to the break rolls for the first time, thence to a cooling apparatus and to the

elevator which lifts it to the proper bolt. The break flour is here separated and sacked on the flour floor beneath the reels. The middlings fall from one of the three conveyors and go to the middlings purifiers. What remains after bolting may be sent back to the break mill and the operation repeated as often as high milling processes require or it may go at once to the reducing rolls and there have the processes of reducing and bolting repeated as may be needful. In this way the process may be varied as much or as little as desired, an excellent result attributable to this special arrangement of the machinery. Conveyed to the purifier, the middlings are elevated on a middlings grader which divides them according to size, and then pass into corresponding bins below. Every two or three of these bins have a suitable purifier, situated underneath them. The dressed middlings is carried upon the passenger elevator to the hoppers over the

remaining from the cleaning machinery should be treated by the ending stone and cylinder and mixed with the bran, the latter operation being best performed by sending it through the bran conveyors. The excellence of this outfit consists in the fact that the miller is independent of a set programme, and can vary his work as local circumstances, grain to be used and custom demand.

**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, carpentry, wood-carving and fresco-painting. This institution is intended partly to take the place of the apprentice system, affording 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 is done, and speedily, to counteract the growing tendency towards 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



THE WILCOX TAILINGS CLEANER.

porcelain rolls. Being reduced on them, it is elevated to the proper reels, where flour is taken out, and the remainder goes either as tailings to stones, or as middlings to the purifier, to be dressed and sent again to the porcelain rolls. This process is continued until all is reduced to tailings and those to flour. In a similar manner the material remaining after action of the purifiers is, according to the miller's judgment, worked down to flour and bran. As the milling mechanism takes only about one-third of the room available, the remaining space can be largely utilized for flour mixing and flour storing purposes, if desirable. Thus the first, second and third stories may have flour bins, and the basement storage for bran, whence it may be conducted by pipes from the upper conveyors, sacked and stored. The refuse

persons engaged in industrial pursuits—by the manufacturer no less than by the workman.

**PASTE THAT WILL KEEP.**—Dissolve a teaspoonful of alum in a quart of water. When cold, stir in flour, to give it the consistency of thick cream, being particular to beat up all the lumps. Stir in as much powdered rosin as will lie on a dime, and throw in half a dozen cloves, to give it a pleasant odor. Have on the fire a teacup of boiling water; pour the flour mixture into it, stirring well all the time. In a few minutes it will be of the consistency of treacle. Pour it into an earthen or china vessel, let it cool, lay a cover on, and put in a cool place. When needed for use take out a portion and soften it with warm water.

**INVENTORS SHOULD STUDY TECHNICALITIES.**

Inventors as a class, do not study the laws of mechanics systematically.

It is frequently amusing to see the complication of cogs, ratchets and wheels found in machines which have but a simple duty to perform.

Those who have studied machinery, and have contributed inventions, can best appreciate how much more simple they can arrange the movements for performing a given duty, after they have had several years of practice.

Practice is but another name for education, and why not substitute much of the time spent blundering around in the dark, without the light of knowledge, for good books containing the results of the practice of other men in whatever art or science you desire to study.

It is much easier to read in a book and thoroughly understand, too, the best principles upon which epicycloidal cog gearing is constructed, than it is to rediscover those principles, and this you would have to do, or find an equivalent, before you could possibly make a success in this line.

For another instance, the study of calorifics as applied to the development of power in an ordinary steam engine. Thousands of engines are running in this country, every day, wast-

ing unnecessary quantities of fuel, veritable clap traps in every particular, the result of the difference between what some engine builders actually know and what they ought to know.

Young men who have a life time before them, without the means to take a regular technical course, can find in any good library every principle that is necessary to make a systematic beginning. Special books can then be bought or borrowed, and in addition scientific papers and periodicals can be obtained by any one, if he will exert himself with a fixed determination to be somebody, and not be an "it" in the world's great work.

Life is a serious matter, and those who have health and strength should be certain that not a day passes without they have learned something new that is of real value to add to their stock of good things, which, probably, some day they will ask the world to buy, when quality will be considered rather than quantity. So, then, young inventor, young mechanic, if you have been exercising your mind only upon the pictures of hope, you must

"—Be up and doing,  
With a heart for any fate,  
Still achieving, still pursuing,  
Learn to labor and to wait."

—American Inventor.



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Farmers can do odd jobs, saving time and money. Anvils, Vises, &c., &c.

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Beam Box and Brass Beam with each Scale. 300 other varieties. Also, Trucks, Wheelbarrows, Corn Shell-ers, Feed Mills, Copy Presses, Money Drawers, Clothes Wringers and all Hardware Specialties.

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Send for Catalogue and Prices.



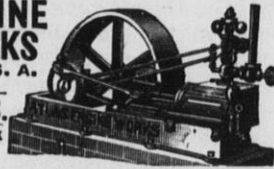
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Publisher UNITED STATES MILLER, Milwaukee, Wis.

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MILWAUKEE, NOVEMBER, 1885.

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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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The *Journal of Railway Appliances*, New York, which has heretofore been published semi-monthly, will hereafter be published weekly, the subscription price remaining the same.

We are informed that all litigation between the Case Manufacturing Co. of Columbus, O., and the Consolidated Middlings Purifier Co., of Jackson, Mich., in respect to purifiers, has been brought to a satisfactory termination by compromise, the Case Co. being fully licensed to carry on the manufacture of their purifiers.

## MILWAUKEE NOTES.

Mr. Henry Smith, of the firm of Birge & Smith, has just got out plans for a 375,000 bushel elevator for the Jos. Schlitz Brewing Co. The building will be erected as soon as possible. The Edward Sanderson elevator, for which Birge & Smith also made plans, is rapidly approaching completion. It will have a capacity of 200,000 bushels. Birge & Smith are doing a prosperous business in millwrighting for flouring mills, breweries, malthouses, etc., all through the Northwest.

The old Dutch windmill in Williamsburg, a suburb of Milwaukee was totally destroyed by fire early on the morning of Oct. 5. The mill belonged to John Joederman. The total loss is estimated at \$5,000, and the insurance is \$2,500. The property destroyed consisted of the windmill, grocery store, flour and feed store, and barn. The mill was one of the old landmarks of the city and has been a favorite object for sketching by artists.

We have the pleasure to announce that we will issue Cawker's Ameridan Flour Mill, and Mill Furnishers Directory for 1886 about Feb. 1, 1886. 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.

I SOMETIMES think, when I see a man that has drawn his week's wages on a Saturday night, borrow a dollar of a fellow-workman Monday noon; or when I see a \$9 a week clerk rush into a base ball pool room every day on his way to lunch, or when I see a girl of good family handkerchief flirting with a dude, or when I see a man subscribe handsomely to charities by which he will get his name in print while his own family are wanting the comforts of life; or when I see a woman of forty-five apeing the manners of a school-girl of fifteen; or when I see a man go to church on Sunday and scheme to cheat his fellow-men the other six days in the week; or when I see a man trying to do business without advertising, that there are a great many fools left in the world yet.

C.

## LET THERE BE LIGHT.

In all manufacturing institutions where much machinery is used, and especially in flouring mills, the windows should be so arranged as to give plenty of light in the day

time and the artificial lights, at night. In a well lighted mill dirt is not apt to accumulate, slight repairs to be neglected or accidents to happen. Rats and mice love darkness rather than light and will not become an unbearable nuisance in a light and clean mill. Thorough coats of whitewash applied once, or better still, twice a year, will add greatly to the light, cleanliness and healthfulness of the mill, and will tend, to a certain degree, to prevent the rapid spread of fire. Attention to this matter will be well worth the expense incurred in many a mill we have seen.

## A PLAN TO CHEAPEN PATENTS.

An inventor of this city has presented to the Secretary of the Interior, the Commissioner of Patents and the President an elaborate paper and argument in favor of dollar patent rights the same as dollar copyrights, thus placing the inventors and authors on an equality, and he asks that in the annual reports of the Secretary and Commissioner, as also the annual message of the President, that this plan may at least be presented for consideration to Congress. In the reduction of postage to two cents the Postmaster-General reported, he says, strongly against it, but President Arthur, in his annual message to Congress having strongly advocated the reduction, it was passed, and no act of the last President will redound to his credit more than this. He claims that if President Cleveland and his administration will take like action in favor of dollar patents in place of \$5 fees as now, it will redound to his and their credit infinitely more than in the case of the two cent postage.

Under the proposed plan for dollar patents the inventor is to send a written description of his or her invention, either with or without a drawing, with \$1, to the Patent Office. It is there to be numbered and filed, and without any examination as to priority, as in all of the European governments, a blank printed patent is to be filled in as now with the name of the inventor and invention, the number of the description on file, and having the fac-simile of the Commissioner of Patents printed thereon, is to be sent to the inventor in about one week from its receipt, as is now done with copyrights, in place of nearly a year as now, at a cost of \$75 for office fees and agent. As not more than one in two hundred patents is ever introduced under this plan the one hundred and ninety-nine generally poor inventors will have only lost \$1 each, while if it is introduced and becomes valuable and is claimed by several inventors, as is always the case even under the present costly examination and agents, the rightful owner is to be determined by the courts as now.—*New York Herald.*

SAM LAUGHLIN, in his latest grain and provision review, writes as follows:

Farmers are everywhere holding their wheat for higher prices. The flour mills have started up and show considerable anxiety about getting their supplies. The milling situation has changed from extreme dullness to one of great activity, and millers south and east are competing freely with those of the northwest for suitable grades of wheat; the result is, the great crowd of grain-buyers, millers and elevator men throughout the west have suddenly turned bullish, and prices have

been advanced 10c per bushel in as many days. This is the situation at home; how is it abroad? The imports into Great Britain are light, being under the weekly requirements, yet the amount on passage to Europe has decreased 1,280,000 bushels for the week; and since the 9th of May, when it reached its maximum of 29,560,000 bushels, it has decreased 17,520,000 bushels, (being equal to nearly the whole stock of Chicago and New York), the amount afloat for the United Kingdom being only 11,000,000 bushels, or less than four weeks' average imports; and this is all that can possibly reach them during the next four weeks, excepting Russian or Atlantic port shipments. The question is, Where are they going to get the balance of their supplies? You may say from California, Australia and India, but we answer, supposing those countries had unlimited supplies, shipments made now do not reach Europe until February; hence after exhausting the four weeks' supply now on passage, they must either depend on their own supplies or call on us; particularly as the Baltic will soon be closed by ice and the Russian Black Sea ports have little or nothing to spare.

#### THE BREADSTUFFS EXPORT TRADE.

The character of our export trade in breadstuffs, the *Chicago Tribune* says, has changed materially within the last few years, from the operation of internal causes as well as external ones. The growth of the milling interest renders it each year more difficult to sell wheat in the berry for export, as the flour is offered at a cheaper rate, notwithstanding the fact that mill offal commands a high price in the British Isles for feeding to live stock. For this reason the absence of an export demand for wheat is a much less powerful argument in favor of lower prices here than it used to be. If the flour be wanted abroad, or even if it be taken in response to an urgent offering of the property, our surplus is in process of diminution just as much as if the equivalent in grain were exported. This appears to have been the case recently. The millers of this country have been active, and the indications are that a great deal of their manufacture is for shipment abroad, while it is intimated by certain parties here that they (the millers) keep the fact as quiet as possible because they have to buy the wheat and do not want to give sellers a pretext for demanding higher prices for the grain. In such a case as this our visible supply becomes the reserve of a reserve, and all the more permanent in its stay in store because it is not likely to be drawn upon till the general stock of the country has evidently become a scanty one.

The *Alta Californian* states that the recent large receipts of Oregon wheat at San Francisco, with the report that a large quantity will follow, have made millers more independent of wheat holders in that State and checked local business. It is estimated that there will be upward of 17,000,000 bushels of Oregon wheat this year. It is expected that 3,500,000 bushels will be retained, leaving the balance for export and to come to San Francisco, where arrangements for storage have been already made. The freight by steamer here is stated to be less than the difference between freight rates to the United Kingdom from Astoria and San Francisco.

#### THE ART OF MILL BUILDING.\*

*Mr. President and Members of the Pennsylvania Millers' State Association:*

It may or may not have occurred to some among you to question why I have selected as my topic the art of mill building rather than the kindred art of milling. In fact, I am somewhat at a loss myself to accurately define wherein the distinction lies. If I am correct in my argument, the former is of wider scope, and includes the latter, so that, if intelligently treated, it will cover not only the entire field of practical milling, but something more and beyond. And when I take into consideration the numerous milling papers devoted to the art of milling, and the volumes of correspondence on milling matters, I am doubtful of my ability to add anything new and of interest to the already existing stock of milling knowledge, and prefer talking about something which is new at least in name, even if I can do no more than thresh over the same old straw without gaining a single additional kernel. In this respect I am fain to hope that you will judge me less critically than I am disposed to regard myself, and that even if I tritely cover the same old ground, I may do it in such a manner as to interest, if it does not profit you.

You may ask wherein the art of mill building differs from that of milling. My idea is that it is not only wider in scope, but is also more practical and deals less in theories. It is moreover something in which there are two parties interested; the man who builds as well as he who operates the mill. It is unfortunately the case that the pecuniary interests of these parties are often widely and unwarrantably opposed, and each party is prone to study the art from his own standpoint. The miller has to deal chiefly with results, and his conclusions are biased by complications of questions arising from matters entirely beyond and outside of the sphere of the builder's art. Such are questions of wheat supply and market for the mills' product location, transportation facilities, freight rates and other like matters pertaining to the commercial management of the mill, which can be discussed intelligently only by men practically versed in the business management of flouring mills. The builder on the other hand has to deal with mechanical problems, and to consider the means to be employed as well as the end to be attained. In one thing both parties meet on common ground, and that is the results or work which the mill is intended to produce. The miller considers the mill as a whole, a complete machine which is the most important of the tools used in his business; the builder is forced to consider it in detail, scrutinize its component parts, and combine them in a harmonious whole. Both are alike interested in the common end to be attained, but to one it is the end to be reached and to the other it is only the starting point. The inter-dependence of the two is such that it is impossible to separate them, and I trust that while you will excuse me for looking at the subject from the builder's point of view, you will also pardon me if I overstep this

\*A paper read before the Pennsylvania Millers' Association at Bethlehem, Pa., Oct. 13, by Mr. Albert Hoppin, of Milwaukee, Wis.

limit and trench on matters which you may deem wholly within the millers' province.

I have said that mill building was a practical art. I doubt, however, that theory has any better place in the operating than in the building of the mill. Not that theory is in itself necessarily wrong, only when it is divorced from fact and becomes purely speculative. Neither builder nor miller can fight to shy of theories which are advanced to sell some special machine or machines which are designed to fit some special theory. One of the quaint philosophers of olden time bequeathed to posterity a curious volume entitled the "Vanity of Arts," and though he does not mention the arts of building, and milling among the number, I am certain that had he lived in our day he could have made up a telling chapter by reviewing the numerous theories and systems which millers have paid for and then exploded during the past few years. In fact, I do not doubt that many of your number, when confronted with the seeming necessity for improvement, have inwardly protested and questioned whether it was not useless, and the results obtained by this lavish expenditure of time and money only a vanity. We laugh at the "old fogies" as we term those who are still the "slaves of the buhr," at the same time secretly wishing that they were in the right, and hoping that they can demonstrate the correctness of their views. This is, unfortunately or not, as we may look at it, an intensely practical age, and no amount of theorizing can alter the fact that the mill must attain to actual practical results in order that its operation may be commercially successful. Men will not buy flour simply because it is made on an elaborate system, the outcome of a finely developed theory. Neither will they eat bread made of stone-ground flour, because the miller insists that it is better than that made by newer and more costly methods. Tastes change, and it is incumbent upon the miller to change his methods, and cater to his customers. It is here that the peculiar province of the mill builder lies, for he must devise ways and means for manufacturing the product desired, and no matter whether he theorizes or not, his work has to be tried by severally practical tests. Failing in this, no matter how plausible his theory, he will find no customers, and must soon drop out of the field altogether. The path of milling progress during the past decade is liberally scattered with the wrecks of theoretical milling systems, and the commercial history of American milling is still more thickly strown with the financial wrecks of millers who have pinned their faith in these systems, or who have built after theories of their own. Milling as a trade is full of fascination to the miller who follows it intelligently and studiously. As one of the leading millers of Minnesota long since expressed himself to me in a conversation on milling topics: "Milling has a charm, because it is full of possibilities, and because the limit of perfection has not yet and possibly never will be reached." This is undoubtedly true, but the miller must bear in mind that there is no royal road to success, and that the only theories that are valuable are those which are based upon solid facts demonstrated to be such by actual practice. Not long since every man who was successful in obtaining a patent on a first break machine or a cleaning ma-

chine, felt himself competent to design and build a flouring mill. Nothing was necessary but a name to his system, and if he was a ready talker he did not lack customers. We have all seen the rise and fall of the "Mills" system, the "Gratiot" system, the "Jones" system, and others of like kind. The trouble with all of these was not that the individual machine was wholly worthless, but that the theories of the inventors precluded their seeing clearly that their so-called systems stopped short with their respective machines, and that when they came to the consecutive operation of the complicated machinery of the mill they had no "system," where a carefully devised system was imperatively essential to success. In mill building, an ounce of experience is worth a pound of theory, and whether the builder's theories of six inch rolls or centrifugal reels are correct or not, they cannot be a warrant that he can build a successful mill. In this as in other things, the best earnest of a man's ability to perform, is what he has done in the past. When it comes to theory *vs.* practice in mill building, practice will win every time.

Both miller and mill builder have a much more difficult "row to hoe" now than in years gone by. Their conditions have been relatively reversed, and whereas formerly the miller designed the mill and was engineer and architect as well as operative miller, the millwright merely carrying out his plans, the latter is now designer and builder and of necessity a great deal of a miller, the miller merely carrying out his plans. Do not understand me as saying that either is the more subordinate position, but rather that the constructive department has changed hands. As milling methods have become more complicated and a more intricate system of machinery has come into use, the natural result has been a subdivision of labor, though unfortunately for the mill-builder there has been no corresponding division of responsibility, and he is now obliged to guarantee not only the mechanical operation of the mill, but its ability to produce certain results as well.

"Forever on life's dial-plate  
The shade is backward cast."

And we must not wonder if the mill builder and the miller likewise look back with feelings akin to regret to the good old times of simple methods and less exacting requirements. Especially may the builder be pardoned for wishing himself once more simply a mill furnisher, and when the problems of wheat cleaning, stone dressing, grinding and bolting were left almost if not entirely to the millers for solution.

Whoever has read the life and strange surprising adventures of Robinson Crusoe will remember that when he had discovered the few grains of barley which gave promise of future well-filled granaries, he was at once filled with perplexity as to how to build the mill necessary to the "gradual reduction" of his harvests to a condition suitable for bread making purposes. History repeats the fiction in this case, and in our country wherever the farmer has gathered the harvest the miller has followed with the mill. To-day the miller's perplexities, like those of the wrecked mariner, find expression in "What kind of a mill shall I build?" though the query arises not from a paucity, but from an abundance of material from which to make

selection. On the whole I am not so sure that Crusoe was not the more to be envied, for while he had to search long for the proper materials of which to construct his mortar and pestle, and expend much time and labor in fashioning them for their destined purpose, he was not in the meanwhile "drummed" to death by salesmen of mill machinery, or bewildered by the contradictory arguments of competing mill-building firms. Moreover he was not going to engage in milling for the export trade, and had no fear of his home customers throwing his flour back on his hands. He was not kept awake nights by patent litigation, and did not have the mortification of seeing grists go by his door to his more enterprising neighbor while he was debating the relative merits of sandstone and lignum vitæ as a material for the mortar, or theorizing over the comparative advantages of sharp and dull corners on the pestle. Taken altogether Crusoe's lot as a miller was not a particularly unhappy one when compared with that of the miller of the present day, who, when he is about to build a mill, has to decide not only where he shall build, how large a mill to build and where he will get his wheat supply, and find a market for his products, but also what kind of a mill to build, what machinery to adopt and what system to follow. The first three of these questions it is the particular province of the miller to answer. They belong, if I may so express it, to the commercial end of the miller's business, and I do not see that the mill builder can be of much assistance except in a general way, in determining their answer. The last three, however, are peculiarly within the domain of the mill builder, and as he is now held responsible for the results the mill will produce when built, it is no more than right that in deciding these points, his opinions should have special attention, and most careful consideration.

It is not my present purpose, in considering the art of mill building, to answer these questions specifically or even generally. To do the former would be impossible unless individual conditions were given, and these individual conditions vary so exceedingly that a general answer is impossible. Neither am I here, as from my present business relations you may possibly imagine, to advocate any particular line of machinery, or champion any particular system of milling. I am frank to confess that my occupation during the few years past, had led me to study mill building from the builder's side of the fence, but I am not so prejudiced that, while having my own preferences for certain machinery and methods, I cannot extend the term mill builder to cover more than one particular firm or embrace a competitor in business. I believe it should be the aim of every mill builder to build as perfect a mill as possible, as I know it is the desire of each individual miller to have his mill, when completed, the most perfect that can possibly be built; and while the latter often falls short of his ambition and the former fails to reach the goal set for him by the miller, it is still true that both desire to reach practically the same result, and should aid each other in reaching it. This is not always the case, and the miller is often grossly unjust to the mill builder, not only in exacting unreasonable guaranties, as to results to be obtained, but also by hampering the builder by conditions of amount and kind of machinery to be employed, and extent of

the investment. Frequently when asking a miller what kind of a mill he wished to build, I have been answered: "One which will compete in quality and yield with the best mill in the country." This is a very laudable ambition, and one which any mill builder would be glad to attempt to gratify, but it is rarely, if indeed ever, that the miller in so stating the result desired takes into account what its fulfillment would require, and how much study and expense on the part of the builder would be required to literally accomplish what is asked. No mill builder with whom I am acquainted will deny the possibility of his being able to do better work, and build a better mill than he has yet built, if allowed unlimited facilities and means to that end. Few will be foolish enough to guarantee to equal the best work done in any mill in the country, unless allowed to use equivalent machinery, and if so foolish will most invariably be the pecuniary losers thereby. Most frequently the condition as to the superlative excellence of the mill when finished, is coupled with one that it shall not cost to exceed a specified amount, or more generally the work is let by contract to the lowest bidder. I know of nothing which more than this last, tends to hinder the advancement of the art of mill building, or to lower the standard of workmanship in American mills. It may be so in other parts of the world also, but here I know that the practice is injurious both to millers and builders, and I believe it will be found true without exception that the best mills in this country are those that have not been built under such conditions, but those where the work has been intrusted to competent firms and a fair price paid them for their work. It may be argued, why not build a mill by contract as well as a bridge, a house, or any public building? The reply is simply that the conditions are entirely dissimilar. When mill building reaches that stage where mill owners will employ competent and practical engineers to make plans, prepare specifications, and superintend the work as architects plan, specify, and superintend the erection of their work, then we may look for better mills to be built under contract, and even then I believe that better work will be done "by the day," the miller buying his material, and hiring his labor, just as now it is generally remarked that houses built in this way are better constructed than those built by contract. To the objection that such work costs more, the answer is, it is worth more when done, by all the difference in cost. Mill building is, however, far from having reached the state where competing bidders are held down to bidding on the same or even similar plans and specifications. Generally the only thing the miller specifies is the capacity desired, and in comparing bids the guarantee is given more weight than the reputation of the firm making it; and if a comparison of the machinery is made, it is without any reference to the system intended to be followed. The natural result is that the best and most experienced builders are forced to figure on building not the best mill they know how to build, but to build as cheap a one as will possibly answer the purpose. The time will probably come when the majority of millers will consider the character and quality of the machinery used as of at least equal importance with the guarantee, and when the system of the mill will be given more weight

than either, but at present there is little incentive to the mill builder to improve on his past work. I do not consider that mill owners are wholly responsible for all the poor work that has been done in our mills during the past few years. The mill builders are largely at fault in that their desire to excel their competitors in the amount of work being done, has led them to cheapen the quality of their work. The question has been mainly not how good, but how cheap the work could be done. This reckless competition has had one good effect, however, for it has forced those builders, who sailed into a large trade during the flush times two or three years since, with little milling knowledge and still less experience, to retire permanently from the field. The millers have been largely the gainers by this, as there are fewer wild theories afloat, and fewer experiments made in their mills.

The art of mill building, like all other industrial arts, and, like all human knowledge, grows or advances only as new facts are brought to light and demonstrated to be facts. I do not believe in trade secrets, and while I know that millers and mill builders alike are not very much inclined to give away the information which they have gained, or impart the facts which they have gained to others, except in the direct line of business, "for a valuable consideration." I think the time is coming when there will be the same free interchange of opinion among millers and milling engineers that now takes place between engineers and expert workmen in other lines of industry. In fact, during my twelve years' acquaintance with the millers and mill-furnishers of this country, I can notice that a marked improvement in this direction has taken place. It is not so hard now to get men to tell what they really know about milling matters, though still the amount told, which is not known for fact, would make much the larger volume. It is because of the disinclination among millers to impart information and to accept it from others, that so few millers are really competent to lay out the system for a mill and insure its doing good work from the start. I know I have been taken to task several times by self-constituted champions of the "dusties" for calling the attention of millers to this fact. But it is a fact. Under the old style of milling, the miller laid out the chart and directed the sequence of the mill's operation. Now this duty is relegated to the milling engineer, who is generally in the employ of the mill-building firm. Nor is the reason for this transfer of duty hard to find, for to be able to successfully make the diagram for a mill and insure its starting from the word go, requires an experience and knowledge of milling facts and conditions not to be gained by working in any one or a dozen mills. As milling machinery has grown more complicated and milling methods more intricate, so has the field of mill building widened, and the same man is called upon in the same day to design mills and diagram milling systems for widely separated localities. He is the more fitted for his work because of his enlarged opportunities for gaining new facts and adding to his stock of milling knowledge. And yet it is not uncommon for a mill owner, when about to build or remodel his mill, to place more faith in the opinions of his miller, based upon the experience gained in a

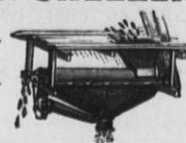
single mill, than in statements of fact made by the engineer who has built a hundred successful mills. Not only this, but the mill builder is sometimes asked to submit to the injustice of being held responsible for the operation of the mill, and to guarantee its results, while his advice as to equipment and operation is flatly disregarded. It occasionally happens that when his advice is followed, the miller will, when the mill is being built, and after it is started, criticise it unmercifully, simply because his ideas have not been followed. I am aware that millers have much to complain of in their treatment at the hands of mill builders, and I have good reason to know that mill builders have equal reason for complaint on account of their treatment at the hands of some millers. In fact, there appears to be a feeling of distrust and lack of confidence on both sides; but I am of opinion that millers in general would have every little to complain of if, they would confine their dealings to strictly responsible builders, whose past reputation for doing good work is the best possible guarantee that they will give value received for the money paid them.

In considering the progress in the art of mill building, and the improvements in the machinery and mechanical appliances at the miller's command, it is not uninteresting to compare the mills recently constructed with those of an earlier date. In no State in the Union, I venture to say, do better opportunities for such a comparison exist than in your own. While I do not know that Pennsylvania can boast of any mammoth roller mills within her borders, there are a good many mills of medium and small capacity which are well equipped on the most approved modern systems. Enjoying the distinction of containing more mills than any other State, there are many of the number still almost as simple as the one over which Crusoe spent so many weary hours. I cannot speak from personal observation, but I am reliably informed that in some of the mills now running, one can find the same old wooden shafting and primitive machinery which has been doing daily duty for several generations. I know for a fact that in one mill in this State, remodeled within the last twelvemonth, the upright shaft was a huge octagonal wooden affair, on which the gearing was held in place by wedges. Slowly, but none the less surely, the slow-moving old wooden and cast-iron shafts have given place to quick running, light wrought-iron shafting; the belt has driven out the upright shaft, and done away with cumbersome gearing; elevators now stand in line, and perpendicular instead of "hit or miss" at all angles; and last, but not least, the millstone has been rolled out of doors, and the roller mill reigns instead. Compared with the mill of fifty or even twenty years ago, the modern-built mill is a marvel of system and convenience, as well as of complex machinery and intricate operation. The majority of your number do not have far to go to make this comparison, and I feel sure that while you may regret the radical changes in time-honored customs, few would willingly go back to old methods; and no one will withhold from the mill builder the meed of praise he has fairly earned by so fully availing himself of every advance in the other mechanical arts to improve and advance his own. When

(CONTINUED ON PAGE 24.)

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G. HURSON, Secretary and Agent.

appointed in their expectations and, perhaps, suffer seriously by putting in such machinery and in such a manner that the entire arrangement cannot be utilized in perfecting the plant some day to a roller mill. It matters little how reputable the firm is who makes you the assurances, that the addition of a few machines to your millstone mill will place you in a position to hold your own against leading mills: such statements are a delusion and a snare. They are wrong in theory, and untrue in practice. They originate from the manufacturer's desire to sell machinery, and not from a conscientious adherence to the truth. Just such a miller, who can only gradually improve, is in the greatest danger of being led astray. There are a host of mill-furnishers and commissioned millwrights who can "fix him up" with one to three machines, to do as good work as the best roller mill. One word of caution in this connection, and emphatically let it be impressed upon your minds, if any of you must add gradually to your mill,—do not consult a mill furnisher or millwright who has not yet realized that the roller system is producing the best flour in the world. None of them are competent to advise you to your best interests, and therefore both are unworthy of your confidence. By all means, consult men who have come to a knowledge of the truth, for they, as a rule, have had experience, and can direct you in the right course, even if you should but want a machine or two. Find men who would sooner miss a sale, or lose a job, than to tell you that a few machines will make your burr mill a perfect mill.

The third miller, who solicits advice in his case, is the harassed and much-advised small miller. He has a small mill, in a small place, with a small custom trade. He feels that his trade will not justify the expenditure of the sum required to secure a full roller plant, and, besides, his mill is not adapted to accommodate an extensive line of machinery. If his trade has not diminished since the advent of gradual reduction, as so many yet loudly proclaim, why so much anxiety about the new system? If his business is so flourishing, why so much solicitude to know how to remodel his mill? The fact is, that the mills are few and far between which have not felt the effects of roller flour's competition. At first the small miller was left unmolested. The introduction of roller milling was like hurling a ponderous object into calm water. The effects were most marked in the immediate neighborhood where the water was first disturbed, but gradually the undulations vibrated farther and farther, until the entire surface was agitated, and the waves leaped from shore to shore. The roller excitement is only reaching the outskirts now. The small miller's customers have had a taste of better flour, and now, like everybody else, they want it, too. If he cannot furnish it, they will go to some other mill and get it, or sell their wheat, and buy imported roller flour. Much of the advice given in the previous case, will apply in this instance. The small miller will experience no trouble in securing roller machinery adapted to his wants. If he thinks it will not pay him to make a radical change at once, let him do it gradually. He will learn, as he progresses, and will appropriate the new ideas more gracefully, and with less liability to commit

serious blunders, than if he is at once confronted with an entire change of programme. He will thus be able to accommodate himself to his changes. However, the small miller will not always find it most advantageous to improve his mill by degrees. Where roller flour has obtained a strong foothold, the sooner he can furnish what is most in demand, the better, if he has the necessary means to do so. There are scores of cases where delay is not only dangerous, but accompanied with serious loss. As stated before, each one should be governed by his personal knowledge, and the question should no longer be, whether an approach to the roller system is progressive and advisable, but how far your means and facilities will permit additions and changes to this end.

And the historic millstone, alas! is it doomed? Not just yet. In devising, "what you are going to do about it," many of you will find that you are not at present prepared to discard the millstone. You are right if you retain your burrs, not as a matter of choice, but out of compulsion. Build no more millstone mills, of course, but make the best of your millstone mills, as long as you *must* be contented with them. You can ascertain yourself, by careful examination, and also from reliable progressive mill builders, that you can use with your burrs many additions which will prove just as useful when you once remodel to a complete roller mill. Begin with your cleaning machinery, and make such improvements, as have been indicated, in keeping with your ability.

Whatever of machinery you see fit to purchase, be it a whole outfit, or just a few machines, buy what you need, and buy it of the best. After you have steered clear of all shoals, do no not founder upon the rock of so-called cheapness. How many buy what they do not need, and what they really do not want, simply because it is low in price, and highly recommended by the vendor. To be compelled to secure two or three lines of machinery, before you are satisfied, is entirely uncalled for, and the consequence of nothing else than indiscretion. The miller's experience, on whom has been imposed an unusually low-priced outfit,—what has it been in the past? Either the results were disappointing, the capacity too limited, or there was a general break-down at a time when the mill should have done double work. Toys may be funny things for children, but for millers they lose all their ludicrousness, when in the shape of milling machinery that gives way in the busiest season, the time when the miller is not in a humor to trifle. Take performance in place of assurance, and buy machinery such as you know is giving satisfaction. A good business policy has ever found practical expression, in rather paying a good price for what you know is reliable and genuine, than less for that of which, at best, you entertain certain grave doubts.

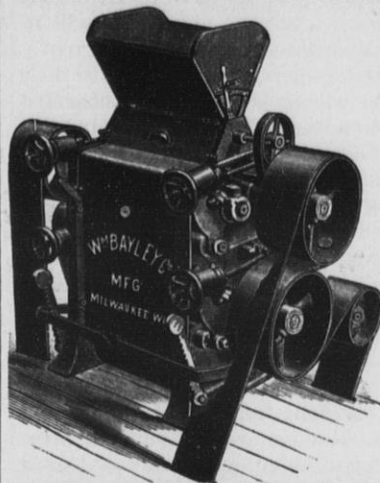
Based upon the practical points which have been treated, allow us to apply a few practical hints. Whether you build a full roller mill, or remodel your mill, or only add a machine or more, always bear in mind that you must run the mill yourself, and that it depends upon your individual efforts how much of success you achieve. The greatest error into which millers stray, at the present time, is the delusion that all they need is a

roller mill, or some improvements incident to roller mills, and they are bound to make money. This mistake can be held accountable for much of the reproach that has been heaped upon the roller system. Because some have failed from a lack of the necessary qualifications in operating the mill, the system is charged with the wrong, and condemned. A reliable and competent mill builder can build you a genuine roller mill, but he cannot operate it for you, neither can he guarantee that each one who wants a roller mill is capable of handling it. Those of you who have made a practical test of the matter, well know that there is more necessary to success, than the mere desire to run a roller mill profitably. The average burr miller must release many of his former ideas and practices, and must, in turn, adopt and appropriate approved methods, in order for him to become skilled in the new art. He must lay aside all prejudice. He must be willing to investigate, and not close his eyes for fear that he will meet with facts which may prove his ideas erroneous. He must read and reflect. He must seek successful practice and examine it. Every miller should do this, whether he is able to adopt the acknowledged improvements, or not. How many millers, did they follow such a course of education, would save themselves much annoyance, great loss of time and money, when the time comes to remodel their mills. They would be prepared to meet the obstacles. They would know how to begin, and how to proceed, without costly experiments and expensive mistakes. They would not expect the mill to run itself and make money. These are the men who are ready for the tide when it comes. Even though they are pecuniarily unable to make many changes in their mills, or their facilities will not warrant a heavy expenditure, they are not indifferent to the movements of progress. Every milling method is closely scrutinized; every source of information, as to milling, is consulted; every opportunity is improved, to acquire familiarity with the principles of the art and science to which they are devoted. The wide-awake miller thus keeps abreast with the times in his ideas and skill, as far as extensive observation and devoted study make this possible; and just as soon as the means are at hand to put into practical effect the results of his experience, he is ready to take advantage of a timely season, without hesitation and without doubt. It will not be necessary for his competitors to first lead away his entire trade with modern flour, before he sees that it will be absolutely indispensable for him to cater to the tastes of his patrons, in order to do some business.

While you are casting about, solely perplexed, as to "what you are going to do about it," help one another. When you assist each other, you not only obey the promptings of true manhood, and feel the satisfaction consequent upon every such act, but you follow a business policy that from time immemorial has won the favor of the multitude, and has brought its substantial reward. We would point out as one of the greatest drawbacks to general advancement within the limits of this State, our conservatism, and disposition to conceal our mode of milling, lest some neighboring miller, per chance, may learn something. This practice is detrimental to the best interests of the milling industry of the

Keystone State, and would be anywhere. It is a narrow view which arrogates all the knowledge and authority on a subject. We learn by experience, observation and interchange of ideas. Who has not heard the German adage? "Two heads are better than one, if both are sheepheads." Another's views are worth knowing. If left to ourselves we may imagine we are perfect, and how can we tell we are not? Only by dearly bought experience, if we do not invite criticism. Anybody can flatter. Our worst enemy can practice the art with a malignant purpose underlying it. But the friend it is, who will tell you kindly of your faults. We subserve our own interests, by contributing to the elevation of the industry within the bounds of the association. When we aid each other in the march of progress, by united effort, mutual advice and zealous cooperation, and thus raise the standard of Pennsylvania flour in the estimation of the public, a common good is attained. We only give foreign competition an advantage, by delaying each other's movements towards better mills. Is it necessary for the West to be five, ten, fifteen years ahead of us continually, and thus come in and furnish the bulk of the flour that is consumed in this State? The conditions of success for the industry are present. Pennsylvania produces the best winter wheat known in the world. Ohio millers cross the borders of their State, and hie away with our longberry wheat, whenever and wherever they can. A market exists for the offal in this State, and if the home supply of wheat is not sufficient, we are at no disadvantage in shipping in wheat, when we have a good demand for the flour and the feed. Some points will suffer, more or less, it is true, from unjust railroad discriminations; and in passing this by, let us look for such legislation as will forever put an end to such unjust practices. The miller must stand upon his own footing. Fight the competition with its weapons. Do not rely upon abusing Western progress. Put no trust in combinations to keep out superior goods. History has shown all such mode of warfare futile. Elevate the grade of your flour. Let the public realize that Pennsylvania makes the best flour in the land, and then when you ship your goods to Eastern markets, it will no longer be necessary to omit "Pennsylvania" on the brand of your barrels, and substitute "Ohio" in its stead. The flour will sell upon its own reputation and upon its own merits, and the great old Keystone State will be held up to the world, not as following, but as leading in the van of milling progress. Gentlemen, you now have our personal views upon "Practical Points," gathered from observation and experience. Having no axe to grind, you may accept them as, at least, the expressions of candor. Allow us to indulge the hope that, though many of you take issue with us now, you may, in the early future, realize that your best interests were subserved in our feeble efforts. Our cordial good wishes find utterance, when we say, success to the Pennsylvania Millers' State Association, and to everyone within the guardianship of its tutelage. May each recognize the flour his trade demands; may he find the system of milling which will manufacture it the most economically; and, above all, may he "do about it" that which will secure the goal of his ambition and his efforts.

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# UNITED STATES MILLER.

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MILWAUKEE, NOVEMBER, 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. 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. 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.

C. H. SEYBT, Esq., of Highland, Ill., has been spending a few days hunting in the Northwest. On his return he made a short visit to his many friends in Milwaukee. He was highly pleased to hear the news in regard to the rebate on jute sacks.

WE are in receipt of the prospectus of that popular young folk magazine WIDE AWAKE, published by Messrs. D. Lothrop & Co., Bos-

ton, Mass. The handsome illustrations and refined and entertaining reading matter in this magazine in the past have been all that could be desired, but the publishers will in the future enlarge the size and add greatly to the attractions heretofore familiar to their readers. All young people will be charmed with it. The subscription price is only \$3.00 per year. We will furnish WIDE AWAKE and the UNITED STATES MILLER for one year to any address for \$3.50.

ALL persons connected in any way with the milling industry will find it a blessing to have a copy 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 guaranty of a valuable paper.

THE wheat weevil is proving to be a great drawback to the Indian and Australian wheat trade. Much of the grain received in Europe from these countries is seriously damaged. One importer recently visiting this country, told us that in one instance the loss to him amounted to 20 per cent. on account of damage by weevil. This insect multiplies with great rapidity, it being estimated that one pair will produce in one summer no less than 6,045 individuals. If grain is kept in a temperature of 50 deg. Fahr., the weevil will not propagate, consequently cold storage is advised as a prevention of their ravages.

MESSRS. WM. KLEIN & Co., London, in their circular, bearing date Oct. 17, say:

The flour trade remains in the same position as reported last week; the demand from consumers continues fairly active, but English millers are taking old prices, and until this state of things is remedied it is hopeless to look for such an improvement in prices as is foreshadowed by the ideas of American millers. A material improvement in prices and demand is, however, on the programme for the coming winter, and the sooner English millers will lay this to heart and follow the lead of their American cousins, the better for them and the trade generally.

MILL OWNERS should not fail to answer the 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.

## MILWAUKEE NOTES.

The Northwestern Mills are not in operation at present.

Mr. Wm. Moore, of the firm of Wm. Moore & Co., flour factors, Liverpool, Eng., has

made our city a visit during the past month. He says he does not see as yet anything to encourage the belief that there will be any great boom in the flour business in Great Britain at any early day.

A railway track will be laid down in front of the flouring mills on Commerce Street (formerly the canal) very soon. When it is laid, all the mills in the city, except the Reliance, Gem and Cream City, will have railway facilities at their doors.

The Cream City Iron Works are building a very large addition to their works on Florida Street. The enlargement has become a great necessity on account of the rapid increase of business enjoyed by this well-known establishment.

MILLS IN SPAIN.—According to the latest official returns, (1884) there are in Spain, 53,449 flour mills, employing 126,187 persons. Of these, 18,565 mills, employing 33,167 persons, are driven by wind power; 33,069, employing 79,321 persons, use water power, 1,797, employing 13,647 persons, use steam power, and 18, driven by gas engines or compressed air, employ 52 persons.

## REBATE ON JUTE BAGS.

OUR readers will be pleased at the result of the efforts of the Committee who visited Washington in behalf of the Millers' National Association, to secure a modification of the absurd regulations governing the collection of Drawback on Jute Bags exported with flour.

For about two months these drawbacks could not be collected. Entries were being filed as formerly, but, inasmuch as the regulations could not be complied with, the rebates were withheld. While these restrictive regulations were aimed particularly against flour sacks, and in the interest and for the benefit of one particular party, backed by powerful political influence, it did, in fact, suspend the collection on all articles manufactured from imported materials, such as tin, salt, rope, etc., by requiring an original Bill of Lading of the exported merchandise to accompany the certificate of exportation. Owing to the fact that an original Bill of Lading is a negotiable paper, the issuance of two sets of originals would prejudice the security of all, consequently it became an utter impossibility to comply with the regulation.

Other manufacturers of export goods will also reap the benefit of the work of the Committee. We understand parties, other than millers, have been laboring industriously for several weeks to secure such modification, but failed.

One of our contemporaries (*The Millstone*) has been intimating very broadly that the National Association was as good as dead, but to us who see the work accomplished from month to month for the benefit, not only of its members, but of the entire milling interest of the country, we must consider it a *very lively corpse*. We congratulate Messrs. Seaman and Pillsbury upon the success of their mission.

The result obtained by their solicitation will be worth not less than \$500,000 to the millers of this country during the ensuing year. This is certainly a good result of having a national association to look after the general interests of the trade.

LATER.—Since writing the above, we have received from the Department a copy of the circular making the changes referred to, which we give here in full. The millers are to be congratulated on the prompt action taken by the Department, and upon having such efficient representatives of their interests as Messrs. Pillsbury and Seamans.

## CIRCULAR

Amending Circular No. 77 of June 3, 1885,  
Relative to Drawback on Bags.

1885.

Department No. 157.  
Division of Customs.

TREASURY DEPARTMENT,  
OFFICE OF THE SECRETARY,  
WASHINGTON, D. C., Oct. 26, 1885.

To Collectors and other Officers of the Customs:

Circular No. 77, of June 3, 1885, is hereby amended by striking out the whole of the second paragraph in Section 9 and substituting therefor the following:

"The inspector superintending the lading of the bags shall report the measurement and the character of the same, and shall, when required by the collector, cut ears from as many of the bags as may be necessary, to be sent to the appraiser for his report as to the quality of the material.

"The bills of lading required by Article 976 of the General Regulations, may be marked, as heretofore, 'not negotiable,' or 'for customs purposes,' but all such bills filed on and after Jan. 1, 1886, must bear, in addition to such mark, the words, 'No other copy for custom-house purposes has been issued.'"

DANIEL MANNING,  
Secretary.

WHO MADE THE FIRST OATMEAL IN THE  
UNITED STATES?

An article going the rounds of the papers asserts that a certain oatmeal mill in Ohio was the first in this country to manufacture oatmeal. This is a mistake. The UNITED STATES MILLER learns from an old Vermont paper that in the State of Vermont, there are several places which were settled by people from Scotland, and that at a very early period they manufactured oatmeal, as the following extract from the *Vermont Historical Magazine* will show: [See p 273., ¶ 4.]

"Barnet was chartered in 1763."

"For many years after the settlement of the town by the Scotch, they manufactured large quantities of oatmeal. Dr. Johnson, who had a powerful prejudice against the Scotch, defined oatmeal as a 'food for men in Scotland and for men in England.' Upon which a Scotch nobleman exclaimed, 'Where will he find such men as Scotland produces, or such horses as England is famed for?' Oatmeal was highly serviceable to the first settlers, and was furnished to the surrounding towns clear to the Canada line, and even beyond it. In one of the years of scarcity of provisions, a man from a distant town came to Barnet, and, having obtained a sufficient supply of oatmeal for his famishing family, expressed his gladness and gratitude by exclaiming, 'Blessed be the Scotch, for they invented oatmeal.'"

In the town of Craftsbury there is a settlement begun by Scotchmen, who, in 1818, organized a Presbyterian Church, and where our informant, about 1848, visited a mill in which oatmeal was made and was told that orders from many parts of the country for it were filled.

## THE TARIFF.

Ancient English Reasons Formulated One Hundred and Seventy-two Years Ago for High-Protective Tariffs.

[For the UNITED STATES MILLER.]

MILWAUKEE, Wis., October, 23, 1885.

The following extracts are from an English pamphlet published in London in 1713. Its title is: "General Maxims in Trade, Particularly Applied to the Commerce between Great Britain and France." The pamphlet was issued under the sanction of the British Parliament, and largely distributed by its members.

(The pamphlet is exceedingly rare. Gentlemen well versed in Protective Tariffs, who have grown old in the discussion of the question, have told me that the one from which I have copied, is the only one they have ever seen. It was sent to me anonymously. I have never been able to find out who was the donor of it, as well as several others equally ancient and valuable.)

You will observe one thing, plainly set forth, that in the days of old, one hundred and seventy-two years ago, English mechanics and factory hands were paid double the wages then paid to French, German, Italian, etc., workmen, and that it was not English free trade that put up or kept up higher wages in England than on the continent, but in fact, English wages were always higher than others. You will also notice that, on account of English wages being so much higher than on the continent, it was set forth as one of the most urgent reasons for maintaining the English protective tariff because *they could not compete with the foreign low-priced labor*. I think it would puzzle our ablest American protectionists to formulate more sound reasons for a protective tariff than you will find in the following extracts. This difference I have noted, that, neither in this nor any other of these old English protection pamphlets, is anything said about the protection of labor or a desire to promote the welfare of the laborer, the mechanic or the artisan. The battle was for the manufacturer only.

The extracts are as follows:

That trade which exports manufactures made of the sole product or growth of the country, is undoubtedly good; such is the sending abroad our Yorkshire cloths, Colchester Bays, Exeter Surges, Norwich Stuffs, etc., which being made purely of British wool, as much as these exports amount to, is so much clear gain to the nation.

That trade is eminently bad which supplies the same goods as we manufacture ourselves, especially if we can make enough for our consumption, and I take this to be the case of the silk manufacture, which with great labor and industry is brought to perfection in London, Canterbury and other places.

The importation upon easy terms of such manufactures as are already introduced in a country, must be of bad consequence, and check their progress; as it would undoubtedly be the case of the linen and paper manufactures in Great Britain, (which are of late very much improved) if those commodities were suffered to be brought in without paying very high duties.

Wise nations are so fond of encouraging manufactures in their infancy, that they not only burden manufactures of a like kind with high impositions, but often totally condemn and prohibit the consumption of them.

That the importation of such goods as hinder the consumption of our own, or check the progress of any of our manufactures, is a visible disadvantage, and necessarily tends to the ruin of multitudes of people.

The exportation of our woolen goods to France is so well barred against that there is not the least hope of reaping any benefit by this article.

The French did always outdo us in the price of labor; their common people live upon roots, cabbage and other herbage; four of their large provinces subsist entirely upon chestnuts; and the best of them eat bread made of barley, millet, Turkey and black corn, so that wages used to be small in comparison with ours.

At Lyons, which next to Paris is the best city in France, they pay nine sous an ell for the making of lustrings, which is little more than five pence English money; and the price paid here for making lustrings is twelve pence per ell.

In the paper manufacture abundance of people are employed for sorting rags in the mills, who earn in France but two sous a day, which is less than five farthings of our money; and the price paid here is four pence a day.

The French working thus cheap, it is no wonder if they afford their manufactures at lower rates than their neighbors.

\* \* \* We outdo, in our thoughts, all the world in the woolen manufactures; but not depending upon this single advantage of working better than others, we have laid very high duties upon all foreign woolen goods, and even prohibited them. And it is well we did so; for else the French would have made our hearts ache since the peace, by their great importation of woolen goods upon us.

The manufacture of paper is very near akin to that of linen. Since the high duties laid on foreign paper, and that none hath been imported from France, where it is cheapest, the making of it is increased to such a degree in England that we import none of the lower sorts from abroad, and make them all ourselves. But if the French duties be taken off, undoubtedly most of the mills which are employed in the making of white paper must leave off work, and £30,000 to £40,000 a year remitted over to France for that commodity.

The next article concerns the silk manufacture:

Since the late French wars it is increased to a mighty degree. Spittlefields alone manufactures to the value of two millions a year, and were daily improving, till the late fears about lowering the French duties, *What pity*, that so noble a manufacture, so extensive and so beneficial to an infinite number of people, should run the hazard of being ruined! It is, however, to be feared, that if the French can import their wrought silks upon easy terms, they outdo us so much in cheapness of labor, as hath been already showed \* \* \* that in all probability half the towns in Spittlefields would be laid down, and our ladies be again clothed in French silks; the loss that would accrue to the nation by so great a mischief cannot be valued at less than £50,000 a year.

I have never yet found any one well read in tariff history, but admits that England's great prosperity and vast wealth, which she so long possessed, making her the leading nation of the world, was first inaugurated and so long sustained through the hundreds of years of her highest most prohibitive tariff system ever known. Nor was this exalted position ever successfully disputed, until other nations adopted tariffs "for the encouragement of and protection of their own manufactures." I will give but one more extract:

"All the nations of Europe seem to strive who shall outwit one another in point of trade, and they concur in this maxim, that the less they consume of foreign commodities, the better it is for them."

The maxim concluding the last selection is as true to-day, and as worthy of careful consideration, as when uttered in the high protective tariff days in England, one hundred and seventy-two years ago.

JOHN W. HINTON.

**NUTRITIVE VALUE OF THE DIFFERENT PARTS  
OF THE GRAIN OF WHEAT.**

M. Aime Girard has recently contributed an interesting article on this subject to the *Annales de Chemie et de Physique*. He treats the grain of wheat as consisting essentially of three parts: (1) The integument, including not only the pericarp, but also the outer envelopes of the endosperm or albumen; (2) the embryo, separated from the endosperm; and (3) the mealy endosperm, freed from its outer envelopes. He discusses these three constituents in detail, from the points of view of their anatomical and chemical composition, the part taken by each in the composition of bread, and their properties in relation to digestion; the general result being that the endosperm is the only part of the grain which is of value for nutritive purposes without a compensating drawback, the integuments and embryo being either useless or actually injurious.

The integument, which makes up 14.36 per cent. of the entire grain, is rich in nitrogenous substances, to the extent of 18.75 per cent., but these substances are only to a very small extent soluble in the digestive apparatus of man; the portion that is thus assimilable being only 0.4 per cent. of the whole grain. Among these nitrogenous substances is the cereal in discovered by Mege-Mouries, the ferment which causes the formation of black bread. In addition there are mineral substances which are soluble in the gastric juice to the extent of 0.45 per cent. of the grain.

The embryo contains a still larger proportion of nitrogenous substances than the integument, and especially of such as are apparently assimilable. But it also is of scarcely any service for nutrition, because of the large proportion which it contains of the injurious cereal in, in addition to a very easily oxidizable oil, which easily escapes from the cells in which it is formed, distributes itself through the flour, and assists in its decomposition. The maximum amount in the embryo and integument together serviceable for nutrition is 1.0 per cent. of nitrogenous and 0.5 per cent. of mineral substances. And even of those nitrogenous substances which are soluble in water, the greater part appears to be of very small nutritive value.

This small addition to the nutritive value of the grain of wheat is greatly outweighed by the disadvantage of the increased facility for the quick decomposition of the flour given by the presence of these substances, and the increased tendency to the production of an oily, heavy bread. It would appear, however, that substances which are not adapted for digestion by the human stomach can be assimilated by the digestive apparatus of other animals.

The object, therefore, to which millers should especially direct their attention is the discovery of mechanical means by which the integument and the embryo may be removed from the grain, reserving the mealy endosperm alone for the production of flour.—*Pharm. Jour. and Transactions*.

**NINE MONTHS' FAILURES.**

The total number of mercantile failures in the United States reported to *Bradstreet's* is 8,423 as compared with 8,302 in a like portion of 1884, with 7,358 in 1883 and against 5,307 in nine months of 1882, a gain as compared with

last year of but 121 failures, of 1,065 as against 1884, and of 3,116 when compared with 1882. The gain of nine months' failures in 1884 over those in 1883 was 944, which marks a significant check in the late rate of increase in recorded mercantile deaths. Since July there has been a noticeable decrease in the average total of the list of failures published weekly. If this decline continues during the remainder of the year the probability exists that the total failures for 1885—which early in the year promised to materially exceed the 11,600 reported in 1884—will barely, if at all, exceed those of the preceding twelve months. The total liabilities of the 8,423 failing traders in the past nine months amount to \$90,976,000 against \$195,951,000 liabilities for nine months of 1884; \$123,054,000 liabilities in 1883 and \$71,162,000 of liabilities in three quarters of 1882. This record points to a close approximation to what may be called the normal, when the growth of population is considered, within three years. The past nine months' actual assets of the 8,423 failing traders amounted to \$43,864,000 as compared with \$108,452,000 assets in 1884, with \$63,262,000 assets in 1883, and with \$36,452,000 assets in nine months of 1882. The percentage of total nine months' assets to total liabilities in 1882 was 51; in 1883 it was 52, and last year it was 55 per cent. During the nine months ended September 30 the percentage of actual assets to liabilities was but 48.2 per cent. The details for nine months by groups of states, for New York city and for Canada and the Provinces, as well as for the third quarter of 1884, are as follows:

NINE MONTHS' FAILURES, 1885.			
United States Divisions.	No. of Failures.	Actual Assets.	Liabilities.
Eastern.....	1,105	\$4,468,916	\$11,649,254
Middle.....	1,806	13,740,656	27,629,417
Southern.....	1,613	8,772,644	18,871,490
Pacific.....	746	3,037,999	5,901,010
Western.....	2,914	12,829,712	25,249,514
Territories.....	238	1,015,873	1,675,673
Total United States...	8,423	\$43,864,800	\$90,976,358
Canada and Provinces...	984	3,391,167	7,190,967
New York city.....	254	5,131,996	9,112,283

THIRD QUARTERS' FAILURES, 1885.			
United States Divisions.	No. of Failures.	Actual Assets.	Liabilities.
Eastern.....	321	\$1,487,694	\$3,543,749
Middle.....	539	3,327,454	6,916,103
Southern.....	329	1,387,410	2,491,360
Pacific.....	258	972,642	2,080,517
Western.....	798	3,391,230	6,804,487
Territories.....	72	342,965	569,637
Total United States.	2,317	\$10,909,395	\$22,405,853
Canada and Provinces..	246	802,735	1,697,801
New York city.....	79	881,347	1,761,821

The 2,317 failures in the United States in the last three months are to be compared with 2,858 in the third quarter of 1884. The third quarter's liabilities (1885) are but \$22,405,000 against \$71,846,000 last year, and the assets but \$10,909,000 against \$37,722,000 in the third quarter of 1884.—*Bradstreet's*.

**DUTCH RICE.**

The finest rice, says the *New York Sun*, is known as Dutch rice and comes from Amsterdam. It is grown in Java and milled and polished in Amsterdam by some peculiar process which American millers are very anxious to learn. The "Dutch rice" has more perfect grains, a better luster, and is less broken than rice milled in this country. Many attempts have been made to learn the Dutch process, but they guard it with jealous

care and allow no one in their mills. It is suspected that they use oil, as the rice when confined in a bag for some time gives the cloth a soft, greasy feeling.

Recently the state department sent out a circular to consular officers requesting information concerning the preparation of rice. The consuls had no better luck than other people. They recently reported that the manufacturers declined to divulge the secret, saying that it was of the utmost value for them to preserve it, and that they would not furnish the method to their own government. The Dutch rice is worth one-quarter of a cent more per pound than other rice, simply because of its fine appearance, but when cooked it is no better than other rice.

American millers are secretive about their own process of milling and decline to allow strangers to go through their works. There is only one mill in this city, that of Crampton Brothers, at Monroe and Jefferson streets.

The grain comes from the threshing mill as rough rice or paddy, and requires grinding to free it from the hulls. It is first screened to get rid of the sand, and is then passed between a pair of heavy stones, five feet across, to remove the outer husk. Thence it goes into large wooden mortars, the iron-shod pestles to which weigh 250 to 350 pounds each, and is pounded for two hours, when it is ready for screening. Some mills clean the rice by means of wire cards, without pounding. Finally the rice is screened into flour, broken rice middling rice and prime rice. The prime rice passes into the polishing or brushing screen, which is a vertical cylinder, laid up and down with shreds of sheepskin and made to revolve within a wire screen. This cleans off the flour and gives a polish to the grains.

The best rice produced in this country is grown in South Carolina. The Chinese consume a great deal of rice in this city, and are said to use only the best quality. The majority of New York families serve boiled rice as a sort of a paste, with the grains all merged together. In the South, where its cooking is properly understood, it is served with every grain clean and distinct. It is eaten there as vegetable, with pepper and salt, while North it is regarded as a dessert and eaten with sugar or molasses. It is said that the rice should be put into salted water which is boiling hot. In five minutes the water should be drained off, and the covered pot left for 20 minutes longer on the coals.

**THE FLOUR KING.**—The *Saratoga* correspondent of the *Chicago News* says: These piazzas, however, are crowded with successful men who have not felt the compensatory burthen of a great sorrow. One among them, hearty and grangerlike, is the man C. A. Pillsbury, the flour king, as he delights in being called. Only 42 years old, sixteen years a Minneapolis miller, he is the possessor of a good many millions, and he is as proud of them as a young lady is of an engagement ring. During the time he has been a miller the business has, by reason of mechanical improvement, known a complete revolution. One of his mills produces 6,196 barrels of flour in a day, the others two 2,000 and 1,500 respectively, making in round figures, say, 10,000 barrels of the great food material of the civilized world.

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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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[OVER.]

—OFFICE OF—  
**CAWKER'S AMERICAN FLOUR MILL AND MILL FURNISHERS' DIRECTORY**  
 —AND OF—  
**THE UNITED STATES MILLER,**  
 124 GRAND AVENUE,  
**MILWAUKEE, WISCONSIN.**

GENTLEMEN:—It is the duty of business men to use all honorable means in their power to secure business. We therefore suppose that all millers, whether proprietors of large or small mills, will be glad to adopt such means as will be likely to bring increase to their business. We desire to state that in January, 1886, we shall go to press with **CAWKER'S AMERICAN FLOUR MILL AND MILL FURNISHERS' DIRECTORY**. It is desirable that this work shall contain the name of every person or firm in the United States and Canada owning a flour mill, together with correct post office address, capacity of mill in barrels of flour *per day of twenty-four hours*, and the kind of power used to run the mill, whether steam or water, whether stones or rolls or both are used, etc. Is it not worth your while to sit down and write us, giving these particulars? We think it is, and will tell you why. This Directory is purchased and used by wholesale flour dealers in the large cities in this country: east, west and south; by flour exporters; by European flour importers; by railway, lake and ocean transportation companies, insurance companies, by mill furnishers and all manner of dealers in machinery and supplies used in and about flouring mills; in short, by every class of business men in all parts of the United States, Canada and Europe, desiring to transact business with American millers. Is it not worth your while to be properly represented in a book looked upon as *authority* by these classes of people that have business to transact with you? We assure you that you will find yourself more than repaid for the small amount of time and expense incurred in sending us these particulars by the information you will receive through the many circulars, journals, market reports, etc., sent you by the users of this Directory, giving you *free* an insight of the general business being done in your line of trade throughout the world.

Previous to the year 1876, no such work was published, but the undersigned, who was then as now, engaged in the publication of the *United States Miller*, having received so many letters from parties all over the country asking for addresses and information of a general character about millers, conceived the idea that there was a demand for a work of this class, and consequently, in the year 1876, prepared the first Milling Directory ever published. This was followed by corrected and enlarged issues in the years 1878, 1880, 1882 and 1884. The last (1884) was the most complete and perfect book we could possibly get up at the time and has given great satisfaction, but it was not as complete in detail as we could wish, for out of 26,000 millers to whom we sent circulars but about 11,000 replied. *They were either too lazy, negligent or thoughtless to look after their own interests.* Now that we have explained the matter in full to you, we trust you will answer our questions promptly. We further desire to ask in all modesty, that considering the fact that we have fathered this enterprise and assumed a considerable pecuniary responsibility that you will subscribe for our paper (*The United States Miller*, price \$1.00 per year). The paper is well worth the price and we believe we deserve the encouragement your subscription will give us.

Should you wish your name or name of your firm inserted in **full-faced type**, in the Flour Mill Directory, we will send you the U. S. Miller for one year and your name so displayed for \$2.00. The following will illustrate: Supposing John Brown & Co., of Minneapolis, Minn., write us that they have a mill driven by steam and water power, using both stones and rolls and having a capacity of 500 barrels of flour in twenty-four hours, this is the way it would appear in the Directory, *not displayed*:

○●\*†500 John Brown & Co., Minneapolis, Minn.,  
 or displayed:

○●\*†500 **John Brown & Co.**, Minneapolis, Minn.

The first sign used means, stones—the next, rolls—the star, water-power—the dagger, steam-power; the figures, number of barrels of flour the mill can make in twenty-four hours. By having your name displayed as above, it will attract especial attention, which will certainly prove of benefit to you.

Now, gentlemen, in conclusion, we beg you to answer our questions at once. Subscribe if you please—display your name if you please and *help a valuable business accessory along*, but at all events send us the information asked for. Address

**E. HARRISON CAWKER,**

Publisher UNITED STATES MILLER, Milwaukee, Wis.

What is the name of proprietor, or firm?

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 an important 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.

If by chance this should be addressed to anyone *not in the flour milling business*, oblige us and the trade by dropping us a postal card saying that you are not in the business. [OVER.]

## ROLLER CORN MEAL MILLING.

BY J. M. CASE.

*Editor of the United States Miller, Milwaukee, Wis:*

Dear Sir:—I send you herewith a brief statement embodying the results of my experience in corn meal milling. The matter of manufacturing corn meal upon rolls is beginning to agitate the millers to a great extent. Our inquiries in this direction are multiplying daily. Our success in mills already built has led the writer to believe that it is only a question of time when corn meal will be made exclusively upon rolls, except in small country mills, which depend upon local custom trade. All meals for the general trade or market, manufactured by the larger milling firms, will be made upon the roller system. The expense of such a system proportionate to the power required and the output is not much, if any, greater than it is when made upon the millstones. The power required to reduce corn meal on rolls is considerably less than that required to reduce the same quantity on burrs.

In my first experience in the reduction of corn on rolls, one of the first things I discovered was that the system of handling the breaks in the manner usually handled on wheat, is entirely erroneous. If the tail of the first scalper is sent to the second break machine, and the tail of the second scalper to the third break roll, and so on through as it is done in wheat milling, the results will be scarcely any better than the ordinary stone ground meal. The reason of this is that the bran and chit becomes so thoroughly pulverized and intermingled with the meal as to greatly impair its quality. Upon the discovery of this fact the writer took the precaution to apply for patents, which will soon be issued, upon a system of reducing corn to meal, which is substantially as follows:

Upon the first break, I break the corn down sufficiently to remove almost the entire outer coating of the bran. It is found in practice that this bran peels off in large flakes almost the size of a grain of corn, and that the chit, and black speck upon the end of the berry, will usually cling to the bran and pass off with it. If the proper corrugations are used and the rolls are properly set there is scarcely any gluten or starchy material that will be found in the bran coating. Instead of sending this bran and chit to the second break, I send it direct to a tailings or bran roll at the tail of the mill. The head of this scalping reel is clothed ordinarily with about No. 18 wire, and the tail of the same with No. 6 wire. The material which passes through No. 18, is sent to a meal separating reel, and that which passes through the No. 6 wire is sent first to an aspirator, and from thence to the second break roll.

The second break is sent to a scalping reel, clothed ordinarily with about No. 22 wire at the head, and No. 10 at the tail. That which passes through the head of the reel is sent to a meal separating reel, and that which passes through the No. 10, to a second aspirator, and the tail of this second reel goes direct to a bran or finishing roll. This same process is carried out in the third break also, which number of breaks I find sufficient to reduce the corn sufficiently to send to the meal separating reels. The tail of the meal separating reel is also sent to an aspirator, which blows

out the fine fibrous and branny material, and this purified gritz is sent to a roll for reducing it to meal, and returns to a second meal separating reel. The tail of this second meal separating reel is sent to a low grade roll, together with all of the material which has been blown out by the aspirators. This low grade stock, together with the bran stock, is bolted in a separate reel, and drawn off as low grade meal. A sufficient amount of first grade meal may be intermingled with the bran, or low grade meal, to bring its grade up to any standard the market may demand, or a standard equal to the stone ground meal, which would be ordinarily about 20 per cent. of the entire product, leaving the first meal of a very high grade, which in the market would bring a much higher price than stone ground meal. With this system of handling the stock there is never a loss of over three pounds to the bushel, and seldom over two and one-half, or in other words, 56 pounds of corn will make 53 to 53½ pounds of meal.

The meal made upon this system differs from that made upon the burr system in the following particulars: In the first place it is much freer from black specks, germ product, and light flakes of branny matter.

In the second place it is much more granular, and in baking it operates just the same as granular flour. It will raise higher and produce a much lighter loaf. This is due to the fact that the granulation is round and sharp, and not flattened as in the burr ground meal. The result is that when the meal is wet up and baked, these round granular particles burst open and expand, causing the lightness of the loaf. There is another feature of this class of meal, which is very distinctly observed, and that is it is sweeter to the taste than stone ground meal. The meal will also keep better and is much less liable to sour, owing to the fact, that its being so granular, it gives the air an opportunity to circulate through it and prevent heating. Another fact connected with it is, that in the various manipulations which it goes through in the production of meal, it gets a thorough aeration, and thus much of the moisture becomes evaporated. If it is desired to make a very high grade of pearl meal, it is necessary to put in ahead of the rolls a degerminating or hominy machine, but in all ordinary cases this is scarcely justifiable, as it makes a much larger quantity of low grade meal, and the hominy machines require a large amount of power to operate them. The meal made on this system, without the use of hominy mills is almost equal to pearl meal, although not quite up to it. The corrugations used for this purpose, which I have found best in practical operation, is one-eighth back cut saw tooth for the first break, one-sixteenth front cut saw tooth for second break, one twenty-fourth front cut saw tooth for third break, one twenty-fourth front cut saw tooth for the bran and aspirator stock, and one thirty-second front cut saw tooth for grinding the unfinished gritz.

For a 300 to 350 barrel corn meal mill it will require six double sets of 9x30 rolls, four scalping reels 12 feet long, two meal separating reels 12 feet long, four aspirators and one corn cleaner. This constitutes the entire machinery for a mill of the capacity above referred to. It is possible to make a very excellent result from the use of but one double set of rolls, and one meal separating and aspirat-

ing machine. But in view of the fact that I am making this article quite lengthy, I will not undertake to describe this short system, but will do so, if you desire, in the next issue of your paper, and will furnish diagram and system of separation such as we have found to be most successful in our system of corn meal milling. This matter, the writer believes, will be of considerable interest to parties having limited power, and desiring to utilize it for the purpose of manufacturing roller corn meal. The power required to operate such a mill on this short system would not exceed 10 to 12 horse-power to produce from 35 to 40 barrels in 24 hours.

## 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 Street, Milwaukee, Wis., who will send a copy of any patent named to any address on receipt of 50 cents:

Issue of Sept. 29.—No. 327,050, grain screen or separator, F. Wulfert, St. Charles, Mo.; No. 327,061, grain screen, S. H. Hills, Mt. Morris, N. Y.; No. 327,332, centrifugal reel, G. T. Smith and W. H. Dickey, Jackson, Mich.; No. 327,333, centrifugal reel, G. T. Smith and W. H. Dickey, Jackson, Mich.; No. 327,390, grain scourer, G. B. Gray, Cardington, Ohio; No. 327,444, millstone driver, J. E. Jones, Utica, N. Y.; No. 327,501, wet-grinding mill, T. L. Sturtevant, Framingham, Mass.

Issue of Oct. 6.—No. 327,607, middlings purifier, C. H. Sinderson, Rockford, Illinois; No. 327,825, dust collector, W. Richardson, Milwaukee, Wis.

Issue of Oct. 13.—No. 328,075, machine for grooving grinding cylinders, P. T. Smith, Milwaukee, Wis.; No. 328,105, cleaning, hulling and grinding mill, J. Breitmoser, St. Louis, Mo.; No. 328,269, middlings purifier, J. L. Willford, Minneapolis, Minn.; No. 328,385, grain scourer and separator, G. S. Cranson, Silver Creek, N. Y.; No. 328,413, roller mills W. Krutzsch, Dayton, Ohio.

Issue of Oct. 20.—No. 328,494, apparatus for testing flour, K. W. Kunis, Reudnitz, Germany; No. 328,656, grinding mill, H. Cutler, Wilbraham, Mass.; No. 328,788, grain drier, J. C. Klauder, Philadelphia, Pa.; No. 328,789, flour bolt, B. Kniffler, Cleveland, Ohio.

Issue of Oct. 27.—No. 328,996, cottonseed and grain crusher, J. W. Anthoine, Eufaula, Ala.; No. 329,057, feed regulator for roller mills, etc.; S. Leethan, York, England; No. 329,097, centrifugal bolting machine, E. Streitz, Freienwalde, Germany; No. 329,168, middlings purifier and separator, E. W. Howard, Montevideo, Minn.; No. 329,198, grain drier, J. Milne, Aberdeen, Scotland; No. 329,364, mill stock feeder, G. Cottrell, San Francisco, Cal.; No. 329,365, grain scourer, G. S. Cranson, Silver Creek, N. Y.; No. 329,422, grain drier, A. Wolcott, Wolcott, Ind.; No. 329,423, centrifugal bolting reel, L. Wommer and J. Buck, Minneapolis, Minn.

A lively competition between Duluth and Minneapolis wheat buyers at Grand Forks, Dak., ran the price of wheat up to \$1.00 per bushel Oct. 4.

**EASTERN MILLERS AT JACKSON, MICH.**

ENTERTAINED BY THE GEO. T. SMITH MIDDINGS PURIFIER CO.

From the Jackson, Mich., *Daily Citizen*, of Oct. 2, we clip the following account of an interesting visit of eastern millers to Jackson, Mich.:

Yesterday twenty-five mill owners, millers and mill-men visited Jackson, on invitation of the Geo. T. Smith Middings Purifier Co., to inspect the new Eldred Mill, which is pronounced the most complete and best equipped mill in the world. The visitors from Rochester and Buffalo arrived on a special car, and they, with other visitors from various points, over fifty in all, were quartered at the Hibbard House. The strangers were made at home and spent the day in inspecting the workings and points of the Eldred Mill, all pronouncing it the most complete establishment of the kind known. The shops of the Purifier Company were looked over, and other places of interest in Jackson visited, and the day was one of pleasure and profit to the visitors and delight to their hosts.

The following gentlemen are among the visitors: Detroit, Col. Rodney Mason; Rochester, John H. Chase, Fred Wilson, W. S. McMillan, John Weggman, Jacob Gering, James Cornell, H. W. Davis, J. A. Hinds, C. E. Angle, Stephen Stone, H. D. Stone, John R. Smith, A. Ferguson, F. C. Armstrong, J. O. Kelly, John McTaggart, David Martin, James Herschell; Medina, N. Y., J. R. Weeld; Charlotte, G. E. Harmon; Buffalo, Fred V. Ogden, George Urban, jr., A. B. Kellogg.

The Purifier Band serenaded the visitors, and they were rendered comfortable and happy. The day was delightfully passed, and in the evening a banquet was given at the Hibbard House. The dining hall was beautifully adorned with plants and flowers, and the tables, which were arranged in the shape of a horse-shoe, displayed a wealth of plate and cutlery glittering in the gas-light, banked with choice flowers, pleasing alike to the eye and senses. The supper was a grand triumph in the art of gastronomy, and was served in courses. The service and all the appointments were in keeping with the splendid repast provided. Col. Clark, of the Hibbard, and the caterer, George M. Grundel, won warm plaudits for the manner in which the requirements of the occasion were more than met.

At each plate was a beautifully hand-painted card, with the name of the guest, the day, and the year with an appropriate quotation. Each guest was presented with a boutonniere on taking his place at the table.

The different courses were discussed, to the soft music of a band stationed in the hall beneath the stair-case, and the cadences of tune were observed by banqueters as well as musicians. When the cloth was removed, W. K. Gibson, Esq., called the assemblage to order and in a most felicitous speech assumed the duties of toast master. Col. Rodney Mason, at the suggestion of Mr. Gibson, announced the first toast, "Our Guests," and in so doing gave a sketch of the milling interests, the labors, application and genius of George T. Smith, with a narrative of the trials and experiences of years, with their fruition in success and the kindly feeling among all those now engaged in the milling business. The remarks of the Colonel, who also gave a history of the patents and the contests thereon, were of much interest.

Mr. W. S. McMillan of Rochester, responded in a pleasant speech. The gentleman gave a history of the milling interests of the Genesee valley and their products, and closed his remarks with a graceful and warm tribute to the excellence of the Eldred Mill, which he characterized model in every way. He endorsed all that had been said of the superiority of this mill and its admirable equipments. He had known Mr. Smith many years, and paid a handsome compliment to the gentleman, whose inventions had generally promoted the milling interests. He alluded with pleasure to Jackson, its industries and people.

The next toast was by Mr. McMillan, who gave "The City of Jackson." Mayor Pringle responded to this with a history of the Central City, its resources, progress, manufactures, railways and situation. The Mayor imparted much information to the visitors, and happily presented the attractions of the Central City.

"The Milling Press" was responded to by Mr. C. M. Palmer, of Minneapolis, in a few remarks of interest.

"American Industries" was the next toast, Response by James O'Donnell.

Mr. William Kinmont, of Detroit, gave the toast, "Our Host, George T. Smith," and the company rose to their feet with cheers. Mr. Smith modestly bowed his acknowledgments of the honor done him. Mr. Gibson in behalf of Mr. Smith, made a graceful response, who was followed by Erastus Peck, Esq., who in answer to calls, indulged in a speech of felicitous words and images. Mr. Peck spoke of the profession he followed and the aid it had given to millers—for a reasonable consideration. He gave his experience at an early day in Rochester, and related how he left that place years ago, and now Rochester had followed him to Jackson, where they were welcome.

The toast, "Rochester Millers," was briefly and pleasingly responded to by Mr. James Cornell, of Rochester.

Col. W. H. Dickey was drafted for a speech but was too busy looking after the comfort of his friends about him, and Mr. George Urban, of Buffalo, made answer, who was followed by George S. Bennett, who gave the genesis of milling up to then. Mr. Gray, of Milwaukee, was loudly called for, and responded briefly, who was followed by a brief mechanical dissertation by Mr. Holt, the sequence being a corruscation of pleasing words from Messrs. Kinmont, Chase, Wells and Gurling. An essay on bolting followed, by Mr. R. H. Emerson, when Mr. H. A. Hayden responded to repeated calls, with remarks of practical value on milling, the veteran miller giving his experience in business, with good suggestions for its future conduct.

The Eldred Mill, its magnificent equipment and admirable arrangements, with superiority in every detail, were thought of, and Mr. Z. C. Eldred was persistently summoned. He replied briefly and pleasantly, Mr. James A. Hinds, of Rochester, following the gentleman with a few remarks.

Alderman John R. Reynolds responded to to calls, and gave a milling operative's views, evincing study of the subjects on which he spoke, and his remarks were of such a practical nature that the millers present found much profit from his observations.

Mr. W. D. Thompson was called for, but failing to respond, the company with strong

insistency pursued their object in extorting a speech, to which Mr. Thompson made a reply eminently satisfactory—concise, embodying his views on the occasion, and explaining why his remarks were not more voluminous, the lateness of the evening preventing the delivery of the oration he had prepared. In closing, he complimented the Hibbard House and its proprietor, Col. Clark.

The Colonel had retreated before the advance of lively feeling, and Mayor Pringle responded in a manner that evidenced the executive of the city appreciated a man who knew how to keep a good hotel, and the caravansary under whose roof the party were assembled was pleasingly eulogized by the Mayor.

As the infant morn was nigh, Col. Mason closed the pleasures with a dissertation on milling, its aims, its present and future, with the possibilities in store or those engaged in that line. His address was full of good points of much interest, and instructive alike to millers and all listeners. The company then adjourned, pleased with the evening and the kindly fellowship and hospitality that met every one on all sides.

The guests from Rochester are among the mill owners and operatives of the Genesee valley, and every mill in that great section of mills has its attache here. The Flour City is most worthily represented, the stirring, successful, enterprising men engaged in milling being from the beautiful city of the Genesee valley. They are warmly greeted by their hosts and others, and while their visit here will prove instructive and of value, they are welcomed to the Central City. Rochester's mills have always been among the most prosperous in the land, and as their conductors are seen the reason is apparent—careful management, with all the improved machinery, winning the mills of that section their great success. These practical gentlemen inspected with great care the Eldred Mill, and were exceedingly gratified at what they saw—the combination and embodiment of excellent devices and admirable inventions for the production of the best of flour. The critical judges were warm in expressions of satisfaction at what they saw in this mill, and with unanimity termed it, as handsomely expressed by Mr. McMillan, the model flouring mill.

Among these practical millers the great merits of the George T. Smith middlings purifiers are recognized and the excellence of the centrifugal reel is cheerfully conceded. We are glad to know these Jackson products have won their way to favor, by their genuine excellence.

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you measure the difference between the mill of Oliver Evans' time and the complete roller mill of to-day, you can also measure the difficulties the milling engineer has overcome and the progress he has made. The wonder is greater when we consider that nearly all of this progress has been made within the last twenty, and the greater portion of it within the last ten years. And, although there still remain many differences of opinion, and many vexed questions are still to be answered, there is still such a uniformity of practice as conclusively proves the art to rest on a solid basis of ascertained fact, and henceforward we may look for progress, not in the line of radical changes and revolutions of the present methods, but rather in the perfection of details and the gradual extension of existing methods. The question is sometimes asked, though less frequently now than formerly, "what is going to supersede rolls?" And many millers have let golden opportunities slip by because they were afraid to invest in a roller mill for fear that the whirligig of change would bring something new in place. I can see no danger of such a change taking place in our time, if ever. Whatever change there may be will be in the line of improvements on present systems. Neither do I believe that the millstone will again come prominently into use. Millers and milling engineers are alike too fond of going forward to take any retrograde steps. And while I yield to none in my reverence and affection for the good old-fashioned millstone, whose praises have been sung in some good and much indifferent verse, I am not among the number who believe that all it needs is a first break and brush scalper to restore it to its pristine favor, and enable it to drive the roller mill from its present position. Do not misunderstand me as saying that the millstone will not continue to be used, or that there are not places where a burr mill is not as good as the location will warrant. There probably are such places, even in Pennsylvania, but slowly and surely the circle is widening within which none but mills built on the most approved system can possibly yield a profitable return on the money invested. The influence of the gradual reduction system upon the mills of this country resembles the wave from the pebble cast on the placid surface of a pond. It has spread wider and wider until now the corner is very remote wherein the miller does not feel the necessity of a change to a more modern style of milling.

When I met you four years ago I said that inventors and mill builders would doubtless devise ways and means suited to the requirements of the smaller mills. In this, time has proved me to be correct. I also said that mills of one hundred barrels were as small as the roller system could profitably adopt. In this it seems I was partially mistaken. The past two years have been remarkable in the history of American milling for the great number of mills which have changed over to modern methods, and I believe that over half of the work that has been done in this direction has been done in mills of under one hundred barrels capacity. To-day the greatest demand upon the mill builder is for mills of from fifty to seventy-five barrels capacity. If these mills constituted a class by themselves, and had to meet no competition but from among themselves, the mill builder's task would not be so difficult. As it is, the

smaller mill must be designed to meet the competition of larger mills, and these of still larger. While it is not impossible to do this, if sufficient means are allowed, it becomes very difficult to decide just how far the expenditure can be carried and still be commercially successful, and it is impossible when the appropriation is limited. There is no difficulty in building a good mill of small capacity at a reasonable outlay, but there is a great deal of difficulty in building "the best mill in the country" of small capacity without going to an expense which would leave small chance for any profitable return on the investment. And yet this is what the mill builder is most frequently expected to do. Can you blame him for saying not in haste that all men are liars, but after due deliberation that most millers about to build small mills are very unreasonable. Taken altogether the best mill builders have done wonders for the small mills during the past three years, and even if the best small mills are not able to compete in quality and yield with Pillsbury and Washburn, they can come so near it as to leave no reasonable ground for complaint. It is true that much of the work in mills of medium and small capacity has been poorly and imperfectly done, but where this is the case it will generally be found that the builder was not so much in fault for furnishing a cheap and poor job as the miller has been in intrusting the work to inexperienced hands, or insisting that it should be done by the lowest bidder. I know I shall be called prejudiced, but I honestly believe that not one miller out of a dozen is a good judge of millwright work, or is competent to tell a good piece of mill building when he sees it. This is one of the discouraging features of mill building, that experience and reputation for good work have so little weight as against gauzy promises and impossible guarantees. Especially is it common among the owners of the smaller mills to exact impossibilities, and to grumble exceedingly when they are not forthcoming according to contract. In this they have been encouraged by a certain class of mill furnishers who, in their anxiety to outdo their competitors, have made up what was lacking in experience and reputation by extravagant promises of what they would do, trusting to luck to hoodwink the miller when the time for settlement arrived. The owner of a small mill should be particularly careful not to be misled into believing that a plausible guarantee will make amends for lack of machinery or defect in system. While mill building is not and never will be one of the exact sciences, as an art, it rests on certain established facts, and no guarantee, however strong, can make a mill do more or better work than its equipments will allow. I admit that excellence in milling is only relative, and that a short system in certain locations and under certain conditions will produce as good results as may be required, but it does not follow, because the results are satisfactory, that the guarantee has been filled. As the art of milling advances it will become more and more necessary for the owner of the small mill to carefully scrutinize the machinery and systems urged upon him for adoption, and while the mill builder will keep up with the demands upon him, there is a limit fixed by natural laws which he cannot pass. In order to reach a specified result he must be permitted to use suitable and sufficient

means. There can be no great progress further in the building of small mills if cheapness and guarantee are the only things considered. The fact must not be overlooked that the large merchant mills are continually seeking to improve their methods, and are sparing neither pains nor expense to that end. This reacts upon those smaller, and smaller still, until not even the smallest mill is removed from its influence. And if much has been done by the inventor and mill builder for the small mills, as the improvement progresses, it will be necessary for the owners of such mills to make strenuous efforts in order to avoid being left behind in the race.

In talking with one of our prominent mill builders a short time since, he remarked that one great trouble with American mills, especially small mills, was that too much work had been done in too short a time, that changes had been made in two years, which it would have been better had it taken ten years to accomplish. While I do not wholly agree with him, I can see on every hand ample evidence that much of the work has been hastily and not thoroughly done, and for the most of the shortcomings the mill builders have been, and are still held responsible. With the ever increasing closeness of competition, the mill builder has hard work ahead to improve or even keep up to the present standard, unless he is ably seconded by the miller.

The miller who is about to build a new mill or remodel his old one, should bear in mind that the standard of excellence in the art of milling is being raised, and that, to avoid the necessity of frequent changes in his mill, in order to keep up with the milling progress, he should study the present state of the art carefully, and aim to build in advance of it if possible. It is not enough that when finished the mill shall barely be able to meet the requirements of to-day. It should do more than this if possible, or the necessity for change and its accompanying expense will surely come. It is poor policy to save a few hundred dollars at the first by cutting down the bill of machinery, shortening the system and doing a cheap job generally. The improvements continually being made by the larger mills make it certain that those of smaller capacity will have to improve also, and it will not pay for the sake of even material saving in first cost to start behind in the race. "Get the best" is the only motto worth following, only do not make the mistake of believing that any guarantee will of itself insure your getting the best. The better way, if you cannot trust your own experience, and my observation is that comparatively few millers do trust their own experience for enough to even partially relieve the mill builder from responsibility for the operation of the mill, is to entrust your work to some mill builder of established reputation and pay him a fair price for it.

I often hear it said by millers: "We would like to have — & Co. build our mill, only their price is higher than the others. We know they will build us a better mill, but we do not feel like paying the difference in cost." Now the ability to build the better mill comes of long experience, and this experience has cost the builder much study and expense. It is at the service of the miller, and is worth the price asked for it. I remember one mill

owner who put the matter plainly, by saying: "I want the benefit of your experience, but I do not want to pay for it." The spirit of this is but little removed from that of the beggar soliciting alms. It is, however, a fact, that in nine cases out of ten the miller does get this experience without paying for it, if he trusts the experienced builder with his work: *i. e.*, that when the specifications and quality of work proposed to be done by the builder of established reputation are compared with those of his inexperienced and low-priced competitors, it will be found that, piece for piece, pound for pound, and quality for quality, the miller will get more for his money if he accepts the higher figure, and he will get the benefit of the builder's experience, and in reality be paid a bonus for receiving it. It does not take long by reducing the diameter of a shaft here and there, making the gearing a little lighter, and slighting the construction of the machinery and the millwright work of putting it in position, to make a considerable difference in the cost of a mill job; but no miller will be rash enough to say that the light, cheap, and poorly constructed mill will run as well, or last as long, or taken year in and year out will do as good work as the one honestly and substantially built.

Another thing which the miller is very apt to overlook when considering and comparing prices, is the probability of the mill starting successfully when completed. It is not invariably the rule that the mills built by the best builders start up without let or hindrance, for the execution of their plans has of necessity to be intrusted to other hands, but the odds are largely in favor of the mill which has been carefully designed and built, not with a view to cheapness in first cost, but to completeness and thoroughness in detail, starting without trouble, and making a flour which can be immediately placed upon the market under regular brands. On the other hand, it is almost universal that cheaply constructed and illy designed mills cost more to start than to build.

It is no light matter for a miller to be delayed, and vexed in the starting of his mill, and the cost of the delay is a most considerable item in the cost of the complete mill. Even in a mill of fifty or seventy-five barrels capacity, the difference between a poor start and a successful one will more than overbalance the difference between the highest and lowest bids, and yet the miller can with difficulty convince himself that he is doing well to pay even a few hundred dollars extra for the sake of having the better mill.

Nothing conduces more to the pleasant and profitable operation of a mill than a systematic arrangement of the machinery, so as to save room where it is most needed, and avoid using more secondary machinery than is necessary. The primary machinery of the mill is that which performs a principal part in the milling process, such as rolls, purifiers, reels, cleaning machinery, etc. The secondary machinery is the gearing, elevators, conveyors, spouts, etc., which are used simply to enable the primary machines to perform their functions in due sequence. This part of the mill is like the dead weight of a railroad train. It must be sufficient to bear the load without danger of wreck, but every superfluous pound costs money to carry. So in a mill where the primary machinery is so

located as to require a wilderness of elevators, conveyors and spouts, to carry out the diagram, the dead weight is not only an eyesore to the miller, but a most expensive thing to operate and keep in order. And without desiring to criticise millwrights too severely, it may be said that the worst jobs of the above description are those which are built by local millwrights, who, whatever their skill as mechanics, lack the ability or experience necessary to systematically plan an entire mill.

In closing I do not intend to give any advice which, however applicable, would be merely the expression of individual opinion. I have stated things in a general way and leave it to each miller and mill owner present to draw such conclusions therefrom as he may deem warrantable. I can only say that experience in mill building as in all other arts, costs time and money to gain, and when gained is worth money to the miller, which he should not begrudge paying, so long as the price is not unfair or unreasonable; and and that there is a great difference between cheapness and low price. It will be found almost invariably that the low priced mill is the dearest in the end, and that a reasonable expenditure at the outset will be the cheapest in the end. Whenever about to build or remodel a mill it would be well to bear in mind the old adage: "Whatever is worth doing at all is worth doing well."

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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 birds-eye view map at the top 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 2,355 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 height of 6,000 feet, and down to San Francisco, less than 1,000 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.

#### THE N. Y. STOCK EXCHANGE.

An article that will gratify almost universal curiosity appears in the November HARPER'S—"The New York Stock Exchange." It presents a sketch of the growth of the Exchange from its organization by twenty-four brokers, who met under a butonwood tree in Wall Street in 1792, to its present membership of 1,100, with a building worth \$1,800,000, a salary list for employees of nearly \$200,000 yearly, an initiation fee of \$20,000, and yearly transactions of about \$13,000,-

000,000, dividing a profit probably of over \$30,000,000. The writer, Dr. R. Wheatley, describes at length the organization of the Exchange, explains its legitimate business function, and sets forth plainly how its facilities are sometimes made use of to fleece the dear public; tells the story of one of Jay Gould's great manipulations of the market, and gives the slang of the street—a portion which is in itself an interesting contribution to the curiosities of language. Views of the Exchange, portraits of its officers, and of Vanderbilt, Jay Gould, Cyrus W. Field, Russell Sage and other operators, and other illustrations, make the paper still more interesting.

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Among the many notable changes wrought in our food supply during the past thirty years, few are more notable than those connected with oatmeal. In 1856 the country depended on Scotland and Canada for its supply. As compared with to-day its consumption was small; in fact little beyond a narrow demand for use as a remedial agent, and was principally sold by druggists. In 1852 Mr. Ferdinand Schumacher came to this country richly endowed by nature, otherwise without capital. He is a remarkable man, and like all such, has many ways peculiar to himself, and which have been powerful forces to make him a giant amongst those who furnish food for the world. He studied the oat-meal situation, became convinced that domestic oats were suitable for the manufacture of oatmeal, and commenced its preparation in a small way in 1856, and thus became the "pioneer oatmeal manufacturer."

His first mill had a capacity of twenty barrels per day and was started in an old wooden building, formerly used as a woolen factory, and its product, under the name and trade mark, "German Mills American Oatmeal," or as it was better known, "Akron Oatmeal," soon enjoyed a well-earned reputation. Out of this small undertaking, uncertain as to its ultimate success, has grown what is to-day the largest and best oatmeal mill in the country, taxed to its utmost capacity to supply the demand.

The original "German Mill" was built in 1856. The "Empire Mill" followed in 1863. The "Cascade Mill" was purchased in 1868, supplied with new process machinery and rebuilt throughout in 1876. At this time a new iron over-shot water wheel, 35 feet in diameter, 10 feet face, having 96 buckets, was placed in the "Cascade" as motive power, and supposed to be ample. On Feb. 29, 1872, the old pioneer "German Mill" was destroyed by fire, and immediately replaced by the present German Mill "A," near the Akron depot. This was greatly enlarged in 1878, and in 1879 a grain elevator, with a capacity of 130,000 bushels, was erected between the "Empire" and the "German" mills.

In 1851 the power of the "Cascade Mill," being insufficient to supply the growing demand for flour, was augmented by a 175-horse power Putnam engine, and the mill was changed to a full roller process mill. As another enterprise, during the same summer, may be noted the erection of elevator "B," at Greentown, Ohio, fifteen miles from Akron, in the very center of one of the best wheat sections in this state or country. In 1883 the most extensive of all German Mills "B," was commenced, and completed in 1884. The "Empire Mill," "Elevator," German Mills "A" and "B" are run by steam. Their engines have a power respectively of 250, 50, 125 and 425 horse-power. The "Cascade" has a combined steam and water power of 350 horses. The combined capacity of all the mills is about 2,000 barrels per diem. The mill frontage, opposite the Union depot, is 484 feet. Mr. Schumacher is now engaged in building an extensive dry-house as a desirable addition to German Mills "B." Its object is increased quantity as well as improved quality of the celebrated "German Mills American Oatmeal."

A new venture is the establishment about to be completed, of the "Akron Starch Works,"

the product of which will be in market by Oct. 1, 1885. Its manufacture will be based upon a new and greatly improved process, which Mr. Schumacher claims will make it superior to any and all other starch in the market. It will consist of the choicest particles of the best selected Indian corn. An important factor in its manufacture will be private water works, supplied from a never-failing stream of pure cold water, from the "eternal rocks."

Besides being the first one to introduce oatmeal, Mr. Schumacher was the first one to use oatmeal cutting machines, secured to Ehrichsson by Re-issued Letters Patent, No. 7,542, dated Feb. 27, 1877. A recent decision by Judge Gresham, of the U. S. Circuit Court of Illinois, confirms his rights to the patent for cutting oatmeal by means of the following method, to wit: Introducing kernels lengthwise by a perforated plate or feeder to one or more knives or its equivalent, calculated to cut the grain crosswise.—*American Grocer.*

**YAEGER'S NEW MILL AT CARLINVILLE, ILL.**

The *Macoupin County Inquirer*, published at Carlville, Ill., gives the following particulars of Mr. H. C. Yaeger's enterprise at that place. It says:

"In March last, Mr. H. C. Yaeger bought the 'Weer Mills' in this city, and immediately employed the Todds & Stanley Mill Furnishing Co., of St. Louis, to improve and enlarge. Some thirty millwrights have since been employed in reconstructing the works from top to bottom. It is now finished and has been running daily since Aug. 5, turning out at the rate of 600 barrels of flour in 24 hours. A short description of this immense establishment will not be uninteresting to our readers.

"We have been informed by some of the millwrights, whose skill aided in the completion, that none of the far-famed mills of Minneapolis are so thoroughly equipped and modernized as this, and we not question the truth of the statement, for both inside and out the entire establishment is simply beautiful. The building is constructed of stone and brick in first-class style. On the first floor are three lines of Todds & Stanley's Rollers, while the second, third, fourth and fifth are filled with bolting chests, purifiers, etc. In fact, each floor is loaded with a network of conveyors and machinery sufficient to bewilder a novice and lead him to conclude he has entered into a labyrinth of mysteries. The dust from the wheat cleaners and purifiers is collected by the Prinz Patent Dust Collectors, hence the mill is as free from dust and is as clean and neat as a lady's kitchen.

"All this vast machinery is moved with apparent ease and the regularity of a clock, by a new Hamilton-Corliss Engine. A brick elevator building of 50,000 bushels capacity, also a storage warehouse for flour and offals, are on the premises, but entirely independent of the mill. The product from the mill is carried to the warehouse on a little two-foot gauge track, and the grain from the cars to the elevator is carried 325 feet by a Caldwell Conveyor. Every part of the machinery works smoothly and nicely, and the entire establishment has a business-like and symmetrical appearance. The entire building from cellar to attic, is lighted with incandescent lamps, 40 in number, which almost turn night into day, as far as light is concerned.

"While every department is constructed with a view to arriving at the best results, the convenience of patrons has not been overlooked. A building has been erected at the south-east corner of the main buildings especially for the accommodation of the retail trade, where all grades of flour and mill feed are on sale. Across the street and a short distance east of the mill, is the office, a large and commodious room, well lighted and ventilated, where the main business of the establishment is transacted. Here are the bookkeepers and correspondents, who are always busy answering telegraph messages, directing shipments, etc. A full line of samples of all goods manufactured are in this room, and large dealers in flour can inspect grades and make contracts.

"Every hour both day and night samples are taken from the mill to the business office and the quality of the product tested. If the flour is off grade, it is given its position and sold for what it is worth under a special brand. By this frequent and close inspection, there is scarcely a possibility of an inferior grade getting on the market as first grade, and thus make the product of the mills unreliable to patrons. Continually there is also a record kept of the offal and at every hour in the 24, and upon any grade of wheat, Mr. Yaeger not only knows the quality of flour produced, but the number of pounds per bushel, and consequently the net business of the mill. On this careful and systematic manner of doing business has much of the success of the milling under Mr. Yaeger's supervision depended.

"In addition to all these improvements, The managers of the C. & A. Road, with that spirit ever characteristic, and recognizing the importance of this immense milling enterprise has constructed a switch a quarter of a mile long, simply to accommodate this business. And there is no doubt that the liberality of this road will meet a fitting reward in increased business in the future. Upon this switch the cars are loaded with flour for all parts of the world, and the shipping in and out makes this the busy part of our city.

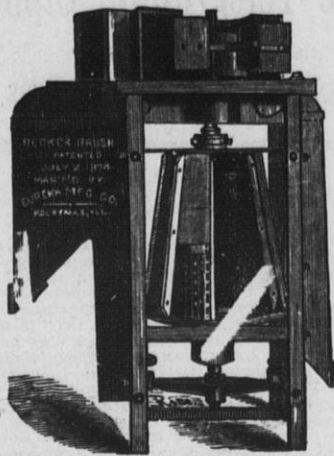
"Macoupin is the banner wheat county of the state. A good mill and good wheat must insure success to business, and men who invest so largely in a manufacturing enterprise of this kind deserve well of the community in which they make the plant. Mr. Samuel Cupples, of St. Louis, a gentleman well and favorably known in this country, from ocean to ocean, is associated with Mr. Yaeger in this business. One thousand lithographs of the mill have been ordered, which Mr. Yaeger expects to distribute to his patrons in this country and Europe.

"The favorite brands of the mill are White Silk and Royal Lily, and wherever known are deservedly popular. With the new and modern machinery, and the systematic method of manufacturing, these brands are kept up to the highest standard."

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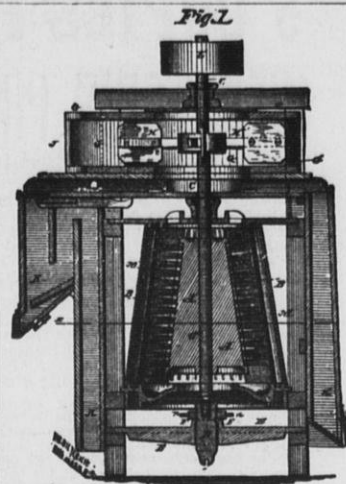
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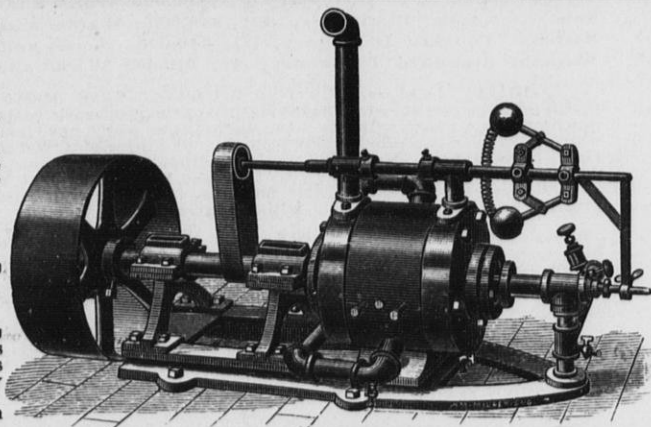
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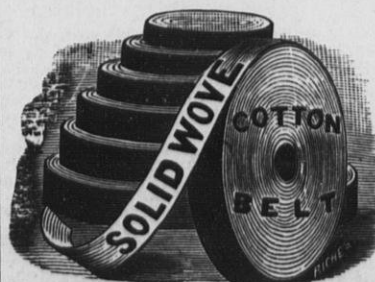
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## ITEMS OF INTEREST.

THE Ohio River at its head—the junction of the Allegheny and Monongahela—does not always have a depth of water sufficient for steam navigation. This has now been remedied by a dam built at Davis Island by the government, which makes Pittsburg the head of navigation the year round. The cost of the dam is \$900,000, and it has been seven years in the course of erection. It is an improvement of great advantage to Pittsburg and Western Pennsylvania, especially in the facilities afforded for getting out coal and other heavy articles that will not bear much handling.

A BRITISH member of parliament, figuring on the proportion of taxes paid by the English farming class, arrives at some startling results. He concludes that on an annual product of \$562,000,000, \$80,000,000 are paid in taxes; or, to put it another way, that every English bred bullock sold for \$150 has paid to national objects, of one sort and another, \$21.50, while every sheep sold for \$12.50 has paid nearly \$2 for the same purposes. He adds: "It amounts to a charge of nearly 15 per cent. on the results, and I venture to assert that no other manufacturing industry would have been patient under such conditions for so long a time."

ECONOMICAL USE OF COAL.—The steamer Burgos, built especially to carry cargoes cheaply at a low speed, recently left England for China with a cargo weighing 5,600,000 pounds. During the first part of the voyage, from Plymouth to Alexandria, the consumption of coal was 282,240 pounds, the distance being 3,380 miles; the consumption per mile was, therefore, only 83.5 pounds, and the consumption per ton of cargo per mile, .028 pound; in other words, half an ounce of coal propelled one ton of cargo a mile. It is further stated that the best locomotive performance in this country shows a consumption of about two ounces of coal per ton of freight hauled one mile, at the rate of 13 miles an hour, including stoppages; on lines having grades of from 53 to 70 feet per mile, the consumption often rises to five or more ounces.

BENEFIT OF MACHINERY.—The days of machinery, remarks a contemporary, have been for the poor man days of home-making and home-making comforts, as no other days ever were. If machinery has given the rich man luxuries, it has given the poor man the necessities and comforts of habitation, and clothing, and travel, such as he never had before. The printing press, especially, is the man's servant and benefactor, scattering abroad our intellectual wealth, raising all to an intellectual level and binding all into one whole.

NEW USES FOR STEEL.—Eight thousand tons of steel castings are used in the construction of an immense block of bonding warehouses in London. Soft Bessemer steel is now largely used in boiler making, and in a thousand other new directions steel is finding new uses. The iron age is rapidly passing away, and the age of steel has taken its place.

CEMENT FOR RESISTING STEAM.—A cement for resisting water at steam heat may be made by mixing common commercial glycerine with dry litharage into a tough dough, and applying the same to the parts to

be covered. This composition is said to answer very satisfactorily for uniting the joints of steam pipes.

GANZ & Co., of Pesth, Austria, are well known as one of the earliest makers of roller mills, and the total number of roller mills sold by them up to the 30th of June, 1885, is astounding, viz., 12,309 machines. It is instructing to note the countries whither these machines have been sent: Austria comes first with 2704 machines; then Hungary with 2172; then Russia, 2092; and Germany with 2026. Then come in order France, 664; Italy 558; England, 420; Belgium, 380; America, 253; Switzerland, 237; Danubian Principalities, 229; Spain, 199; Holland, 102; Australia, 100; Sweden and Norway, 76; Denmark, 59; East Indies, 30; Egypt, 8.—*Millers' Gazette.*

## NEWS.

A new mill has been put up at Pushmataha, Alabama.

Frank Reast will establish a grist mill in Denison, Texas.

D. Johnston, grist mill owner at Fort Qu'Appelle, is about to sell out.

The Owen Sound and Northwest Milling Co. have sold their flour mill at Fort Qu'Appelle.

The Sumner Milling Co., Vincennes, Ind., has failed. Liabilities about \$60,000, assets \$35,000.

John Roberts, Orland, Ind., miller, has suspended. Real estate is valued at \$53,000, encumbered for \$30,000.

Manly & Richards, of Michigan Centre, Mich., and the Sparta Mills Co., Sparta, Mich., are reported to have failed.

Wm. Annesser will build a 125-barrell roller mill (Gray rolls) at Ft. Worth, Texas. Cost, \$30,000. It will contain 14 sets of rolls.

The Alliance Milling Co., Denton, Texas, reported as chartered last week, will build a flour mill with daily capacity of 100 barrels.

V. M. Ayres, miller at Arkansas City, is reported to have made an assignment, with liabilities of \$40,000 and assets about \$20,000.

The flour mill, previously reported as to be built at Sweetwater, Tenn., by the Sweetwater Mill Co., will cost, including warehouse, \$35,000.

Smith, Hippen & Co.'s elevator at Green Valley, Ill., burned Oct. 6, with contents, consisting of 30,000 bushels of wheat, rye and oats. Partially insured.

A most terrible accident occurred at Sage Brothers' large flouring mill at Elkhart, Ind., Oct. 13. Norman, a son of one of the proprietors, while doing some repairing around the machinery, was caught in a wheel and the lower portion of his body ground up. He expired within an hour. He was aged 23, and leaves a wife and child.

The Humboldt Mill, in Minneapolis, narrowly escaped destruction by fire Oct. 17. By the prompt and heroic action of three millers, Thos. Spellman, Mike Bowe and Wm. Porter, the fire was got under control and the mill saved. The loss, principally on account of water, is estimated to be about \$6000.

A shocking accident occurred in the Wisconsin Central flouring mill at Manitowoc, Wis., Oct. 13. The proprietor, Jacob Fliegler,

while bending down to examine some machinery in motion, had his right arm caught between two large cog-wheels, crushing the arm from the wrist to the elbow. It took fully twenty minutes before Mr. Fliegler could be released from his position, and during all this time he coolly gave directions as to the manner of running the wheels and extricating his mangled arm. As soon as liberated he was conveyed to his home in care of physicians. It is feared that the accident may result fatally.

The following are among the many orders received by The Case Manufacturing Co., Columbus, Ohio, during the past month: from Wheelock Bros. & Davis, Kemseka, Dakota, for 6 pairs of rolls with patent automatic feed; from Morley & Nichols, Cherokee, Kansas, for a full outfit of breaks, rolls, purifiers, centrifugal reels, etc., for a complete roller mill on the Case system; from London, England, (per cablegram) for 3 Little Giant break machines, 2 pairs of rolls and 1 purifier; from Kent Yates Callahan, Wytheville, Va., for all the necessary rolls, purifiers, centrifugal reels, scalping chests etc., for a full roller mill on the Case system; from Dufur & Dufur, The Dalles, Oregon, for 14 pairs of rolls with patent automatic feed and a complete outfit of machinery and supplies for a first class roller mill; from Barnard & Leas Mfg. Co., Moline, Ills., for 1 No. 1 single purifier, for John S. Ewing, Colora, Md; from John Cornelson, Walton, Kansas, for 12 pairs of rolls with patent automatic feed, and a full outfit of breaks, purifiers, bolting, centrifugal and scalping reels and all necessary shafting, pulleys and gearing for a complete roller mill; from J. B. Miller & Co., Ashley, O., for 2 pairs of rolls with patent automatic feed; from Wm. Bradley, Centerville, Iowa, for 4 pairs of rolls with patent automatic feed; from A. L. Strong & Co., Omaha, Neb., for 15 pairs of rolls with patent automatic feed, 2 centrifugal reels, 2 scalping chests and 1 purifier; from J. H. Williamson, Yorktown, Ind., for 12 pairs of rolls with patent automatic feed, 2 bolting chests, and one 6 reel scalping chest; from O. M. Hill, Williams' Ranch, Tex., for one No. 1 single purifier; from Sampson Hoch, Dora, Ind., for all necessary machinery for a full roller mill on the Case system, using 12 pairs of rolls with patent automatic feed; from J. J. Hills & Co., Leaf River, Ill., for 12 pairs of rolls with patent automatic feed, and one 4-reel scalping chest; from A. H. Fairchild, Honeoye Falls, N. Y., for one No. 1 single purifier for Morey & Goho, Danville, N. Y.; from A. L. Strong & Co., Omaha, Neb., for one bolting chest for Blowers & Pheasant, Osceola, Neb.; from The Richmond City Mill Works, Richmond, Ind., for one Little Giant 1st break machine.

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I well remember my first axe and my early experience with it. It weighed 4½ pounds, being the heaviest one I could find at the time. I was fresh from school—fresh from a class in natural philosophy, one of my favorite studies. I knew all about *inertia*, and had learned something of the force of gravity and the laws of falling bodies; had rightly guessed that chopping wood might be hard work, and determined that my knowledge of physics should help me out. I would have a heavy axe, a long handle—would move slowly, and take strokes that would count when they fell. My axe handle was 34 inches in length, the longest one in the store. I had hired a tough little French Canadian, weighing about 120 pounds, to help me in this work. When he came he brought an axe—a mere toy I called it. I think it weighed 2½ pounds, with a handle only 26 inches long. I told him I had a fair-sized job for him, and thought it would pay him to buy a full-grown axe. He smiled and said he guessed his would do. I tried to explain to him the beauties of a heavy axe and the wonderful advantages of a long handle. But it was all in vain; I was only wasting time; he could not understand it.

"Poor fellow," I thought; "he knows nothing of the beautiful science of physics. It is too bad that he should thus waste his strength through ignorance, and be unwilling to listen to the voice of wisdom."

We went to the wood lot and began work. I had decided that we would work separately during the first day or two, in order that I might show him what I could do. As I began to swing my axe I felt proud of its ponderous blows that rang through the woods, and rather pitied the poor fellow who was drumming away with his little axe, taking about two blows to my one. Presently I had to stop to rest, and then again, and still again; but Joe, my man, kept pecking away quietly, steadily and easily. Every few minutes I would stop to take a breath, but Joe seemed perfectly able to do all necessary breathing without stopping his work for the purpose. When night came we piled up our wood and measured it. Joe's pile measured one and a half cords, mine only three-quarters of a cord.

During the early part of the day I had planned giving Joe another lesson in the evening, to see if I could not make him understand the elementary principles of wood-cutting and the philosophical requirements of an axe. But when night came I decided that perhaps it would be as well to let him go on in ignorance, and thereafter remain silent upon the subject. The next day I felt lame and stayed at home. Joe put in his cord and a half as usual. When I went to the woods again Joe and I worked together. Not many days passed before I found an excuse for buying a lighter axe and a shorter handle. And every axe and handle that I have bought since has been lighter and shorter than its predecessor. Whenever I use an axe now I select one very much like Joe's, both in weight and length of handle. I can use this without getting out of breath, and can hit twice in the same place. The re-

sult is that I can do more and better work and save a vast amount of strength. I write this as a word of caution to the inexperienced wood-chopper when about to purchase an axe.

## DAMPING INDIAN WHEAT.

The writer in the *Millers' Gazette* says, referring to the position we have taken against damping wheat to add to its weight:—"There has also lately been considerable objection evinced by writers in the bakers' journals against the practice of damping this wheat (Indian), an unworthy accusation being made against the millers of using water to increase its weight." Mr. George Miller also asserts that "no miller who knows his business would ever add water to such an extent as to permeate his flour." To which we reply that we have before us now a letter from a miller of as high standing as Mr. George Miller in the business in which the writer says:—"You are quite right in your statements in reference to the use of water. It has been extensively used by intelligent millers in the past, ostensibly for the purpose of improving the flour, but in reality with a view to pecuniary gain. Nothing less than five per cent. of added water will satisfy some of our particularly scientific masters. In hundreds of instances 100 quarters has been booked against me for 95 because I would not put in the other five per cent. in water. These gentlemen did not know that it was easier for me to take an average yield out of 95 quarters dry wheat than it was out of 100 quarters wet." We were lately in and over a combined stone and roller mill where Indian wheat is used, and used damp. This wheat comes in sacks, and when delivered at the mill is thrown sack and all into a tank of water, and allowed to soak in water till the miller takes it out. It is then allowed to drain a little, hoisted to the loft containing the hoppers over the stones and emptied into them without any cleaning or separation of stones, mud, or foreign seeds!! We smiled derisively at the sight. The name and locality of this mill can be had on application. But passing the letter of the working miller, and the evidence of our own eyes in more mills than one, let us turn to the report of Messrs. McDougall Bros. on Indian wheat. These gentlemen published some explanatory "notes" on each sample of wheat milled by them, and on p. 25 of their report, referring to the average hard white Indian wheat, Lot 3, we find the following:—"It is also a profitable wheat for millers, owing to its requiring 8.4 per cent. water to render it sufficiently mellow for use." A "note" to average hard red Indian wheat, Lot 4, on same page, says: "A profitable wheat for millers, as it takes 7.6 per cent. water to render it sufficiently mellow for use." Referring to the yield of bread from these Lots 3 and 4, and which they describe as exceptionally large! (92 loaves 39 ounces; and 94 loaves 8 ounces) they say what is sufficiently obvious—"the yield \* \* \* \* would have been further increased had they not (the wheats) been previously mellowed with water." If we turn to India itself we find Lieutenant-Colonel Laughton, Assistant Commissary General, who visited England last year to find out the latest improvements in milling and baking, in his book published since his return saying, "In India it is impossible to grind (with

stones) the hard, flinty wheats without previous damping. \* \* \* \* The damping should not be carried further than *just to penetrate the bran*. The best method is as follows: Place the wheat in a sieve, and thoroughly wash the wheat for *one minute*, rubbing it between the hands. Drain and spread out to dry for an hour only or thereabouts." Where damping is not carried further than described by Colonel Laughton no objection can reasonably be taken, when stones are used in reducing the wheat, and we have only quoted the above to show how unnecessary is the 7.6 to 8.4 per cent. water advised by Messrs. McDougall Brothers, even when reducing the wheat by rollers. We do not believe the hardest Indian wheat when it reaches our millers is any harder than the wheat used by Hungarian millers, and they use no water. They give eight or more reductions in reducing wheat to middlings, each reduction slightly closer than the last, and in reducing middlings to flour another eight or more reductions. Our millers allow only about three or four reductions for middlings, and two or three to convert middlings into flour. They can only do this by excessive pressure of the rolls on the material, which pulverizes the brittle bran of the hard wheats. To avoid this some of them would have us believe is their sole reason for using water to toughen the bran. We say, no water, and more and tenderer reductions on wheat and middlings. Should bran toughening still be necessary, we would suggest cool damp steam. But we are asked to believe that Indian wheat is so coated with mud as to render washing necessary. No doubt Indian wheat in that condition can be had, and had very cheap, but we deny that that is the usual condition of this wheat. We say so from samples before us from all over the Kingdom, Ireland, and India, and find nothing that a scouring or brush machine cannot remove. Wheat is not so scarce or dear that filthy Indian rejections are necessary to avoid famine or famine prices. It is easy to see why millers should think otherwise, but we fail to see why bakers should.—*The British and Foreign Baker and Confectioner, (London).*

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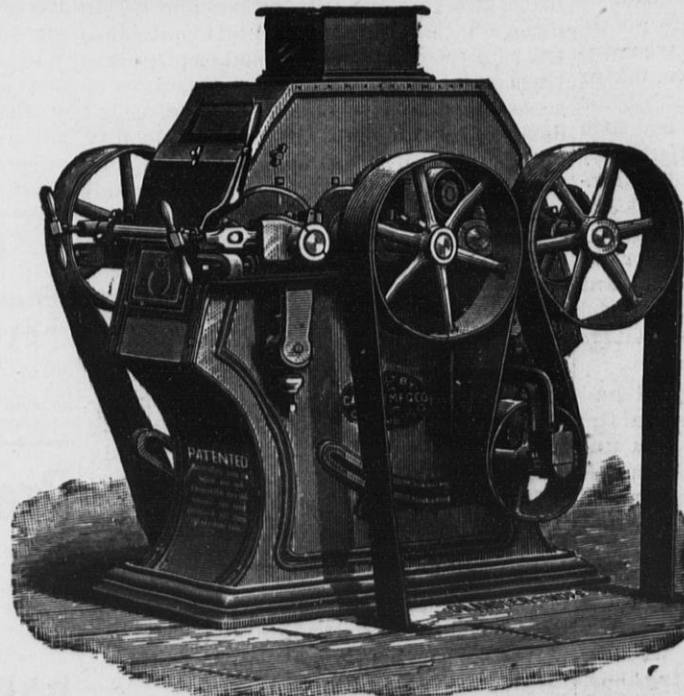
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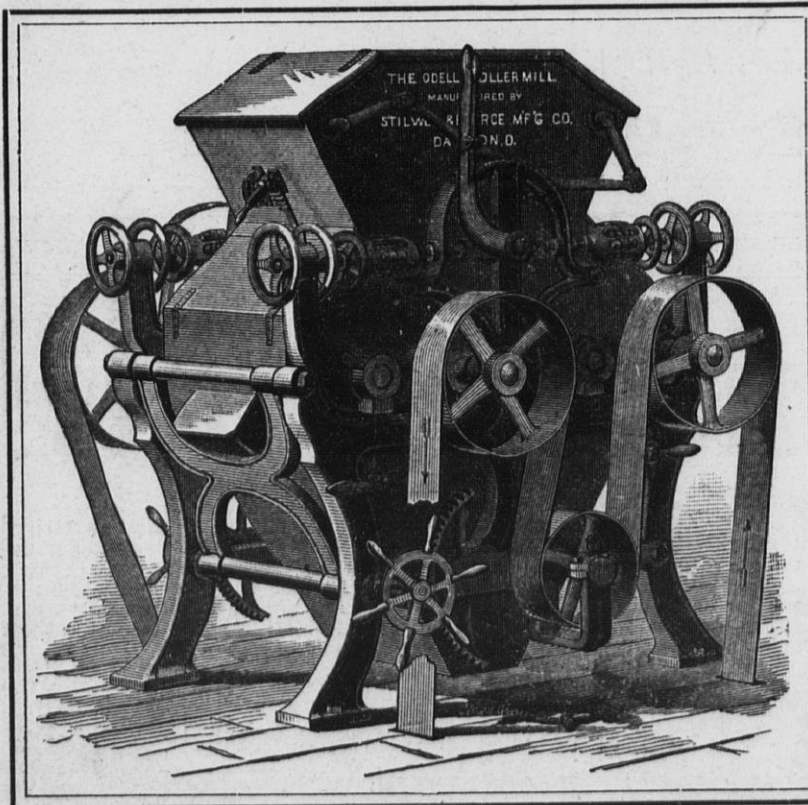
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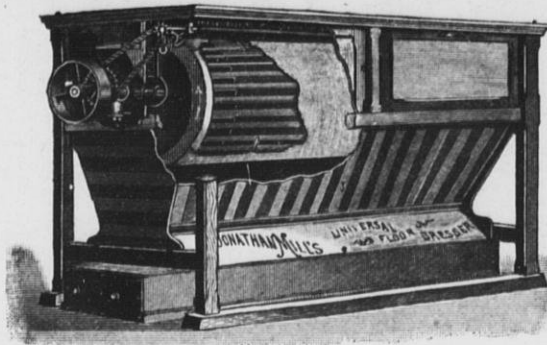
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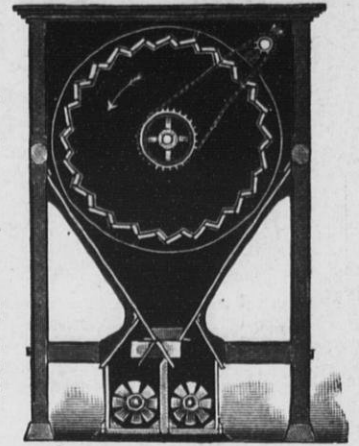
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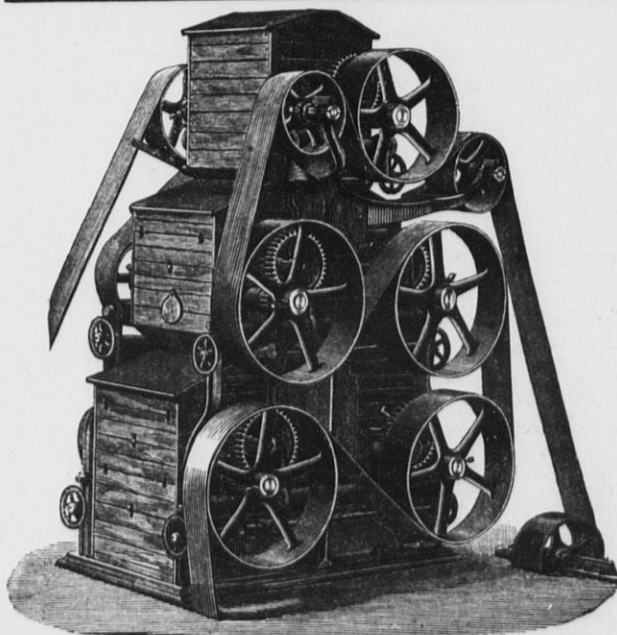
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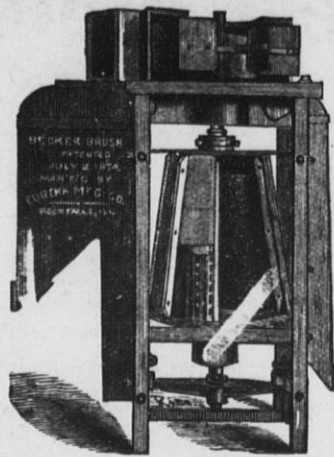
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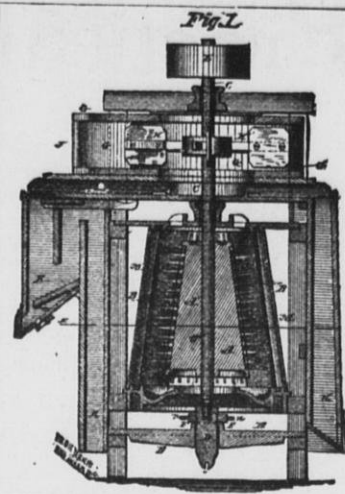
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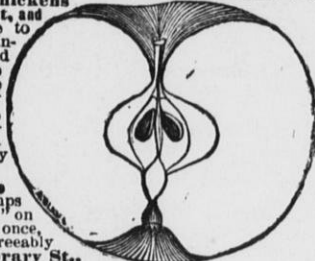
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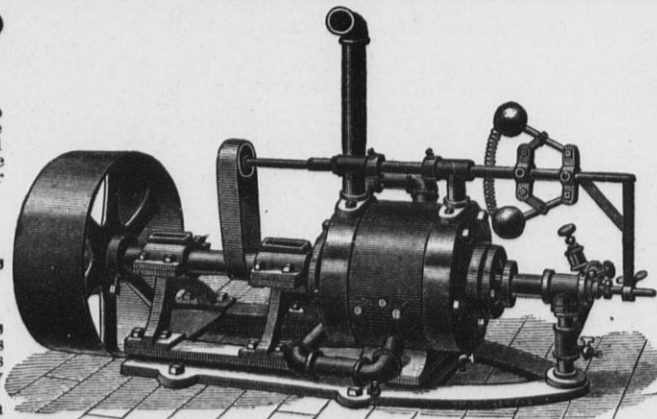
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**THE ENGINEER.**

How greatly an engineer resembles his trade!  
 Both being so "fearfully and wonderfully made,"  
 Brave, frank, open-hearted and manly; no fear—  
 Be he "high" or "low pressure" of a good engineer.  
 Like their "engines," 'tis likely they all have their  
 faults;  
 But what "class" are "perfect" 'neath heaven's  
 blue vaults?  
 Some work "non-condensing," while others "con-  
 dense";  
 Some work by "expansion"; all use common sense.  
 Some "carry high pressure" and, as "boilers" oft do,  
 "Give way" to that "pressure," "collapsing a flue."  
 No matter what "tests" or how heavy their "load,"  
 Be it said to their credit they seldom "explode,"  
 Though some (though all our fraternity don't)  
 Will "go on a bust" when their "boilers" just won't.  
 At abuse he'll "fire up" and "foam," "prime" and  
 "cough,"  
 Just speak to him rudely, you'll see him "blow off."  
 He is mostly "in line" and correctly "upright,"  
 Though "eccentric" full oft and a "crank" at first  
 sight,  
 His visage is truth's "indicator," a "gauge"  
 Of the "clean" even "fires" in his furnace that rage;  
 Energetic and pushing, symmetric in "beam,"  
 He, like a good "valve," "works" a "full head" of  
 steam.  
 On his "guides" he "works smooth, with no "knock-  
 ing around";  
 In good men and "engines" slight "friction," less  
 "sound."  
 Sometimes they've a "cross-head,"—"tee-head," if  
 you will;  
 But then they must have them "good work to fulfill."  
 When you meet this same "cross-head" look out for  
 "loud knocks,"  
 If he's "out of line" badly or has a "hot box,"  
 And, brothers, some of us are "rotary," you know,  
 Some "run at high speed," while the others "run  
 slow";  
 Still, we've a good "check valve," our conscience,  
 you see,—  
 Keep it well "lubricated," not "gummed up," but  
 "free."  
 Have never a "screw loose," nor charity lacking;  
 Keep clear of the "hump," save to use it as "pack-  
 ing."  
 Our "safety valve" let fidelity be,  
 With "area" large, on its "seat" "working free."  
 Your "boiler" keep "full," but don't get "full" your-  
 self,  
 For when one gets "full" he'll be "laid on the shelf."  
 Keep your life and your "boilers" of "mud" and  
 "scale" clean,  
 Shun "compounds," "corrosive," rum, whisky and  
 gin.  
 The "poker" to draw "fires," on this lay great stress,  
 Draw-poker, however's a "grate-bar" to success.  
 Be honor your "governor," not alone "automatic,"  
 Quite "sensitive" be it, not too aristocratic.  
 Practice "full economy," keep "everything bright";  
 Have a "man-head"; keep sober, but keep your  
 "keys" "tight."  
 In life's race "run forward," on each "lap" try to  
 "lead";  
 "Run steady," "exhausting" all means for "full  
 speed."

When your "license runs out," to your "doctor"  
 you flee,  
 And death's "point of cut-off" you plainly can see;  
 And done with life's "labor," absolved from all cares,  
 May our tombstones bear record, "laid up for re-  
 pairs."

HENRY J. PATE.

**THE BATES CHAMPION RAPID GRAIN  
 DRYER.**—That there is a good deal damp  
 corn and some damp wheat in the Northwest,  
 due largely to late rains and damp weather,  
 will, we think, be readily admitted. The  
 wheat is being got rid off by mixing with the  
 dry article and in that shape may keep in  
 fairly good condition until next spring, when  
 whoever holds it will be likely to hear from  
 it. But new corn everywhere is just about  
 as damp as it was six weeks ago and is alto-  
 gether too soft to grind, and as but little old  
 corn is available, it cannot, as in the case of  
 wheat, be mixed, even if it were practicable  
 to do so.

The fact is, new corn has got to have some-  
 thing done to it before it will be fit to use in  
 grinding, it being altogether too soft and  
 gummy now. It will have to be dried. The  
 question then comes as to the cheapest and  
 best method for drying it. Fortunately, just  
 at this juncture comes Mr. Bates with his  
 Champion Rapid Grain Dryer and says that  
 he can dry larger quantities and at less ex-  
 pense than any other man, and that, too,  
 without any parch, shrivel or other evidence  
 of artificial drying, or taking out any more  
 moisture than will enable the grain to grade  
 or be put in condition to keep; that he will  
 thus dry 1,000 bushels or more at a time, or  
 10,000 to 20,000 bushels per day, evenly and in a  
 perfectly natural way, and that, if so desired,  
 he can make new grain as dry as old, but  
 retaining all the bright qualities of new  
 grain. Further, that his dryer so reduces the  
 cost of drying, including shrinkage, that it is  
 much cheaper for owners to dry their grain  
 than to risk its getting out of condition in  
 storage elevators, as no such shrinkage of  
 weight can possibly occur in any kind of ar-  
 tificial drying as happens when grain on  
 storage gets out of condition. That shrink-  
 age, by the way, added to shrinkage in value,  
 is a fearful item for the unfortunate owner.

The time is coming, he believes, when pro-  
 prietors of storage elevators, with the aid of  
 his rapid process, will be able to guarantee  
 the condition of grain stored in their eleva-  
 tors, the cost of drying being scarcely more  
 than it now costs them to keep turning the  
 grain over, as most of them do, during the  
 germinating period and heated spells, to keep  
 it in condition.

He also claims that the construction of his  
 apparatus is such, that by a very simple and  
 wholesome process he can rid grain of weevil.  
 The attention of persons interested is di-  
 rected to his advertisement elsewhere.

**WHAT THE BURMESE WAR MEANS.**

*The N. Y. Herald* says: It is reported by  
 cable that King Thebaw has become thorough-  
 ly frightened at the rapid advance of the  
 British forces and is hastily packing up his  
 household goods for flight to China.

We have been asked to explain what this  
 Burmese trouble means, how it originated  
 and in what it is likely to end. The story  
 is a simple one and also a short one. The  
 Bombay Burmah Corporation leased large  
 tracts of land from the Burmese government  
 and began to cut timber for exportation.  
 The business became very extended under  
 English enterprise, and very profitable.

King Thebaw, who also has an eye to the  
 main chance, came to the conclusion that  
 the royal income from these leased lands  
 was inadequate. He consulted his avarice  
 only, and forgetful of the fact that Burmah  
 has already had two wars with the British  
 at great cost to herself of money and terri-  
 tory, and that another war would probably  
 have the same result, demanded an extra  
 twenty lacs of rupees, or about a million  
 dollars, adding a very ugly threat to have  
 the cash at once forthcoming. To pay this  
 large sum would seriously hamper, if not  
 entirely ruin, the corporation. The aghast  
 leaseholders reported to the Viceroy of In-  
 dia, who in turn consulted with the home  
 government, and in consequence a letter was  
 sent to King Thebaw asking three questions  
 and demanding an immediate answer:—  
 Whether he would suspend his decree until  
 the matter was amicably settled; whether he  
 would submit the matter to arbitration, and  
 whether he would abide by the arbitrator's  
 decision.

King Thebaw at once grew insolent and  
 England at once grew indignant. The gun-  
 boats on the Irrawaddy River headed for  
 Mandalay, the King's residence. On their way  
 they have shelled Minhla, and it is reported  
 that the town caught fire and was burned up.  
 On next Tuesday morning they will come to  
 anchor off Mandalay, but King Thebaw, who  
 is as cowardly as he is insolent, will not  
 probably be there to offer the hospitalities  
 of the occasion. A cruel wretch, he dares  
 not face fire. England may annex Burmah  
 or she may not. That will be decided by her  
 opinion of the value of the property. If it  
 will pay her to annex it, she will do so; if not,  
 then not.

## WATER POWER AT NIAGARA FALLS.

BY SAMUEL McELROY, C. E.

Under an act of April 30, 1883, of the New York Legislature, five commissioners were appointed to locate a public park at the village of Niagara Falls, which has been laid out to include the water front for about one mile above the falls, Prospect Park at the Falls, with Bath, Luna, Goat and other islands on the American side.

Under this act three commissioners were appointed by the Supreme Court to appraise the value of the lands and other property appropriated for this park, who commenced their sessions in February, 1884, and made a report Oct. 27, awarding an aggregate sum of \$1,443,439, provided for by a legislative act of April 30, 1885.

The hydraulic power has been utilized by the hydraulic canal, Witmer grist mill, the upper and lower races and the paper mill on Bath Island; below the falls by Witmer's grist mill at the Suspension Bridge.

The hydraulic canal, about 4000 feet long, runs from Port Day, a point just above the rapids, to a basin near the ledge on the American side, about half a mile below the falls. It varies in width from 36 to 74 feet, minimum depth about 7½ feet, and supplies ten mills, using about 3100 horsepower; a new flour mill is being built, to use 1000 horse power additional. Advantage is taken of the ledge height by tunnels to obtain wheel heads of 50 to 90 feet, turbines being used. This is not included in the park.

The Witmer mill, on the river rapids, was built in 1800. It has four runs of stone, driven by three "Eagle" turbines, and one "tub" wheel, under a head of about six feet.

Two mill races were laid out near the falls, the "upper" and "lower," parallel with each other, fed by the rapids. The former is used for light hotel power, the other has been long in use. Its original wing-wall was extended into the rapids in 1820-21. It furnishes power for two pumps, two carpenter-shops, one cabinet and one machine-shop, a large pulp mill and the dynamo engine and water wheel of Prospect Park and its ferry railway.

On Bath Island, power is used from the rapids for a large paper mill, with two 54 and one 66 inch "American" turbines; head, 12 to 13 feet; about 400 horse power used. These powers were appropriated.

*Lower Race Power.*—In 1882 an action was commenced by an owner of the lower race, Mrs. Townsend, to obtain a decree fixing the relative supply of water to the several lots, twelve in all, on the race, and Prospect Park, claiming one lot, and a decree was rendered Sept. 25, 1884, by Judge M. H. Peck, referee.

This case became an elaborate investigation of the condition and value of water supply and power here and furnished an important basis for the State case testimony, but the decree was not published when the appraisers concluded their awards, and is now the subject of an appeal to the Court of Appeals. Practically, the suit was an attempt to restrict the supply of the pulp mill, which was the first to properly develop this race, the defendants being Messrs. Hill & Murray, its owners.

For the plaintiff Messrs. C. H. Rhodes and C. H. Pifer were counsel; Messrs. C. S. Olmsted, L. E. Nichols, Benj. Rhodes, civil engineers; Prof. I. F. Quimby, A. P. Burdick

and J. Phillips, machinists, as experts. For defendants, G. J. Sicard, Esq., counsel: W. F. Noyes, M. S. Otis, W. A. Philpot, millwrights and machinists, as experts. In the State case, where value of power became prominent, the witnesses for Hill & Murray were Clemens Herschel, C. E.; R. Rossiter, Supt. Paterson, power; W. A. Nixon, paper manufacturer; D. T. Mills, turbine builder; Messrs. Noye and Otis, several machinists, and Samuel McElroy, C. E., consulting expert, in both cases.

The several points presented may be thus stated:

Relative value of water power depends on the quantity, head and regularity of supply, and its purity; on facilities for receipt and delivery of supplies and productions, and for labor and repairs; on the perfection of mill and machinery, and operation; quantity legally controlled; local conditions, and standards of similar power.

Quantity of supply: Source, Lake Erie; distance by river, 22 miles; time of river flow, 6 hours; flow of river, about 18,000,000 cubic feet per minute; power of whole falls, at 150 feet, 3,600,000 horse power on shaft; area of lake, 9,600 square miles; fluctuating range, about 1.8 feet; prevalent winds, W. and S. W., tending to keep up levels for about 70 per cent. of annual gales; flow uniform, day and night.

Race obstruction by sludge ice, not to exceed a week in winter; cost to clear, about \$350; winds produce occasional changes up to 1.5 feet; tail races rise and fall with inlet; virtual fall not impaired.

As compared with other powers, the Merrimack at Lawrence, draining 4,453 square miles, fluctuates from about 2,600 cubic feet per second in September to 18,000 in May; the general variation of head at Lowell is 5 feet on the upper fall of 32, and a reduction of 6 feet is sometimes caused by floods; the best head, where dams are used (from flood rise on the tail races), being in dry weather, if the supply does not fail. The Connecticut, at Holyoke, varies from 36,000 cubic feet to less than 2,500 per second; the Hoosatic, at Kent, from 887 cubic feet per second in May to 263 feet in August; the Mohawk, at Cohoes, draining 2,830 square miles, runs down to 980 cubic feet per second, mill supply, in the dry season; the Genesee falls are often dry at Rochester. Water wheels are subject to serious ice obstructions in winter, and few mills can be run, day and night continuously, summer and winter, as on this race.

Relative levels above mean ocean level: Lake Erie, 575\* feet; Gill Creek, mouth, 566; Port Day, 564; Upper Race Inlet, 560; Lower, 542; Top American Fall, 515; Bottom, 350; Lewiston, 248.5; Lake Ontario, 246.5. Rapids fall about 46 feet in three-quarters of a mile.

Purity of water supply may affect the durability of turbines by comparative wear, and does seriously affect the value of certain productions, like paper pulp. The race supply differs essentially from that of Bath Island in this respect, and the pulp commands a better market. The depurative effect of Lake Erie on mechanical and organic impurities is important.

\* A bench discrepancy at Albany, between the Coast Survey and United States engineers, leaves this level in doubt; other checks make it nearly as given.

Freight facilities: With seven trunk railways, West, South and East, and with river, canal and lake navigation, direct access is had to the best supplies of timber at the lowest cost, and sharp competition exists for receipt and delivery of mill supplies and productions. Railway rates for pulp per 100 pounds to New York, 13 cents; Boston, 18 cents, St. Louis, 15 cents; Chicago, 13 cents; Wilmington, 15 cents; pulp from Paterson to New York, 17 miles, 9 cents; paper, Philadelphia to New York, 90 miles, 17 cents; rates from Holyoke much higher than Niagara. Labor and repairs, for the same reason, can be promptly and cheaply had.

Mill and machinery are of the best type. Mill of stone work on rock foundations; steel shafting; one 13, one 54, one 66 inch "American" center-bent wheels of the best pattern; Otis patent pulp grinders of high efficiency; electric lights; machines of the best pattern, operated day and night, except Sundays.

Inlet, formed by a wing wall built into the rapids, which fall 18.44 feet in 0.224 mile, above it, and enter them with chutes of 17 to 20 feet per second velocity; length about 360 feet, width about 50, ordinary flow about 72,000 cubic feet per minute; waste, 30,000 to 37,200 cubic feet; capacity easily increased by deepening the entrance.

Race: Supplied from inlet by 9 gates, 6 of 4 feet by 4½, 3 of 4 feet by 5, seldom fully open; length, about 645 feet; width, 30 to 35 feet; depth, about 7½ feet; usual current, 1½ feet per second; ordinary use for power, 31,000 to 41,000 cubic feet per minute; waste, 3,800 cubic feet; capacity easily increased. Use of power: Lot 2, 5½ feet head, 5½ horse power; No. 4, 8 feet, 12 horse power; No. 6, 17½ feet, 18 horse power; No. 8, 12 feet, 12 horse power; No. 10, 9 feet, 30 horse power; No. 12, 9 feet, 10 horse power; No. 16, 17½ feet, 425 horse power; Prospect Park, 12 feet, 25 horse power; wheels, except on No. 16, of low duty, of "Tub," "Flutter," "Smith" and other patterns, from 20 to 30 per cent. duty. Loss of head, inlet to pulp mill forebay, inlet, 0.20 foot; gates, 0.25 foot; arches and race, 0.55 foot; total 1 foot.

Quantity controlled: Under the grant of Jan. 30, 1840, each lot on this race was entitled to "so much water as will be sufficient, by a prudent use thereof, to drive two runs or pairs of millstones, upon such water-saving principles as are usually adopted by skillful engineers and builders."

The proper interpretation of this grant was the key to the contest before the Referee, and on the supply and power required for a "run of stone" in 1840 the following testimony was presented:

Run of stone: The "shaft" power required for grinding depends on careful adaptation of their structure, forms, weight and bearings to the work; diameter, or rubbing surfaces; sharpness, or "dress"; coarseness or fineness of "set"; speed; weight, hard and tough or soft texture, moisture or dryness of grain, and fineness of flour produced. The power for mill machinery in elevating, separating, bolting, cleaning or regrinding the grain and its products is additional, and varies with relative perfection of design and workmanship, and amount of work required.

Similar pairs of buhr stones may differ at times 33 per cent. in duty (Emerson, Hyd., p. 297); former 5 and 6 foot diameters are reduced to 4½ or less, to reduce friction; neg-

ect of dress may reduce  $1\frac{1}{2}$  bushels per hour to  $5\frac{1}{2}$  (D'Aubuisson, Hyd., p. 450). One run in five or six is generally idle for dressing;  $16\frac{1}{2}$  to 20 per cent. more power required on runs at work; old speed of 90 to 100 revolutions, or high speed of 175, modified to 150, for 10 bushels per hour. Weight per bushel: Wheat 60 pounds, flour 40, corn 56 pounds, meal 55, rye 56 pounds, flour  $22\frac{1}{2}$ , oats 31 pounds, meal  $16\frac{1}{2}$ ; with corn as standard,  $4\frac{1}{2}$  per cent. more or 45.7 less weight in grain, and 61.54, or 40 in flour. Resistance of Dent corn or red wheat may be double that of softer grain, and thin shell, hard spring wheat or tough shell softer winter wheat, differ seriously. Moisture may add 22 per cent. resistance; grade of flour is also different. So, as to extremes, and not as to uniform conditions, D'Aubuisson (p. 449) concludes that "with the same fall, water and stone," or power, "the quantity ground may vary as three to one."

Since 1870, the purifying and regrinding machinery has been added, and better machinery has been made for the same work.

Usual work: Taking wheat flour as standard, the power per run depends on the quantity ground, for which a moderate standard, determined from a large number of mills, was taken at 10 bushels per hour.

The shaft power, deduced from a number of cases, for the best modern mills, for 10 bushels per hour, was taken as a minimum at 7.5 horse power for grinding, 4.5 mill machinery, wheel (75 per cent.) 4, or 16 "water" horse power in all.

Mill work of 1840: Except at a few centers, where active demand justified expensive wheels, pits and machinery, much less perfect wheels and machinery were used and greater power required.

The horse power standard of leading authorities in mill work of that day was above that of the present. Buchanan's Millwork, 1841, uses 44,000 foot pounds; Desagulier the same; Watt, in practice, also; Evans (Millwright's Guide, p. 117) quotes 41,555 foot pounds British test; D'Aubuisson takes 40,202.

About 1 horse power per bushel per hour, or 1.22 to 1.33 standard, has been generally assumed as the grinding work of a "run."

D'Aubuisson assumes, for wheat, 1.29 horse power (standard) for grinding alone; a British government experiment quoted is 1.29 (standard).

For "water" power, ten cases cited by him, including mill machinery, average 4.744 horse power per bushel for 33.8 per cent. average wheel duty, or 2.672 horse power at 60 per cent., or 26.72 for ten bushels per hour, this being the duty of the best Lowell wheels. Among these cases, Providence mills, 2.414 horse power per bushel; Bayard, Toulouse, 2.96 horse power (wheel, 43 per cent.), and a number of United States mills (from Evans) of 3.14 average, with 41 per cent. wheels.

Evans (p. 106), 5 foot "run," 97 revolutions, grinding only 2.56 horse power "water"; p. 111, 2.61 horse power; p. 174, overshot, 4.63 horse power per bushel "water," at 60 per cent. wheel 2.778 horse power "shaft."

In an Oswego case, an award gave with a Reynolds wheel (worth about 40 per cent. part gate, 50 per cent. whole gate), 38.59 horse power rate for 2,000 cubic feet on 10 foot fall.

This gives, for grinding, an increase, from 7.5 horse power "shaft" of best modern mills to 12.5 to 26, and for wheels, runs and machinery, an increase from 16 to 24, 25.6, 26.1, 29.6, 31.4 and 47.4 horse power, with wheels of varying duty and poorer machinery.

The deduction was 12 horse power wheel (60 per cent.), 13 grinding and 5 machinery, or 30 horse power in all, or 18 horse power "shaft"; ordinary wheels, not over half this duty.

Local conditions: In connection with this analysis it was shown that no local demand existed for any higher class of wheels and mills than those used for this or similar races, and any "skillful" engineer would adapt his structures to their uses at the time and place. With one railroad, to Lockport only, a canal not enlarged until 1852, 1,277 population in 1840, and 1,468 in 1850, and a superabundance of water, expensive wheels and pits would have been out of place. Undershot, tub, scroll, and wheels of that class were generally in use, with 16 to 33 per cent. duty.

Power in use: A race measurement showed 10,350 cubic feet water per minute, used with 3 of 5 grinders, operating without the electric wheel on, for a virtual fall of  $16\frac{1}{2}$  feet or 320 horse power water, 240 "shaft"; full mill use would take about 400 horse power "shaft," plus 12.23 for light, the rated wheel power being 425.

Judge Peck's decree allots for the original head of  $8\frac{1}{2}$  feet on Hill & Murray (increased by them to  $17\frac{1}{2}$ ) 20 horse power "per run" for wheels of 30 per cent. duty, or 4.152 cubic feet per minute, or for 7 runs 29,064 cubic feet per minute. For wheels of 75 per cent. duty now in use, this, at  $16\frac{1}{2}$  feet head, equals about 679 horse power.

Value: In the testimony on this point it was claimed that, while water powers have no common "market value," in the sense of frequent advertisement of rates and transfers, and valuable powers were scarce, the actual value should be judged by the local conditions above named, and by the rates which have been paid at similar milling centers for similar power, as at Lowell, Cohoes, Holyoke, Paterson, Philadelphia, etc.

The old standard lease rate at Lowell, Lawrence, Cohoes and Holyoke is practically about \$20 per horse power "shaft" rent per year for mills running usually 10 to  $11\frac{1}{2}$  hours per day. At the "Belvidere," Lowell, from 1876, the time is limited to 10 hours; in these cases a low rate is asked to induce sales of land and population increase, the practical rent of Lowell being about \$36.50 per horse power at the mills. The Essex, Lawrence and other mills let rooms and power at \$75 per horse power, room additional; 8 cents per square foot sometimes.

Mill Power Standards.—Lowell: Right to draw during 15 hours in each day of 24, 25 cubic feet per second, at upper fall, when head and fall is 30 feet (low water 33 feet); 60.5 cubic feet on 13 feet middle fall (low water 14 feet); 45.5 cubic feet on 17 feet lower fall (low water 19 feet); "shaft" power taken at 60 horse power.

Wamesit dam, Concord River: 27 cubic feet per second on fall 21.89 to 24.97 feet; average,  $23\frac{1}{2}$  feet; time limit,  $11\frac{1}{2}$  hours. Rate, 27 horse power; price, \$2,750 rent.

Lawrence; 30 cubic feet per second, on 25 feet head and fall, limit 16 hours per day,

varying with actual fall, less 1 foot. Ordinary summer fall, 28 to 29 feet.

Cohoes: Orifice, 50 inches by 2 inches, under 3 feet head and 17 feet fall, 6 cubic feet per second; rent, \$200; about 120-750 Lowell power; 3 falls of 20 feet, virtual.

Manayunk, Pa.: 3 feet head and 18 feet fall. 24 hours, \$6 per square inch; \$56.25 per horse power "shaft."

Paterson: Orifice, 24 inches by 6 inches, 3 feet head and 19 feet fall,  $8\frac{1}{2}$  cubic feet per second, 21.19 horse power "water," 15.9 "shaft;" rent, \$750, 47.18 per horse power "shaft;" 3 falls of 22 feet, virtual.

Birmingham, Conn.: 1 square foot, 5 cubic feet per second, 12.5 horse power, 12 hours; rent, \$250, \$20 per horse power.

Dayton, O.: 15 inches head,  $233\frac{1}{2}$  cubic feet per minute, one run or power, 3 falls, 300 cubic feet per minute on 12 feet; 5.25 horse power "shaft;" rent, \$200, \$38 per horse power. On the "lower race," for an actual use of about 64 horse power, \$1,815 rents were paid, including structure; one tenant paid \$550, using 10 horse power about 10 hours. In our water supply appropriations for cities, our notes show over \$100 per horse power paid in various cases.

Rentals of steam power much exceed those of water; \$2 and \$3 per week are common rates; the Sears estate, Boston, gets \$175 per year; at Lowell the lowest price is \$100, and the Central Pacific mill, with 1,000 horse power, steam, prefers to pay \$60 per horse power annual rate for extra water, for "months together," to running its engines (Sudbury River case, p. 73). To substitute equal steam power, in another location, would cost \$21,250 annually to Hill and Murray, or \$425,000 capitalized at 5 per cent.

On the other hand, the proprietors of the Hydraulic Canal, having bought it for a small sum, to induce tenants, have made several very low leases; one has a sliding scale of \$4 per 600 to 1,000 horse power up to \$5.30 for 250 to 300; other leases are \$5 and \$10; but the supply is not fully maintained. A recent applicant has been charged \$25, without guarantee; and I am retained in a case where power for additional machinery provided has been refused.

Mr. Herschel's testimony shows: Holyoke, power delivered by day, 15,000 horse power, night 8,000; about 70 tenants; investment about \$3,000,000; population, 30,000; day and night price, \$40 per horse power. Hill & Murray power equal to 8 Holyoke mill powers, each of 60 horse power "shaft," worth \$30,000 each, or \$240,000.

My valuation was for a minimum of 320 horse power "shaft," at \$40, \$12,800 rent, or \$256,000 capital, at 5 per cent. Valuation of lands, \$26,000; mill, \$13,000; machinery, \$30,000.

The State award was \$81,690 for the entire claim, of which, it is said, the allowance for water power was based on 105 horse power at \$10. This is another illustration of a curious experience in public works, under which men of the highest character, individually, when acting jointly, sometimes seem to mutually disintegrate the plainest conclusions of duty to sufferers under the law of "eminent domain."

"Does your family play ball?" was asked of a little shaver. "Me and ma does," he replied; "I bawl and she makes the base hits."



## SONG OF THE MILL.

O listen to the water mill, through all the livelong day—  
 "Your salary will stop about the time you lose your pay;  
 The fellow at the ladder's top, to him all glory goes,  
 And the fellow at the bottom is the fellow no one knows.  
 No good are all the 'Had beens,' for in country and in town,  
 Nobody cares how high you've been, when once you have come down.  
 When once you have been President, and are President no more,  
 You may run a farm, or teach a school, or keep a country store,  
 No one will ask about you; you never will be missed  
 The mill will only grind for you while you supply the grist."

—Burdette, in *Hawkeye*.

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## TOPEKA, KS., FLOURING MILLS.

Probably the most important commercial industry in the city is that of milling, which has increased in extent and improved in the quality of the product very materially within the past two or three years. Topeka now has five mills, viz: The Shawnee Mills, Topeka Mill and Elevator Company, Inter-Ocean Mills, Crosby Mills and the Central Mills, all of which sell the most of their output in other markets.

The Shawnee Mills, owned by Shellabarger & Griswold, has a capacity of 300 barrels of flour per day, manufactured by the roller process, for which new machinery has recently been introduced. Their sales extend all over the country, being largely in Iowa, Nebraska, Missouri, Texas and Illinois. Their principal brands are "Shawnee Fancy" and "Topeka Patent."

The Topeka Mill and Elevator Company was organized about three years ago, and a large modern mill was erected in an advantageous location, by the track of the Atchison, Topeka & Santa Fe railroad. Mr. Noel, the superintendent of the mill, visited the great mills of the country, and learned all that he could concerning means and methods of manufacturing the best flour. He then bought a first class mill of the roller process, and commenced at once the manufacture of 300 barrels of flour per day, and also the manufacture of pure linseed oil. In order to obtain flaxseed the company encouraged the growth of it by furnishing seed to the farmers, who are now reaping a large reward from the culture of the product. The company uses up 60,000 bushels of seed per year, making twelve barrels of oil per day. They find a ready market and a steady demand for all the oil that they can make. The success of their venture from the start, induced the company to strive to attain still nearer to perfection, and new machinery has been introduced and added, until the system has been practically changed throughout and the Topeka Mill and Elevator company now has the most complete mill of its size in the country. Its principal brands are "Leiter patent," "Hackney patent," "Noel patent," and "Noel No. 1." The product is in demand everywhere and the entire output of the mill is sold readily. The present capacity of the mill is between 400 and 500 barrels per day.

The Inter-Ocean Mills were originally provided with burrs, when it was started in 1879, and had a capacity of 100 barrels per

day. The burrs were rejected some years ago and gave place to the complete roller system, the capacity being then increased to 300 barrels per day. Last summer this was doubled, so that they have now a capacity of 600 barrels per day. They find a ready market for their product in Kansas, Iowa, Missouri and Nebraska. Their principal brands are "White Loaf," "Buffalo," and "Reindeer." Their mill is complete in all respects and they report business very good.

The Crosby Roller Mills are the newest, having been erected about two years ago by the Crosbys, of Minneapolis and capitalists, of Topeka. They have a capacity of 300 barrels per day. When the mills were started, it was with the idea of exporting most of the product, and a heavy trade was worked up for that market. It was found, however, that the mills could spare some of the product for this country, and the efforts of the proprietors have recently been directed nearer home, with a gratifying result. Their principal brand is "Crosby's Best."

The Central Mills, of North Topeka are the oldest in the city, and are now operated by Mr. J. B. Billard. Their capacity is 50 barrels per day. Their product is extensively sold in Kansas, where they are always in competition with other dealers. Their capacity for meal, hominy and feed is greater than that for flour.

Messrs. Edson & Beck are proprietors of the Sixth Avenue Feed mills, and are properly classed with the millers, though they do not manufacture wheat flour. They make a fine article of rye flour, which is being sold all over Kansas. They also grind corn and buckwheat, and sell the entire product readily. They are large manufacturers of meal and Graham flour, which is in large demand all over Kansas.

The Downs mill and Elevator Company was formed for the manufacture and sale of meal and buckwheat flour, principally, and has achieved a very gratifying success. They are now exporting large quantities of meal to the South, and are highly elated with the cordial relations established with the southern merchants. They ship meal to the East, also, and dispose of their buckwheat flour in Kansas, largely. There is a heavy demand for it, and their sales are rapid.—*Topeka Commonwealth*.

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## THE OLD STONE MILL AT NEWPORT, R. I.

A Newport, R. I., correspondent of *The Boston Journal* says: Antiquarians and archaeologists of many a land have gazed upon Newport's mystery of mysteries and sighed for some revelation that would confirm them in this theory or in that as to its origin and the uses to which it was put. But they have sighed in vain, although they have not sighed alone, for during the last summer, particularly, many anxieties have been expressed and felt about the safety of the mysterious structure, to gaze upon and examine which men have come purposely from across distant seas. Not a few archaeologists have inspected it this summer, and many of these gave it as their opinion that, unless speedy measures were taken for a thorough overhauling, the

grand old structure would rapidly decay and ere long tumble into a heap of stones. Some years ago some English ivy was planted around the old stone mill, and with the rapid growth peculiar to its nature soon spread in every direction until nearly every inch of stone was covered up. About twenty-four years since attention was called to the fact that this ivy was rapidly working destruction to the mill, and thrusting out large quantities of mortar, which caused the stones (which many believe were handled by Norsemen, while others aver that the structure was the work of Druids) to be loosened, rendering the whole pile in a dangerous condition. The ivy was finally removed and the building resumed its original appearance. Of late years the building has been growing shaky, and finally, public attention was attracted to its condition in a very forcible way. The city authorities took hold of the matter after some delay, and it is satisfactory to learn from the committee's report that, although the work of preservation has been somewhat expensive, it is complete, and that the old mill is now in condition to withstand for many years the destructive forces of the elements. How bad a condition the curious structure was in, may be gathered from the fact that the architect's report states that the old mill was found to be in an unstable and dangerous condition. The upper walls were badly cracked and for about two feet down from the top the old mortar had almost entirely disappeared from between the stones. This portion of the wall has now been laid in Portland cement mortar, the stones being removed individually and replaced in their original position, and the joints have been raked out roughly, to preserve all the characteristics of rude rubble-work. When any new stones were required, they were taken from among the sea-worn ones on the beach, care being exercised to obtain the same class of slate and granite as was used by the original builders centuries ago. The top of the wall has been carefully cemented over in a slightly rounded form, to stop all future infiltration of storm water. Where the walls were cracked, bond-stones have been inserted across the seams, and all the work made secure. The arches, piers and upper walling have been examined, and all open joints filled in, the outer faces having been left rough and open. All the windows, mortices for beams, portholes, fireplace, etc., have been treated in the same way. All the old portholes and one window, which in course of time had been filled up with brick work, were opened and left as originally built. This brickwork was evidently the work of late occupants, fitting the old mill for their own uses, and not a portion of the ancient structure. The fact that the mysterious old structure has been placed in such thorough order will be most gratifying news to the *Journal* readers interested in archaeology, particularly as the mill is claimed to be the oldest structure in the United States, and now restored to its original appearance. The citizens are rejoicing over its complete restoration, for they regard the old stone mill as one of the things to be treasured more than fine gold or precious stones.

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**A** volume in which accounts are kept. — *v. t.*  
**BOOKEN (bookt), booking, v. t.** To enter, or register in a book. — **Book'lah, 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, l'rnd, 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, place 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 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.

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# UNITED STATES MILLER.

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MILWAUKEE, DECEMBER, 1885.

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ALL persons connected in any way with the milling industry will find it a blessing to have a copy 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 guaranty of a valuable paper.

AN era of speculation seems to have set in again, not only in New York, but throughout the country.

We will send the U. S. Miller and Northwestern Miller for one year for \$2.50.

MR. HOMER BALDWIN, the well-known miller of Youngstown, O., has been experimenting for a long time on a method for the purification of "straight" or "clear" flour, and has, it is claimed, successfully solved the problem. A method by which all impurities can be removed economically is greatly to be desired.

## MILLING IN BUDAPEST, AUSTRIA-HUNGARY.

The report recently made by the Budapest mills shows that there are eleven firms engaged in the milling business, employing a total of 363 run of stones, 840 roller mills and eight reduction machines of a different kind. The power is derived from 124 boilers and engines, yielding 10,340 horse power. Their total daily capacity aggregates 70,583 bushels (American measure), and the amount of grain ground in 1884 was 20,023,720 bushels, yielding probably four and a half million barrels. The mills employ six technical managers, thirteen commercial managers, sixteen head millers, fourteen engineers, and three hundred other skilled employes, 1,876 laborers, 243 assistants in the engine rooms, 492 men in the warehouses, 226 mechanics in the shops, six of the mills are lighted by electricity exclusively, one by gas and electricity in part and four by gas entirely. Nine of the mills are owned by incorporated companies and have yielded during the last few years an average of 13 per cent per annum upon the capital invested. The marked development of the Budapest milling interest dates from the year 1864, and their output for the last ten years has been three times as large as that of the previous decade.

MILL OWNERS should not fail to answer the 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.

We will send the Scientific American (weekly) and the U. S. Miller for one year for \$3.50.

## DECEMBER CROP REPORT OF THE OHIO BOARD OF AGRICULTURE.

The following are the final estimates given in the forth-coming December Crop Report, for the crops of 1885, together with the wheat, rye and barley sown this fall for the harvest of 1886. Bushels per acre and total bushels are in round numbers. Percentages are compared with five years average unless otherwise specified.

Wheat.—Bushels per acre, 8; per cent., 53; total bushels for Ohio, 214 millions; total bushels United States, 310 millions; sown for crop of '86 in Ohio, 2,676,000 acres, 101 per cent. of area of 1885; condition of same now, 97.

Corn, 1885; area, 108; yield per acre, 39 bushels; total, 112 million bushels, or 115 per cent. of five years average.

Rye, 1885; 396,000 bushels, or 87 per cent. Rye for 1886; area, 94; condition, 96.

Barley, 1885, 589,000 bushels, or 75 per cent. Barley for 1886; area, 92; condition 97.

Oats, total, 42 million bushels, or 200 per cent. of five years; average total: bushels per acre, 35; quality 93 per cent.

Potatoes—Bushels per acre, 85; per cent. 79 of full average crop; lost by rot, 7 per cent.

Clover-seed, 42 per cent. of average crop.

Tobacco, 100 ditto.

Sorghum, 98. Live stock; condition, 100.

Apples, 48 per cent. of full crop.

Grapes, 65 ditto.

The crop of oats is the largest on record, and the crop of corn the largest, probably, unless it be crop of 1878. Live stock, fall-sown grains and meadows and pastures "go into winter quarters" in excellent condition.

W. I. CHAMBERLAIN, Secretary.

Columbus, O., Nov. 25, 1885.

## A WORD ABOUT CIRCULARS.

A prominent miller was in our office a few days ago when our mail came in. While talking, we separated some half dozen circulars from the letters and placed them in a pile by themselves.

"What are you going to do with those circulars?" he asked.

"Read them or, at least, glance over them to see what they are about, and if of interest to us then read them," we replied.

"That is right," said he. "I have known many instances in which business men have missed obtaining information of great value to them, simply because they 'chucked' their circulars into a waste basket without examination. It is hardly supposable that anyone will go to the expense of printing and sending you a circular unless they think that it will interest you. Of course, they intend to make money out of it in some way, but may you not also make money out of it? It takes a few minutes' time, of course, but we believe business men will find in the long run that it will pay to read their circulars."

We believe the gentleman is correct in his views.

## BOOK NOTICES.

We have received from the American Iron and Steel Association, and in pamphlet form, the letter addressed by the Association in reply to a circular letter of Hon. Daniel Manning, Secretary of the Treasury. Like all of its publications, the reply is exhaustive in the information it imparts relative to the cost of manufacturing iron and steel, etc. It will well pay for a perusal by any one interested in the subject.

**ARE ALL HAND FIRE GRENADES HUMBUGS?**

Mr. P. G. Tower, B. S. of the Agricultural College at Lansing, Mich., has made some experiments regarding conditions of inflammability and efficacy of fire extinguishers, which are reported to an exchange by Prof. F. S. Kedzie as follows: A Harden hand grenade was opened, and the solution contained qualitatively analyzed. It consisted of common salt, sulphate of lime, and a small amount of acetate of soda. The principal ingredient was common salt. Upon trying a number of these grenades upon a bonfire, no effect was visible. Very fortunately at this time a general agent from the company was in the vicinity and consented to give an exhibition of the fire extinguishing qualities before the students of this institution. Being provided with a vertical platform of pine boards, six by eight feet in size, he poured kerosene on the wood, and then coated the surface with North Carolina pitch. Setting this on fire he allowed it to get well to burning, and then throwing in rapid succession six of the pint grenades, he succeeded in nearly extinguishing the fire. Taking this exhibition as a fair example of what the grenades could do in skilled hands, the effort was made to determine (1) whether the solution in the grenades had any more extinguishing power than water; (2) if the solution had extinguishing power greater than water, what was the essential ingredient in the solution.

The question that first arose regarding the composition of the grenades was: Did they contain carbon di-oxide gas, or any substance which would give up the gas by being heated? Opening the grenades under water and collecting the gas that escaped, it was found that the average amount of carbon di-oxide contained was about one cubic inch per grenade. Boiling the solution liberated a slight amount of gas in addition; but altogether the gas was not enough to be of any practical benefit in extinguishing the fire. It was then certain that the extinguishing power was in the solution itself. Replacing the solution in the grenade with pure water the extinguishing power, while greater than water thrown from a dish upon the flaming boards, was still much less than the power exerted by the solution.

By a careful series of trials we found that the essential ingredient is common salt. From a number of experiments it was found that when a grenade, or bottle containing a strong brine, was broken, in the midst of the burning kerosene, the flames were almost instantly extinguished. A vapor seemed to spread in all directions from where the salt solutions struck the board, extinguishing the flame as it went. Strong solutions were also made of sulphate of soda, hyposulphite of soda, borax (biboate of soda), and bicarbonate of soda, and tried as extinguishers. Some worked as well, but none any better than salt in extinguishing fire. The experiment was then tried of charging bottles with brine and generating carbon di-oxide by adding lime dust and sulphuric acid and corking tightly. No practical increase in extinguishing power from this addition was noticed. In most instances, the carbon di-oxide gas escaped from the bottle inside of four days, proving that it is impracticable to attempt to use glass vessels with corks as a means of storing CO<sub>2</sub>, under pressure for fire-extinguishing purposes.

The conclusion arrived at from these and many more experiments, was that the Harden

grenade solution possessed much greater extinguishing power than water alone, and that it owed this power to common salt held in solution. We then constructed some homemade grenades, using flat bottles, bound together side by side with wire. Using two bottles in this way insures their being broken on striking the burning body, which would not always occur when only one bottle was used. Bottles thus charged with brine and bound together were broken side by side with the Harden grenades and found to be equally valuable. It thus appears from the experiments that any person can construct as good and effective grenades as those offered on the market at \$7 and \$10 per dozen. Bottles filled with brine and placed around the premises, will afford considerable protection, especially when used on the flames when the fire just begins. Salt solutions have the further advantage of not being easily frozen, never enough to burst the containing bottle.

The Lewis hand fire extinguisher was next investigated. This instrument consists of a tin tube about two feet long, containing 34 fluid ounces of a solution consisting of a sulphate of soda in weak caustic ammonia. From the trials made we could not notice any appreciable superiority over the salt solution, as used in the Harden grenade. It has the disadvantage of not being made to break by being thrown, but must be opened by having a cork extracted from one end of a tin tube, requiring a smart jerk. The solution is then sprinkled on the fire by the operator. The principal value of this form of extinguisher must consist in the advice to the consumer printed upon the outside of the instrument, to "keep cool—not get excited," etc., which, seeing that he holds the tin case in his hand while distributing the contents on the flames, allows him to consult and follow this most excellent advice.

**A STRIKE IN ANCIENT DAYS.**

When strikes are so common in Europe and America, it will be interesting to consider how the ancient Egyptians managed such a crisis in the labor question. It was supposed that strikes were an original outcome to our modern civilization; but the deciphering of a papyrus in the museum of Turin shows how the old proverb that there is nothing new under the sun applies to strikes as well as to many other things. This papyrus which is a sort of journal or day-book of the superintendent of the Thebes necropolis, furnishes curious details of a workmen's riot or disturbance in Thebes, in the twenty-ninth year of a king Ramses, who is supposed to be Ramses III. The workman's quarter sent a deputation on the 28th of December to Hatnekin, the keeper of books, and to several priests of the necropolis. The speaker of the deputation spoke as follows:

"Behold, we are face to face with famine. We have neither nourishment, nor oil nor vestments. We have no fish, we have no vegetables. We have already sent a petition to our sovereign lord the Pharaoh, praying him to give us these things, and we now address the governor, in order that he may give us wherewithal to live."

These facts took place on the 27th of December (first day of the month Tybi): The general distribution of wheat was then evidently due to the workmen, but why it did not take place is not known. Perhaps the

individual who should have distributed the food was absent. Whatever was the cause of the delay, the need was urgent, and Hatnekin, with the priests present, either touched with compassion, or to prevent the affair from reaching the ears of the governor of the necropolis, accorded one day's rations. How the workmen lived in the days following is not recorded in the papyrus; but some weeks afterward they were in full revolt. Three times they forcibly emerged from their quarters notwithstanding the walls which surrounded them and the gates which closed them in. "We will not return," cried a kneftu to the police sent in pursuit of them. "Go tell your chief what we tell you; it is famine which speaks by our mouths." "To argue with them was useless. There was great agitation," wrote the superintendent in his day-book; "I gave them the strongest answer I could imagine, but their words were true and came from their hearts."

They were quieted by a distribution of half-rations, but ten days later they were up again.

Kohns, the leader of the band, pressed his companions to provide for themselves. "Let us fall," said he "upon the stores of provisions and let the governor's men go and tell him what we have done." This counsel was followed as soon as given. They entered forcibly into the inclosure, but not into the fortress where the provisions were kept. The keeper of the stores, Amen-Nextu, gave them something and contrived to induce them to return to their quarter.

Eleven days later the movement began again. The commander of Thebes, passing by, found the men seated on the ground behind the temple of Seti, at the northern end of the necropolis. Immediately they began to cry: "Famine! famine!" The commander then gave them an order for fifty measures of wheat in the name of Pharaoh, "who has sworn," said he, "an oath that you will have food again." Most likely Pharaoh never heard of the event and never received the petition addressed to him a couple of months previously.—*The Pilot*.

**GRAIN ASSOCIATIONS.**

Grain receivers find that they are compelled to take the grain associations into account more each year. These associations have been increasing with great rapidity, and already, as in Iowa, control the grain shipments of large areas. They regulate prices and determine the rate at which the grain is to be marketed. On the average the members of the association will receive more for their produce than the farmers and merchants who dispose of their stock independently. The objectionable feature of the grain association is that the directors must necessarily be speculators to a greater or less extent, and in determining the amount of grain to be held in reserve they really deal in futures as much as any of the operators on 'change. They sell for future delivery, and have the grain on hand with which to fill contracts. The consequences of a mistake in judgment would be very serious to the members of the association.—*St. Louis Republican*.

"How do you like apple-pie, Mr. Cross?" asked the landlady.

"Why, cut in large pieces and served with cheese," replied the level-headed boarder.

**THIS YEAR'S BARLEY CROP.**

In foreign barleys, the Saale growth this year is a good one, although not of extra fine quality. A fair trade is being done in Saale, and, under the circumstances, as prices have opened reasonably, it will doubtless continue. Hungarians, Moravians and Bohemians may be similarly reported on.

New Californian types show good berry and color, but are scarcely of so choice a character as usual, being coarser in skin, with almost entire absence of their characteristic bloom.

Smyrnas, Danubians and Algerians have been ruling very low, as grinding barleys are so cheap. They are all of a fair average quality, and should present prices be maintained, they will continue to command attention.

The encouraging prospects of a fine English harvest have been sadly marred by the continued wet weather, which has been so generally prevalent during the present month all over the British Islands; and in consequence we shall expect to find one-third to one-half of the English crop (according to district) more or less damaged.

The earlier districts are evidently the most favored, notably the southern, southwestern and southeastern counties; whilst the midland and eastern counties will have a more varied selection, and their quality will graduate from very fine to badly stained and much damaged samples; and in consequence maltsters and brewers will have to use considerable care in the selection of their requirements. We anticipate a wide range in prices, from very low quotations for damaged lots up to 42s. (and even higher) for perfect samples of English barley.

The Scotch and Irish reports vary somewhat, though we shall get size as usual from the former country and a larger export supply than last season from the latter (on account of increased acreage); we fear, however, that in the main the crop will be generally weathered in both countries.

The Danish barleys this season are of fairly fine quality and will command considerable attention if prices are moderate, but, in our opinion, they scarcely deserve the encomiums recently reported in a trade journal.

The French growth (especially the Sarthe and Sable districts) is a large one and has been secured in good condition. The usually favored Saumur department is this year below its customary excellence. Brittany and Normandy show a large proportion of unripe and rough samples. A lively demand already exists for the various French growths and considerable shipments of Sable and Sarthe barleys have already been made, and prices are gradually rising at the time of writing this.—*American Brewers' Gazette.*

**CROP REPORT FOR NOVEMBER.**

The U. S. Department of Agriculture furnishes the following report;

**CORN.**—The present crop of corn is the first that is a full average in rate of yield since that of 1880, which was the last in a series of six full crops, averaging 26 to 28 bushels per acre. During most of this period of large crops of maize, there were under-average crops in England and France, causing an unprecedented deficiency in wheat and meats. This shortage, with the abundance and cheap-

ness of grain and pork products in this country, caused an extraordinary exportation of food supplies, altogether abnormal in quantity, and not to be continued in the future. The under-medium yield of corn of the last four years has stiffened prices and reduced foreign shipments, while the increase in foreign production has made necessary a smaller demand upon our surplus.

The present crop, grown on an area between 73,000,000 and 74,000,000 acres, is the largest in absolute quantity, though not the largest in rate of yield, ever made in this country. The highest rate of yield is 30½ bushels, in Nebraska and Ohio.

**BUCKWHEAT.**—The buckwheat crop will be large, the average yield exceeding 14 bushels per acre, notwithstanding the fact that in a number of Western and Northwestern States this grain has suffered considerably from the August and September frosts. In a number of counties in Michigan, Wisconsin and Minnesota the injury is very serious, amounting in some cases to a practical destruction of the crop. Damage is also reported from several counties in Ohio and Indiana.

We will send the U. S. Miller and American Miller for one year for \$1.50.

**ABOUT THAT COMPROMISE.**

COLUMBUS, O., Nov. 20, 1885.

*Editor of the United States Miller, Milwaukee, Wis:*

**DEAR SIR.**—The suit which for several years has been pending between the Consolidated Middlings Purifier Company, of Jackson, Mich., and the Case Manufacturing Company, of Columbus, O., has been settled. It will be understood that the Consolidated Company and the G. T. Smith Purifier Company are separate and distinct organizations. The Smith Company derived their rights for the manufacture of their machine from a license under the Consolidated Company. This Consolidated Company is the owner of all of the patents on purifiers of any value, except those owned and controlled by the Case Manufacturing Company. This gave them a basis to enter suit against other parties building purifiers, from time to time, and might be continued on through the courts for a number of years or until the patents had entirely run out, thus keeping the parties sued under one constant and perpetual cloud.

The reasons which led the Case Manufacturing Company to make this settlement were purely of a business nature. We believe that our interests are advanced by this settlement, besides which our customers will be protected beyond any question of doubt.

The position now occupied by the Case Manufacturing Company and the Smith Company are the same, each being licensed under the Consolidated Company.

The fund which will be derived from this license will be used by the Consolidated Company to protect themselves and their licensees.

We were also influenced to a great degree in making this settlement, by the fact that we are, ourselves, the owners of a large number of valuable patents, and a number of which are infringed upon by our competitors, and we desired to relieve ourselves from this litigation that we might employ our retained

legal advisers in the vigorous prosecution of those who were appropriating our property.

Our automatic feed for rolls and purifiers is now being infringed upon and used *secretly* by a large number of mill builders of this country, and we shall immediately take action for the protection of our rights in this matter. We remain,

Very Truly Yours,

THE CASE MANUFACTURING CO.

By J. M. CASE, Vice-President.

We will send the U. S. Miller and The Milling Engineer for one year for \$2.00.

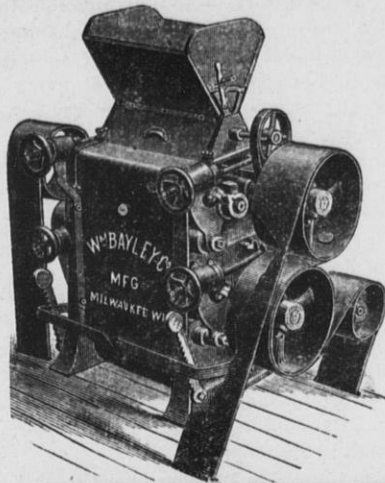
**A GREAT SEWER.**

There is building in Washington city a sewer which is larger, by 7 feet, than any other sewer in the world. In its smallest part it is larger than the largest of the sewers of Paris. For over 2,000 feet it is a circular sewer of 22 feet in diameter. There is connected with it a sewer of 5,000 feet, or nearly 1 mile in length, of 20 feet in diameter. A fully-equipped palace-car, locomotive and all, could be run through it without difficulty. This enormous sewer is intended to drain the immense water-shed north of the city. Besides that it will carry to the eastern branch of the Potomac all the contents of the smaller systems of sewers in the northern part of the city. It will take, probably, a year to complete the work. The Boundary street sewer, with its connecting systems, will cost when completed, over \$700,000. At present the excavation is made by machinery operated by steam-power, which lifts the dirt out and lands it on the completed part of the work by means of a system of cables. The same cables are also used in lowering the bricks and cement to the workmen.

**ASBESTOS FOR PISTON AND VALVE ROD PACKING.**—Asbestos is a substance which can readily be manufactured into ropes, etc., which cannot be changed except by a high degree of heat, and is not affected by acids or grease. These qualities, in addition to its cotton-like consistency, especially adapt it to the purpose of packing all kinds of rods and joints which are exposed to the action of steam of either a high or low temperature. As a piston or valve-rod packing, for high pressure there is nothing superior to it, if well managed. It is found on sale at most all places where engineers' supplies are kept, in the form of rope for piston and valve-rod packing, and in sheets for steam chest and pipe flange joints. When used for piston and valve-rod packing, it should be well lubricated with a compound composed of equal parts of plumbago and tallow, and when placed in the gland around the rod great care should be used that it is not screwed up too tightly. This packing, if the rod is lubricated every two or three days with the plumbago and tallow compound, will outlast any known substance for this purpose. To prepare asbestos for joints, cut to the required size, and then paint one side with red lead, and the other cover with plumbago, so that if it becomes necessary to separate the joint after being made, it can be done without injuring the packing. Steam chest joints which are so often separated for the purpose of valve inspection, when made of this material, and in this manner, will last for years without removal.

# WM. BAYLEY & CO.,

FOUNDRY, + ARCHITECTURAL + IRON + AND + WIRE + WORKS,  
Manufacturers of the Noiseless Belt-Drive



## Four-High Roller Mills

THESE Mills are especially adapted for Flour and Feed Mills BREWERIES AND DISTILLERIES. It grinds Rice, Malt, Corn and Rye, and does the work of a Burr Stone, with one-half the power grinding a corresponding amount. Grinds all kinds of wet and dry Grain; perfectly cool and flourless, and is the cheapest Four-Roll Mill in the market. We manufacture five sizes.

Send for Circulars and Price List to

## WM. BAYLEY & CO.,

81 to 87 Chicago St.,  
MILWAUKEE, WIS.

## SPECIAL BUSINESS NOTICES

### BOLTING CLOTH !

Don't order your Cloth until you have conferred with us; it will pay you both in point of quality and price. We are prepared with special facilities for this work. Write us before you order. Address, CASE MANUF'G CO. Office and Factory: Fifth St., North of Waughten, Columbus, Ohio.



## FLOUR MILLS FOR SALE.

Short advertisements will be inserted under this head for One Dollar each insertion.

A three-run four foot Stones, set Porcelain Rolls, Purifiers, &c. Good location Terms easy. For full particulars address Rondebush & Co., Chehalis, Lewis Co., Wash. Ter.

SAM. L. CLARK, Lockport, Ind., 3-run water power mill. Half interest for sale, also 42 acres land for sale or rent with it.

W. B. ALCOCK & SONS, Chanute, Kansas, 50-barrel combined roller and stone mill. Steam power.

LOWELL NATIONAL BANK, Lowell, Mich., 5-run water power mill. Good location. For sale cheap and on good terms.

JNO. J. QUIGLEY, Springville, N. Y., Steam flour and feed mill. Well established trade. A rare chance to make money. Address as above.

For Sale a good water power 100-barrel Mill, using combined stone and roller system, at Preston, Minn. Good reasons given for desiring to sell. A bargain for somebody. Address for further information, B. K., care of UNITED STATES MILLER, Milwaukee, Wis.

For Sale a good water power 100-barrel Mill, stone system, at Aumsville, Oreg. Address M. B. C., care of UNITED STATES MILLER.

For Sale a 50-barrel Roller Mill. Does both Exchange and Merchant work. Good shipping facilities either by railroad or Mississippi River. Both Spring and Winter Wheat. 95 acres of land finely located can be had with the mill. Address, J. C. SCHALLER, Brownsville, Minn.

WANTED—By a young man 21 years of age a situation in a 100 or 200 barrel Roller Mill where he could have the opportunity of learning the roller system. Is at present working in a 1500 barrel mill. Wages not so much of an object as a thorough learning of the business. Address "Milling", care of UNITED STATES MILLER, Milwaukee, Wis.

PARTNER WANTED in a 50-barrel steam power Roller Mill, all new and complete. My former mill was destroyed by fire and I had no insurance. I have succeeded in rebuilding a good mill, having a good custom trade. I want a partner who is a practical man with some capital to take an interest and help build up a first-class Merchant trade. Those desiring to investigate will please call or address without delay. W. H. LANE, Prop. Union Mills, Milton, Wis.

**OUR**  
BUCKETS  
ARE NOT  
COMMON CHEAP  
ONES  
BUT ARE  
FIRST CLASS  
ELEVATOR  
BUCKETS  
IN EVERY  
RESPECT

**SALEM**  
BUCKETS  
GENERAL AGTS. CHICAGO  
THORNBURGH & BLESSNER






W. J. CLARK & CO. SALEM, OHIO

THEY WERE  
AWARDED  
FIRST  
PREMIUM  
AT THE  
MILLERS'  
INTERNATIONAL  
EXHIBITION  
CINCINNATI, O  
1880.

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

## LAND & THOMPSON,

REAL ESTATE DEALERS AND

## GENERAL LAND AGENCY OFFICE,

109 Sycamore St., DALLAS, TEXAS,

Will attend to the Sale, Purchase, Exchange, and Lease of Lands; Locating of Lands; Paying of Taxes, and Protection of Lands; Redemption of Lands from Tax Sales; Inspection of Lands and Perfecting of Titles; Make Investments for Capitalists, and Make Loans on Lands, and all other matters in any way connected with the General Land Office Business, in a Prompt, Reliable and Satisfactory manner.

### Farm Lands, Stock Lands, MINERAL LANDS,

BUYING AND SELLING OF FARMS, RANCHES AND STOCK.

OVER ONE MILLION ACRES OF THE FINEST

Grazing and Farming Lands in Texas for Sale at low Rates to Actual Settlers.

Buy and Sell City Property; Rent and Collect Rents; place Fire Insurance; Pay Taxes and keep Up Improvements and Conduct a General Real Estate Business in all Branches. Being personally acquainted with the Prominent Land Operators and Real Estate Men of St. Louis, Chicago, Indianapolis, Cincinnati, Baltimore and other Principal Cities, and possessing all other necessary facilities, we are enabled to place Property entrusted to us with a rare Promptness and upon such Advantageous Terms as but few Land Agents can Duplicate.

**Our Terms are Liberal, as the New Era of Low Prices Demand they Should Be.**

Correspondence Solicited, and References furnished on Application.

## THE MILLER'S DAUGHTER.

Taking one day a quiet stroll  
Beside a millstream's rippling water,  
I met, upon a grassy knoll,  
The miller's rare and radiant daughter.

Her face was as the sunlight, fair,  
• When May's blue sky the landscape blesses,  
And her long waves of floating hair  
Fell gently down in silken tresses.

Sweet birds were singing in the trees,  
And flowers rose up in fine profusion—  
Upon the fields the toying breeze  
Brought happiness without confusion.

But Gertrude—'twas a pretty name—  
Blushed suddenly, and feigned retreating,  
When I inquired the way she came,  
And asked her pardon for our meeting.

One word of kindness led along  
To friendly utterance of another,  
And much discourse, coy ways, a song,  
And final reference to her mother!

How strangely sweet are winsome ways,  
And simple life; a sorry comer  
She thought me at the trysting place—  
A blot upon the sun and summer.

At length it turned far otherwise—  
We took long walks beside the water;  
And now I thank my lucky eyes  
That there I found the miller's daughter.

## NONSENSE.

KANSAS' GREAT TRADE IN FIRE EXTINGUISHERS.—I was in a little Kansas town selling some goods, and made a call at the "general store," the chief business place of the village. There were lots of countrymen coming and going there, and standing around and talking crops and horses and politics. I noticed that a good many of 'em bought these hand grenade fire extinguishers—some as many as half a dozen. That struck me as being a little curious, and so I inquired of the storekeeper.

"Oh, that's all right," he said; "they use 'em to put out prairie fires with."

That didn't satisfy me, and so I tackled a farmer on the sidewalk and asked him what he was going to do with the hand grenades.

"I am buying these to put in our school house," he said.

Thinks I, that's a little funny; and so I made inquiry of an old chap whom I had met on a former trip, and knew to be a deacon in the church, and a shining light in his community.

"Well," he says, in response to my inquiry, but a little confused like, "we thought it would be a good idea to have some in our meetin' house in case of fire."

Just then I stepped around to the back end of the store to see a new thrashing machine, and, would you believe it? there between two big cornercribs, was a countryman with one of those fire extinguishers up to his mouth and drinking out of it!

"Great heavens, man," I exclaimed, "that will kill you!"

"That's all right stranger," he replied, with garin, "you kin have yer little joke if you want to; but I 'spect you come out after a snifter. The Prohibitionists are right smart strict in this town, ye know. Try a little of the gin, eh?"—*Chicago Herald.*

"THE corn crop of the United States will be an immense one this year," remarked a grain broker to a customer this morning.

"Hominy bushels?" queried the customer.

"About one and a half billion."

"A-maize-ing."

"Yes, it will add to our property, greatly."  
"Undoubtedly; I can ce-real wealth in this crop."

Then the broker got tired, and his corn's talk ceased.—*Pittsburg Chronicle.*

A MILWAUKEE factory is constantly engaged in making axles for baby carriages. The average Milwaukeean can't keep house without one or two baby carriages.

"How does the new pastor impress you, Miss Spinster?"

"Law sakes, how did you know he impressed me at all? I didn't 'spose anybody saw us."

A DRUNKEN parishioner was admonished by his parson. "I can go into the village," concluded the latter, "and come home again without getting drunk."

"Ah! meenster, but I'm sae popular," was the apologetic reply.

A PHILANTHROPIC lady saw a couple of urchins pulling each other's hair, and separating the combatants, she proceeded to lecture them kindly on the evils of fighting. Both boys seemed truly penitent, and before leaving them the lady said: "You wouldn't pull Billy's hair now, would you, Johnny?"

"N-no mwm," faltered Johnny.

"And you won't pull Johnny's hair again, will you, Billy?"

"No, mam," replied Billy, "But I—I'll—"

"That's right, Billy. You would rather kiss him, wouldn't you?"

"No, sir; I wouldn't! I'd rather break his durn back."

WEAKNESSES OF GREAT MEN.—Alexander was too fond of strong drink.

Julius Cæsar was inordinately vain and fond of dress.

Demosthenes was always on the platform when everything was serene, and under it when there was danger.

Peter the Great was a glutton and a drunkard.

Napoleon was addicted to lying; so much so that the habit became notorious.

The Earl of Chatham always dressed and posed for effect.

Sheridan was never able to give up the bottle and the gaming table.

George Washington occasionally swore when he was very mad.

Gen. Santa Anna had a weakness for cock-fighting.

Disraeli started out a dandy and remained one to the last.

Alexander Dumas earned millions with his pen, but could not keep out of debt.

MR. FINN, a comic actor of Boston, in 1832, on the occasion of his benefit, said:

Like a grate full of coals I glow,

A great full house to see,

And if I am not grateful now,

A great fool I would be.

On another occasion he said:

If I were punished

For every pun I shed,

I would not have a puny shed

To cover my punnish head.

Moseby, who has been away from town for some time, returned the other day. Shortly afterward a friend met him and, noticing his seedy and low-spirited appearance, asked:

"Moseby, what's the matter, old fellow?"

"Ruined."

"What?"

"A financial wreck."

"How did it occur?"

"Well, you see, I had charge of a bridge not far from here. The owners of the bridge are very particular about receiving every cent that is due them, so they put in one of those registers. It is a sort of fool arrangement, sunk in the foot passageway of the bridge and makes a mark with a clicking punch every time anybody steps on it. Well, everything was all right until the other day. A big Newfoundland dog got on the blamed thing and began to scratch himself and, sir, before I noticed him he had charged me up with \$275. Yes, I am a ruined man."

TWO KICKERS.—Just my luck, he groaned as he came down stairs.

Lost anything?

Everything. I wanted Brown, on the third floor, to sign a note with me. When I got to the second landing, I met a dog coming down.

And you raised your hat?

Alas, no. I raised my foot.

And it was Brown's dog?

It was, and he was looking over the railing.

Why didn't you plead ignorance?

I did, and so did Brown. Hanged if he didn't kick me three times and then pretend to find out who I was. Under the circumstances I couldn't ask him to sign, you see.

The stingiest man on record is an Indian. He walked out to the cemetery and died to save funeral expenses.—*Kentucky State Journal.* Had he been a Kentuckian, he would have bought a horse on credit, sah, and went to his repose in b'gad style, sah.—*Hoosier Bangwahang.*

Mr. A.—"So I see, Jeanne, that Miss Blow is to be married. Nice little thing, too; used to be in love with me."

Mrs. A.—"Now, John, you know that isn't so."

Mr. A.—"Anyway, she bought one of my pictures."

Mrs. A.—"Then I give in. She must have been awfully in love with you."

She—Ephlum, what makes so many cattails grow in dis heah pon'?"

He—Well, I should say! Doan you know? Why, de grows up from kittens that people hez drowned in de pon', of course. Pea's like you wimmen folks doan know nuffin 'bout aglicultshah.

The man who mortgages his property, while the money lasts lives on the fat of the land, while the man who loans the cash has to be content with the lien.

A HOME-MADE TELEPHONE.—To make a serviceable telephone, from one farm-house to another, only requires enough wire and two cigar boxes. First select your boxes, and make a hole about half an inch in diameter in the center of the bottom of each, and then place one in each of the houses you wish to connect; then get five pounds of common iron stove-pipe wire, make a loop in one end and put it through the hole in your cigar box and fasten it with a nail; then draw it tight to the other box, supporting it when necessary with a stout cord. You can easily run your line into the house by boring a hole through the glass. Support your boxes with slats nailed across the window, and your telephone is complete. The writer has one that is two hundred yards long and cost 45 cents that will carry music when the organ is playing thirty feet away in another room.

**Milwaukee & Northern Railroad.**

THE OLD RELIABLE ROUTE.

17 Miles the Shortest Line

—TO—

**GREEN BAY,**

Fort Howard, Depere, Menasha,  
Neenah, and Appleton.  
Marinette, Wis., and Menominee, Mich.

—THE NEW ROUTE TO—

New London, Grand Rapids, and all points in  
CENTRAL AND NORTHERN WISCONSIN.

The new line to Menominee is now completed, and opens to the public the shortest and best route to all points on the Michigan Peninsula.

**CONNECTION.**

AT PLYMOUTH with the Sheboygan and Fond du Lac Division Chicago & North-Western R'y for Sheboygan and Fond du Lac.  
AT FOREST JUNCTION with Milwaukee, Lake Shore and Western Railway.  
AT GREEN BAY with Chicago & North Western and Green Bay, Winona & St. Paul Railroads, for all points North and West.

C. F. DUTTON, General Supt.



**WATER WHEELS AND MILLSTONES.**

Best and Cheapest in the world. Manufactured by A. A. DeLoach & Bro., Atlanta, Ga. Every farmer can now afford a Grist Mill. Sixty-four page Catalogue free.

S. S. STOUT.

H. G. UNDERWOOD.

**STOUT & UNDERWOOD,**

(Formerly Examiners U. S. Patent Office.)

SOLICITORS OF

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66 Wisconsin Street,

MILWAUKEE, WIS.

TELEPHONE No. 502.

Re-Ground and Re-Corrugated Rolls.

**ROBERT JAMISON,**

NEENAH, WISCONSIN.

**A. BLOEDEL,**

Manufacturing

**Jeweler & Diamond Setter,**

Dealer in

WATCHES, CLOCKS, JEWELRY,

Silver and Plated Ware.

Special Attention Given to Repairing.

No. 106 GRAND AVE.,

Cor. West Water St.,

MILWAUKEE, WIS.

**King of Turbines!**

NEEDS NO PENSTOCK  
AND SAVES ITS COST.

Now Naming Astonishing Low Prices!

HUNDREDS IN DAILY USE.

Don't fail to get our Handsome Wheel Book.  
SENT FREE.

**Craig Ridgway & Son,**

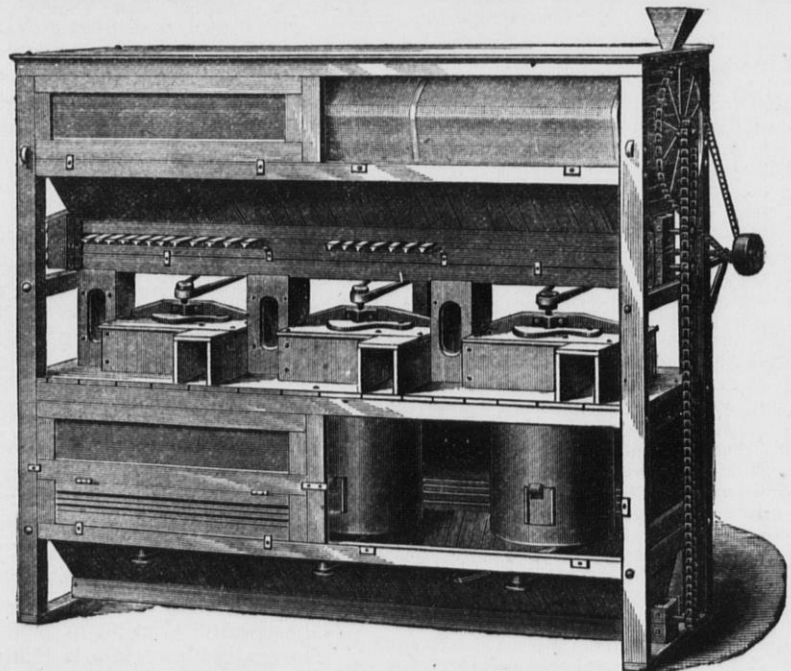
COATESVILLE, PA.

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



**The Wilcox Tailings Cleaner**

THIS IS A NEW MACHINE WHICH MILLERS  
MUST HAVE.



**Immense Reduction in Low Grade!**  
**Indispensable in any Mill!**

**TESTIMONIALS.**

*The Cockle Separator Mfg. Co., Milwaukee, Wis.*

GENTS: In regard to the Wilcox Tailings Cleaner that we are using on tailings, we take pleasure in acknowledging it as an improvement that millers must have, as the results are valuable upon several points. From its peculiar construction it adapts itself to handling tailings superior to anything we have ever seen. We hope it will have the success a good machine deserves.

Very truly yours,

A. W. CURTIS & CO., Proprietors.  
ED. PHILLIPS, Head Miller.

*The Cockle Separator Mfg. Co., Milwaukee, Wis.*

GENTS: I take pleasure in informing you that I have been running a Wilcox Tailings Cleaner for a few months, and find it truly to be the "Miller's Friend." It makes more perfect separations than any other machine in the market, and gets all the Middlings out of the Tailings, reducing low grade to about two per cent. If I could not get another machine like it I would not sell it for \$1,000.

Yours truly,

W. H. COWDEN.

Write for circulars and prices,

**COCKLE SEPARATOR MFG. CO., MILWAUKEE, WIS.**

Manufacturers of Kurth's Patent Improved Cockle Separator, Richardson's Dustless Oat Separator, Beardslee's Patent Grain Cleaner, and Wilcox's Tailings Cleaner.



# 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, DECEMBER, 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. 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., Dec. 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. 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, 1880, 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.

Sworn to and Subscribed before me at Milwaukee, Wis., this 25th day of November, A. D. 1885.

E. HARRISON CAWKER,  
Publisher.

G. McWHORTER,  
Justice of the Peace.

WE wish all our readers a MERRY CHRISTMAS and a HAPPY NEW YEAR.

It has been determined to slightly increase the charges for grain inspection in Chicago.

It is reported that Lord Provost Ure, of Glasgow, Scotland, will soon build another flouring mill, to have a capacity of 6,000 to 7,000 sacks of 280 lb. each per week.

We will send the U. S. Miller for one year and Ropp's Calculator for \$1.00.

W. F. GUNN and others have organized a company called The Roller Mill Furnishing Co., with office at 22 Boston Block, Minneapolis, Minn. Mr. Gunn is the general manager.

Dr. Cowan's "Science of a New Life" should be read by every man twenty-one years of age. It is a scientific work in plain language that anyone can understand. See descriptive advertisement on another page.

We tender our most sincere thanks to Messrs. Horace Davis & Co., of San Francisco, for the very complete report they have sent us of capacity, etc., of California flouring mills, for publication in Cawker's Flour Mill Directory for 1886.

MOST of the Minneapolis flouring mills have shut down, it is presumed, for the balance of the year, unless some especially favorable turn in the market gives them good reasons for starting up again. Large quantities of wheat are being shipped to Duluth and Chicago and consequently the wheat trade is demoralized.

OUR readers may look for some interesting developments in milling machinery by parties in Cleveland, O., before the new year is very old. A middlings purifier of novel construction is one of the machines to be placed on the market.

We will send the U. S. Miller for one year and Ogilvie's Handy Book for \$1.00.

THE *Millstone* appears to take great interest in the affairs of the Millers' National Association and has considerable to say about the officers holding over, instead of calling a convention and electing officers. The Millers' National Association is really a private affair and we do not know what business the *Millstone* or any other paper has to "stick its nose" into its affairs. If the members of the association do not protest against the action of the sub-executive committee—if, in short, they are perfectly satisfied (and they seem to be), we do not know of any good reason why any outsider should interfere. There is nothing of patriotism about the association—it is organized for business and, evidently, the officers have attended to that well.

Before subscribing for any paper read the U. S. Miller club list on another page.

A BILL was filed in the Chancery Court at Richmond, Va., by A. Y. Stokes and George Wallen, for themselves and other creditors

of the Gallego Mills Manufacturing Company, praying for the appointment of a receiver. The aggregate liabilities of the company are placed at \$676,400. Judge Hollanday appointed Thos. Polk, of the firm of Stokes & Co., receiver, to take charge of the property and operate the mills subject to the orders of the court. The Gallego mills are among the oldest in the country, the original plant being made nearly 100 years ago. The mills have been destroyed by fire several times, the last time being at the evacuation of Richmond. They soon rebuilt on a scale of greater magnitude than ever. The entire property probably is now worth over a million of dollars. The Gallego mills have a capacity of 1,000 barrels per day and have manufactured principally for Southern and West Indian trade.

Millers should make themselves "solid" with the milling papers by sending in their subscriptions now.

## MILWAUKEE NOTES.

JOHN B. CROMWELL, engineer of the Phoenix Mills, has gone to Mobile, Ala., with his family to spend the winter.

HERMAN NUNNEMACHER, Esq., has sold the "Star Flour Mills" to Messrs. A. Kraus & Co., of this city. The machinery will be taken out, we are informed, and the building used for other purposes. By this Milwaukee loses a large flouring mill.

ALL the Milwaukee mill furnishers report business good, and judging from visible shipments of milling machinery, we believe the report to be entirely correct.

For \$5.00 we will send Gibson's recent work on Gradual Reduction Milling, The Northwestern Miller and U. S. Miller for one year.

WE have the pleasure to announce that we will issue Cawker's Ameridan Flour Mill, and Mill Furnishers Directory for 1886 about Feb. 1, 1886. 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.

We will send Harper's Weekly and the U. S. Miller for one year for \$4.10.

ABOUT eight years ago the Georgia State Agricultural Department received from Egypt a collection of African seeds, which were distributed among Georgia farmers. Included in the lot were seeds of the Kaffir corn, so called because it is the principal food of the Kaffirs of South Africa. A little of this has been cultivated every year by Dr. J. H. Watkins, of Campbell County, who found it to be excellent for forage. This year he planted an acre of it on the poorest land he had, which would not have yielded three bushels of wheat. Without any fertilizer, however, the Kaffir corn yielded thirteen bushels. He had some of it ground into flour and made into bread. The flour was fine and had a rich creamy color. It was made

into biscuits, egg-bread and cakes, and in each form it proved delicious. Except in color it was impossible to distinguish it from the finest Ohio Valley flour. Specimens of the bread and cake distributed at the Department of Agriculture excited surprise by their excellence. The cultivation of Kaffir corn is likely to become large in Georgia.

We will send *The Milling World* (weekly) and the *U. S. Miller* for one year for \$2.00.

## NEWS.

**DIED**—William Gardner, miller, at Ozark, Mo.

G. J. Wuerth & Co., Holton, Ks., have sold their mill.

**BURNED**—Muntz & Cassidy's grist mill and gin at Greenville, Tex.

Otto Puhlman, miller, at Plymouth, Wis., has made an assignment.

The Government saw and grist mill at Keshena, Wis., cost \$4,000.

Henry Darnell's mill at Masonville, N. J., recently lost his mill by fire.

R. E. Robert's mill and elevator at Arlington, Neb., has been destroyed by fire.

J. D. James & Co., millers, New London, Mo., have sold out to J. W. Emison & Co.

A 100 barrel roller mill is being built for J. H. Baldwin, at Lewis, Ia., by a Des Moines firm.

Wm. Mitchell's feed mill in Detroit, Mich., was recently damaged by fire to the extent of \$4,000.

Hale Bros.' grist mill, of Lyons, Mich., is now running day and night, and yet is behind orders.

Anton Gonna stumbled against a shaft in the mill at Little Suamico and was whirled to death.

The Trinidad Mercantile and Milling Co., Trinidad, Colo., has been incorporated, with a capital of \$50,000.

C. W. Callender & Co.'s mill, Greencastle, Ind., is burned out. Insured. Will probably rebuild immediately.

McCally & Son, of Walla Walla, Wash. Ter., are rebuilding their mill destroyed by fire some time ago.

A. S. Marble's mill at Vancouver, W. T., burned recently. Loss, \$8,000. Insurance, \$4,500. Will rebuild.

The "National" mill in Minneapolis has been purchased by T. W. Lyons & Co., and the name of it changed to "Victoria."

Messrs. Mattingly & Son are now building a cornmeal mill at Vicksburg, Miss., which will have a capacity of 300 barrels per day.

The Star Mill Company, of Huntingburg, Ind., has been incorporated under the style of the Star Milling Company, with a capital stock of \$18,000, and will manufacture flour and meal.

The Red Cloud Milling Company has completed the building for their large mill at Red Cloud, Neb. Most of the machinery has arrived, and the mill is expected to be in operation in about a month.

Messrs. Bliss & Wood, proprietors of the Winfield Roller Mills at Winfield, Ks., write us that their flour took the first premium for

roller process at the World's Fair, at New Orleans, for 1884.

J. H. Arnold & Son, manufacturers of mill picks and edge tools, at Lyons, Mich., are now running their factory fifteen hours. The firm does business in sixteen states, making shipments as far East as Vermont, and as far West as Colorado.

The Farmer Roller Mill Co., Grand Rapids, Mich., is arranging to put sixty incandescent electric lights in its works, and is building a dynamo for that purpose and an engine to drive the same. The officers of the corporation report good sales on the Farmer roll, especially in the East and Southwest.

Tanner, Sherman & Stark, proprietors of the Morning Star mills at Otter Lake, Mich., have just added to their machinery one Wilford & Northway's first break, one Wilford & Northway's centrifugal scalper and one double set of Wilford & Northway's 6x20 smooth rolls, enabling them to make four different grades of flour.

A dispatch from Chicago, dated Nov. 13, says: A jury in Judge Collins' court today gave W. G. Rainey, the lawyer, a verdict of \$5,135.15 against Robert L. Downton, of St. Louis, the patentee of a flour roller. The amount was for a claim for solicitor's fees in conducting a patent suit against E. P. Allis, of Milwaukee. Downton claimed to have paid Rainey all his services were worth, and, as the suit went against him, objected to paying more.

Messrs. Marx & Kemper, of Galveston, Tex., recently bought the new roller flouring mill of Estes & Porter at that place, which already has a capacity of 150 barrels a day. The new proprietors have set to work to double the capacity and make other large and expensive improvements. This firm controls a large foreign trade, and it is supposed they now intend to export Texas flour, which is the best in the United States for transportation over the seas. It has been proved to remain sweet an indefinite time, even in tropical regions.

A member of the Montreal syndicate that controls the purchase of wheat along the Canadian Pacific says prices along the line are about sixty-five to seventy cents per bushel for No. 1 hard; being a great deal better price than at this time last year. There is some very excellent wheat this year and some of the frozen wheat is turning out remarkably well. There will be about 4,000,000 bushels for export. In some places the farmers are holding their wheat, but this is mainly owing to the fact that they are busy plowing and threshing, and just as soon as they are through they will be anxious to dispose of their grain.

At Hopkinsville, Ky., Nov. 13, a boiler in the Crescent mill exploded with terrific effect, demolishing the boiler room, killing three men, and dangerously wounding two others. John Breining, the head miller, of Detroit, Mich., was scalded to death, the flesh peeling off him in strips, presenting a horrible spectacle. Wilson Metcalf, fireman, was torn almost to pieces, his head being blown from his body. George Warling, aged 14, was the third victim, his face being battered into a shapeless mass, and terribly scalded. Frank Warling, his father, was struck on the head

by a piece of the boiler, the rest going over his head, and escaped death only by a miracle. Henry Jones was also scalded. F. J. Brownell, the owner of the mill, escaped unhurt. Breining, the miller, only arrived from Michigan a week ago. The loss on the mill is \$15,000. No cause is assigned for the explosion.

The following are among the many orders received by the Case Manufacturing Co., Columbus, O., since our last issue: From A. L. Strang & Co., Omaha, Neb., for 4 pairs of rolls and single purifier to be placed in the mill of A. J. Hathaway, Castana, Ia.; from D. E. Conly, Dundee, Wis., for rolls; from Montague & Co., Chattanooga, Tenn., for an additional improved centrifugal reel; from Brandt & Manning, Mount Joy, Pa., for 4 pairs of rolls, one centrifugal reel and other machinery; from A. L. Strang & Co., Omaha, Neb., for 10 pairs of rolls, one 6-reel bolting chest and one No. 1 single purifier, to be used in a mill now being built by them at Stanton, Neb.; an additional order from Johnson & Long, Eldorado, Kan., for 2 improved centrifugal reels; from P. H. Rhynard, St. Henry, O., for one improved centrifugal reel; from Vance Graham, Camden, Ind., for one No. 1 single purifier; from A. L. Strang & Co., Omaha, Neb., for 10 pairs of rolls with patent automatic feed, two 4-reel and one 2-reel bolting chests, 3 No. 1 single purifiers and one 5-reel scalping chest; from W. T. Pyne, Louisville, Ky., for 4 pairs of rolls with patent automatic feed to be shipped to W. D. Straw, Jeffersonville, Ind.; from Bunting Bros., Richmond, Ind., for 6 pairs of rolls with patent automatic feed, one 5-reel scalping chest, and one improved centrifugal reel; from A. H. Fairchild & Son, North Bloomfield, N. Y., for one No. 1 double purifier to be shipped to E. Light, Avon, N. Y.; from J. D. Wilsey & Co., Caro, Mich., for a full line of rolls, centrifugal reels, bolting chests, scalping reels, etc., for a full roller mill on the Case system, 12 pairs of rolls with patent automatic feed will be used; from W. P. Hambaugh & Co., Ringgold, Tenn., for 2 pairs of rolls with patent automatic feed to be placed in the mill of W. H. Burgess, Clarksville, Tenn.; from Dehner & Wuerpel Mill Building Co., St. Louis, Mo., for 8 pairs of rolls with patent automatic feed and one No. 2 single purifier; from A. L. Strang & Co., Omaha, Neb., for 8 pairs of rolls with patent automatic feed, one 4-reel bolting chest, and one 3-reel scalping chest for the mill they are building at Thayer, Neb.; from Roots & Co., Cincinnati, O., for 2 pairs of rolls with patent automatic feed; from A. L. Strang & Co., Omaha, Neb., for one 4-reel bolting chest.

We will send *The Millers' Review* (with flour trier) and the *U. S. Miller* for one year for \$1.75.

**HUSBAND**—The census-taker was in, dear. He demanded the age of each of the family, and I was obliged to give him yours. He said it was the law.

Wife (enraged)—Law! What do I care for law? John Smith, did you tell that man my age?

Husband (hurriedly)—Yes, I told him you were 23.

Wife (mollified)—Well, I suppose the law has got to be respected.—*N. Y. Sun.*

## THE DUTIES OF AN ENGINEER.

THE REMARKS OF MR. J. G. BRIGGS BEFORE THE ASSOCIATION OF STATIONARY ENGINEERS AT TERRE HAUTE.

*Mr. President and Members of the Stationary Engineers' Association of Terre Haute:* It was with much pleasure that I learned that this Association had been organized. I am confident that it will be beneficial to yourselves, to your employers and to the public generally. "Advancement and improvements" is the watchword of the present age, and in no way can persons gain more practical information than by an interchange of ideas and experiences as developed by discussion and argument with others in the same line of business. Each man does not have to depend upon his own individual resources alone. He has the right to ask questions of the ones best qualified to give him information, and get them correctly answered; for in an association of this sort there should be no reserve on that point. Since receiving the invitation of your president, I have noted down what I consider to be the qualifications and duties of a first-class stationary engineer.

The first qualification of an engineer is to be a sober man. (Sobriety, like charity and night, covers many a failing.) He should never when on duty, or liable to be called on duty, indulge in any intoxicating drinks, for whisky is a very uncertain article. There are times when a man can perhaps imbibe to an almost unlimited extent, and at others—probably owing to the state of the system at the time—a very slight amount will affect him seriously, and render him unsafe as an engineer to be intrusted with the lives and property of others. So the best way is to leave it alone. Next to this, the first qualification is a knowledge of steam. Although the more a man knows, the better it is for him, it is not in a practical sense necessary that he should be familiar with all its chemical properties, its philosophical details, etc. But he should know how to generate steam to the best advantage, with the boilers and fuel he has to use. Too many engineers who are very particular about the engine and engine-room, keeping everything in splendid order, are apt to consider the boilers beneath their dignity, and if they give the fronts a coat of asphaltum occasionally, think they have done their duty in that department, never stopping to think or care that, behind that fair exterior, danger in the shape of a defective boiler is lurking, which may prove as serious as a premature discharge of the dynamite-lined mines under Hell Gate in New York harbor. I will admit it is a little rough to have to crawl into and under the boilers, getting all covered with mud and soot, especially about the time he expects his best girl is coming to call on him. But it will pay—even if the girl goes back on him. Gentlemen, the boiler is the important factor in steam machinery. It is the life of the whole plant. You cannot turn a wheel without steam, and you cannot make steam without good boilers well managed. With a defect in either of these points, the valuable, high-priced engine is not a success. An engineer should know if there is anything radically wrong about them (either in regard to safety or economy), and if beyond his power to remedy, report the same promptly to his employer. And an experienced engineer who will

run a boiler, which he considers unsafe, should be dismissed from his position and expelled from this Association. Gentlemen, if I were asked what is the objective point for an engineer, my reply would be, "To do the most work with the least fuel," and the better everything is kept in order, the nearer you will be to this ultimatum. With all due respect to scientific management in the engine-room (of which I will speak hereafter), I assure you that with an engine in fair order a large saving can be made in the boiler-room. The engineer (other things being equal) who can save one fourth of one per cent. in fuel per barrel of flour, will always be in demand at the best wages paid; now, that one fourth of one per cent. (and more) can often be easily saved by careful and intelligent firing, or by some alteration in the arrangement of the flues. There are many ways in which this can be done. To put in a familiar form to us all, we will suppose a first-class engineer takes charge of the engines in a flouring mill, where he and the proprietors are entire strangers. We will suppose it is a first class mill and the machinery runs light. The first thing he does, after taking a general survey of his new domain and finding there are no holes in his boilers that a cat could crawl through, that his engine has got a cylinder, cross-head, crank and fly-wheel, is to trace out his feed pipes. Next, to investigate his boiler-feeder. He knows (as I said before) that the boilers are the life of the plant, and that they must have water, right straight along, without any monkeying either. There should be nothing fancy about a feed pump. It should have a plain, simple valve motion, not liable to get out of order, and one which, in case of any trouble, could be easily overhauled and adjusted, and the first duty of an engineer is to keep that pump in order.

Gentlemen (to digress a little), I don't know a man who is more to be pitied than an engineer who has to depend upon one of those complicated boiler-feeders, with small, intricate steam passages, that semi-occasionally take the "studs," and refuses to work. It is no use to get mad at them, however badly you may want to. All you can do is to shut down the mill and go to tinkering. After taking the thing (I can find no other name for it) to pieces several times, running wires into numerous little holes, your work cheered by the appearance of your employer every few minutes, inquiring, in the peculiarly dulcet tones appropriate for the occasion, "What is the matter? Can't you get the thing to work? We are losing four dollars an hour by stopping,"—it may take a notion to start and run along all right, apparently contented with the trouble it has made.

Well, after setting out his packing a little, looking at his valves, screwing down foundation bolts and finding everything apparently all right, he cleans his boilers, fills them and gets up steam. The first week he has about all he can do to get the hang of the concern, and he don't get the "hang of it" by sitting down on a three-legged stool, smoking "two-fers" and playing checkers. Not much! He is here, there and everywhere. In early youth he heard the aphorism of old John Wesley, "Cleanliness is next to godliness," and adopted it as one of the tenets of his faith (as every engineer should do), knowing that in satisfaction to himself and others

he will be amply repaid for his extra trouble. With him, cleanliness does not only refer to brass and bright work, but the floor, windows and boiler-room. He solders up old drip cans, makes new ones, scours off spots of rust and gets signs painted—"Positively dogs not allowed in this building." Presently the proprietor tells him that it costs too much for fuel, that a similar mill in Macksville, or perhaps Oshkosh, makes a barrel of flour with two shovelfuls less coal. That won't do. Professional pride and interest are both enlisted in the attempt to ascertain the cause of such a discrepancy. He examines and makes experiments. He may find the bridge-wall too high, or too low, for a good draft. The grate surface may be too large or it may be too small. There may not be space enough between the bars to furnish sufficient air for perfect combustion. There are many cases of that kind. In one particular instance in this city, by merely changing grate bars they were enabled to keep up steam, with common slack coal, easier than they formerly did with lump. In the setting of boilers, there is a large field for experiments. The laws which govern draft are almost inscrutable, whatever scientists may endeavor to demonstrate on the subject.

Why? I don't know, only such was the fact.

To illustrate. I know two boats on the Mississippi river, apparently built exactly alike as to hull, machinery, and boilers; and still, while one of them worked best with an open throat, on the other, to get any draft, the bridge-wall had to be built within four inches of the boiler. To return to our friend again. By this time he has ascertained, by observation, the exact height to carry the water; for there is such a point, as you all well know, varying in different boilers. He sees that his flues are well swept, or blown out; that the coal is thrown in regularly and evenly, and the fire kept to the thickness which experience on those particular boilers demonstrates to be the best. He examines the uptake to see that there is no undue proportion of gases passing off unburned, or that not too much heat escapes. He examines his boilers often, to see if there are any leaks. If any show themselves, he has them promptly stopped; and one thing, I assure you, he does not neglect to see that the boilers are thoroughly cleaned inside; for he knows that a very light scale will make from ten to twenty-five per cent. difference in the fuel used. A good, clean boiler, a good draft and good firing, are nine-tenths of the battle. He may also find that the fuel he is using is not the best adapted to the conditions, as the spiritualists say. He may find that the light, cheap coal has not the requisite strength for the work required, and that it would be economy to use a better grade, even at a higher cost; or, he may find that by some alterations, he can use common slack in the place of lump. An engineer should know which is the most economical fuel to which he has access; and it is no more than right that the proprietor should defer to his judgment, if he considers him a competent man. If not, he should get one who is; and an engineer should be sufficiently competent to have the suggestion for improvements come from him, instead of from the office. He may run against a snag, not so easily got

(CONTINUED ON PAGE 54.)

—OFFICE OF—  
**CAWKER'S AMERICAN FLOUR MILL AND MILL FURNISHERS' DIRECTORY**  
 —AND OF—  
**THE UNITED STATES MILLER,**  
 124 GRAND AVENUE,  
**MILWAUKEE, WISCONSIN.**

GENTLEMEN:—It is the duty of business men to use all honorable means in their power to secure business. We therefore suppose that all millers, whether proprietors of large or small mills, will be glad to adopt such means as will be likely to bring increase to their business. We desire to state that in January, 1886, we shall go to press with **CAWKER'S AMERICAN FLOUR MILL AND MILL FURNISHERS' DIRECTORY**. It is desirable that this work shall contain the name of every person or firm in the United States and Canada owning a flour mill, together with correct post office address, capacity of mill in barrels of flour *per day of twenty-four hours*, and the kind of power used to run the mill, whether steam or water, whether stones or rolls or both are used, etc. Is it not worth your while to sit down and write us, giving these particulars? We think it is, and will tell you why. This Directory is purchased and used by wholesale flour dealers in the large cities in this country: east, west and south; by flour exporters; by European flour importers; by railway, lake and ocean transportation companies, insurance companies, by mill furnishers and all manner of dealers in machinery and supplies used in and about flouring mills; in short, by every class of business men in all parts of the United States, Canada and Europe, desiring to transact business with American millers. Is it not worth your while to be properly represented in a book looked upon as *authority* by these classes of people that have business to transact with you? We assure you that you will find yourself more than repaid for the small amount of time and expense incurred in sending us these particulars by the information you will receive through the many circulars, journals, market reports, etc., sent you by the users of this Directory, giving you *free* an insight of the general business being done in your line of trade throughout the world.

Previous to the year 1876, no such work was published, but the undersigned, who was then as now, engaged in the publication of the *United States Miller*, having received so many letters from parties all over the country asking for addresses and information of a general character about millers, conceived the idea that there was a demand for a work of this class, and consequently, in the year 1876, prepared the first Milling Directory ever published. This was followed by corrected and enlarged issues in the years 1878, 1880, 1882 and 1884. The last (1884) was the most complete and perfect book we could possibly get up at the time and has given great satisfaction, but it was not as complete in detail as we could wish, for out of 26,000 millers to whom we sent circulars but about 11,000 replied. *They were either too lazy, negligent or thoughtless to look after their own interests.* Now that we have explained the matter in full to you, we trust you will answer our questions promptly. We further desire to ask in all modesty, that considering the fact that we have fathered this enterprise and assumed a considerable pecuniary responsibility that you will subscribe for our paper (*The United States Miller*, price \$1.00 per year). The paper is well worth the price and we believe we deserve the encouragement your subscription will give us.

Should you wish your name or name of your firm inserted in **full-faced type**, in the Flour Mill Directory, we will send you the U. S. Miller for one year and your name so displayed for \$2.00. The following will illustrate: Supposing John Brown & Co., of Minneapolis, Minn., write us that they have a mill driven by steam and water power, using both stones and rolls and having a capacity of 500 barrels of flour in twenty-four hours, this is the way it would appear in the Directory, *not displayed*:

○●\*†500 John Brown & Co., Minneapolis, Minn.,  
 or displayed:

○●\*†500 **John Brown & Co.**, Minneapolis, Minn.

The first sign used means, stones—the next, rolls—the star, water-power—the dagger, steam-power; the figures, number of barrels of flour the mill can make in twenty-four hours. By having your name displayed as above, it will attract especial attention, which will certainly prove of benefit to you.

Now, gentlemen, in conclusion, we beg you to answer our questions at once. Subscribe if you please—display your name if you please and *help a valuable business accessory along*, but at all events send us the information asked for. Address

**E. HARRISON CAWKER,**

Publisher UNITED STATES MILLER, Milwaukee, Wis.

What is the name of proprietor, or firm?

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 an important 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.

If by chance this should be addressed to anyone *not in the flour milling business*, oblige us and the trade by dropping us a postal card saying that you are not in the business. [OVER.]

# FILL OUT THIS BLANK PLAINLY AND SEND IT

With the proper amount of money, addressed to E. HARRISON CAWKER, Publisher, No. 124 Grand Avenue, Milwaukee, Wis. Read our Combination offer below, carefully.

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1.00 American Miller.....	1.50	1.00 Chicago Weekly Tribune.....	2.00	2.00 Mechanical Engineer.....	2.50
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.....	5.50	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.....	3.00
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Mill For Sale or For Rent Ads., \$1.00 per insertion. Situation Wanted Ads., 50 cents per insertion.

[OVER.]

**CORNMEAL MADE BY ROLLERS.**

COLUMBUS, O., Nov. 20, 1885.

*Editor of the United States Miller, Milwaukee, Wis.*

DEAR SIR—We have devoted considerable time experimenting upon a short system for the manufacture of roller cornmeal. We are pleased to note that these experiments have been a gratifying success. We have been enabled to produce on this short system a meal that is fully equal to any of the best meal we have ever seen made on the more expensive and elaborate system. We enclose you to-day samples of the three products made on this system. We are enabled to obtain from a bushel of corn, or 56 pounds, about 40 pounds of pearl meal, 10 pounds of second grade or break meal, which, you will observe, is superior to the ordinary stone ground meal, and about 6 pounds of bran and offal. The yield may be reduced to 3 or 4 pounds of offal by setting of the rolls.

We have constructed a combined machine which produces the entire separations in one machine. We are enabled under this short system to furnish all the machinery necessary for a complete 50-barrel cornmeal mill for a sum less than \$1,000. There are in this system only two machines to connect to, consequently the millwrighting will be but trifling. The space occupied by these machines is not more than that of an ordinary purifier and double set of rolls. A complete cornmeal roller mill can therefore be set in any ordinary flour mill and the machinery driven from the rolls shaft, thus enabling those who are desirous of producing a high grade of roller meal to put in a complete outfit at a remarkably small expense.

THE CASE MANUFACTURING CO.  
By J. M. CASE, Vice-President.

**"MILLWRIGHTS—MECHANICAL ENGINEERS."**

We don't hear much now-a-days from the good chaps they used to call millwrights. They don't call themselves by that name now. They call themselves mechanical engineers.

We don't want to hear from the old millwright who could pare away half a day on two or three cogs of a mortise gear. We want to know about the boys who crawl into old wheel pits to replace a stick of timber which has rotted out, and then find that 8,000 or 10,000 feet of lumber are necessary before the job is completed.

We want to know more about the everyday men who are always ready with a way to get out of a difficulty, or to get up an improvement on a process, as a matter of course.

We have been down there, and have done our share of the dirty work, and the Sunday work, too. Let's be a good, honest millwright for a day or two. We get into a mill with all the machinery lying loose, steam-engine to be set, shafting to be put up, lines run, and all the responsibility to stand. Perhaps the masons have not run their lines and levels as well as they might. Probably the levels are a "bit" out, and a mason's "bit" is never less than 4 1/2".

Then the carpenter's work has to be remedied. The carpenter always knows where a bolt-hole must come, and he always drives a 40-penny spike in the exact spot.

The millwright has got boxes to scrape, keys to refit, new key-seats to cut with cape

chisel and hammer. All the machinery seems to be on raw edges when it first starts, and the millwright has to be on deck with wrench, oil-can and brains. You couldn't stand it to pay a good price for your work and have all these things adjusted in the shop where they ought to be done. No! You squeezed down the price to the lowest cent, and then got what the maker could give, while we poor millwrights have to stand in the breach.

After we get the work done, then comes the hardest job, and that is to get our pay. The machine man has been paid, and so have the carpenters and masons, and if there is any money left, the millwright stands a slight show of getting some—sometime.

Perhaps we have got a job in some big concern. We are expected to keep it running all the time, and never ask much material wherewith to repair. Perhaps we have got to make alterations, and work around and over barefaced death in the shape of running machinery.

We remember once putting in a friction-clutch pulley wherewith to work a 200 H. P. Porter-Allen engine with 500 H. P. water-wheels. Well, we put it in, and then we must devise means of working the clutch-pulley from the engine-room, 150 feet distant.

A screw was devised to work the clutch lever, and geared to a shaft to reach the engine-room. Three 24" brick walls, one 36" stone, and two wooden walls were the obstructions, to say nothing of total darkness, much water and dirt. The course of the shaft was not in line with the building. It was not level. There was no way of stretching a line, either in the rooms above, or beside the place. We figured it out "and then guessed at it." We dug holes through the walls and tried to draw a line, but could do nothing with it in the dark, and, by crawling over it, kept knocking it down. We got six petticoat lamps, and trimmed

them to give nice little lights, about 1/2" long. We put one at each end of the shaft space, on wooden targets, and then had Mike juggle a lamp at the next bearing, until he got it exactly in line. Then he took the next lamp, and so on through the whole distance. We got that shaft in straight; built up the walls around pieces of pipe which were slipped over the shaft; got the clutch to running, and then were ready to figure on a siphon condenser for our 200 H. P. engine, or to go to the wheel-pit and set up a water-wheel step, look after the oilers or set a new steam-boiler.

At any time the poor millwright must be ready to go up to the office and listen to six months' work which must be done before Saturday night, and to stand a genteel "sheeling" because Pat or Mike burned out a box, or smashed up an engine.

We can do this work 312 days per year and be a millwright, but the chap in tight pants, who carries an indicator-box in his hand, will kick like mischief if he hears anybody call us mechanical engineers.—By James F. Hobart, in the *American Machinist*.

**Preserve Your Copies**

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over, and that is the boilers may be too small for their requirements, as is often the case when large additions have been made to the machinery, without increasing the motive power. This is a trouble which can only be remedied by increased capacity; and I would remark that it is very poor economy, or rather no economy, to crowd boilers beyond a certain limit. The value of the fuel required to make the wasted heat will often much more than pay the interest on the cost of an extra boiler. Our friend, by this time, has got things pretty much to his notion in the boiler-room, and concludes he will give his particular attention to the engine. It is a nice one—mahogany staves on the cylinder, banded with brass, which, thanks to rotten-stone and his fireman's elbow-grease, shine like burnished gold. It is striped all off with gilt, and has an American eagle, with a bunch of arrows in his claws, painted on the steam-chest. It works pretty well, with the exception of a little 'chug'; by no other name can I express the peculiar sound. Now, a 'chug' may not amount to much, or it may to a good deal. Anyhow, he is going to find out where it is, if he can. And he may have some trouble, for they are often difficult to locate. With his copper hammer, he taps all the keys. They are home. Everything is as snug as will run cool. He tries his foundation-bolts, and gives the nuts an extra turn, his wrench lengthened by a piece of gas-pipe, four inches long this time. He puts a piece of stick between his teeth, shuts up both ears, and tries to find out that way. But it is no go. On Sunday, he takes the engine all to pieces, tries his crank-pin to see if it is solid, draws lines through, and sets his valves, traverses his crank. All right apparently, when he starts up, except that confounded 'chug,' not very bad, but more than is necessary. Some twenty years ago, after he had exhausted all these remedies, and the 'chug' was still there, the probability is, it would remain until the end of the chapter, unless discovered by accident. But he is not going to give it up yet awhile. If there are no attachments for the purpose he will drill some holes in the cylinder, and procure and apply one of the greatest of modern inventions, an indicator. Possibly the first diagram will show him the cause of all his trouble, and his engine will move off like a thing of life, noiselessly and majestically—a satisfaction to himself and a credit to his engineering skill; and he may at the same time discover, and be able to demonstrate, that the excess of fuel used is no fault of his, but is chargeable to the millwright. With the instrument he is master of the situation, anyhow.

I think by this time you will have discovered that our supposititious friend is pretty well posted in his business; in fact, up to the standard of a first-class engineer. Without being a machinist, he can do all the running repairs necessary. He can take an engine down and set it up elsewhere, putting it in line, babbitting boxes, filing brasses, making liners, etc. Therefore we will leave him without any uneasiness, assured that when he gets out of a job, it will be no trouble for him to secure another.

The engineer is very much indebted to the inventor of the indicator. By this ingenious instrument, not only all the secrets of the engine are laid bare, but it also shows the

power developed, the amount of water used for horse-power, and various other matters too numerous to mention. But to make the tests valuable, there is a certain amount of mathematical and theoretical knowledge required, as well as experience in its use. There are, unfortunately for themselves, very few manufacturing establishments in the West which own an indicator. They are expensive, and their value is not generally appreciated. It is a delicate instrument and should be handled with great care and intelligence. Now, I would suggest that it would be a good idea for this Association to own one. Put it in charge of one of your members familiar with its workings, and let him at leisure times instruct the others; and for a compensation test machinery for outside parties desiring its use; and when mill-owners realize its value to them in dollars and cents, it will take but a short time for it to come into general use. It is one thing you should all learn and handle. In many places, a knowledge of the indicator is an almost necessary requirement for a first-class engineer. I will admit there is one drawback to all this. In many concerns, where there is no fireman employed, a man has too much to do, to do it well. He finds that if he keeps up steam on two or three boilers, oils and wipes his engine, that by night, all the thirst for knowledge, with which he started in the morning, is verged in his desire to get his supper and go to bed. But my idea is that one of the objects of this Association is to so improve the engineers, that in time, instead of being a shoveller of coal, the employer will see that it is to his advantage (in dollars and cents, for that is the criterion) to put a cheaper man in the fire-room, and let you devote your time to a supervision of the whole, finding brains and information are more valuable than muscle. As I said in the start, I am pleased to see this organization. It is a step in the right direction. As I understand the object, you are not banded together as a trades union, but for the mutual professional benefit of all its members, and for the purpose of raising the standard of stationary engineering. Do not be afraid to ask questions of each other, and do not be slow in answering inquiries. There is not one of you but can learn something of some one else. Not one of you knows it all. I don't, anyhow. Remember the fable of the mouse who let the lion out of the net. Besides, it looks selfish for persons engaged in the same line of business, all dependant upon their labor as a support for themselves and their families, to refuse advice and assistance to a perhaps less experienced brother, whom you have considered worthy, both as a man and an engineer, to admit as a member of your Association. You have the right to say who shall be admitted, and I would advise an examination of the standing and capability of each candidate, so that in time a certificate of membership (like that of the Lake Anjiners) will be a sufficient guarantee of capability to secure any vacant position. I would make one other suggestion. Subscribe for several scientific papers; have a room where you can drop in of an evening and look over and discuss the merits of the different articles, as they appear in them. Get a library as soon as you can. Here is one of the rare occasions when it would not be derogatory to beg a little. There are idle

books here in town, which their owners would be pleased to present to you on application, from which much of a scientific nature could be learned. Many manufacturing firms issue works, sent free on application, which contain much valuable information. A wooden, sectional working model of an engine would be a valuable acquisition, and can be made by any mechanic; and I would advise that some of the best informed of your members—or others—give lectures on the adjustment of the valves, an operation in which most of the science of the engine-room is centred, and complete knowledge of which is necessary to make the indicator lessons of any value. Likewise, it would not be detrimental to any one, however well he may be posted, to occasionally freshen his ideas with a little practice on the model. Lectures on other subjects, pertinent to the profession, would be in order.

Gentlemen, with many thanks for the honor you have conferred upon me this evening, for your patience in listening to my desultory remarks to the end, and wishing you success, both as an Association and as individuals, I will gracefully retire in good order."

#### THE WORLD'S SHIPPING.

The annual statistical summary of the shipping of the world has been recently published, and we are furnished with data for the current year. The grand total of sailing and steam vessels for 1885 amounts to 52,086, with a tonnage of 23,136,879 tons. Of this number 43,692 are sailing vessels, a decrease of 1,042 in the past year. Steam vessels have decreased 39 in number; although the tonnage of this class is a trifle greater than it was in the previous year. The decline in sailing tonnage is still going on with sure effect. Since 1876 it has fallen fully 16 per cent. in number of vessels and 12 per cent. in carrying power. On the other hand the tonnage of steam vessels has nearly doubled in the past decade. In 1876 the sailing tonnage in comparison with its rival, held the ratio of 145 to 56; now the ratio is 128 to 102. Formerly it was nearly three times as great, while at the present time it barely maintains equality, and if the present tendencies continue, will soon be far in the rear.

Of the whole number of the sailing vessels of the world Great Britain claims about one-third under her flag, North America one-sixth and Norway more than one-tenth. These are the three leading nations in this respect. Germany, Italy, Russia, Sweden and France then follow, in the order named. Spain and Greece are nearly on a level, and both are inferior to Holland. The Asiatic nations of Japan, Siam and China are credited with but 123 sailing vessels in all, carrying a tonnage of but 37,000 tons, not one-half as much as that of Portugal alone. All South America has not one-tenth of the tonnage of Norway, and if that of Central America be added in as well, the sum will not reach the tonnage of Denmark. The national order is somewhat different in the classification of steam vessels. England, of course, takes the lead, but her proportional share is still greater, for it is about two-thirds of the whole amount. France comes next, with a gross tonnage of 750,000 tons, and Germany and North America follow, with 566,000 and 545,000 tons respectively. Spain does better in this list, with 363,000 tons.—*Bradstreet's*.

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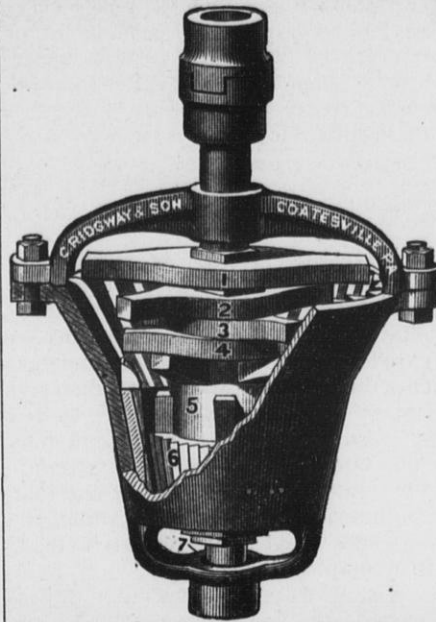
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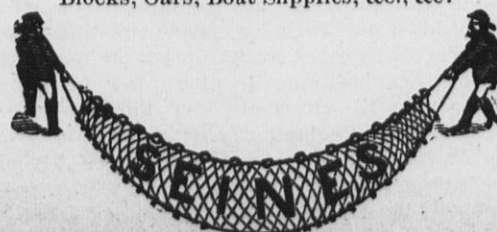


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## RELIGIOUS ASPECTS OF PROTECTIVE TARIFF.

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[Extract from a lecture on "The Humanity of the American Protective Tariff," delivered before the Wisconsin Legislature, at Grand Army Hall, Rockford, Ill., by John W. Hinton, of Milwaukee.]

Referring to the religious aspects of the protective tariff, and in refutation of the claim of free-traders that only free trade was in harmony with divine law, Mr. Hinton said:

My Friends—Richard Cobden, after whom the Cobden Club is named, said:

"Free trade is the international law of the Almighty."

That sentence is placed at the head of the *American Freetrader*, as the motto for the organ of the free trade party in this country. From what source of divine law Mr. Cobden made the selection, he never informed his countrymen or others. There is an axiom in common law that it is the duty of everyone to "take care of his own upon his own premises." Divine law says that he who fails to provide for his own household has denied the faith and is worse than an infidel.

Such, my friends, I understand to be divine law, as enunciated by an inspired source and intended for the guidance of all believers in the Scriptures. And I think that we may safely regard it as the wisest course for all of us who are Americans at heart to pursue, who desire the "promotion of the general welfare" of all the households of this country. It is the cardinal principle of this government, constituting the singularly distinctive difference between the American and all other governments. To pursue this line of thought a little further, I ask:

What is our nation but an aggregate of households? A vast number of families under one system of mutual, careful protective government, the welfare of the whole being the chief aim and specific purpose of that government. The intent and object of our national legislation is for the benefit of the people of the United States, while any benefit accruing from such legislation to any foreign people is a contingent matter of secondary or remote consideration our own welfare being first.

I have given this subject the maturest thought and most searching reflection, with opportunities for observation not possessed by all. Born on another soil, a sailor for many years, ocular demonstration was my teacher of the horrid degradation and physical sufferings of labor in my native country as compared with this. Not at one particular time, but through years of contrast—as to-day in the United States, a month hence in England, then in a couple of months back in this country. Thus, the opportunities for correct information and just deductions were beyond question.

Hence I say, as before intimated in the beginning of this lecture, that it is in the "promotion of the general welfare" of the masses, that lies the secret of the United States' success and is the cause of the prosperity of its people. So-called free trade, which nowhere exists to-day and never has existed anywhere, never was and never can be the "international law of the Almighty." That, only conforms to divine law, which shields our own households from harm or suffering, protects and guards them against every

danger from without, which repels every foreign foe, be it physical, commercial or manufacturing. This plain truth is understood, comprehended and realized in every home of every American laborer.

Truly beautiful is Burns' verse:

To make the cheerful household clime,  
For weans and wife;  
This is the true pathos and sublime,  
Of human life.

That system, or policy, of government which seeks to illumine the cottage of the laborer or the artisan, and aims to "promote his welfare" and advance his prosperity, is surely God-like. When all nations and governments regard, as we do, "the laborer of the United States as being the United States," then, and not till then, could it be truthfully said that man everywhere is fulfilling his duty to his fellow man and that the real "international law of the Almighty" is everywhere obeyed. A protective tariff aims to accomplish that purpose.

Hon. Wm. M. Evarts pointed out with perfect clearness the political principle I refer to. He said Oct. 11, 1880:

"We have undertaken, on this continent of ours to build up a fabric of politics in which every laboring man had the same share, every ignorant man had the same share, every feeble man had the same share in political power with the rich and the strong and the learned. That system we mean to maintain, and in order to maintain a system and dignity of labor which is known nowhere else in the world, and never known anywhere in the world till here and now, we mean to protect the wages of workmen from competition with the pauper systems of Europe."

The *London Times*, July 11, 1880, criticising the speeches of the president of the Cobden Club and John Bright, said of the fostering care and protection of the labor of this country:

"The United States do not approach the question from the same standpoint as ourselves. The object of their statesmen is not to secure the largest amount of wealth for the country, but to keep up by whatever means, the standard of comfort among the laboring classes."

Nowhere have I ever seen this grandly humane feature of our tariff system better explained than it was in the *Chicago Inter-Ocean* of Dec. 15, 1880. I have frequently quoted it. It cannot be too often repeated:

"A protective tariff stands at the elbow of every laboring man in this country to help him to better wages, to a more independent condition, and to a higher development of his faculties. It is the refuge for his weakness and the bulwark of his strength. Above all other classes of toilers, protection commends itself to the serious consideration and the unflagging support of the colored man, because it is the mortal enemy of human bondage in every form."

General Garfield happily expressed it all in a few words:

"We legislate for the people of the United States, and not for the whole world, and it is our glory that the laborer of the United States is more intelligent and better paid than his foreign competitor."

A virtual incorporation into the policy of the government, that "the laborer is worthy of his hire," with legislative enactments to practically carry out that principle, seems to me to be obedience to divine law, far more so than the enunciation of the free trade theory of England, that "in order to give capital a fair remuneration, the price of labor must be kept down." The one system protects the capitalist, or rich man, specifically.

Our American system, or principle, is for the protection of those who labor, for the benefit of the poor man, for, as John Bright says, "Labor is honored more in the United States than in any other country in the world."

"By their fruits ye shall know them." Contrast the two countries. Labor in the United States respected and honored everywhere. England furnishes ample evidence of the degradation, misery and suffering of her laboring classes, not alone through the columns of her Thunderer's statement that "In England man is a drug, and population is a nuisance," but in the report of her Registrar General, that of "the total number of deaths in 1879, one out of every fifteen died in a work-house; while in London, the richest city in the world, one out of nine died in the work-house. \* \* \* One out of about every seven end their days as paupers."

It must be a curious divinity that shapes the ends of the Cobden Club in its efforts to carry out the "International law of the Almighty." An English journal thus records their missionary labors:

"The missionary has lately entered in such close partnership with the trader, that the people of the countries they wish to 'open up,' must be in doubt whether it is our Bible or broadcloth, our cotton or our Christianity that we most desire to force upon them, and the attempt to compel them to accept a spurious Christianity and shoddy manufactures by means of bayonets and cannon is not likely to be permanently successful."

For the Cobden Club of England, with its hundred and thirty-five American members in this country, the tools of English manufacturers, to call Christianity to its aid, or citing it in its own justification, is simply a devilish mockery of all that is divine:

"The Devil can cite Scripture for his purpose.  
An evil soul producing holy witness,  
Is like a villain with a smiling face,  
A goodly apple, rotten at the core."

History repeats itself, and I cannot better conclude this part of my lecture than by reciting to you an interesting extract from American history, familiar to some present. Joseph Warren in his memorable oration of March 6, 1775, at Boston, in commemoration of the Boston massacre, said:

"The tools of power, in every age, have racked their inventions to justify the few in sporting with the happiness of the many; and, having found their sophistry too weak to hold mankind in bondage, have impiously dared to force religion, the daughter of the King of heaven, to become a prostitute in the service of hell. They taught that princes, honored with the name of Christians, might bid defiance to the founder of their faith, might pillage pagan countries and deluge them with blood, only because they boasted themselves to be the disciples of that teacher, who strictly charged his followers to do to others as they would that others should do unto them."

"My husband is so poetic," said one lady to another in a Seventh street car the other day. "Have you ever tried rubbin' his joints with hartshorn liniment," interrupted a beefy looking woman with a market basket at her feet, who was sitting at her elbow and overheard the remark. "That'll straighten him out as quick as anything I know of, if he hain't got it too bad."

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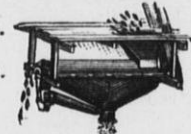
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## WALL STREET SLANG.

Stock-brokers have a dialect of their own that is caviare to the crowd. Like the trademarks and "shop" terms of merchants, it must be explained to be intelligible to the multitude. It is pithy, pungent, scintillating, and sometimes rank. It precisely characterizes every variation and aspect of the market. A broker or operator is "long of stocks" when "carrying" or holding them for a rise; "loads" himself by buying heavily, perhaps in "blocks" composed of any number of shares—say 5,000 or 10,000—bought in a lump, and is therefore a "bull" whose natural action is to lower his horns and give things a hoist. He "forces quotations" when he wishes to keep up the price of stock; "balloons" it to a height above its intrinsic value by imaginative stories, fictitious sales, and kindred methods; takes "a flier," or small side venture, that does not employ his entire capital; "flies kites" when he expands his credit beyond judicious bounds; "holds the market" when he buys sufficient stock to prevent the price from declining; "milks the street" when he holds certain stock so skillfully that he raises or depresses prices at pleasure, and thus absorbs some of the accessible cash in the street; buys when the "market is sick" from over-speculation; keenly examines "points"—theories or facts—on which to base speculation; "unloads" when he sells what has been carried for some time; has a "swimming market" when all is buoyant; "spills stock" when he throws great quantities upon the market, either from necessity or to "break," *i. e.*, lower the price. He "saddles the market" by foisting a certain stock upon it, and is "out of" any stock when he has sold what he held of it.—*R. Wheatley in Harper's Magazine for November.*

## ITEMS OF INTEREST.

A FORGE IN AFRICA.—In his account in the London *Graphic* of his journey to Kilimanjaro, Mr. H. H. Johnston describes a native forge: "The Ma-Chaga are clever smiths, and forge all kinds of utensils, weapons and ornaments from the pig iron they receive from country of Usanga, near Lake Jipé. The forge is but a pair of goat-skin bellows, converging into a hollow cone of wood, to which are added two more segments of stone, pierced through the center, and ending in a nozzle which is thrust into the furnace of charcoal. The bellows are kept steady by several pegs thrust into the ground, and a huge stone is often placed on the pipe to keep it firm. After the iron has been heated white hot in the charcoal, it is taken out by the iron pincers and beaten on a stone anvil. The Chaga smiths not only make spear blades and knives of apparently tempered steel, but can fabricate the finest and most delicate chains.

THE Submarine Telegraph Cables of the world are owned by twenty-six different companies and represent an aggregate capital of one hundred and seventy-five million dollars. A plan has been recently proposed that the nations of the world form an international syndicate, purchase these lines, fix a uniform toll rate barely sufficient to pay a low interest on the cost, and give to the people the benefits of cheap rates. Although backed by some prominent names in England, the idea has not received much attention, and would seem to be somewhat utopian.

1886.

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ILLUSTRATED.

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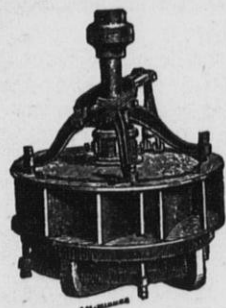
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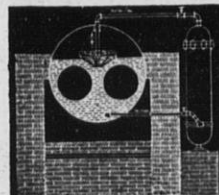
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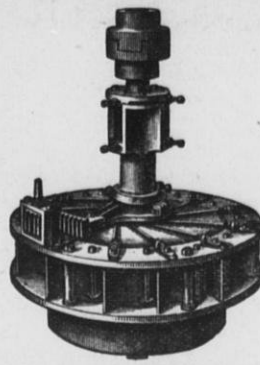
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## LEGAL DEFINITIONS OF INSURABLE INTEREST.

The following extracts are taken from an article by Mr. Guy C. H. Corliss in the *Albany Law Journal*:

Starting with the admitted principle that a policy of insurance in favor of a person who has no insurable interest in the life insured is generally void, the question naturally arises as to what constitutes an insurable interest within the meaning of this rule. The United States Supreme Court have stated the general rule with admirable precision and clearness in *Warnock vs. Davis*, 104 U. S., 775: "It is not easy to define with precision what will in all cases constitute an insurable interest so as to take the contract out of the class of wager policies. It may be stated generally, however, to be such an interest, arising from the relations of the party obtaining the insurance either as creditor or surety for the assured, or from the ties of blood or marriage to him, *as will justify a reasonable expectation of advantage or benefit from the continuance of his life*. It is not necessary that the expectation of advantage or benefit should be always capable of pecuniary estimation; for a parent has an insurable interest in the life of his child, and a child in the life of his parent; a husband in the life of his wife, and a wife in the life of her husband. The natural affection in cases of this kind is considered as more powerful—as operating more efficacious—to protect the life of the insured than any other consideration. But in all cases there must be a reasonable ground, founded upon the relations of the parties to each other, either pecuniary or of blood or affinity, to expect some benefit or advantage from the continuance of the life of the insured; otherwise the contract is a mere wager by which the party taking the policy is directly interested in the early death of the assured. Such policies have a tendency to create a desire for the event. They are, therefore, independently of any statute on the subject, condemned as being "against public policy." It will be seen from the concluding sentence of this extract from the opinion that the National Supreme Court considered it as settled law that such contracts were void at common law. It cannot be said that in the present state of the law on the subject every statement of an insurable interest contained in or the general rule laid down in the foregoing opinion has the support of adjudications. But the principle which it is there stated should govern in the determination of the question of an insurable interest is so just and so consistent with the reasons on which wager policies are declared to be void, that it must ultimately be adopted by every American court. The substance of the opinion may be summed up in the following questions: Has the person for whom the insurance is obtained any pecuniary interest in the life insured? Is he so connected by consanguinity or affinity with the person whose life is insured that it is highly improbable that he would gamble on the uncertainty of such life, and that it is highly improbable that any pecuniary consideration would prompt or tempt him to destroy such life or desire its termination? If either of the foregoing questions can be answered in the affirmative the policy is valid. Perhaps the views of the writer are hardly sustained

by the opinion last cited but they seem to rest on the fundamental principles which underlie all the authorities.

The next inquiry is what has been settled on the subject of insurable interests by judicial decisions.

That a wife has an insurable interest in the life of her husband has been decided by every court before which the question has come. *Baker vs. Union Mutual Life Insurance Company*, 43 N. Y. 283. \* \* \* *Connecticut Mutual Life Insurance Company vs. Schaefer*, 94 U. S. 457; *Warnock vs. Davis*, 104 id. 775; *Fowler vs. Butterly*, 78 N. Y. 73; *Thompson vs. A. T. Life & Savings Insurance Company*, 46 id. 674; *Mutual Life Insurance Company vs. Allen* (Massachusetts Supreme Court), 30 Alb. L. J. 363.

A husband has no insurable interest in his wife's life. *Charter Oak Life Insurance Company vs. Brunt*, 47 Mo. 419. But an insurable interest in the life of his wife was held to exist in *Connecticut Mutual Life Insurance Company vs. Schaefer*, supra. In this last case the court held that the policy being valid in its inception, the subsequent divorce of the parties would not vitiate it. To same effect, *Olmsted vs. Keyes*, 85 N. Y. 601, and *Bliss Life Insurance*, § 30. See also *McKee vs. Phoenix Insurance Company*, 28 Mo. 383.

In *Chisholm vs. National Capitol Life Insurance Company*, 52 Mo. 213, the court went far beyond all precedents and sustained a policy of insurance on the life of a man in favor of his betrothed. This decision, however, is unquestionably correct on principle.

The English law would seem to be opposed to a policy issued on the life of a child in favor of the father. *Halford vs. Kymmer*, 10 B. & C. 724. But the rule is just the reverse in this country. All the cases sustain the insurability of the interest which the father has in the life of his child. *Connecticut Mutual Life Insurance Company vs. Schaefer*, 94 U. S. 457. \* \* \*

A mother has been held to have an insurable interest in the life of a child. *Reif vs. Union Mutual Life Insurance Company*, 17 Ins. Chron. 13. \* \* \*

A brother has no insurable interest in the life of his brother. *Lewis vs. Phoenix Mutual Life Insurance Company*, 39 Conn. 100. Neither has an uncle in the life of his nephew. *Singeton vs. St. Louis Mutual Life Insurance Company*, 66 Mo. 63. Nor nephew in life of uncle. *Mowry vs. Home Life Insurance Company*, 9 R. I. 346. But a sister has been held to have an insurable interest in the life of her brother, on whom she is dependent; *Lord vs. Dale*, 12 Mass. 115; and a married sister in life of brother, on whom she is dependent. *Frances vs. Etna Life Insurance Company*, 2 Ins. L. J. 657. The right to recover on the policy in the first case was based, not on the mere relation existing between the parties, but on the fact that the sister had a pecuniary interest in her brother's life because of her dependence on him. It is not necessary that there should have been a valid marriage between the person whose life is insured and the beneficiary. It is sufficient if the parties are living together as husband and wife. *Equitable Life Insurance Company vs. Paterson*, 41 Ga. 338; *Estate of Mueller*, 31 Alb. L. J. 283. In each of these cases it appeared that the husband whose life was insured in favor of the

woman with whom he was living as his wife, had another wife living at the time the policy was issued; and yet both policies were sustained. \* \* \*

A creditor has an insurable interest in the life of his debtor. *Rawls vs. American Mutual Life Insurance Company*, 27 N. Y., 282. \* \* \* *Goodwin vs. Massachusetts Life Insurance Company*, 73 N. Y., 497. \* \* \* While it is true that a creditor has an insurable interest in the life of his debtor, that interest is not unlimited. The creditor cannot arbitrarily insure the life of his debtor in any amount irrespective of the amount of the debt. It has been expressly held that he cannot take out a policy largely in excess of his claim. *Fox vs. Pennsylvania Mutual Life Insurance Company*, 4 Big. L. & A., Ins. Cas. 458; *Morrell vs. Trenton Mutual Life and Fire Insurance Company*, 10 Cush., 282.

That he may insure his debtor's life in an amount exceeding his claim is settled by authority and clear upon principle. If he were limited to the actual sum due, he could never obtain indemnity, for the premium paid would steadily reduce the net amount to be received under the policy, and the interest accruing would increase at the same time the amount of his claim. The following case sustains this doctrine: *Goodwin vs. Massachusetts Mutual Life Insurance Company*, 73 N. Y. 480. In this case the amount of the debt was \$1,200, and the court sustained a policy of \$5,000. The authority however is somewhat weakened by the fact that the insured was the sister of the person whose life was insured. The court seems to have based its conclusion, in part at least, on the ground of the relation existing between the parties. \* \* \* In *Bevin vs. Connecticut Life Insurance Company*, the amount loaned was \$300, and the court sustained a policy of \$1,000. In *Hoyt vs. New York Life Insurance Company*, the policy was \$1,000, and the sum advanced about \$200. The policy was held valid. It is true that in each one of these cases the insured had an interest in the life of the debtor exceeding the amount of the debt, as he was to share in the profits, but that interest was not capable of being accurately or even approximately estimated; and the cases are therefore authorities for the general doctrine, that when the interest of the insured is merely a pecuniary one, it is not necessary that it should be susceptible of a definite valuation, and that the amount of recovery is not limited by the actual pecuniary loss sustained by the death of the debtor.

It has been held that a master has an insurable interest in the life of a skilled servant whom he has employed for a certain period. *Hebdon vs. West*, 3 Best & S. 578.

In *Conn. Mut. Life Ins. Co. vs. Luchs*, 108 U. S. 498 (28 Alb. L. J. 77), the court decided that a partner has an insurable interest in the life of his copartner.

It is not, however, always necessary that the person holding the policy should have an insurable interest in the life insured, to entitle him to recover on the policy. The doctrine of wager policy seems to apply in only those cases where the insured himself attempts to procure a policy on his motion, and without the original solicitation or application of the person whose life is insured. The following rule may now be considered

# Important Notice to the Milling and Mill-Furnishing Public

We publicly announced sometime since that we had determined to no longer submit to the secret violation of our injunction by the Geo. 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 of Congress the application had to be granted, and hence all proceedings are at a standstill, until a 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 Geo. 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 Geo. 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 anyone but ourselves will be charged as infringers, and held liable as such.
  - 5th. Everyone, who with knowledge of these facts, helps or assists the Geo. 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, etc.

## Milwaukee Dust Collector Mfg. Co.

**NOTE--The Prinz Dust Collector has received highest honors and Silver Medal at Paris Exhibition and Silver Medal at Koenigsberg, Prussia.**

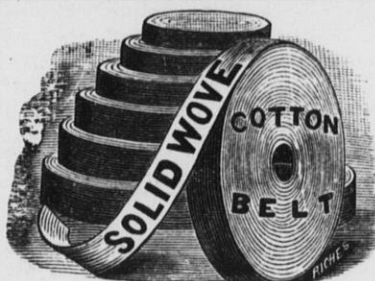
as definitely established in most jurisdictions in this country; that when the person whose life is insured voluntarily, without the request or solicitation of the person to whom the policy is made payable, procures an insurance on his own life, and then has the loss made payable even to one having no insurable interest in his life, the policy is valid. *Olmsted vs. Keyes*, 85 N. Y. 593; *Campbell vs. New England Mutual Life Insurance Company*, 98 Mass. 381. \* \* \* *Connecticut Mutual Life Insurance Company vs. Schaefer*, 94 U. S. 457. \* \* \*

The fact that the beneficiary pays the premiums is not conclusive against the policy where he has no interest in the life insured. The policy may nevertheless be valid. *Triston vs. Hardey*, 14 Beav. 232; *Armstrong vs. Mutual Life Insurance Company*, 13 Rep. 711; *Langdon vs. Union Mutual Life Insurance Company*, supra.

But where the policy is taken out at the instigation of the beneficiary it is void unless he can show an insurable interest. *Wainwright vs. Bland*, 1 Mees & W. 32.

Now is your time to send in your subscriptions for milling papers and other periodicals. Read our Club List on another page.

**AN EXTRAORDINARY METHOD OF SURVEYING FOR WATER.**—From an English exchange we extract the following: "A series of interesting experiments in the system described as that of finding water by the divining rod were made on the premises of Messrs. Fremlin Brothers, the well-known brewers of Maidstone, Kent. The operator was John Mullins, a stone mason, of Chippenham, Wilts, who claims, by means of the 'divining rod,' to possess the power of indicating where water may be found. The genuineness of his claim is attested by several noblemen, members of Parliament, country gentlemen and others. Operations, or rather what may be better described as prospecting efforts, were begun on ground back of the brewery premises facing the brewery on Earl street. Described briefly, the *modus*



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

*operandi* was as follows: Mullins was provided with a hazel twig, cut in the shape of a V. Holding the twig in both hands, with the point held downwards, he walked slowly through the ground. He had proceeded some distance when the twig turned up and here he made a mark on the ground. He then went to the end of the ground, and coming back again the twig turned up at the same spot, indicating that water would be found there. As the result of the experiments, the existence of two good springs, at a depth of from twenty to twenty-five feet, was indicated in the sheds, three others by the side of a grass bank and two in the yard of Mr. Jesse Ellis. Several of the persons present held, during the stages of the experiments, one end of the forked twig, but despite the efforts to hold it firmly, the point of the V twisted up with great force. Mullins appears to be an honest, unpretentious man, and his *bona fide* finds of water are attested by men of unimpeachable reputation. We believe the power he possesses he attributes to the possession of magnetic or electric influence. For testimonies to the success of his indications he refers, amongst others, to Lord Jersey, Middleton Park, Oxfordshire; Lord Leigh, Stoneleigh Abbey; and Mr. Hornsby, of Grantham."

We will send *St. Nicholas Magazine* and the *U. S. Miller* for one year for \$3.60.

AN Irishman, quarreling with an Englishman, told him, if he didn't hold his tongue, he would break his impenetrable head, and let the brains out of his empty skull.

PAPA (soberly)—"That was quite a monstrosity you had in the parlor last evening."

MAUD (nettled)—"Indeed! That must depend on one's understanding of the term 'monstrosity.'"

PAPA (thoughtfully)—"Well, two heads on one pair of shoulders, for example."

### 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 Nov. 3, 1885. No. 329,498—Flour purifier, S. Spitzer, Vienna, Austria; No. 329,710—Grain elevator, G. S. Bricker, Newville, Pa.; No. 329,712, Apparatus for filling sacks and weighing the contents thereof, P. and C. Cailleux, Gironville, France; No. 329,729, Grinding mill for reducing grain, L. Gathmann, Chicago, Ill.

Issue of Nov. 10th, 1885—No. 330,264, Roller mill, H. F. Saint Requier, Paris, France; No. 330,288, Roller mill, F. H. Bolte and H. G. Thede, Milwaukee, Wis.

Issue of Nov. 17th, 1885—No. 330,665, Mill-stone dress, A. S. Baker, Evansville, Wis.; No. 330,745, Middlings purifier, G. F. Sherwood, Jackson, Mich.; No. 330,746—Middlings purifier, C. A. Smith, Jackson, Mich.

Issue of Nov. 24th, 1885—No. 330,830, Grinding mill, J. J. and E. T. Falkner, McMinnville, Tenn.; No. 330,934, Grinding mill, G. K. Smith, Chicago, Ill.; No. 331,058, Mechanism for extinguishing fires in grain or malt mills, C. J. Hexamer, Philadelphia, Pa.; No. 331,061, Cockle separator, F. W. Howell, Buffalo, N. Y.; No. 331,074, Grain scourer, M. McMahon, Bucyrus, Ohio; No. 331,087, Grinding mill, W. G. Rundlett, Freeport, Ill. No. 331,138, Grain dryer, G. H. Immendorf, Philadelphia, Pa.; No. 331,165, Machine for splitting wheat, T. Sheldon, Oxford, England; No. 331,240, Reel-bolt, O. P. Hurford, Oakdale, Neb.; No. 331,265, Flour-bolt, B. W. Tuttle, Council Hill, Ill.

## THE USE AND ABUSE OF MACHINERY.

This thought is suggested by our reading the account of how, as the article states, a very capable man, who had charge of a stationary boiler, saved himself the labor of filling a new one by hand. Not having the pump connected, this capable man threw a few buckets of water into the boiler and closed up the openings; he then built a fire in the furnace and when he had heated it up sufficiently to evaporate the water and raise steam to drive out the air, he opened the communication to a reservoir of water under the floor. The steam in the boiler coming in contact with this cold water was immediately condensed, thus forming a vacuum and transforming the boiler into a condenser. The cold water then rushed in to fill the space, and of course he filled his boiler and saved himself some labor, utterly oblivious to the fact of the great risk of straining the joints and rivets.

Evidently such a process of generating steam in a boiler with only a small portion of the bottom covered with water, and the remainder of the surface exposed to the direct action of the flame, must result in a very unequal heating of the plates and joints, and, anyone would suppose, would be sufficient to cause leakage. But to add to this, the sudden influx of a stream of cold water, which striking these heated plates causes an almost instantaneous contraction of the metal coming in contact with it, the result sooner or later is certain. We are certainly astonished at two things—the incapacity of the man, and the tenacity and elasticity of the boiler, to endure such abuse.

How often do we find boilers driven up to the end of the day's work, and within an hour or so after the fires are drawn, with hot walls, and under a pressure of 40 or 50 pounds of steam, the water is blown out, and cold water allowed to flow in to cool them off for examination or repairs. Is it any wonder that seams are strained and tube joints started? The steam boiler-feeder, for some cause or other, does not perform satisfactorily, it stops or moves with a jerking motion. How often do we find the man taking a hammer and pounding this or that about it, to, as he says, jar it loose so that it will run. And so on, through the whole category of mechanical appliances, we find these capable men abusing them.—*American Engineer.*

## FIRE APPARATUS IN THE PILLSBURY A MILL.

It is becoming so that one of the most expensive items of furnishing our mills is that of supplying them with fire apparatus. Nothing that ingenuity can devise, whether the whim of an insurance man, or a meritorious invention, is left out of the calculation. The Washburn A and Pillsbury A mills are the most perfectly equipped in this respect. The latter is now receiving the automatic fire sprinkler at no small expense. When this is put in, the fire apparatus of the mill will consist of 3,200 feet of hose (1,550 feet 2½ inch, 1,500 feet 1 inch, and 150 feet 1½ inch), 1 hundred-gallon and 2 sixty-gallon chemical extinguishers located on the sixth floor, also a sixty-gallon chemical in the basement, 17 Champion fire extinguishers, automatic hose reels, 7 dozen fire axes, 35 water barrels with 2 pails to each, 200 water pails, etc. There

are stand-pipes extending from the basement to the attic with 1,100 feet of hose attached. Electric fire alarms cover all parts of the building. The mill was formerly supplied with hand grenades, but the proprietors losing faith in their efficiency, they have been supplanted by water buckets. In the bran house connected with the mill, there are 325 feet 2½ inch hose, in the elevator 400 feet 2½ inch hose, 16 water barrels, 7 Champion fire extinguishers; and in the engine and boiler rooms 100 feet of hose. P. T. Quinn has charge of the apparatus, and gives its care his entire attention. The men in the mill, especially on the packing floor, are drilled in the use of the apparatus, and each person knows his place in case of a fire. A few days since, a number of fire insurance men were visiting the mill, and on their approaching the packing floor, Mr. Quinn touched off the fire alarm. The forty or fifty employes in that story rushed to their respective posts and were ready for action inside of ten seconds. The automatic sprinklers, which are now being introduced will reach 400 or 500 in number, and be placed in all parts of the premises.—*Northwestern Miller.*

ACCORDING to the Philadelphia *Record* Hungarian, Polish and Chinese labor is offensive to Americans for more reasons than that it is cheap. A negro miner will dig five wagons of coal a day and spend all his wages in a new silk shawl for his wife, candy for the children and steak for the table. If an Irish miner's child dies all hands "knock off" and go to the funeral in their best clothes. The English miner will celebrate the Queen's birthday over a pot of ale and call in all the boys. A Hungarian miner will dig two wagons of coal a day and put his pay in his sock, if he has one (which is seldom), and if his child dies he boxes it up in an old soap-box and digs a hole after working-hours and buries it himself. The Pole would not think of spending money for beer, and the "heathen Chinese" garners every penny. Of the one hundred Hungarians at work in the coke regions twenty months ago less than one-third now remain.

HE BOUGHT THEM CHEAP.—It was at a certain country hotel in Northern Michigan. The single stranger who sat down for dinner was amazed when the waiter handed him a printed bill of fare which began with oyster soup and clam chowder and ran down to four kinds of pie and chocolate ice-cream.

"I'll take oyster soup," said the guest.

"Y-e-s, but we haven't got any," replied the waiter.

"Very well, give me clam chowder."

"We are out of that too."

"Then bring me baked whitefish, fried sausage, Saratoga potatoes, French wheat rolls, ribs of beef and a cup of coffee."

"We haven't got any, sir. All we've got is beef steak, b'iled taters, and baker's bread and coffee."

At the last moment the landlord entered the room, and the guest called out:

"See here, landlord, but what sort of a trick is this?"

"What? Oh, that bill of fare. My dear sir, let me explain. My uncle kept a summer resort hotel, and he failed. He had 30,000 bills of fare on hand, and I bought them at private sale for \$2. These are hard times—very hard, and we must utilize everything, and keep up style at the same time."



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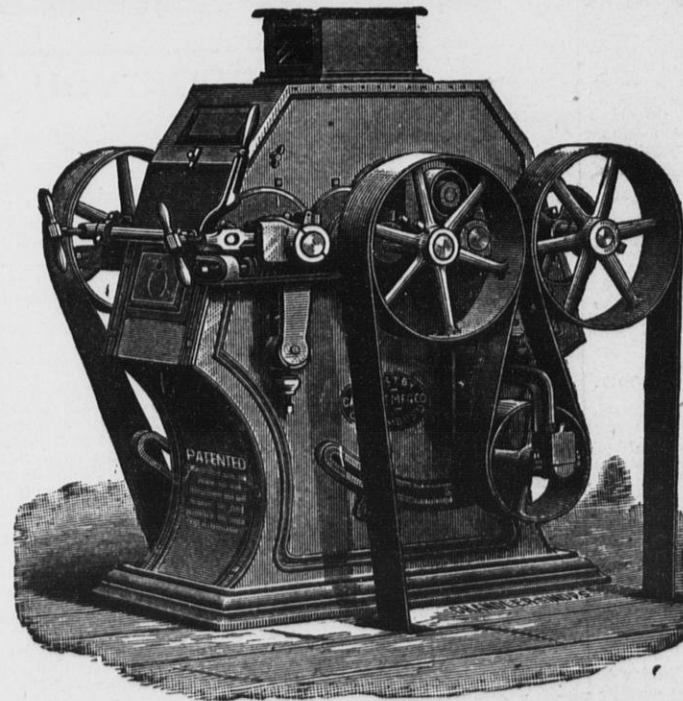
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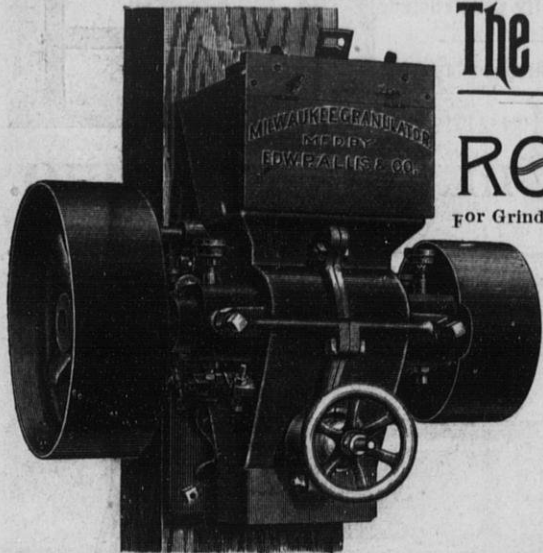
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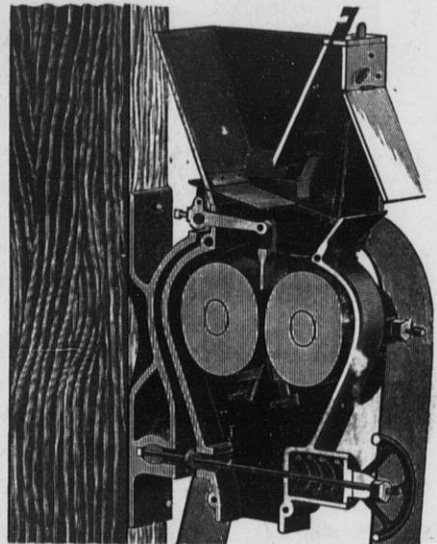
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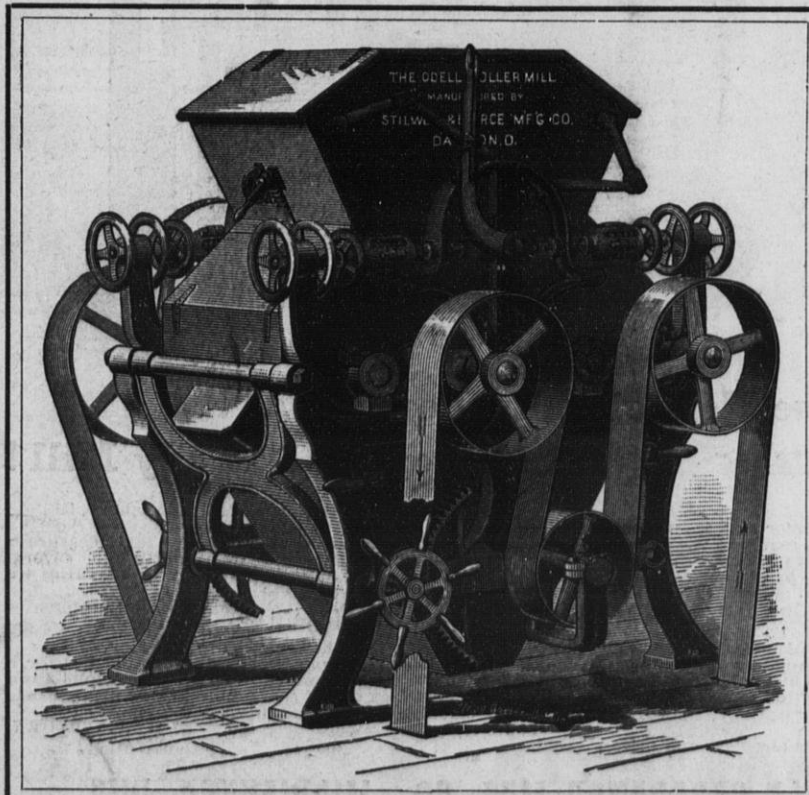
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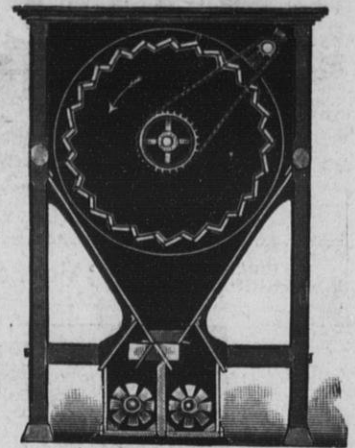
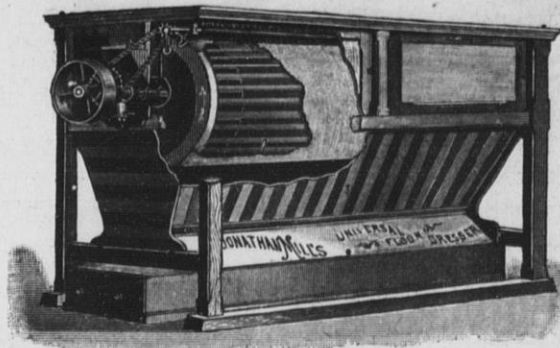
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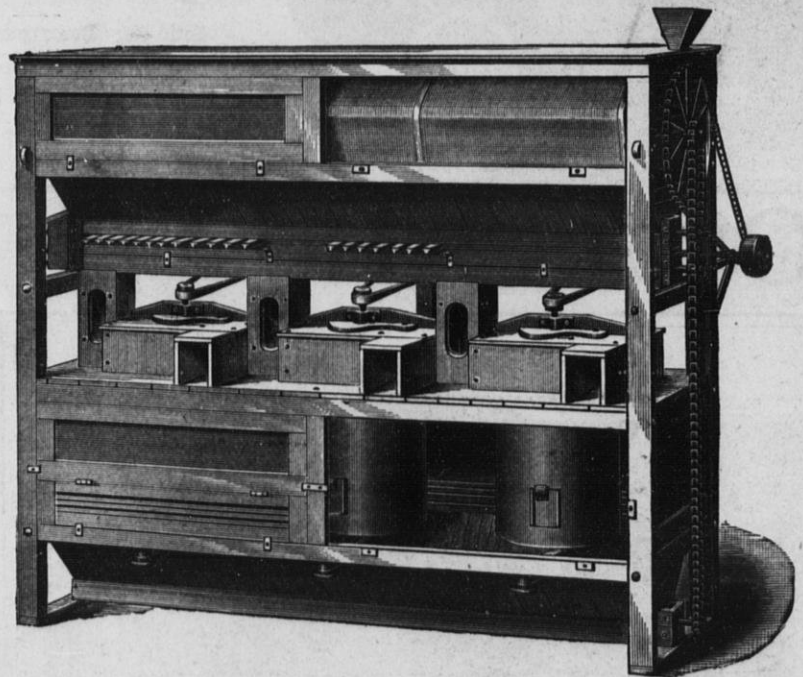
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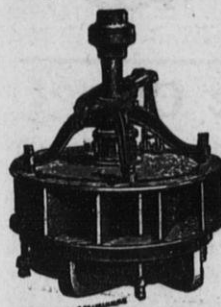
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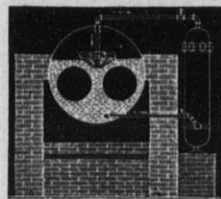
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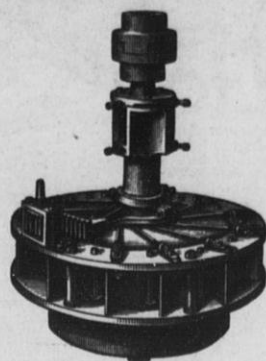
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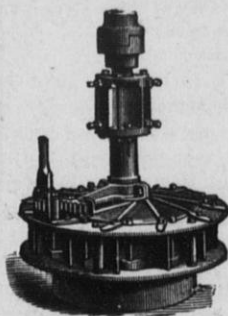
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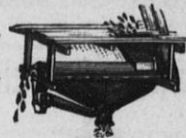
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Published by E. HARRISON CAWKER. } VOL. 20, No. 3. MILWAUKEE, JANUARY, 1886.

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## GRAIN HERE AND ABROAD.

Our Consul-General at London reports that the depression affecting the cultivation of cereals in Great Britain has reached its acutest stage. American competition and bad seasons have borne most heavily on British wheat growers, and the acreage of wheat in Great Britain the present year has fallen 7½ per cent. as compared with last year's. From other sources come statements about the depressing effect of American competition upon agriculture in the British isles. The farmers of Yorkshire have recently formed a co-operative society in order that they may sell produce directly to the consumer and get rid of the middleman and his profits. Careful observers report that agriculture in Scotland is in very bad condition. Many farms have been deserted and are degenerating to a wild state like the abandoned farms on the hills in some parts of New England. But the trouble in Scotland, while due in the first place to foreign competition, has been prolonged and intensified by high rents.

We do not see, however, that it is American competition which the British wheat grower just now has cause to fear. It was announced not long ago that in the six Western states that furnish the greater part of our winter wheat crop the acreage had been decreased at the last sowing, and that the reports indicated a tendency to turn from wheat to other crops. This decrease of acreage was caused by the low price of wheat, and the low price of our wheat has been caused in the main by the competition of India and Australia in the British wheat market, although the prevailing depression of industry and trade has had some effect in that direction. January wheat was sold in Chicago on Saturday for 83½ cents, but still there is substantially no export demand. Owing to a remarkable decrease in the quantity exported, our visible supply is enormous, notwithstanding the deficiency in the last crop. It is the cheap wheat of India and other countries that is breaking down the English wheat grower now, and the effect of its introduction in Europe is felt in this country. The average price of wheat in more than 150 English towns, week before last, was as low as the lowest price reached last year. This low price is not due to the sale of American wheat in England at low prices. The attitude of England toward American wheat is indicated by the *Mark-Lane Express*, which said recently: "Great Britain is, at the present time, quite independent of American red wheats. We do

not need them and we do not want them, and the one great danger is that they should be sent here under circumstances equivalent to liquidation on account of United States gamblers." This overstates the case, but marks the great change that has taken place in the British wheat market.

Consul-General Waller advises the American producer to grow more oats and barley for export, for the reason that in selling these crops they will not meet the severe competition of India. It is probable that the supply of Indian wheat for export will increase from year to year, owing to the development of the industry and of the railway system in that country by means of British capital. Indian competition in the wheat market, therefore, will not fall off, but will become more dangerous. At the same price the English will buy American wheat, because it is better, but the English buyer not only sees the Indian wheat far underselling the American but has also learned that the price of American wheat is fixed by speculation rather than by legitimate trade. He can rely upon the steadiness of the price of the Indian supply, but he knows that the operations of a syndicate or a burst of speculation among the grain gamblers in this country may send up the price of our wheat 10 cents a bushel in two or three days. Gambling in our grain market in the past led the foreign consumer to develop the agricultural resources of regions that are now our formidable rivals, and gambling in the same market now tends to confirm the trade arrangements which it then caused to be established.—*N. Y. Times*.

Now is your time to send in your subscriptions for milling papers and other periodicals. Read our Club List on another page.

## FREEZING MIXTURES.

It often happens that a plumber desires to stop the flow of water in a pipe when there is no way to turn it off. He must then resort to the use of some freezing mixture. The one most often used is ice and salt. The cold is produced by the large amount of heat abstracted from the body surrounded, necessary to change the ice and salt to a liquid state. It is probable that few people know the proper proportions of these two substances to put together to secure the best result. To inform those who have occasion to use such mixtures, *The Sanitary News* has compiled a list of the freezing mixtures readily prepared. The first column gives the ingredients with their proper proportions, the second gives the tem-

perature to which the thermometer sinks in the different mixtures, and the third gives the actual reduction of temperature which takes place in degrees Fahrenheit. The degrees below zero are prefixed by a minus sign.

Mixtures.	Thermometer sinks degrees F.	Actual reduction of temperature, degrees F.
1. 2 parts snow or pounded ice, 1 part sodium chloride.....	to -5	
2. 5 parts snow or pounded ice, 2 parts sodium chloride, 1 part ammonium chloride.....	to -12	
3. 24 parts snow or pounded ice, 10 parts sodium chloride, 5 parts potassium nitrate.....	to -18	
4. 12 parts snow or pounded ice, 5 parts sodium chloride, 5 part ammonium nitrate.....	to -25	
5. 1 part ammonium nitrate 1 part water.....	from 40 to 4	36
6. 5 parts ammonium chloride, 5 parts potassium nitrate, 16 parts water...	" 50 to 10	40
7. 5 parts ammonium chloride, 5 parts potassium nitrate, 8 parts sodium sulphate, 1½ parts water..	" 50 to 4	46
8. 5 parts sodium sulphate, 4 parts dilute sulphuric acid.....	" 50 to 3	47
9. 3 parts sodium nitrate, 2 parts dilute nitric acid...	" 50 to -3	53
10. 3 parts snow, 2 parts dilute sulphuric acid.....	" 32 to -23	55
11. 1 part ammonium nitrate, 1 part sodium carbonate, 1 part water....	" 50 to -7	57
12. 8 parts snow, 5 parts hydrochloric acid.....	" 32 to -27	59
13. 6 parts sodium sulphate, 4 parts ammonium chloride, 2 parts potassium nitrate, 4 parts dilute nitric acid.....	" 50 to -10	60
14. 9 parts sodium phosphate, 4 parts dilute nitric acid.....	" 50 to -12	62
15. 7 parts snow, 4 parts dilute nitric acid.....	" 32 to -30	62
16. 4 parts snow, 5 parts calcium chloride. ....	" 32 to -40	72
17. 2 parts snow, 3 parts crystallized calcium chloride.....	" 32 to -50	82
18. 3 parts snow, 4 parts potash.....	" 32 to -51	83
19. 6 parts sodium sulphate, 5 parts ammonium nitrate, 4 parts dilute nitric acid.	" 50 to -40	90

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## SCIENTIFIC SHAFTING.

A writer who is evidently well posted in the scientific phases of shafting discusses that important branch of mechanics in the London "Engineer" in the following entertaining way: Shafting, whether it be in the form of a short crank or other axle, or propeller shaft, or lay shafting in a mill or a workshop, must, if it is to work with the minimum friction possible, be mounted in accordance with certain mechanical principles, the soundness of which is generally understood, though they are not always exactly acted upon. In the case of short shafts such as in ordinary engine work, the shafts must not only be absolutely straight, but they must be of a diameter sufficiently large in proportion to their length to prevent deflection when subjected to a load such as a heavy fly-wheel or the side strain of a driving strap. According to some authorities an iron bar, however large, will be elongated or deflected by the imposition of any load however small, the alteration in the bar being proportionate to the load; but practical rules of common sense indicate that a shaft may have certain loads imposed on it which, while far exceeding those indicated by theory, do not cause injurious alterations of shape. In this matter a very considerable margin exists certainly, but unfortunately no one seems to know its exact extent. Text books give various rules for the proportions of shafting, but they mostly apply to torsional strains, which of themselves alone can scarcely cause friction in bearings, unless by shortening a shaft, and thus forcing the journal shoulders or collars against the ends of the brasses. Another principle is that side strain should be imposed as close as practical to a bearing. A third is that in the case of long shafting it ought to consist of a succession of short axles, each rotating in its own pair of bearings, independent of its neighbors in every respect save that of torsion. Lastly, bearings should be as rigid and inflexible as it is possible to make them. Bearings should support the shaft, not be supported by it. A good test of a perfect shaft, perfectly supported, would be the placing of the pedestals or plummer on smooth and greasy metal faces, the shaft with a light fly-wheel accurately balanced to be keyed on the shaft midway between the bearings, and the wheel set rotating, when any error in the shaft itself would cause motion in one or both pedestals. The most perfect mounting for a short shaft is to cast both pedestals in one with the bed plate, which must itself be so shaped as not to be susceptible of flexure or change of shape through change of level in its foundation. The pedestals ought to be eyes, if the design of the shaft will admit, these eyes being bored out with one boring bar, brass liners being subsequently forced into them, and these again bored out while in position. This method, however, will not suffice to reduce friction if the other points we have indicated are neglected; for if a fly-wheel be mounted on the outer part of the shaft, at a long overhang, a deflecting action is at once set up in the shaft, which is now simply a girder of the continuous and cantilever order, loaded vertically so far as the fly-wheel is itself concerned, and if a driving belt be worked on the fly-wheel, loaded in extent and direction proportionate to the resultant of the two

strains of the weight of the wheel and the pull on the belt. Again, if the wheel be not truly balanced, a strain is also put on the shaft by the centrifugal action of the preponderating weight, for all rotating bodies have centres of gyration which are fixed by the position of their centres of gravity, and round these they will ever try to rotate, resisting any force tending to confine them to any other rotative centre with an effort greater or less in proportion to the divergence existing between the natural and the enforced centre. Although the truths we now point out ought to be well known, some of the shafting to be seen at work is without apparent reason mounted with disregard to them. Wall-box supports are commonly used, yet they are altogether vicious and unscientific contrivances; and we venture to say that if sufficiently accurate gauges were applied to test the centreing of all the wall-boxes in use for, say, any period exceeding twelve months, not 10 per cent. of them would be found true. We will admit that cases exist and arise where they are necessary evils; the necessity does not, however, do away with the evil, and we are inclined to think that they are sometimes employed without necessity compelling it. The use of three bearings on short shafts is to be avoided as much as possible, and it is infinitely preferable to make a shaft self-supporting by enlarging its diameter, which may be done either in the ordinary way as a solid or by the use of hollow shafting.

When we come to regard the usual method of mounting lay shafting, we also perceive a neglect of first principles. We find shafting small in diameter in proportion to its length, even as regards the distance apart of its supports, and far more so as regarding the shaft, as a single rod, which, from the mode of uniting its separate lengths, it becomes. Such a bar, even before its pulleys are put on, is anything rather than straight; the load of the pulleys puts it still more out of truth, and then finally comes both the deadweight of half the belting driven by it and also the diverging strains of the loads on the driving sides of the belts. All these make a length of shafting serpentine, and this is increased in proportion to the distance of this or that pulley from a bearing. Hence it follows that the bearings must and do suffer; so also does the oil bill and the coal bill. Another source of friction and brass cutting is to be found in the methods sometimes observable of fixing the hangers or brackets, such as bolting to joists or flooring overhead, either of which are subjected to constant variations of load, and consequent alterations of line; or bolting to the members of an iron roof or its supporting columns, which are in perpetual movement of expansion, contraction, or from wind stresses. In many cases there is no better way practicable; but then the evil can be met by putting up shafting in independent lengths, each having its own pair of supports, and transmitting the rotation power by universal joints, or the simpler expedient of cross-ends plain on one end and "taken on to" by studs or pins fixed on the other cross-end.

It is probable that not one steam user on a large scale in a hundred can tell how much power is absorbed in overcoming preventable friction in his shafting. Yet it could be ascertained by the simple process of putting

an idle pulley under each shaft pulley, and loading it to such an extent as would put a strain on the shaft there equal to that caused by the machine driven by that pulley, then running the engine at its usual speed, subsequently running the engine idle, and noting the difference of power absorbed. We may also point out that brass is used far more freely than is necessary for lay shaft beams. Hardwood, such as hornbeam or beach, is much better and cheaper when the loads are not too heavy. Wood bearings will run for years. They soak up oil and come to a beautiful surface, and they never cut a shaft as brass will do. The virtues of wood are not understood as they ought to be.—*The Engineer*, London.

## FIRE DOORS IN MILLS.

From a Lecture before the Franklin Institute by C. John Hexamer.

There are few parts in fire construction which are of so much importance, and generally so little understood, as fire doors. Instances of the faulty construction of these, even by good builders and architects, may daily be seen. Iron doors over wooden sills, with the flooring boards extending through from one building to the other, are common occurrences. We frequently find otherwise good doors hung on wooden jambs by ordinary screws. Sliding doors are frequently hung on to woodwork, and all attachments are frequently so arranged that they would be in a very short time destroyed by fire, and cause the door to fall. In case of fire, a solid iron door offers no resistance to warping. In an iron lined door, on the contrary, the tendency of the sheet iron to warp is resisted by the interior wood, and when this burns into charcoal, it still resists all warping tendencies. I have seen heavily braced solid iron doors warped and turned after a fire, having proved themselves utterly worthless. It is needless to say that when wooden doors are lined, they should be lined on both sides; but frequently we find so-called fire-proof doors lined on one side only.

Good doors are frequently blocked up with stock and other material, so that in case of fire they could not be closed without great exertion; or they have been allowed to get out of order, so that in case of fire they are useless. This has been so common that it has given rise to the jocular expression of insurance men, when they are told that a fire door exists between the two buildings, "Warranted to be open in case of fire." The strictest regulations should exist in regard to closing the fire doors nightly. Frequently we find that although the fire door, and its different parts, are correctly made, there are openings in the wall which would allow the fire to travel from one building to the other, such as unprotected belt and shaft holes. That a fire door may be effective, it must be hung to the only opening in the wall.

The greatest care must be exercised to keep joists from extending too far into the wall, so as not to touch the joists of the adjacent building, which would transmit the flames from one building to the other in case of fire. A good stone sill should be placed under the door, and the floor entirely cut. Sills should be raised about one and a half inches above the level of the floor, in order to accomplish the necessary flooding of the same. If stock must be wheeled from one building to the

other, the sill can be readily beveled on both sides of the wall, allowing the wheels to pass readily over it. Lintels should consist of good brick arches. When swing doors are used, they should be hung on good iron staples, well walled into the masonry, and the staples so arranged that the door will have a tendency to close by its own weight. The door should consist of two layers of good one and a quarter inch boards, nailed crosswise, well nailed together and braced, and then covered with sheet iron nailed on, or if of sheet tin, flanged, soldered, and nailed. Particular care should be taken to insert plenty of nails, not only along the edge of the door, but crosswise in all directions. I have seen cases, where the entire covering had been ripped off through the warping tendencies of the sheet iron.

The hinges on these doors should be good strap hinges, tightly fastened to the door by bolts extending through it, and secured by nuts on the other side. Good latches which keep the door in position when closed should always be provided. In no case should the door be provided with a spring lock which cannot be freely opened, as employes might thereby be confined in a burning room.

Sliding doors should be hung on wrought iron runways, fastened tightly to the wall. Wooden runways iron lined, which we frequently see, are not good, as the charring of the wood in the interior causes them to weaken and the doors to drop. Runways should be on an incline, so that the door when not held open will close itself. Care must be taken to have a stop provided in the runway, so that the doors may not, as I have frequently seen them, overrun the opening which it is to protect. Doors should overlap the edges of the openings on all sides. Large projecting jambs should never be used.

All doors contained in "fire walls" should have springs or weights attached to them, so as to be at all times closed. Fire doors can be shut automatically by a weight, which is released by the melting of a piece of very fusible solder employed for this purpose. So sensitive is this solder that a fire door has been made to shut by holding a lamp some distance beneath the soldered link and holding an open handkerchief between the lamp and link. Though the handkerchief was not charred, hot air enough had reached the metal to fuse the solder and allow the apparatus to start into operation.

These solders are alloys more fusible than the most fusible of their component metals. A few of them are: Wood's alloy, consisting of: cadmium, 1 to 2 parts; tin, 2 parts; lead, 4 parts; bismuth, 7 to 8 parts.

This alloy is fusible between 150° and 159° Fahr. The fusible metal of D'Arcet is composed of: bismuth, 8 parts; lead, 5 parts; tin, 3 parts.

It melts at 173.3°. We can, therefore, by proper mixture, form a solder which will melt at any desirable temperature. Numerous devices for closing doors automatically have been constructed, all depending upon the use of the fusible solder catch.

**CAMPAIGN STORIES.**—The Virginia campaign will go into history as the battle-royal of the story-tellers. John S. Wise, who is a whole minstrel show, end man, interlocutor, and all, set the pace to commence with. He told stories from the mountains to the coast,

and the whole state was agrin. The tide was republican. Fitz Lee tried the saddle and the confederate flag racket for awhile, and then he, too, fell to telling stories. The republican tide reached its flood. As the finish neared, story-telling became the issue. Mahone sent for Sherman and Foraker, and attempted to infuse some seriousness into the campaign. The effort was a failure. The republican tide receded. Then the democrats redoubled the funny business. They sent for Dan Voorhees, for O'Neill, of Missouri, and for Akers, of Tennessee, and Barbour's request of them was: "Tell stories! For God's sake, tell stories!" Parson Massey crawled out of a sick-bed to make sport for the party. It was a queer element to infuse into politics, and into Old Dominion politics at that, but it won. There were no duels, and less blood was spilled in the whole campaign than is usually let out in a day when Virginia is politically moved. He laughs best who laughs last, and the democrats laughed last.

Mr. Akers is rehearsing some of the stories with which he made democratic votes, and out of all his repertory he selects this as the one which proved most effective:

"A nigger had a dream, and thought he went to hell. The next day he told his friends what he had dreamed, and they asked him a great many questions.

"Did you see ole Satan down dar?" one of 'em asked.

"Oh, yes; I seed ole Satan an' Belzybub an' Pollyun an' de hull lot. Dey wos jes' standin' roun' an' tendin' to de bisnis, pokin' de fires an' makin' it berry hot."

"Was—was dey any niggers down dar?" asked one.

"Oh, yes, dey wos heaps o' niggers, heaps ob 'em."

"White folks?"

"Oh, yes, lots o' white folks, scores an' scores ob 'em."

"Democrats?"

"Oh, yes, plenty democrats."

"An' publikins?"

"Oh, yes, de publikins, dey wos in one pen by deyselves, an' de democrats dey was in a pen, too."

"Was de black and de white publikins in de pen?"

"Yes, dey was altogedder in the same pen."

"Wat wor dey all doin'?"

"Well, I clar to goodnis, when I looked in dat ar pen and seed dem it 'peared like ebery white publikin had a nigger a holdin' up 'twixt him and de fire to catch de heft ob the heat."

"I estimate that story was good for twelve hundred nigger votes to our side in this Virginia campaign," says Mr. Akers.—*St. Louis Globe-Democrat.*

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### FALSE TEACHINGS AND PROPHECIES OF FREE-TRADING.

Furnished exclusively to THE UNITED STATES MILLER for January 1886.

[Extract from a lecture on "The Humanity of the American Protective Tariff," delivered before the Wisconsin Legislature, at Grand Army Hall, Rockford, Ill., etc., by John W. Hinton, of Milwaukee.

In reference to the false teachings and prophecies of free-traders, Mr. Hinton said:

"I will now briefly allude to the false teachings and prophecies of English free-traders. Had their predictions been realized, or their promises fulfilled, had other countries adopted free-trade, as it was claimed they would be compelled to do, and abjectly submitted to the English claims of being the only nation, having an exclusive right, *deo gratia*, to manufacture for the whole world, then, there might be some tangible ground for the assertions of the modern free-traders of England and America.

The exact reverse is the truth. Free-trade never has been nor is it now anything but a "science based upon assumptions." All is assumed; nothing is proven. The couplet of Pope's, slightly altered, expresses the truth:

"Hope springs eternal in the free-trade breast,  
Man never is, but always to be blest."

Assumptions and theories, *ad infinitum*, are the weapons of free-traders, until their minds seem filled with "false and glittering thoughts, and hurried and flippant fantasies are substituted for exact and philosophical reasoning." The palpable realities and proven results of protection as seen in our own and other countries wherever tried and so long tested, are ignored or derided; they cannot be disproved for "facts are stubborn things."

Mr. Cobden was no exception to the mass of English free-traders, all having proved failures as prophets. Not one of his predictions has been verified. His dogmas, so positively and defiantly pronounced, have been paralleled only by the perfect refutation of every claim he set forth, and with which he gulled his countrymen.

The author I before quoted to you at the beginning of this address, says:

"If we would form a just estimate of our modern English notions on this matter, we must look backwards, look around us, and look forward; or we shall resemble the rustic, whose history and geography are circumscribed by his own life in his own parish."

English protectionists were better prophets. In 1844 they were gravely doubtful and deeply anxious as to the results to England, if the free-trade movement succeeded, should other nations pass tariff laws for the encouragement and protection of their own manufactures.

Mr. Cobden dogmatically denounced their doubts and ridiculed their anxiety, assumptively declaring: "You have no more reason to doubt that the sun will rise in the heavens to-morrow, than you have to doubt that in less than ten years from the time England inaugurates the glorious era of free-trade, every civilized community will be free-traders to the back-bone."

The facts are, England alone excepted, "every civilized community is for protective tariff to the back-bone," including nearly every British colony.

Another dogmatic assumption of Mr. Cobden's of about the same date:

"Adopt free-trade and there will not be a tariff in Europe that will not be changed in

less than five years to follow your example."

The facts are "every change has been in the interest of protection." In 1882 in the English House of Commons, Mr. Ritchie's motion for "Fair Trade vs. Free Trade" was lost by only 51 votes, a change of 26 votes would have carried protection in England.

Sir Robert Peel in 1844 prophecied:

"Depend upon it, your example will prevail. Reason and common sense will induce relaxation of high duties. I see symptoms of it already."

The truth is "reason and common sense" have rejected free-trade everywhere except in England.

Mr. Bright fails equally as a prophet, writing to the Chicago Tribune, a free-trade organ, in 1867, he said:

"All the countries of Europe are tending to free-trade."

Another assumption; and again the facts refute the prophecy. Several of those countries have adopted the American system of protecting home industries and encouraging home manufactures and home labor, with results fruitful in benefits to both their capital and labor, but palpably detrimental to England, where so clearly is this fact proven, that "retaliatory duties" is the present war cry of many of the former free-traders of England under the cognomen of "Fair Trade." I will allude to Germany presently.

Again Mr. Bright said in 1877:

"If we look into France we see that protection is becoming weaker. If we look at the United States or consult any intelligent American, we shall find that there it is shaken and tottering to its fall."

The facts again refute the assumption. France maintains its high protective tariff, and, while I am speaking, is about passing stringent corn laws.

"Political Economy" is studied and tested, not summarily swallowed by Frenchmen. One of their statesmen calls political economists "the authors of a literature, unsatisfactory, obscure, presumptuous, and which would be dangerous were it not tedious and ridiculous."

Adam Smith is no more reliable as a prophet than those who so blindly accept all his utterances as infallible. In his "Wealth of Nations," book 4, chap. 2, he says:

"Even the free importation of corn (into England) could very little affect the interest of the farmers of Great Britain. \* \* \* If there was no bounty, it is probable that one year with another, less would be imported than at present."

Another foolish assumption, and tested by facts its folly is made apparent.

When that statement was made Great Britain imported 190,000 bushels in a year, whereas, even in 1877, she imported 252,000,000 bushels or a thousand times more than Adam Smith's prophecy or assumption.

In no country in the world have "farmers been so badly affected as in Great Britain, where agriculture is literally ruined, and farm laborers have been reduced to such a dismal, degraded level, as to excite horror in every well regulated mind; their average wages having been forty cents a day with which to supply rent, fuel, food, and clothing for himself and family. An American (Christian) minister, an advocate of free-trade, after witnessing his condition in England, says: "his end is generally the work-house." A Scotch missionary, Alexander Duff, horrified at the condition of farm laborers, attacking a nobleman, received the

reply: "My dear sir, I rent my lands in mass. I have no more to do with the pay or the treatment of the laborers than I have with those on the estates of the Earl of Shaftesbury. I cannot touch this mass of England's poverty."

In view of such replies I ask, what have the House of Lords and Commons ever done for the promotion of the general welfare of the people of England? This is no exaggeration, I will quote to you from Fawcett's Political Economy, pp. 192 and 193, genuine English authority; "There are few classes of workmen who in many respects are so *thoroughly wretched* as the English agricultural laborers. They are in many respects so miserably poor that if they were converted into slaves to-morrow, it would be for the interests of their owners to feed them far better than they are fed at present. Throughout large agricultural districts not a single agricultural laborer will be found who has saved so much as a week's wages. A life of toiling and incessant industry offers no other prospect than a miserable old age." "In England, the laboring man is lucky if he escapes ending his days in the work-house," says Thomas P. Burt, M. P.

Now as to Germany. The German chancellor realized the national danger of adopting "political economy," as expounded by free-trade votaries, whom he styled:

"*Doctrinaires*, clergymen and lawyers, but few of whom know anything of the details of public affairs, are generally on that side, (free-trade) and they are led by those who know nothing on the question, but what they have learned from the books of men who have plausibly formulated impracticable nonsense. I have had much annoyance from blockheads who ask impossible answers to irrelevant questions, and as the French proverb says, 'Go about seeking for noon at 2 o'clock.'"

Referring to the condition of the United States and contrasting our condition with the countries of Europe, he said:

"While the American Republic was enjoying this peculiar prosperity, the countries of Europe, which America most relieved by absorbing their unemployed population, were apparently continually getting worse off."

With that terseness and saliency so characteristic of Prince Bismark when he talks: he said of certain theoretic experiments: "We found out when it was too late that we had put only hot water into our soup-boiler." To the Reichstag he said: "The time has come when Prussia must follow the example of the United States, and adopt a protective tariff to ensure her prosperity." Prussia did it and prospered under it.

Mr. Beaufort Hurlbut, M. P. for Canada, author of an excellent work on "Protection," after stating that "Free Trade" is no longer regarded by Englishmen as the worship of Brama is by the Hindoos, a matter of devout contemplation, only too sacred for discussion, says:

"When foreigners see manufacturers dying out under free trade in England, and springing into vigorous life under protection in France, Germany, Belgium, America and Canada. When they see the ruin of industry, the depression of all manufacturing interests, operatives emigrating, capitalists preferring investments in foreign countries to those of their own; they do not look much further for arguments against free trade."

See Holland with her free trade, once the naval mistress of the ocean; brooms borne at the mastheads of her ships defiantly threatening to sweep the seas. To-day a petty

power, scarcely felt in Europe; her manufacturing power destroyed; her people imploring their King to pass a protective tariff to avert impending danger. England, maintaining, for centuries (until recently) the highest protection, has swept the Dutchmen from the ocean. But England, adopting free trade, is now imploring the United States to lower its tariff, crying, "Save me Cassius, or I sink." Even Gladstone, replying to a delegation of free traders, says:

"Gentlemen, have compassion on me while a minister of the crown, and after that I will go with you strong on the abstract principle, although utterly impracticable in the affairs of terrestrial kingdoms. I warn any terrestrial government against adopting free trade."

Benjamin Disraeli, afterwards Prime Minister of Great Britain, warned the English free traders, when they were in the hey-day of their false glory of prophecy, as to the results to follow free trade:

"Gentlemen, the time will come, when the working-classes of England will come to you on bended knees, and pray to you to undo your present legislation."

English history and English condition of labor and industry, proves Disraeli to have been right, and Cobden and Bright to have been wrong. As one writer says, "thirty-nine per cent. out of forty of mankind the world over are advocates of 'protection' and opposed to 'free trade.'" Goldwin Smith embodies the whole truth itself:

"Free trade still stands pretty much where it stood on the morrow of the reconciliation of Cobden and Peel. Their visions—Cobden's at least—have not yet been fulfilled. \* \* \* England, while she preaches free trade, and thinks all the world demented because it will not listen to her preaching, is herself not a Free Trade Nation. She raises £20,000,000 (\$100,000,000) by import duties, which, though admirably well adapted to her special circumstances, are not less interferences with freedom of trade. Every nation has its tariff, every nation will continue to have its tariff, so long as money for establishments and armaments are required, and for tariffs as was said before, there is no substitute, each country must be allowed to frame its own. Cobden assumed that the world was a single community; he could not bring the human race to that far-off goal of humanity."

Our tariff system can be best tested by its results, to which Mr. Bright bears testimony,

in his contrast between the condition of labor under free trade in England, and American labor under protection in the United States. Mr. Bright said, addressing English workingmen:

"One of the most painful things to my mind to be seen in England is this, that among the great body of those classes which earn their living by their daily labor—it is particularly observable in the agricultural districts, and it is too much to be observed even in our own districts—there is an absence of that hope which every man ought to have in his soul that there is for him, if he be industrious and frugal, a comfortable independence as he advances in life. In the United States that hope prevails everywhere, because everywhere there is an open career; there is no privileged class; there is complete education extended to all, and every man feels that he was not born to be in penury and in suffering, but that by his honest efforts there is no point in the social ladder to which he may not fairly hope to raise himself."

And, again, in speaking to English workingmen he said:

"There has always existed among all the population an amount of comfort and abounding prosperity, such as I believe no other country in the world, in any age, has displayed."

My friends, I will conclude my allusion to the blundering false prophecies and predictions of the English free-traders with that distich familiar to some of you:

"Old politicians chew on wisdom past,  
And totter on in blunders to the last."

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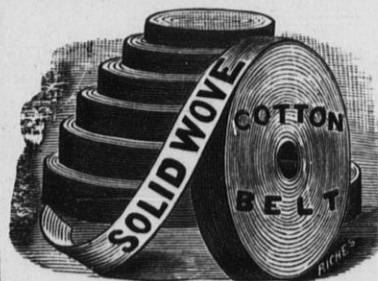
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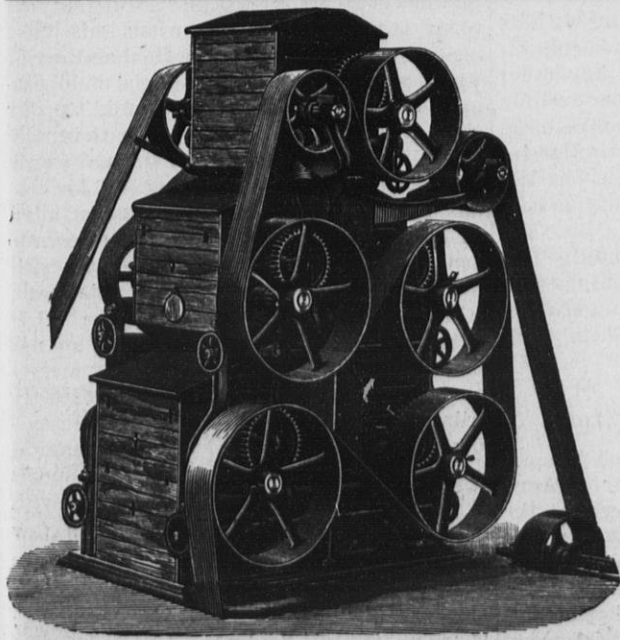
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MILWAUKEE, JANUARY, 1886.

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THIS being the holiday season, we publish an unusually large amount of amusing miscellaneous matter.

Dr. Cowan's "Science of a New Life" should be read by every man twenty-one years of age. It is a scientific work in plain language that anyone can understand. See descriptive advertisement on another page.

MR. A. T. BALLENTINE has resigned his position as superintendent of the shops of the Cummer Engine Co., Cleveland, O., and will hereafter devote his entire attention to the Ice Machine Department of that company. Mr. Alfred Clarke has been appointed to take the position of Superintendent.

THE YOUTH'S COMPANION, published by Messrs. Perry Mason & Co., Boston, Mass., has evidently become a great favorite with the young people of this country, for it now boasts of a regular subscription list of 340,000, a showing which we believe cannot be equalled by any other similar publication. Merit has done it. We can pay it no higher compliment. It is in every sense a clean paper which parents may be pleased to see in the hands of their children. The subscription price is \$1.75 per year. By special arrangement with the publishers, we can supply the U. S. MILLER and the Youth's Companion for one year for \$2.50.

THE article in the January *Harper's Magazine* which is likely to be most widely read, though perhaps not most popular, is the last word of Gen. McClellan to his countrymen on "The Army and the militia."

We will send the American Miller, The Northwestern Miller (weekly) and the U. S. Miller for one year for \$3.00.

E. W. ARNDT, Esq., of DePere, Wis., Secretary of the Wisconsin Millers' Mutual Fire Insurance Company, made us a pleasant call Dec. 12.

## THE LONG WINTER EVENINGS.

We think sometimes that winter with its long winter evenings is of greater importance to thoughtful persons than any other season of the year. The long winter evening seems to be peculiarly adapted to reading, writing, studying, drawing and similar indoor occupations. We believe most heartily in all kinds of innocent amusements as beneficial to both mind and body, but any amusement ceases to please if indulged in too often. We have these long evenings with us now, and we hope that our younger readers will profit by them, as they certainly will if they try.

## THE MOVEMENT OF WHEAT CULTURE.

The report of the Commissioner of Agriculture for the month of October has the following: The western movement of wheat growing, the local rise and decadence of wheat culture, have excited comment for a generation. The facts are that pioneer cultivation in this country tends to wheat-growing, and agricultural progress introduces

other crops and destroys its prominence without necessarily reducing the quantity of the wheat grown. Thus Genesee was a prodigy of production and a synonym of bread supply a generation ago. It still produces wheat, almost as much as in the height of its bread-making fame. The wheat fields of Ohio, of Southern Michigan, of Western Illinois, are distributed more among other crops than formerly, with some regard to systematic rotation, and with results as good as those of pristine fertility, except where negligence and bad management prevail. It is in the prairie districts, where new lands are open for superficial cultivation, and ready money for farm improvement is the prime and almost only consideration, that the rate of yield is declining.

It is a wasteful, a slovenly mode, but it has not permanently exhausted the soil. That is often asserted, but it is too strong an expression. It is injurious to the soil, filling it with seeds of weeds, and finally unprofitable, giving place to variety of crops, to grass and farm animals, and leading to higher fertility and better profits. This change is going on in Wisconsin and Nebraska, and is commencing in Dakota; it is well advanced in Iowa, and progressing in Nebraska. All of the fertile states of the Missouri are to be very prominent in meat production, yet the cultivation of wheat is not to be superseded. It will be less prominent relatively, but not necessarily less in volume, as population advances. The rise of dairying in the ten years past in this section is a relation of progress that will diversify the agriculture of the Northwest more and more, and add immensely to the production, the wealth, the material and political importance of this fertile central area.

Mr. William J. Langson, secretary of the Milwaukee Chamber of Commerce, in his report for 1885, refers to the decadence of Milwaukee as a wheat market, to the former boast in local oratory of having the greatest spring wheat market of the world, and to his prediction thirteen years ago of ultimate loss of this pre-eminence. He is wise, either from an agricultural or commercial point of view, in declining to mourn over the change that has occurred. He says: "I further ventured the prediction that when this happened the capital engaged in the handling of wheat would find other channels of investment which would do more to build up our city on a more substantial basis than the wheat business, which in its nature is changeable and unsatisfactory. This has taken place, while our trade has really fallen off but little in the aggregate, if we include flour, and the quality of our wheat is still better than that of our Southern neighbors; still we no longer tower above the other cities as we did years ago. I for one am not inclined to lament over this, for it merely proves that the great region more directly tributary to Milwaukee, instead of increasing its production of wheat, has now capital enough to diversify its agriculture, and shows that our farmers are no longer satisfied with scratching the ground or planting a few kernels of wheat year after year, but are now rich enough to produce cattle, cheese, chickens, and butter, and all the other multifarious products adapted to our climate and soil.

**THE ONE STAVE BARREL.**

On the west side of the River Rouge, about three miles beyond the western limits of Detroit, on a site embracing between 15 and 20 acres of land, the Anchor Mfg. Co. has built and is erecting several buildings for the manufacture of barrels by a new process. Hugh Mattullath is at the head of the institution, and associated with him as stock holders are Alanson Sheley, A. R. & W. F. Linn, A. S. Brooks, the Candler Brothers, Peltier & Belanger, George W. Moore, Chas. E. Cottrell and William P. Fuller. The company has a paid up capital of \$500,000. The establishment is now turning out 6,000 barrels per day, and will soon be making twice that number. While the size and shape of this barrel are the same as the ordinary kind, the body of the barrel consists of a single sheet of timber held by hoops. The timber used is elm, which is cheap and abundant. Canada is the main base of supplies and timber hunters sent there have already arranged for a year's supplies for this establishment. The logs will be rafted over during the season of navigation and brought by rail in the winter time. The logs are taken from the boom or yard into the sawmill and cut into two barrel lengths. Thence they go into a steam-chest where they remain until thoroughly steamed. In this condition the log is converted into thin sheets, or veneering, used in the body of the barrel. By a special process a two-foot log becomes rolls of wooden sheeting in a minute's time. There remains upon the mandrels an eight-inch core which is utilized in making barrel heads. The sheets go next to a sanding machine, by which both sides are made perfectly smooth. After passing through a cutting and grooving machine they are so cut by a goring machine as to adapt them to the shape of a barrel. Thence they go to a drying house. The latter is a building 50x400 feet heated by steam. From the dryhouse they go to the sizing saws, where they are cut the desired length, when they are ready for the cooper shop or for shipment. They are shipped in bundles and in the 'knockdown,' to be put up at the point of their destination. Three thousand of them can be stored and forwarded in an ordinary box car. The headings are shipped in barrels. The factory is full of the finest machinery, and not a little of it is the product of Mr. Mattullath's ingenuity. The engine and boiler rooms are of brick, the other structures frame. Other improvements are projected. A boarding-house, 34x80 feet in size, will be put up, and the company contemplate the erection of a number of additional cottages to be occupied by their workmen. The factory is now running with a force of about 100 men.—*Detroit (Mich.) Journal.*

• Before subscribing for any paper read the U. S. Miller club list on another page.

**TRADE SCHOOLS.**

In a recent address by Prof. Thurston, of Cornell University, delivered at Scranton, Pa., he said: "At Bloomfield, New Jersey, the authorities are introducing most successfully a course of instruction of both boys and girls in the use of tools into their public school system. A manual training school affords a means of rewarding merit at Girard College, where the best students and

most promising youths are admitted into the wood-working and machine shops under instruction, and there, under the careful and skillful tuition of expert mechanics, I have seen boys of twelve doing work at the vise with hammer and chisel and file that many an old workman might be glad to rival. The city of Chicago has a manual training school; at St. Louis, Washington University is doing excellent work in well appointed shops. Boston, in her great Institute of Technology, beside the classes of aspirant mechanical engineers, has organized other classes of boys ambitious to learn the use of tools, and is cultivating the special Yankee talent in a systematic and fruitful manner; and all over the country these primary technical schools are springing up."

"A year or more ago, I received a letter from a capable and successful superintendent of schools in a Western city, saying that he had seen plainly the approach of the new era in primary education of the people for the work and life of the people; and desired to be ready for its advent in his own city, and asking to be instructed that he might intelligently direct the changes of method and system inevitably to come in his own organization. He came East and worked in the shop and studied under instructors all summer to obtain the requisite knowledge and skill. Fortunately, he proved a natural mechanic, and an extraordinary capable man, and he is now ready to lead in the movement when the looked-for time shall arrive.

"Trade schools now form a part of every school of engineering, and schools of engineering are springing up all over the land."

We will send the Scientific American (weekly) and the U. S. Miller for one year for \$3.50.

**SOMETHING ABOUT LEATHER BELTING.**

A well known manufacturer of leather belting says: Having been engaged in the manufacture of oak leather belting for the past fifteen years, I would respectfully call attention to the essential points necessary to the manufacture of good belting, the first of which is the selection of the leather, which should be oak tanned, it being more pliable than any other, and as durability is required, it should be thoroughly tanned and made from young hides, they having more strength than the hides from old animals. Leather chosen, though it may be ever so good, may be spoiled in currying, and as this is an important part, it is conducted under my own supervision, where I have the shoulders cut from the hides, and nothing but four feet in length of the choice butts, curried for belting purposes, as the shoulder naturally stretching in a different direction from the butts, causes that great annoyance in factories of belts running crooked. The putting on of belts should be done by a person acquainted with the use of belting, and too much judgment cannot be exercised in this respect, as the wear of the belt depends considerably on the manner in which it is put on, therefore the following suggestions, if practiced, will be of much service to persons employed in this capacity. The butts to be joined together should be cut perfectly square with the belt, in order that one side of the band may not be drawn tighter than the other. For the join-

ing of belts good lace leather, if properly used, being soft and pliable, will always give better satisfaction than any patent fastening or hooks which have yet been invented.

Where belts run vertically, they should always be drawn moderately tight, or the weight of the belt will not allow it to adhere closely to the lower pulley, but in all other cases they should be slack, in many instances the tearing out of lace holes is often unjustly attributed to poor belting when in reality, the fault lies in having the belt too short, and trying to force it together by lacing, and the more the leather has been stretched while being manufactured, the more liable it is to be complained of. All leather belting should occasionally be greased with the following mixture or it will become dry and will not adhere to the pulleys: one gallon neat's-foot or tanner's oil, one gallon tallow, twelve ounces resin, dissolved by heat and well mixed together, to be used cold, the belt having been previously dampened with warm water, except where it is spliced together. During the winter season, an extra quantity of oil should be added to the mixture. To obtain the greatest amount of power from belts, the pulleys should be covered with leather, this will allow the belts to be run very slack, and give 25 per cent. more wear. I drive a large circular saw, requiring 15-horse power, with a very slack belt, the pulleys being covered with leather. For heavy counter belts, not intended to be used on cone pulleys, or at half cross, I recommend double belts, made from shoulders only, which I furnish at the price of single belting; and as the stretch is taken out from the shoulders after they are cut from the side, they are guaranteed to give better satisfaction as a counter belt than a single belt will.

More power can be obtained from using the grain side of a belt to the pulley than from the flesh side, as the belt adheres more closely to the pulley; but there is this about it, the belt will not last half so long, for when the grain which is very thin, is worn off, the substance of the belt is gone, and it then quickly gives out; so that I would advise the more saving plan of obtaining power by driving with wider belts, and covering the pulleys with leather. Where belts are to run in very damp places, or exposed to the weather, I would recommend the use of rubber belting; but for ordinary use it will not give the satisfaction which is so generally obtained from using oak leather belting, as it cannot be run on cone pulleys through forks or at half-cross, and with fair usage would be worn out, while a leather belt was regularly performing the work allotted to it; for when the edge becomes worn, the belt soon gives out.

THE story is told that not long ago a ranting Chicago Communist gathered a crowd, and entertained them with his diatribes on the inequalities of riches and poverty. He was in the midst of his fiery declarations that the capital of the rich belonged to the laboring classes, when a clear voice rose from crowd: "You've got a gold watch and I haven't any. I want yours." The speaker was nonplussed. Recovering himself, however, he said, "I bought the watch and paid for it." "Don't make any difference," persisted the voice; "you've got a gold watch and I haven't—I want it!" The talker was checkmated and the meeting broke up.

## MILLING NOTES—PRACTICAL AND THEORETICAL.

BY GEORGE MILLER.

In my last notes I stated that there were many things besides a bad yield which go to swell the cost of producing a sack of flour. For instance, there is power, light, labor, lubricant, stoppages of mill, repairs of same, and many other expenses incidental to the work of manufacture, which has all to be paid out of the profits made on the flour. Now all of these come under the head of the mill manager's responsibilities, and all are subject to wanton waste or economy on the part of the millers. Then we have insurance, taxes, depreciation of plant and interest on plant account, or mill rent, as the case may be, travelers' salaries and expenses, or agents' commission, maintenance of horses and keeping up of rolling stock, etc. All of which, although they may not be directly within the pale of the mill managers' responsibilities, has all to be made out of his flour before any net profit can be realized. A few practical remarks on these several items of expense may not be uninteresting.

First, then, as to power. There is a wonderful difference in the cost of this item, as influenced by the engine and boilers. We need not refer to the setting of boilers or the construction of engines; these are supposed to be above the mental capacity of millers, and we have in consequence, no voice in the matter. We must not speak of the latent or sensible heat of steam, the number of cubic feet procurable out of a cubic foot of water, the points of temperature at which water will boil under different auspices, for instance in a vacuum under the pressure of mercury, or under common pressure, the use and effect of the lever upon the safety valve, the elastic force of steam upon a circular or square inch, calculations of steam power by cylinder indication, the diameter and velocity of piston in relation thereto, the length of stroke as influencing the power, the apertures of steam ways and slide valves as related to the eccentric, the cold water and air pump, the condenser, the length of stroke in commensuration with the length of beam, the connecting rod in commensuration to the length of stroke, the peripheral velocity and weight of a fly-wheel as affecting back-lash or centrifugal force, the parallel motions, governors, etc. Now these are all technics of the engine which may in some measure affect the cost of producing a sack of flour, and they are nice points for the intelligent and scientific calculator to enunciate, but I have no doubt that I will be told they are beyond my mental calibre, and any attempt at an elucidation of the problem would be denounced by my acrimonious critics as a mere chimera. But I can well afford to allow the vindictive verbiage of those puny pseudo millers to stew in its own juice. Nevertheless, we cannot remain quiescent even in these matters if we know them to be wrong, and more especially if we know them to be interfering with our work. We will speak first of the firing, which is certainly within our province. The expense of power is much influenced by the manner in which this is done. For example, irregular and unintelligent firing will consume more coals per horse-power than if it be done with regularity and intelligence. Dirty boilers will also require more coals to keep up steam than clean boilers. Feeding the boilers with cold

water will take more coals per gallon to evaporate than if the water was previously heated; so also will boilers of limited capacity use more coals per horse-power than large and more commodious boilers. Then again, there is the subject of smoke consumption, which not only affects the consumption of coals, but by a superfluous expenditure of money on artificial smoke burners, it affects our cost of production by running away with the profits. Some hundreds of different contrivances have been brought before the public and pronounced perfect, but still the perfect artificial smoke burner has not emanated from the inventor's brain; and when we see great clouds of black smoke ascending from this, that, and the other stack, we cannot but reflect that this is simply the result of ignorance or forgetfulness in the stokehole. If a fireman has properly set boilers, and ample steam capacity in them, there is no necessity for artificial smoke burners. The fireman himself ought to be the absolute smoke burner. We know that under the auspices we have referred to a good and intelligent fireman is perfectly able to burn all the smoke he ought to make. We do not assume that he can burn it absolutely, but he can change its character and appearance so as to defy the interference of the meddling, officious sanitary inspector; and this is really the only grievance. Better far to pay for intelligence than superfluous smoke burners. Light and frequent firing is the road to economy in a boiler; heaps of coals should never be allowed to accumulate in the furnace; clinkers which are the result of imperfect combustion, are caused through this, and necessitate the too frequent use of the poker and clinker bar; whereas, intelligent firing in a great measure dispenses with these implements. All boilers should be blown out with a sludge-cock at least twice in every twenty-four hours, so as not to allow the water sediment to settle down to scale on the bottom, and they should also be thoroughly cleaned out once in every week. The engines of our mills do not as a rule have the amount of intelligent attention paid to them that they ought to have. The majority of them are still of an antiquated type—very few have advanced beyond the long stroke and side valve, and many have still the old-fashioned tapit valves for steam application. The modern automatic expansion valve is peculiarly rare in our mills, and what is more peculiar, some who have them do not use them, which we look upon as proof positive of the absence of intelligence in the operating of our engines. Steam expansion, however, cannot be extensively used in a flour mill. No manufactory requires such steady power as our mills do. Much lap upon the valves of a single engine is sure to cause a severe back-lash upon the machinery, and although not so destructive in double as single engines, nevertheless, it more or less affects all. Now, next in bad effects to unequal feeding is this back-lash. It is one of the most aggravating things we have to contend with, and very few mills are clear of it, because a slide valve having no expansion lap at all, merely covering the apertures when the valve is at the middle of the stroke, will, on account of the nature of the motion, cut off most of the steam at  $\frac{1}{4}$  stroke, the remaining quarter, as a matter of course, traveling home expansively, hence the natural expansion is nearly all that can be used economically in a flour mill. No

doubt expansion will save coals, but if the value thus saved is doubly lost in tear and wear, it cannot be true economy. A very conclusive evidence of this came under my notice; it was a mill which I went to take the management of. When I got there I found a would-be scientific engineer had been experimenting on the engine valves, with a view to the saving of coals. It was a condensing beam engine of 50 nominal horse-power, and had double-beat steam valves. This expert had shifted and shifted those valves, until the crank would scarcely go over the top centre at all; a dead stop was quite visible to the eye every time it came to the top centre, and a 20ft. diameter meal-cooler, which made only six revolutions per minute, ran hop, step and jump, like a cart drawn by a horse with only three legs, the streak pole coming to a dead stand every time the crank came to the top. Very soon the first motion wheels were smashed, and the wall between these and the fly-wheel was shaken to pieces. Ultimately new wheels and a new hewn stone wall was decided upon; but after all this was done, at a very great expense, it was no better, nothing could stand the strain, and at last the lap had to be taken off the valves, which exposed the great blunder that had been made. Another striking example of this came under my personal observation. This was a pair of McNaughten's compound beam engines, working on one shaft, at a stroke differentiation of quarter of the circle. This is supposed to entirely do away with the back-lash, by the one crank pulling the other over the centres. We were short of power to make the quantity of flour wanted, viz.: 1,000 sacks per day, and the suggestion was made to speed the engines to gain the required power, and work them expansively so as to keep down the consumption of coals. It was a big job, and cost a lot of money; all the counter wheels had to be broken off the main shafts, and replaced with new ones, to suit the stone-speed. The cylinders were re-bored, new pistons and new side valves were put in, and notwithstanding that a protest was made against it, a long expansion lap was put on the side valve. This literally spoiled the whole thing; previously this mill was one of the sweetest running, and in all other respects had scarcely an equal in the United Kingdom; but after this its whole character was changed.—*The London Millers' Gazette, and Corn Trade Journal.*

FIVE thousand people have been drowned and 150 villages submerged in Orissa, India, by a cyclone, and 1,241 square miles in the Moorshedabad and Huddea districts have been devastated. A tornado swept over the Phillipine Islands on Saturday. Eight thousand buildings, including numerous churches and school-houses, were destroyed, and twenty-two persons were killed.

THE Irish people, at home, consume a large amount of tobacco, but not a pound of it is ever grown in Ireland. Yet it is said that the land in many parts is well adapted to it, and it is estimated that an average profit of \$225 an acre could be easily made at it. And what is the obstacle? Nothing but an old law, made in Cromwell's time, which designing to foster the tobacco plantations in the American colonies, decreed that no one should grow the plant in Great Britain and Ireland.

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## NONSENSE.

YOUNG Bilkins was utterly devoted to business, but somehow found time to fall in love and ask the girl to marry him. The time was set and he called on the old gentleman to get his consent. He had a long talk and came up to see the girl.

"Well," she said in considerable anxiety, "what did pa say?"

"He said that wheat was going up and there was a fine chance for a man to make a handsome little dot."

"Pshaw! Didn't he say anything else?"

"Oh, yes, we talked about a dozen ventures that might be made, with an excellent chance of coming out ahead every time."

"Bother the business! What did he say when you asked him if you could have me?"

"Wha—wha—what?" he stammered.

"Why, what did he say about me?"

"By George, Mary, I forgot all about it. I'll go the first thing in the morning and see him about it."—*Merchant Traveler*.

A FROG who had long dwelt in a pond near a peasant's cabin was one evening highly delighted to hear the peasant remark to his wife: "Have you noticed how beautifully that frog sings?"

The speech tickled the frog amazingly, and he at once began his tune and kept it up all night long. At daylight the peasant came out with a club and called out: "If you don't leave here forthwith, I'll be the death of you?"

"What have I done?" asked the astonished frog.

"Kept us awake all night with your croaking."

"But it was only last evening that you complimented me on my song."

"That is true, but I heard only brief songs and at long intervals."

MORAL—It is a dangerous thing to compliment a man who makes the opening speech at a ward caucus. Nine times out of ten he'll want to go to the legislature.

SHE was a Brooklyn girl. He was a young man from Boston visiting at her home. In honor of his coming she had made a custard pie with her own fair hands.

"Do take some," she urged, at the supper table. "I made it for you myself, you know."

"No," said he reluctantly, after an evident inward struggle, "I cannot; if I were at home at Boston I would, but here I dare not."

"And why?" she urged, "why, dearest, can you not eat it here?"

"Because," he answered with a deep-drawn sigh,—"because now we are in New York, you know, and an attempt at suicide is a crime under the New York laws."—*Somerville Jour*.

"Oh, say, ma!" exclaimed a bright little girl at the Hoffman house, while at dinner, "hasn't that man over there got awful big ears?"

"Hush, child; the gentleman might hear you," cautioned the mother.

"Well, ma," returned the precocious youngster, "if he couldn't hear me with those ears, he ought to haul them down."—*N. Y. Jour*.

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."—*St. Paul Herald*.

AN Irishman employed about a shop in Atlanta was one day surprised and delighted by the entrance of an old acquaintance. After ten minutes' jollification the friend left, when Pat's employer said to him:

"So, Pat, you knew that chap in your own country, did you?"

"Och, an' shure did I, an' it's a lucky day I met with him here. It's a fine boy he is, wid all his family. His grandfather was a general—his father was a general—and he'd been a general hisself if he had not come away."

"But what was he after in your pockets! I thought I saw him put his fingers there rather sllily."

Clapping his hands to his pockets, Pat ascertained that both watch and pocketbook were missing.

"Murder!" he cried, gesticulating like a whale with a dozen harpoons in his side. "The thafe! the spalpeen! the coorse! I knew him well, wid all his family. His grandfather was hanged—and his father was hanged—and he'd been hanged hisself if he'd not run away."—*Atlanta Constitution*.

SAM JONES' STORY.—As told at the Methodist church Friday night it is as follows: "There was a married couple with half a dozen children and only one bed. The whole family slept on that bed—and were so thick that one couldn't turn over unless all did. So when anyone got tired sleeping on one side he'd say 'turn'—and over the whole family went. They got so used to it that even when they heard the word 'turn' in their sleep they would hustle over. One day the old man was fishing on a log bridge over the river. The sun was hot and the fish wa'n't biting, and he fell asleep balanced on the log. One of the boys saw him and thought he would try a joke, and hallooed out 'Turn?' Over the old man went kerflop into the water. Now I want the temperance men to halloo 'Turn!' until the anti-men who are asleep on the bridge over the prohibition river will hear it and drop in."—*Atlanta Constitution*.

HE was complaining in the most bitter manner about the size of his gas bill, when the fat, bald-headed man in the corner of the car remarked:

"I have burned that same company's gas for thirteen years, and never had to complain."

"Ever change your meter?"

"Never."

"How often have you had it tested?"

"Not a single time."

"Well, well! Never overcharged you?"

"No."

"And you are perfectly satisfied?"

"Perfectly."

The fat man got off at the next corner, and the other observed to his left-hand neighbor: "Who do you suppose he is?"

"Oh, I've known him for years. He's the president of the gas company you mentioned!"—*N. Y. Independent*.

THE WORST ONE YET.—He opened the door and gazed long and furtively at the clerk, and finally choking down a sob, he said: "Say, mister, has Kate been here this morn'ing?"

The clerk looked at him for a minute and asked: "What Kate?"

Then with a smile such as you receive from the man who sells you a glass of red lemonade at the circus, he answered: "Roller's Kate."

A METROPOLITAN policeman stopped the music at a dance in a house on his beat, because he couldn't sleep when such a noise was going on. Some people seem to think a policeman hasn't anything to worry him.

A DANISH tragedian was recently greeted with a shower of decayed eggs while performing Hamlet in Copenhagen. He believes now, more than ever, that Shakespeare was right when he said there was something rotten in Denmark.

"How is this, Doctor; you charge me five francs a visit?"

"It is less than I charge anybody else."

"That may be so; but then you forget that it was I who introduced the smallpox into the neighborhood."—*L'Independence Belge*.

AN advertisement extolling the virtues of a new make of Infants' Feeding Bottle, winds up as follows: "When the baby has done drinking it must be unscrewed and laid in a cool place, say under a tap." Poor baby!—*La Flandre*.

We will send the U. S. Miller and Northwestern Miller for one year for \$2.50.

IMAGINATION AND DYING.—In reference to the influence of the imagination on the body a doctor tells the following story in the *Chicago Times*: "A big hulking fellow about 10 miles from the town I was practicing in got the idea that he was going to die at just 11 o'clock in the forenoon of a certain day. About 9 o'clock a messenger came for me. I hurried out. When I got there the crank had 15 minutes to live according to his calculations. He did look like a man on the verge of eternity. His eyes were dim and sunken, his face had that peculiar pallor which heralds the near approach of death, and his breathing was very labored. The family were gathered around and weeping as they took a final leave. Something had to be done quick. There was a smart-looking woman there, and I called her aside. Pointing to a clock on the mantel-piece, which the patient was watching, I said: 'When I have his attention turn that ahead.' Then I crowded into the family group, bustled them into the next room, sat down upon the edge of the bed and began telling that fellow one of the most horrible murder stories you ever heard. I located it right in the town where he knew everybody, named the woman killed, went into blood-curdling details, and so completely interested the man that he forgot his 11-o'clock appointment. When I gave him a chance to look again it was 20 minutes to 12, and he was actually mad for a time, claiming he had been tricked. He finally got to laughing, and we all took dinner together. The next day he whipped two men at a barn-raising for twitting him about the programme of death that miscarried."

THERE was a miner in Cornwall who was an inveterate smoker for over fifty years; but the other day he suddenly and definitely gave up the habit. He knocked out the ashes of his pipe into a keg of blasting powder. The coroner's jury sat upon two bones and a brass button.—*London Tobacco*.



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MILWAUKEE, JANUARY, 1886.

## 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., Jan. 1, 1886,

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. 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, 1880, 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.

Sworn to and Subscribed before me at Milwaukee, Wis., this 25th day of November, A. D. 1885.

E. HARRISON CAWKER,

G. McWHORTER, Justice of the Peace.

## NEW YEAR'S GREETING TO OUR PATRONS.

The proprietor of THE UNITED STATES MILLER, wishes all its patrons a Happy New Year. For the generous patronage bestowed upon it, as shown by its largely increased subscription list, during the past twelve months, he returns his grateful thanks, and promises that every endeavor will be made to improve and make better in every way, THE UNITED STATES MILLER for 1886.

We would call especial attention to an article in another column, relating to India wheat, etc., republished from the *New York Times*.

How many of our readers realize that the value of the eggs imported into this country from Canada the past year, were valued at two millions of dollars or upwards of eleven millions of dozens in number.

We will send the U. S. Miller for one year and Ropp's Calculator for \$1.00.

THE estimated amounts of butter and cheese made in the United States during 1885, are as follows: Butter, 1,000,000,000 pounds; of cheese, 300,000,000 pounds. The value would be, estimating the butter at 18 cents per pound, and the cheese at 10 cents per pound, nearly \$200,000,000.

FROM the first of August until the first of November, at Portland, there are shipped to points east of the Missouri River, principally to Milwaukee and Chicago, 3,569 tons of barley.

We will send The Milling World (weekly) and the U. S. Miller for one year for \$2.00.

THE UNITED STATES MILLER for January is fully as good as usual. We never have made any efforts for *special editions* and do not believe in them. This being the season of recreation and amusement, we have devoted much space to genuine wit.

WE have received the Holiday number of the *Northwestern Miller*, Minneapolis, Minn., and have no hesitation in saying that it is by far the finest of any publication of the kind that has come to our notice. It shows the result of artistic talent, business sagacity and genuine enterprise. We trust it will be the means of adding largely to the revenues of the publisher.

THE destruction by fire of the "Empire" and "Daisy" mills in Milwaukee, each a 500-barrel mill (per day), it was thought at one time would for a great length of time reduce the milling capacity of this city. But it seems otherwise. Messrs. Edw. P. Allis & Co., proprietors of the "Daisy," have purchased the "Northwestern, a mill of over 1,000 barrels capacity per day, but which for various reasons has been standing idle much of the time for the past two years. They will change it completely, and make a *modern model* roller mill of it. Mr. Lou. R. Hurd, formerly manager of the "Daisy," will, it is said, take charge of the new "Northwestern," and another gentleman of world-wide reputation in the milling trade, will probably occupy another very responsible position.

ALL persons connected in any way with the milling industry will find it a blessing to have a copy 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 guaranty of a valuable paper.

THE AMERICAN MILLER ANNUAL FOR 1886 is before us, and we must certainly pronounce it to be both highly useful and ornamental. It contains a large number of articles on various matters of use to millers, millwrights, mechanics and others on almost any occasion of ordinary or extraordinary occurrence. In short it constitutes a valuable ready reference book, produced in a beautiful manner, interspersed with a large number of advertisements.

THE MODERN MILLER HOLIDAY NUMBER is a model of beauty and general excellence, and is handsomely illustrated, and also contains some good stories.

OUR readers will find a very interesting article on the "Free Trade" side of the tariff question by Mr. J. C. Bates, of Chicago, prompted by a late article published in the UNITED STATES MILLER on "The Religious Aspects of a Fraudulent Tariff." You may expect a reply from Mr. John W. Hinton in our February number.

(Communication to THE UNITED STATES MILLER.)  
"RELIGIOUS (?) ASPECTS" OF A FRAUDULENT  
TARIFF.

BY J. C. BATES, CHICAGO.

To the initiated there is something supremely droll and irresistibly humorous in the arguments of that class of monopolists, who, from personal interest, and a desire to masquerade as public benefactors, style themselves "Protectionists." This is very much after the style of the Mormons years ago in Utah, who met together and resolved:

1st. The earth is the Lord's and the possession of His Saints.

2d. We are His Saints.

In just the same sense is the monopolist the public, or in favor of protecting and promoting any interests save his own. And he is never wanting in efforts to further his own immediate interests, and but too frequently succeeds in persuading a forbearing public, that his interests and theirs are identical, that a tariff framed in his especial interest "stands at the elbow of every laboring man to help him to better wages, to a more independent position, etc." The last number of THE UNITED STATES MILLER contained a lecture delivered in the interest of the monopolist and tariff by one who not only sought to persuade the dear public that it was a good thing to continue to submit to extortion and downright robbery, but would have the average citizen believe it to be his *religious duty* to do so, as is evidenced by the lecture

by John W. Hinton in Rockford, Ill., on the "Religious Aspects of Protective Tariff."

Not a few people have become impressed with the idea that the tariff is something akin to the Constitution—not to be meddled with or changed in any way. To others it is an enigma, while a great majority of people have become imbued with the idea that it is something entirely beyond their comprehension. It is to the latter altogether too modest class, that the lecturer particularly addressed his arguments. I said "too modest" for there are not many of that class, but would feel himself competent to act as a jurymen, to undertake to decide far more difficult problems of fact, if not by law, than any involved in this tariff issue. For what is our present tariff? It is substantially the tariff called into operation by the exigency, war; a mere temporary expedient for tiding the nation over that particular time. About every conceivable thing was taxed on the principle which ruled at the Donnybrook fair: "When you see a head hit it." And yet nearly a quarter of a century later the people of these United States are lectured by one "not native nor to the mannerborn" on their religious obligation to continue in operation the principal features of that war tariff.

People who look into tariff questions are fully cognizant of the fact that where the duty is so high that it prohibits importation, the government does not receive any revenue from the articles so taxed. But, Mr. Smith and others, who make these articles is by reason of the tariff being kept at that figure, in a position to compel me to pay him an enormous profit on such of his articles as my necessities compel me to purchase. If there are people in the heathen countries, who prostrate themselves willing victims before the care of Juggernaut, there is no reason in this country why those, whose credulity has so long been trifled with, should longer fall prone in abject submission before the gigantic monopoly, which crushes them, much less sing praise to monopoly, while being crushed and ground under by it.

If protection, protects, then that which does not protect the community *is not protection*. Whose interests outside of a comparatively few monopolists does the tariff protect?

Pennsylvania may be considered the centre from which radiates all fulminations in behalf of the monopolists' tariff. Her pet product has been pig iron, so much so that her leading representative in the National House, Hon. W. D. Kelly, long ago received the soubriquet of "Pig Iron Kelly," in recognition of his efforts in keeping a high tariff on pig iron. Pennsylvania banded together ore miners and iron workers as with one voice. So long as high duties upon pig iron gave her a monopoly on the steel and iron trade of the United States, she was content to leave a virtually prohibitory tariff on ores. There was for a long time a close and harmonious alliance between Pennsylvania and the ore districts of Michigan on these questions. But it ended. Alabama can make and sell to a profit *at one-half the money* that Pennsylvania has been getting. Alabama is now on top in this question and Pennsylvania underneath. That was a surprise to Pennsylvania. Then it became Michigan's turn to be surprised. The Michigan ore

people suddenly discover that their co-partners in tariff monopoly are yearning for the cheap rich ores of Cuba and Spain, and are actually plotting for a reduction of the tariff on ores. Then the Michigan people in convention passed resolutions, demanding continued protection and no competition with the pauper labor of Spain and Cuba.

Thus while the mills grind slowly they are grinding exceeding fine. There is a wheel within a wheel, but all the machinery is moving in the direction of greater

#### FREEDOM TO TRADE AND COMMERCE.

Pennsylvania tariff monopolists have always had the greater part of the cream.

In good times her manufacturers flourished, but somehow or other, the public has not failed to notice that employes in that state, seem always to be just on the verge of starvation. Recall the strikes, the lock-outs, the Molly Maguires, riots and what not, with the death and suffering that followed in their wake. And yet these things happened while she enjoyed the benefits (?) of a tariff which, we are told, "stands at the elbow of every laboring man in this country to help him to better wages, etc." Let us see how the monopolists' tariff helped the laborer. The tariff, of course, confines the manufacturer to the limited demand of the home market. When that limited demand was supplied the Pennsylvania manufacturers shut down and discharged their men and waited for the next turn in trade. And not infrequently they had to wait a long time for that turn. Meanwhile their employes were left in a sore strait.

Did these manufacturers help their men when better times came? Not at all. When the next improvement in demand came, they imported their labor from Europe, and did it time and again, because it was cheapest, meanwhile expressing the greatest solicitude about the retention of the tariff on account of the American workingmen in their employ!

Thus does "A protective tariff stand at the elbow of every laboring man in this country." How apt then this quotation from Gen. Warren, also used by the lecturer in question: "The tools of poorer, in every age, have racked their inventions to justify the few in sporting with the happiness of many."

Think of it. What a mere fraction of the population of this country are engaged in the so-called protected manufactures. And yet the whole country is drawn upon to contribute to the support of these few. What advantage to the farmer, stock raiser or mechanic? Perhaps it makes his coal cost a dollar or two per ton more, causes him to pay two to three cents per pound higher for his sugar, a good round price for clothing and implements, in fact more for everything he consumes or uses in his family. Glorious old tariff! No wonder when hunting for arguments for the *religious* aspects of cause, he espoused the lecturer should feel forced to admit that even "The Devil can cite Scripture for his purpose," a circumstance, which certainly should go far in palliating his apparent trifling with sacred things.

If, then, a business or interest cannot be engaged in without paying the projectors fifty times, as a government subsidy, let them go under. One house in legitimate business, employing one hundred men and

depending upon itself and its own resources for success, is worth hundreds of establishments that have to depend upon a government subsidy, such as our tariff affords them. If the people are to be taxed, why not let the government have the benefit of such taxation, particularly as there is no revenue from heavily "protected" articles as already explained.

The remedy for this state of things is in the voters. Let them remember that when they vote for members of Congress, and for members of Legislatures, when a United States Senator is to be elected, to vote for men and measures, which will give them what they want. It thus comes to every man "to care for his own household." To carry the lecturer's argument to its legitimate conclusion, the householders of this land should combine against a common robber.

Great Britain is so much of a free-trade country to-day that her laborers are better housed, better fed, and better clothed, than they ever were under protection, and the laborer there can buy his coal, bread and provisions, and everything he consumes or uses, cheaper than the laborer in the principal Eastern cities of the United States can supply himself with the same necessities. Great Britain has grown and prospered under free-trade as never before. Her commerce is in every sea. And well she might prosper for the United States by adhering to its tariff policy surrendered everything, foreign trade, foreign commerce and foreign exports of manufacture to Great Britain.

The question to be decided by the people of these United States in the interest of labor, trade and commerce is: "Shall we manufacture exclusively and solely for the home market, or letting down the bars which now exclude us from foreign trade, shall we manufacture for the world?"

To argue that the citizen of the United States, commercial treaties and all other things being equal, as we must insist they shall be, cannot compete successfully with the British manufacturer, is but stuff and nonsense. The American citizen is always equal to the opportunity. Give him the opportunity and he will easily demonstrate his ability to be equal to any emergency. As we are rulers all, our destiny is in our own hands. Let us, therefore, resume the role, which we have so long tacitly surrendered, to our own great detriment, to a mere handful of monopolists. Let us hasten that time when can be proclaimed the change: "The King is dead—Long live the KING!"

THE race for supremacy in the trade of Australia is growing more and more exciting between England and Germany. The Birmingham *Gazette* of recent date says: "The tendency of Birmingham trade, with that of English manufacturing trade generally, is more and more gravitating towards Asia and Australia, though we are likely to meet with serious competition on the part of the Germans in those regions since the acquisition by those enterprising foreigners of New Guinea and islands of the Indian Archipelago." England not only will find her German neighbors formidable competitors, but she is finding, and will continue to find, very lively competition from American manufacturers, who, in very many important lines, are able to hold their own against the world.

**THE MILL MACHINERY MANUFACTURED BY THE  
CASE MANUFACTURING COMPANY,  
COLUMBUS, OHIO.**

In the year 1878 Mr. J. M. Case, of the Case Manufacturing Co., began in a small way to manufacture the Case Double Middlings Purifier. Shortly afterward Maj. Otway Watson, since deceased, entered into partnership with Mr. Case in the manufacture of this machine. Mr. Watson gave to the company the benefit of his well-trained business experience, as well as substantial financial standing. The machine proved to be a good one, and rapidly gained favor with the millers until the business became quite prosperous, and the company were compelled to enlarge their facilities for manufacturing.

Soon, however, a cloud gathered over them. The Consolidated Middlings Purifier Co., the owner of numerous patents, entered suit against them, which at once affected their trade to such an extent that they found it necessary to begin the manufacture of other mill machinery. This lawsuit was continued through the courts for a number of years, but has now been adjusted and settled, the Case Co. taking license under the Consolidated Co., so that their purifier is now free from any cloud and the purchasers not liable for damages in the future.

□ All past sales have also been adjusted,

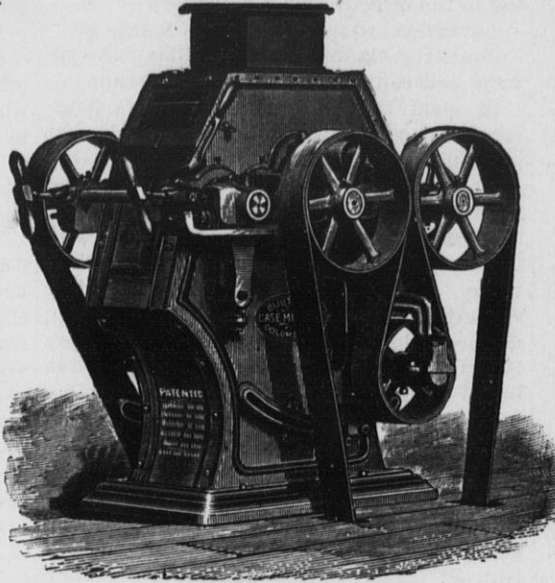
having the foresight to realize that there would be a great demand for machines designed for small mills. They were built and put in operation. At first, of necessity, the machines were crude, but gradually they were brought up to an advanced state of mechanical construction, until to-day the Case machinery occupies a high position in all parts of this country and Europe.

The building of small mills soon made a demand for large machinery for large mills,

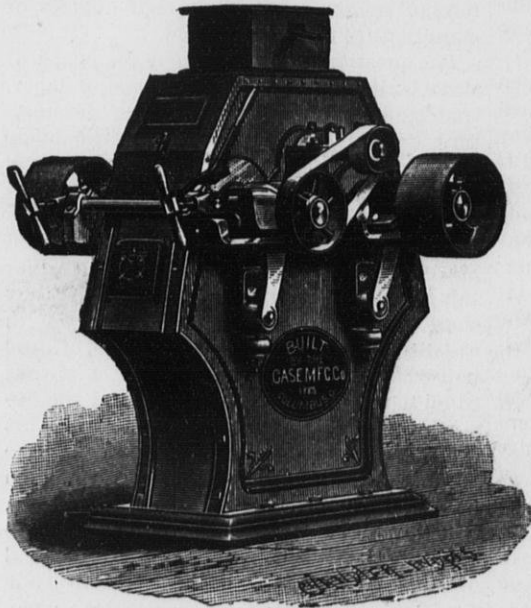
cylinders breaking against it. The central cylinder is provided with both sharp and dull corrugations, and also smooth surfaces, so that the machine is adapted to all kinds of wheat. This company also builds all sizes of single-belted rolls.

Mr. Case also claims the credit of having first constructed and put upon the market a combined break machine and scalper, making three separations. This was done at a time when the stone miller believed that all he needed to compete with the all-roll mills was to remove the grain and seam dirt; but Mr. Case says he soon discovered that while such treatment of the wheat would act as a wheat cleaner, and thus be of benefit, yet not of a sufficient amount to justify expectations. He now recommends the machines to be used in no cases ahead of burrs, but only where they are to be followed by successive breaks.

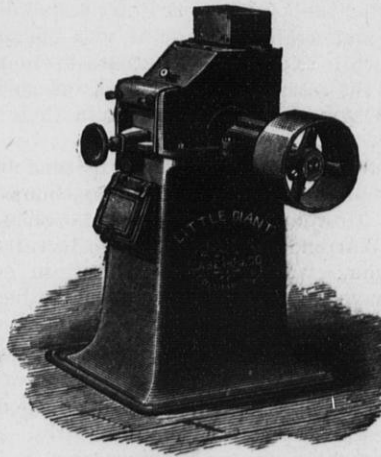
As the Case Company's business increased they found it necessary to build a centrifugal reel. One was first built and put upon the market having a stationary outside bolting cylinder. This machine, while it performed the work of bolting well, developed, the company say, a serious defect, which was that the cloth being stationary, the action of the material was concentrated at one point on the cloth, and it would rapidly wear out. The company quickly abandoned this ma-



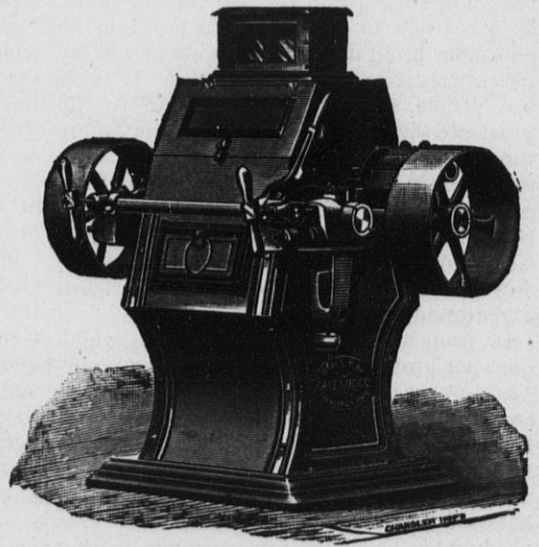
CASE 6x12 4-ROLL MILL.



CASE 3-ROLL FIRST AND SECOND BREAK MACHINE.



CASE "LITTLE GIANT" BREAK MACHINE.



CASE 9x18 2-ROLL MILL.

and license granted to cover them and all machines which may hereafter be made.

The next machine developed was that known as the "Little Giant," calculated to split the grain of wheat through the seam. This machine met with great favor, and hundreds of them were sold in this country and Europe, where they are a favorite. The machine is a remarkably simple one and very cheap.

Soon this company developed a six-inch roll, intended at first to handle the cut-offs from purifiers. This company lay claim to being at least one year in advance of all others in placing upon the market a small roll adapted to small mills. The success of the "Little Giant" and of the little six-inch roll suggested to Mr. Case the idea of making a small line of machines for small mills, he

and Mr. Case developed what has since been known as the Case "Bismarck Roll," which has met with great favor. It is remarkably simple in construction, and embodies as a special feature the Case Automatic Vibratory Feed.

In the course of time the Case Manufacturing Co. developed other machines, among which may be mentioned the Case Three-Roll Mill for first and second breaks. Mr. Case claims that in the first and second breaks no differential motion is required or desirable, the only object of differential motion being to cause a feed of the stock and present all parts to an equal wear. In the first and second breaks the corrugation being coarse, the machine will take in the stock without differential. The central cylinder in this machine is stationary, the two outside

chines and began the construction of the standard outside revolving cylinder, which has proved very successful.

In addition to the machine, the Case Manufacturing Co. are building a full line of bolting chests, scalping reels, and every machine that goes into a mill except wheat cleaners and packers. They have provided themselves with corrugating and roll grinding machines and every modern tool or machine necessary to facilitate their business, and may therefore be set down as one of the practical, energetic mill-building concerns that have come to stay. The growth of their trade has been phenomenal, and may be traced to two distinct causes. First, they had an Otway Watson, now deceased, and in J. F. Oglevee, present business manager, the highest order of business talent, and in J. M. Case, a practical inventor and mechanic. These are the two fundamental elements of success in any mechanical undertaking.

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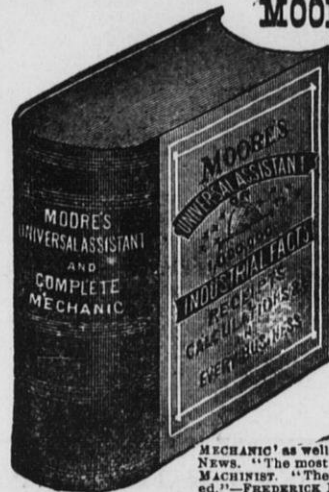
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**WELSHMEN.—WELSH IRON WORKERS.—WELSH MILLERS.**

We clip the following from the Milwaukee correspondence of the *Waukesha Freeman* for August 20:

"Your correspondent had an interview on Friday last with the man who drew the first heat of iron puddled in Wisconsin. He is a Welshman named Williams. The first iron ore ever mined in Wisconsin was mined by a Welshman. So your readers will see that Welshmen are ahead in many things. As the *Freeman* has among its readers many Welshmen, I will call their attention to some historical facts that may be of interest to them and their descendants.

Of fifty-five signers of the Declaration of Independence, seventeen were Welsh or of immediate Welsh descent. In the Revolutionary War there were, on the American side, fourteen generals, one colonel, six captains, and one lieutenant. No distinct nationality makes a better showing in the American struggle for liberty than the Cymry. The author of the Declaration of Independence, Thomas Jefferson was the son of a Welshman, born at the base of Snowden, the celebrated Welsh mountain. Roger Williams, so persecuted by the Puritans, who fled to Rhode Island and there proclaimed religious liberty, was a Welshman. As lovers of freedom, whether religious, political or civil, the Welsh are among the foremost in the world; nor does history, anywhere, record their conquest or subjugation, as can be said of other peoples. Their union with England was the result of a treaty based upon one of the most remarkable propositions anywhere recorded: "Give us a Prince born on our own soil to rule over us, and we will be contented and obedient to England." As is well known, England's Queen visited Carnarvon Castle, in Wales, where her son was born; and "Ich Dien" inscribed on the royal standard, or, in English, "Here's your Prince," remains to this day, as it is seen on the band that clasps the three flowing feathers. On every battle-field, wherever England has won glory and renown, the soil has drank in Welsh blood, always freely shed, to uphold the country to which they had attached themselves. So much for the Welsh. Nineteen-twentieths of them are Republicans, and, as has been said, there are probably not ten free-traders among all the Welsh in Wisconsin. They are protectionists in principle. It is very seldom that a Welshman is given an office in Milwaukee, and rarely are they found seeking them.

A great many Welshmen are millers where their industrial and faithful conduct has always ensured them the highest of wages. Several of the head millers of Milwaukee have been Welshmen.

**OUR CATTLE INTERESTS.**

Hon. Norman J. Coleman, U. S. Commissioner of Agriculture, in an address before the National Cattle Growers' Association of America, held at Chicago, November 17, said: "When the first accurate statistics of the cattle in this country were collected in 1850, it was found we had in round numbers about 17,778,000; in 1860, 25,620,000; in 1870, this number had been reduced to 23,820,000; in 1880 there were 35,925,000, while in 1885 there are not far from 45,000,000. This last num-

ber is so great that it is difficult for the human mind to grasp its significance or to appreciate the vast accumulation of cattle which it represents, which have been gathered together and reared by the industry and enterprise of our people. If a solid column should be formed twelve animals deep, one end resting at New York City, its centre encircling San Francisco, and its other arm reaching back to Boston, such a column would contain about the number which now forms the basis, the capital stock, so to speak, of the cattle industry of the United States. The value of these animals is not less than \$1,200,000,000.

There is an impression throughout the country that the cattle business has been developed far beyond what is necessary or even prudent. But this is not the case. Notwithstanding the wonderful increase of the past fifteen years, an increase which it is safe to say will never be repeated in the same time in this country for lack of territory, we have just about the same number of cattle per 1,000 inhabitants that we had in 1850, and less than we had in 1860. In other words, although our cattle have increased in an almost fabulous manner, our population has increased with equal rapidity.

In the United States, from being long accustomed to an abundant supply of meat, and owing to the prosperous condition of our people, we consume more meat per head than any other country. Another reason why the falling off of the meat supply in this country is a fact deserving the most serious attention is the increasing meat consumption of Europe. There is already a great deficiency in the meat supply of Europe. Thus the demand in Great Britain above what she produces is 654,000 tons; France, 235,000 tons; Germany, 100,000 tons; Belgium, 75,000 tons, making a total deficiency of 1,064,000 tons. To supply this, there is a surplus in Russia of 65,000 tons; Austria, 60,000 tons; Denmark, 44,000 tons; Greece and Roumania, 28,000 tons; Holland, 25,000 tons; Italy, 25,000 tons; Spain and Portugal, 20,000 tons—a total surplus in these nations of 267,000 tons. Taking this surplus from the deficiency of 797,000 tons of meat which must be supplied by America.

A paper was also read by Dr. D. E. Salmon, chief of the Bureau of Animal Industry, of Washington, in which he furnished the following statistics relative to the cattle industry:

Cattle industry, 45,000,000 head.	\$1,200,000,000
Annual production, 7,000,000 head.	350,000,000
Become a part of inter-state commerce, 5,000,000 head.	250,000,000
Veals, 3,000,000.	15,000,000
Export trade, the greater part of which is restrictions, 182,000 head.	13,000,000
Total exports of cattle and cattle products.	50,867,000
The swine industry, annual product, 29,000,000 head.	340,000,000
Value of the product which goes into inter-state commerce.	243,000,000
Annual product exported.	92,000,000

In human life the race of civilized man has moved up. Man has gone on and multiplied until he fills the earth, and education and the spread of knowledge have rendered it harder for any one man to rise clear out from among his fellows and tower above them so that he will appear great or heroic.

We have in these days the majesty of the people—something that lifts its body above the great men of the past. In the old days that were so fruitful, as we say, of great men, it was comparatively easy to be great.—*Chicago News.*

We will send the U. S. Miller for one year and Ogilvie's Handy Book for \$1.00.

**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 Dec. 1, 1885. No. 331,403—Oatmeal and grain reduction mill, W. Hutchinson, Ottawa, Canada; No. 331,468—Grain separator, H. Bailey, St. Thomas, Can.; No. 331,683—Grinding mill, H. H. Coles, Philadelphia, Pa.

Issue of Dec. 8, 1885. No. 331,961—Conveyer, W. Griesser, Chicago, Ill.; No. 331,962—Automatic grain-weigher and register, I. N. Griffith and C. F. Griffith, Macomb, Ill.; No. 332,006—Machine for the reduction of grain, H. F. Saint Requier, Paris, France; No. 332,060—Bolting reel, C. F. King, Covington, Pa.; No. 332,116—Stop motion for grain-weighing apparatus, C. Seessle, New York, N. Y.; 332,143—Grinding mill, B. J. Du Bose, Lisbon, Ga.

Issue of Dec. 15, 1885. No. 332,234—Vertical disk grinding mill, J. T. Case, Bristol, Ct.; No. 332,306—Bolting reel J. W. Hill, Sandborn, Ind.; No. 332,615—Mid-dlings, purifier, W. Klostermann, Young America, Minn.

Issue of Dec. 22, 1885. No. 333,020—Dust collector, C. H. Morgan, Buffalo, N. Y.; No. 333,021—Dust collector, C. H. Morgan, Buffalo, N. Y.; No. 332,786—Grain separator, R. M. Cochran, Jacinto, Cal.

**BOOK NOTICES.**

**THE LIBRARY MAGAZINE.**—Alden's Library Magazine is quite the peer of the great \$4 monthlies, in the amount and high quality of the literature which it presents, though its cost is only the nominal sum of \$1.50 a year. Among the contents of the current number are articles by such noted authors as Canon Farrar, Max Muller, the Bishop of Carlisle, Cardinal Newman, Philip Schaff, and others. This magazine ought to have a circulation of a hundred thousand. You can get a specimen from the publisher, John B. Alden, New York, for the price of 15 cents.

**"ELIA" AND CHARLES LAMB.**—A unique genius, that of Charles Lamb. Just like nothing that ever appeared before them, or has since appeared, are the quaint and delightful "Essays of Elia," a new edition of which has recently been issued by Alden, "The Literary Revolution" publisher of New York. Turn to any of your encyclopedias and they will tell you that Charles Lamb was one of the most charming essayists that the English language has ever known, and also that his Essays of "Elia" are the choicest of his works. They are not merely the first work of their class, but, like "Pilgrim's Progress" and "Robinson Crusoe," they constitute a class by themselves. The volume is certainly one of the most delightful of the books described in Mr. Alden's 148-page illustrated catalogue, which he offers to send for 4 cents, or the 16-page catalogue which is sent free. Address, John B. Alden, Publisher, New York City.

**THE Chicago Evening Journal** says with much truth: "Neither cotton nor corn nor wheat is king—it is the dairyman. The statistics laid before the National Butter, Cheese and Egg Association at its late meeting in Chicago, surprised some people. They show that the annual value of dairy products in this country is \$100,000,000 greater than that of the entire wheat crop, and \$120,000,000 greater than that of the cotton crop; while the amount of capital invested in cows is said to be greater by \$40,000,000 than that invested in bank stocks. Make way for the dairyman!"

## ITEMS OF INTEREST.

THE capacity of the grain carrying vessels now in winter quarters at Chicago is equivalent to 4,800,000 bushels, which, with the available room in the elevators, will make storage for over 30,000,000 bushels of grain.

LEATHER belt cement is made by soaking six ounces best glue in one pint of ale, then boil. Add one and a half ounces of boiled linseed oil and stir well. Another, is to take dissolved glue as pattern-makers use it, and add tannic acid till creamy and ropy. Make the leather surfaces to be united rough, apply the cement hot, let it cool and dry under pressure, and it will not need riveting.

A GREAT trouble in drying lumber quick has been the tendency to form a hard shell on the outer surface before the interior saps have been vaporized, this hard shell preventing the escape of the sap. To overcome this difficulty, a new lumber dryer heats the wood to a temperature of 225 to 250 degrees, where it is allowed to remain two or three hours, when steam is shut off and the temperature of the wood is reduced to about 100 degrees by cold water or cold air. It is then re-heated and cooled as before, the operation repeated until the lumber is thoroughly seasoned.

GROWTH OF DAKOTA.—Gov. Pierce, of Dakota, in a report to the President, gives some very interesting facts regarding the growth of that territory, which presses on the advisability of making it a state. The following table gives the number of inhabitants and farms in the whole territory and their values, and the principal productions for 1880 and 1885:

	1880	1885
Number of inhabitants.....	135,177	415,610
Number of farms.....	17,435	81,736
Value of farms.....	\$22,491,084	\$155,960,518
Value of live stock.....	\$6,463,274	\$39,334,352
Value of farm products.....	5,648,814	\$36,807,881
Bushels barley.....	227,424	2,166,864
Bushels corn.....	2,000,864	7,800,595
Bushels oats.....	2,217,132	22,870,098
Bushels wheat.....	2,830,239	38,166,413
*Bushels of flax.....		2,192,068
Tons hay.....	308,036	1,502,333
Bushels potatoes.....	664,086	3,973,505

\*None raised in 1880.

Neither has the range and ranch cattle interest been backward in its advance and growth. The total number of live stock amounted to about 313,368 animals, of which 11,084 are horses, 238,167 cattle, and 64,117 sheep, all valued at about \$6,165,289.

FROSTING BRASS WORK.—Boil in caustic potash, rinse in clean water, and dip in nitric acid till all oxide is removed; then wash quickly, dry in boxwood sawdust, and laquer while warm. This will give brass an ornamental finish.

THE second break, in an elaborate system, is but little better than a scouring process, but far too much flour is made to allow of its going into the feed-bin. There is almost as much crease dirt in the second-break product as in the first, for the reason that the small grains of wheat pass through the first-break rolls unscathed, but are caught in the second. However, crease dirt or not, the product of the second break is scalped and the flour and middlings sent off to be further treated, the flour finding its way into the "fancy" or "baker's" bin, and the middlings traveling the narrow but crooked way of all middlings,

resting finally as flour, part in the "patent" and part in the "fancy" bin.—*Abernathy.*

ONE of the remarkable things which we see in the milling papers and the reports of milling conventions is the talk about systems—systems of running mills, systems of management. We see and hear less about machines and general details of that kind. The strife between smooth-cut and round-cut rolls has settled down much sooner than we could have expected. People have learned that they can do good milling with either kind. When people begin to talk about processes and systems in milling and mill management, the matter of detail is susceptible to more ready solution than would be the case when there is more or less carelessness with reference to the system as a whole. If a miller looks at a single machine, and considers it by itself, he cannot estimate the value of that machine. It must be taken in connection with the whole milling system.—*Millers' Journal.*

ELECTRICITY is frequently caused by the friction of belts on pulleys. This has been the cause of fires and should be guarded against by connecting all parts on which the electricity accumulates, with the ground, by means of wires attached to the object and to a gas, or preferably, a water-pipe. This is one of the most prolific sources of fires in the heavy coating rooms of oil-cloth factories, as the electric sparks readily ignite the benzine vapours present. In one of the largest Philadelphia works of this kind, the iron receiving racks were so charged with electricity that long sparks could be drawn from them, but since they have been properly "wired," not a trace of electricity is left in them.

THE COMMERCE OF BUFFALO.—The season's receipt of flour by lake at Buffalo, N. Y., amounted to 2,740,570 barrels, a small increase over 1884; the imports of grain (not including flaxseed) aggregate 49,174,240 bushels, as compared with 55,586,530 bushels in 1884; a falling off of 6,412,290 bushels. The shipments of grain by railroads from the elevators connecting with the said railroads centering here were 10,530,545 bushels—a decrease from last year of 857,165 bushels. The exports by lake to western ports for the season show as follows: Coal, 1,495,510 tons; cement and plaster, 267,240 bushels; salt, 103,490 barrels and 5,057 tons—a very gratifying increase over 1884 in all cases. Elevating and storage rates steady all the season at last year's figures. The shipments by canal for the season to date were 2,692 barrels of flour and 31,466,768 bushels of grain (not including flaxseed), against 4,849 barrels of flour and 37,846,067 bushels of grain in 1884—a decrease of 2,157 and 6,379,299 respectively.—*Bradstreet's.*

HORSE-POWER OF BOILERS.—The following data for rating boilers are given in the *Steam Users' Journal*:

With good natural draught, flue boilers should have about 10 square feet of heating surface for the evaporation of 1 cubic foot of water per hour; and this evaporation per hour may be taken to represent 1 horse-power.

The coal required to effect this evaporation will generally be about 8 lbs., and the grate surface provided for the combustion of this amount of coal per hour, should be about

half a square foot. Therefore, for each horse-power that a flue boiler is expected to develop economically, the following will be required:

- 10 square feet of heating surface.
- ½ square foot of grate surface.
- 1 cubic foot of water per hour.
- 8 pounds of good coal per hour.

Millers should make themselves "solid" with the milling papers by sending in their subscriptions now.

## WAGES IN THE GOOD OLD TIMES.

The following items form a table showing the wages of labor fixed by the magistrates and justices of the peace for the county of Chester at a meeting held in Chester, Eng., in April, 1597:

	By the year with meat and drink.	By the year without meat and drink.	By the day with meat and drink.
A smith.....	£1 11 8	£5 0 0	£0 0 2
A wheelwright.....	2 0 0	5 0 0	0 0 2½
A ploughwright.....	1 10 0	5 0 0	0 0 2
A master carpenter.....	2 13 4	5 13 4	0 0 4
A servant carpent'r.....	1 0 0	3 10 0	0 0 1
A joiner.....	1 10 0	4 0 0	0 0 2
A rough mason.....	1 6 2	5 0 0	0 0 2
A plasterer.....	1 0 0	5 0 0	0 0 2
A sawyer.....	1 8 0	4 10 0	0 0 2
A limemaker.....	1 3 0	4 6 8	0 0 2
A bricklayer.....	1 0 0	4 0 0	0 0 2½
A brickman.....	1 6 0	4 10 0	0 0 2½
A tyler.....	1 5 0	3 18 4	0 0 2
A slater.....	1 6 0	4 0 0	0 0 2
A millwright.....	1 3 4	5 10 0	0 0 3
A tilemaker.....	1 10 0	4 0 0	0 0 2
A turner.....	0 16 0	3 0 0	0 0 2
A shingler.....	1 10 0	4 0 0	0 0 2

## THINGS WORTH KNOWING.

PRESERVING EGGS.—Now is the time the egg preserver may get in his work. In many towns, both East and West, shrewd men are packing eggs by the thousands at a cost of less than one cent each. Next winter they will sell at two cents each, when fresh eggs are 50 per cent. higher. Eggs packed and treated as follows can be kept three months and seem and look like fresh eggs:

Take a common box, such as is used for packing canned tomatoes; upon a two-inch layer of fresh clean oats place the eggs, large end down, and leave space of at least an inch between the eggs; cover with a layer of oats, and then place another layer of eggs as before, until the box is nearly full; fill it with oats, packing the grain in neatly and screw on the top; place your box in a cool cellar, and turn it upside down every other day. If strictly fresh eggs are used, and the turning is attended to as directed, few persons will know them from fresh eggs, and they will certainly be much superior to limed or pickled eggs.—*National Stockman.*

S. S. STOUT.

H. G. UNDERWOOD.

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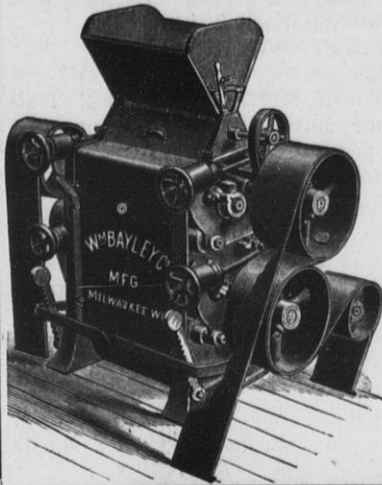
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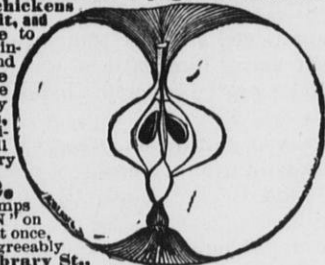
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What a Racket Was There. Where  
Is My Wandering Boy To-night?  
Paddy Duff's Cart. Widow No-  
lan's Goat. Warrior Bold. We Sat  
by the River, You and I. You Will  
Miss Me When I'm Gone. Old, and  
Only in the Way. Oh, Dem Golden  
Slippers. Only to See Her Face Again. I've Only Been Down to the Club. Nelly Gray. You  
Get More Like Your Dad Every Day. My Pretty Red Rose. I'll Remember You Love, in My  
Prayers. Rosy's Sunday Out. When You've Got But Fifty Cents. Old Folks at Home. I'll  
Take You Home Again, Kathleen. Old-Fashioned Homestead. Pallet of Straw. Cradle's  
Empty. Baby's Gone. Never Take the Horseshoe from the Door. Blue Alsatian Mountains.  
Leaf of Ivy from my Angel Mother's Grave. Mary of the Wild Moor. Peek-a-Boo. Joe Hardy.  
Home Again. We Never Speak as we Pass By. Farmer's Boy. Lullaby. Boys, Keep Away  
from the Girls. Baby Mine. Grandmother's Old Arm Chair. High Water Pants. Over the  
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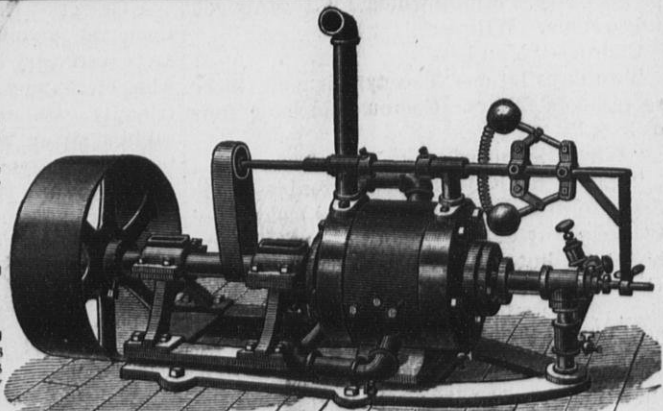
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## NONSENSE.

It was a case of breach of promise. The defendant was allowed to say a word in his own behalf. "Yes," he said, "I kissed her almost continually every evening I called at her house."

Lawyer for defendant—"Then you confess it?"

Defendant—"Yes, I do confess it; but I had to do it."

Lawyer—"You had to do it? what do you mean?"

Defendant—"That was the only way I could keep her from singing."

The jury gave a verdict for the defendant without leaving their seats.

"What a farmer needs in this world to be successful," remarked Deacon Hayseed, "is a good wife. Then he's all right. My wife could git up in the mornin' at 4 o'clock, milk fifteen cows, feed six horses, git breakfast for twenty hands, an' be all ready for a day's work afore 6 o'clock. That's what I call a good wife."

"Doesn't she do it now, Deacon?" he was asked.

"O, no," he replied, wiping away a tear, "she's dead."

A Cincinnati girl told her young man she would never marry him until he was worth \$10,000. So he started out with a brave heart to make it.

"How are you getting on, George?" she asked at the expiration of a couple of months.

"Well," said George, hopefully, "I have saved \$22."

The girl dropped her eyelashes and blushing-ly remarked: "I reckon that's nearly enough, George. We are both of age, and a license will cost only 50 cents."

A newly-married lady who recently graduated from Vassar college, is not well posted about household matters. She said to her grocer not long since: "I bought three or four hams here a couple of months ago, and they were very fine. Have you got any more of them?"

Grocer—"Yes, ma'am, there are ten of those hams hanging up there."

"Are you sure they are off the same pig?"

"Yes, ma'am."

"Then I'll take three of them."

"Say, fellers!" said an Elizabeth-street urchin to his playmates, "I'm goin' to have a birthday party the last of Jan'ary or the first of Febooary, I dunno which, an' I wants you all to come. Will yer?"

Chorus—"You bet."

Two days later—"The party's goin' to be safternoon, fellers. Come round 'bout four o'clock."

"Why?" in surprise.

"'Cause ma had company yesterday—some fokes to dinner—an' she said she had a lot o' truck left over, and I needn't wait for my birth-day, but cud have the party safternoon. Come over'n we'll make them wittles look sick. It'll be just as good as a birthday anyhow."—*Detroit Post*.

Some one has estimated that the time thrown away in this world in courting the girl you want to marry and who is ready to marry you, would build all the railroads, and bridges, and tunnels, and factories, and public buildings.

"I'm sorry," observed the parishioner, "that I can't pay my pew-rent this quarter."

"I'm very sorry, too, Mr. Jones," returned the clergyman; "I presume you lost your money gambling in stocks."

"No. I can't say that I did."

"Then speculating in oil?"

"No. To tell the truth, I did not. I attended your church-fair the other evening, and got roped into a lattery."

"O!"—*Puck*.

GOOD FOR CROPS.—What a wonderful thing the electric light is."

"Yes, it is wonderful. I expect after a while it will be used to make the crops grow, instead of the sun."

"There are some crops now that thrive by electric light."

"Nonsense."

"No nonsense about it. There are lots of young men who sow most of their wild oats by the electric light."—*Texas Siftings*.

Second husband (to wife)—"Are you as fond of me as you were of your first husband, dear?"

Wife—"Yes, indeed; and if you were to die, John, I would be just as fond of my third. I'm not a woman to marry for anything but love."

BEN LE FEVRE'S BATH.—One day big, handsome Ben Le Fevre was laving his rotund and jovial personality in a marble bathtub in the House bath-rooms at the Capitol.

While he was disporting himself in tepid water, made foaming with scented soap, and was about ready to be rubbed dry by the attendant, a messenger came down and called to him from the outside that there were some gentlemen above anxious to see him on important business for a moment, as they were obliged to depart hurriedly to catch a train.

"Who are they?" called the General, as he blew the water out of his big mustache with a snort like a porpoise.

"They are some gentlemen from Ohio, sir," was the response.

"Are they people from my district?" asked Ben.

"Yes, sir," answered the messenger.

"Then, for heaven's sake, don't send them down here. Shut the doors there, and keep them out. Good Lord! if any of them find I bathe in a marble tub and am rubbed down by a nigger, instead of going down to the creek, and drying myself with my shirt, it will lose me a thousand votes."

The unterrified and unwashed constituents didn't get in.—*Washington Letter*.

A CUTTING RETORT.—In a certain small town the members of the various religious sects were very tolerant toward each other. The clergymen, in particular, were very friendly. On the occasion of the Jewish rabbi's silver wedding, he invited the Protestant clergyman, and also the Catholic priest. While the reverend clergymen were enjoying the good cheer set before them, the Catholic priest said to the rabbi:

"I know that you are a very liberal-minded gentleman, but could you bring yourself to eat pork?"

"Certainly I could relish some ham, at least on one occasion."

"And that would be?"

"At the marriage dinner of your reverence."

THE DOWNFALL OF TRESPASS JOHNSON. "I can't see dat Prof. Trespass Johnson am

in de hall to-night," said Brother Gardner as he looked up and down. "De fack am, I didn't 'zactly 'spect he would be. Sartin events hev occurred to render his absence a necessity. De secretary will turn to his name on de roll an' scratch it off, and write across it in red ink de word 'expelled.'"

When the secretary had carried out the request the president continued.

"Up to a y'ar ago Prof. Johnson was an active, respected member of dis club. He was not only a worker in our cause, but he was industrious as a man. If he couldn't get work at \$1.50 a day he got it fur \$1. If he couldn't hev roast duck for Sunday he put up wid a beef-bone soup. His family had plenty to eat an' to w'ar, an' when rent day cum around he had de cash ready for his landlord.

"Just about twelve months back some white man told de professor dat he had just as good a right to a pianer, gold watch, an' span of horses as a rich man. He was told dat de aristocracy war coinin' money out of his labor. He was made to believe dat de pusson who wouldn't pay \$2 to hev a kitchen ceilin' whitewashed was an oppressor. It was pounded into him dat if he sot on de fence all summer an' talked again de blue blood of dis kentry somebody would furnish him roast turkey all winter.

"Many of you saw how he was affected. He began to hate honest work. His mouf began to grow bigger. While his cloze growed seedy his importance increased daily. When his wood-pile grew low he cussed Vanderbilt. When his flour-bar'l was empty he reviled Jay Gould. When his children becum ragged he ripped at capital. When his wife becum barful he swore at the aristocracy. When his landlord bounced him for non-payment of rent he howled an' raved about oppressors an' tyrants.

"De climax cum las' nite. I heard dat he had bin boastin' dat de rich must divide wid him, and I concluded to watch my hen-coop. About 'leben o'clock de professor showed up. I had twenty-two choice hens. He had none. He was gwine to divide wid me and take 'leben. My fr'en's, I can't 'zactly discribe what happened arter I got my paws on him, but I know he went away empty-handed, limpin', sore, an' in de han's of an officer. He am no longer a member of dis club. If dar am any odder man wid socialistic ideas now would be a good time fur him to make a grab fur his hat an' back down sta'rs."

A deep silence followed. Not a man moved.—*Detroit Free Press*.

SCOTCH SHREWDNESS SHOWN IN TWO ANECDOTES.—THE HIGHLANDMAN OUTWITTED.—Some years ago, before the sale of game was legalized, and a present of it was thought worth the expense of a carriage, an Englishman rented a moor within twenty miles of Inverness. Wishing to send a ten-brace box of grouse to his friends in the South, he directed a servant to call upon Donald Fraser (who owned a horse and cart, and made a livelihood by driving peats into the town), and ask him what he would charge for taking the box to Inverness.

Donald would not take it under eight shillings. The demand was thought so unreasonable that the gentleman complained to a Scotchman who was shooting with him.

The Scotchman replied that he (the Englishman) did not understand how to bargain

with the natives, but to leave it to him and he would see what could be done. Accordingly he called upon Donald, when he following conversation ensued:

"Guid mornin', Donald. What's the price o' peats the noo?"

"Juist auchteen pence the load, sir."

"Very weel, ye can tak' a load into my hoose in Inverness the first thing the mornin'."

"I'll dae that, an' thank ye, sir."

The Scotchman then walked on about twenty yards, when he suddenly turned around and said:

"By the by, I ha'e a sma' box tae send; ye can juist pit it on the tap o' the peats."

"I'll da'e that, sir; it'll no mak' muckle difference."

In this way the Scotchman got a good load of peats for 1s. 6d., and the Englishman got his box of game sent for nothing.—*Scottish-American Journal*.

**THE NEXT QUESTION.**—In Scotland they have narrow, open ditches, which they call sheep-drains. A man was riding a donkey one day across a sheep-pasture, but when the animal came to the sheep-drain he would not go over it. So the man rode him back to a short distance, turned him around and applied the whip, thinking, of course, that the donkey, when going at the top of his speed, would jump the drain before he knew it. But not so. When the donkey got to the drain he stopped all of a sudden, and the man went over Mr. Neddy's head. No sooner had he touched the ground than he got up, and, looking his beast straight in the face, said, "Verra weel pitched; but then hoo are ye going to get ower yersel?"

"A ROMAN Catholic priest, after a tour in Ireland, reports that all the boys and girls are thinking about getting to America. In every poor cabin you may see a picture of a young woman with feathers in her bonnet, or a young man in fashionable clothing, that's Bridget or Patrick that went to America three years ago."

THE Southern darkey says he has learned how to get answers to prayer: "If I pray de Lord to send me a turkey, I doan get him; but, if I ask Him to send dis nigger after 'em, I always get 'em 'fore daylight."

OVER six thousand young alligators are sold in Florida every year, and the amount of ivory, number of skins, and quantity of oil obtained from them, entitles them to a high place among the products of the state.

DURING 1884, 2,284 vessels passed through the Suez Canal, and the revenue derived from tolls was \$9,400,000.

THE lowest human beings are the earth men of Africa. They live under ground on insects, and have only a sign language. Two of them are in London on exhibition.

LAST year thirty-six Southern furnaces shipped to Northern markets 103,366 tons of pig iron. Thus far this year twenty-three furnaces have shipped 99,058 tons.

THE Nogales (Cal.) *Nugget* predicts that some old claims worked by the Spaniards more than 300 years ago will soon become the most important mines operated in recent years.

THE number of looms and spindles in South Carolina has more than doubled in four

years, and the increase in her lumber and turpentine mills and development of her mines and quarries is remarkable.

THE loss of life in mines during the past year has been simply enormous. We recall the remark of an old miner once made to us in our boyhood: "I never go down the shaft without wondering whether I am not going into my grave."

#### BREAD WINNERS ABROAD.

We have received a copy of the above-named work published in pamphlet form in the People's Library, J. S. Ogilvie & Co., 31 Rose street, New York, price 20 cents. The pamphlet, which is in large type and on good paper, embraces the entire series of letters written by Hon. Robert P. Porter, of the tariff commission, and originally published in the *New York Tribune*. The second series were published in the *Philadelphia Press*, *Chicago Inter-Ocean* and *San Francisco Chronicle*. There are in all one hundred and four letters in the two series, comprising 110 pages.

We most heartily commend this pamphlet to our readers. A better publication for the imparting of correct information about the "labor wages and condition of the working-classes of Great Britain," could not be written. John Bright said: "When you are called upon to speak, try and say something that will be useful and help to spread useful information." Mr. Porter has done this; no more useful information, to the laborer, the artizan, and the mechanic, of the United States could be spread before them than can be found in this pamphlet.

We will send the *Deutsch-Amerikanische Mueller* and the U. S. Miller for one year for \$1.50.

#### THE DAIRY COMPARED WITH OTHER INDUSTRIES.

The following figures are copied from a paper read last spring before the Mississippi Dairy and Creamery Association by its Secretary, J. W. Sheppard:

The value of the dairy product of the State of Iowa alone for the year 1884 amounted to \$50,000,000, while the total value of the butter, cheese and milk product of the United States for 1884 was \$500,000,000. These figures are best appreciated by noting the value of some of the other products.

The entire value of the oat crop in the United States for 1884 was \$150,000,000.

The total value of the pig iron product in this country last year, if one reckons the average price per ton at \$18, is \$81,000,000. By the time this pig iron is converted into steel and bar iron, it perhaps reaches the value of \$243,000,000, but does not exceed this sum.

The cotton crop of 1884, at an average valuation of \$50 per bale, makes the entire product to be worth \$380,000,000.

The entire wheat crop of 1884, if valued at 80 cents per average bushel, amounts to \$400,000,000.

These comparisons show that the dairy products for 1884 was \$350,000,000 more than the oat crop; \$419,000,000 more than the pig iron product; \$257,000,000 more than the iron and steel product; \$120,000,000 more than the cotton crop; \$100,000,000 more than the entire wheat crop of the country.

Now, these figures only pertain to the product of one year. What is invested in dairy lands, buildings, cows, and machinery to produce this value is difficult to ascertain, as a whole, but we do know that the amount of money invested in milch cows alone, in 1883, exceeds the enormous sum of \$700,000,000. This sum is better appreciated when it is remembered that the entire capital stock of the National banks of the United States, for the year ending Nov. 1, 1884, was \$524,266,345; while the entire capital stock of the State banks and trust companies in the United States was \$132,958,954. By adding these two sums together we get the sum total of the capital stock of the entire banking institutions in the United States which is \$42,744,701 less than is invested in dairy cattle alone.

We will send Harper's Magazine and the U. S. Miller for one year for \$4.20, or the Century Magazine and U. S. Miller for \$4.60.

**THE CHEAPNESS OF CATTLE.**—In reviewing the cattle market, the *Chicago Times* makes this observation: "It has been several years since cattle, particularly fat beeves, have been sold as cheap as they are now. One reason for their cheapness is the increased cattle raising on eastern and western farms, but the extraordinary plentifulness and cheapness of mutton has something to do with it. Then it is also clearly demonstrated that high prices for six years or more have stimulated cattle raising on the western plains to a point never before equaled in any country on the globe. The enormous western plains and the mountain valleys, hitherto unoccupied, have been used by cattle raisers, who have succeeded with very little trouble in making from 15 to 30 per cent. annually on their investments. Recent receipts at the Chicago stock yards have been greatly excessive, and prices have declined so rapidly that in numerous instances western shippers have lost a good deal of money."

## SPECIAL BUSINESS NOTICES

### BOLTING CLOTH!

Don't order your Cloth until you have conferred with us; it will pay you both in point of quality and price. We are prepared with special facilities for this work. Write us before you order. Address, CASE MANUFACTURING CO. Office and Factory: Fifth St., North of Waughten, Columbus, Ohio.

## SITUATION WANTED.

Short advertisements will be inserted under this head for One Dollar each insertion.

WANTED SITUATION—By a young man, 21 years of age, a situation in a 100 or 200 barrel Roller Mill, where he could acquire a thorough knowledge of Roller Milling. Is at present working in a large mill. Address, Willing, care of UNITED STATES MILLER.

WANTED—A practical Oatmeal Miller, one who understands his business and is willing to attend to it. Can receive additional information by calling on, or addressing CHARLES D. DANA, 10 State St., Chicago, Ills.

## AND CALL HER MINE.

Oh, were I a flake of the polar snow  
 Afar in the gleam of a polar sky,  
 I'd float to the breast of my warm, sweet love,  
 And nestle and melt and die.

Or were I a breath of the southern breeze  
 That's blown from the lips of the southern sun,  
 I'd circle the soft, fair tints of her flesh  
 Till the flesh and the breath were one.

Or were I a crust of the virgin gold  
 That vision of men had never yet seen,  
 I'd rise from the bed of the damp, dark earth  
 To crown her forever queen.

But being a man, with a man's true heart,  
 That is strong, like the ocean, and keen, like wine,  
 I'd stretch out my arms to my sweet, fair love,  
 And clasp her and call her mine.

W. J. HENDERSON.

WE will send you a copy of "Leffel's Construction of Mill-dams, and Bookwalter's Millwright and Mechanic," and "The U. S. Miller" for one year for \$1.30. Don't miss it.

## FOREIGN COMPETITION AND THE FLOUR TRADE.

On the 24th of last month a correspondent, writing to the Prime Minister, wished to know if he were in favor of an import duty on foreign flour. Lord Salisbury had already denied in the plainest of terms that he wished to tax wheat, and the enquiry again addressed to him might, at the first glance, appear to be little other than an impertinence. A little deeper consideration of the matter, however, will show that such is not the case, and the fact adds special value to the Premier's assurance that he will not tax flour from abroad any more than he will tax wheat from abroad. The difference between wheat and flour is that existing between the unmanufactured article and the manufactured, and the whole argument of the fair traders is that while the unmanufactured article should come in free, the manufactured should be heavily taxed for the protection of the home industry. Lord Salisbury, therefore, did not avow himself a free trader when he refused to tax wheat, but he has distinctly so avowed himself now that he has refused to tax flour. Lord Salisbury's attitude will be a severe blow to the new Protectionist school, but an even more severe blow is that administered to them by the general attitude of the milling community. If anybody is, on protectionist lines, entitled to protection, it is the miller; yet the vast majority of millers are found to be staunch free traders, and the industry, which, according to protectionist showing, should be most deeply depressed, is found to be cheerfully protesting its sound health and perfect ability to stand by itself without any artificial prop or support. Not that times have for the last few years been altogether easy, but that the difficulties which have arisen have been manfully grappled with, and are already in process of being successfully surmounted. It is undeniable that the pressure of foreign, and especially of American, competition became very severe in the five years from 1879 to 1884. Imports into Liverpool became very heavy; London was depressed week after week from the same cause, while Glasgow was fairly overwhelmed, American supplies frequently exceeding those from all other sources combined. Flour imports, which in 1878 were 7,828,000 cwt., rose in 1879 to 10,728,000 cwt. Continuing steadily to rise, the total in 1882

surpassed thirteen millions, and in the following year the enormous quantity of nearly sixteen and one-half millions was attained. This, however, was the maximum. Last year saw a notable ebb; the total went down to fifteen millions, and the decline was not in receipts from America alone, but also in the arrivals from Germany and the Baltic, from France, Austria, and Hungary, and from such minor contributories as Chili and Spain. Canada and Australia showed a slight increase, and no British miller will do other than welcome the moderate and useful consignments of our colonial friends. During the present year there has been a further decrease, and recent shipments of flour from the United States have been comparatively light. Now these facts point to one or two conclusions well worthy the attention of our protectionist friends, and they may also be considered in connection with certain circumstances which exist of fact, and are beyond doubting by advocates of either free or fair trade. In the first place, the time of greatest pressure appears to be over. British millers have survived the strain and are now making that headway which the magnificent mechanical appliances at their disposal render possible, and even easy. The advertising columns of *The Miller* bear effective witness to the zeal and energy with which science and invention are being pressed into the service of the milling industry of Great Britain. The mills of Minneapolis are famous throughout America, and Hungarian flour has all the reputation of excellence, proved through successive decades. But neither in America, nor in Hungary, or in any other place, does there exist a secret beyond the power of the British miller to learn. The processes open to the foreigner are open to us, and the past ten years have seen something like a revolution in the milling machinery of this country. Neither brains nor money have been wanting for the development and improvement of British milling, and the results of the great changes made are already becoming apparent. The cheapness of money and the well-earned discredit into which many foreign investments have fallen, point to capital being easily obtainable for a yet fuller development and adaptation of British milling machinery and appliances, while the establishment of really first-rate mills in all our great towns will mean the production of fine bread at the same cost as a second-rate loaf hitherto. The English people do not yet get as good flour or as good bread as they very well might, hence comes very largely the favor which has been shown to American flour, especially when offered for sale in a manner convenient for retail purposes. Such a preference for American flour has had an educational value on British millers, but there is no real reason for any discouragement over the matter. Great Britain now holds that central position in agricultural commerce which gives her a natural advantage over all competitors. We do not want to have better milling machinery than the Americans or the Hungarians in order to hold our own. If we only have as good, it is fully sufficient, for our choice of wheat is wider and better than that at the disposition of any other nation. Every country which grows wheat may fairly claim for such corn either some special intrinsic excellence, or some special

value in combination with other sorts. Such a claim is, in fact, admitted, and we have been enabled from time to time to give tables showing wherein such special excellences reside, as well as to suggest what special admixtures and combinations are to be recommended. It is conceded, then, that the greater the choice of sorts of home and foreign wheat, the better is the position of the miller who has good machinery and knows his trade. This being so, let us just see what choice our millers had last year. The following is the list of countries whence wheat was imported. First comes America, with at least five well-marked varieties, namely, red winter, spring, California white, California amber, and Canadian. Next, there comes Russia, with Azima, Saxonka, Odessa, Ghirka, and other varieties. India sends the pure white Delhi wheat, the well-known No. 2 Calcutta white or club wheat, the excellent Jabalpur or Central Indian wheat, and three or four varieties of strong red wheat. Persia, Australia, New Zealand, Chili, La Plata, Germany, France, Turkey, Egypt, and Roumania, are ten other contributories; some of them of very great importance. Altogether, we have not less than about thirty distinct varieties of wheat obtainable at our markets. Can this be said of the greatest of foreign exchanges? Of Chicago, or Paris, or Vienna, or Buda-Pesth? The choice offered to the British miller cannot be equalled or even approached by any choice which is offered to our French neighbors, or Austrian friends, or American cousins. Nor is this all. Just as in British wheat growing the straw is a very important consideration, so in British milling the disposal of the offals is a matter of great importance, and the prices obtained go far to make a small percentage of total profit into a large one. Now, it is not every foreign miller who can command a constant and ready demand for his offals. There is a good deal of waste in many foreign mills. There at least need be none in British mills. The labor at the disposal of American and Hungarian millers is skilled and good, yet with the rapid development of mechanical appliances, it may be doubted whether any foreign country will be able in the end to hold its own against the unrivaled engineering talent in Great Britain which the scientific miller can command. Ours is a country of commerce, a country of engineers, of skilled mechanics and mechanicians. The introduction of science and scientific machinery into milling is on the side of the British miller, and we have no fears for a future in which British science and British industry stand together shoulder to shoulder, and work together, with enlightened ability, for the common weal. From the very nature of the case, the depression of recent years cannot lift other than gradually; but that it will lift we feel assured. There are, in fact, signs that it is already lifting, and nothing but a constitutional faint-heartedness can account for the views of those persons who hesitate to predict a brilliant and prosperous future for the great milling industry of the United Kingdom.—*The Miller*, (London).

"I HAVE such an indulgent husband," said little Mrs. Doll. "Yes, so George says," responded Mrs. Spiteful, quietly, "Sometimes he indulges too much, doesn't he?"

# READ AND ANSWER QUICKLY!

C A W K E R ' S

## American Flour Mill and Mill Furnishers Directory

FOR 1886,

is now in press, and will be ready for delivery about Jan. 15, 1886. In compiling this book it has been our aim to give the correct address to all firms or persons owning flouring mills in the United States and Dominion of Canada; to state wherever we have succeeded in obtaining reliable information, whether steam or water power is used; to give the capacity of mills in barrels of flour per day of 24 hours; to state whether millstones or rollers or both are used; to state whether cornmeal, buckwheat flour, rye flour or oat meal are made as a specialty, and finally to indicate by a sign whether the party opposite whose name it is placed is rated to be worth \$10,000 or more. In addition we add a list of leading millwrights in almost every state and territory, and a list of the principal flour brokers, flour exporters and importers in various parts of the United States and Europe. MILLERS will find this a very valuable feature, worth many times the cost of the book to them. The SPECIAL points of information in this Directory are in most cases obtained from DIRECT CORRESPONDENCE. The Directory is published in pocket-book form, size of sample page enclosed, those for pocket use by commercial travelers being printed on French folio paper, thin, light and strong, and those for office use on elegant book paper. All copies will be strongly and handsomely bound. In ordering, specify which kind you desire. PRICE, single copy, \$10.00; three copies, \$25.00; seven copies for \$50.00. No deviation can or will be made from these prices.

**ADVERTISEMENTS.** Flour Dealers, Millers, Mill-furnishers, Insurance Companies, Transportation Companies, etc., will find this a most valuable medium for advertising. Should you desire to insert an advertisement, you can do so at the rate of \$10.00 per page, or \$6.00 per half page, no less than half page ads taken. No advertisements will be inserted on the cover. This Directory will reach the very BEST OF THE TRADE in this country and Europe. Copy and Cuts if any must be in our hands at the very latest by January 10th. The earlier the better. Address all communications to

**E. HARRISON CAWKER,**

PUBLISHER,

124 Grand Avenue, MILWAUKEE, WIS.

### ORDER FOR DIRECTORY.

E. HARRISON CAWKER, Publisher,

124 Grand Avenue, MILWAUKEE, WIS.:

Please deliver to us one copy of "CAWKER'S AMERICAN FLOUR-MILL AND MILL-FURNISHERS' DIRECTORY FOR 1886," as soon as published, for which we agree to pay TEN DOLLARS upon delivery of the book.

Name, \_\_\_\_\_

Post Office, \_\_\_\_\_

County, \_\_\_\_\_

State, \_\_\_\_\_

## NEWS.

**DEAD**—William Comins, miller, Paxton, Pa.

**BURNED**—D. Barron's mill at Amherstburg, Ont.

**SOLD OUT**.—James Bratton, miller at Easton, O., has sold out.

S. L. HERRINGTON & Co.'s mill at Wellsboro, Pa., is burned; insurance \$3,500.

MILLER BRO.'s mill at Mishawaka, Ind., burned, Dec. 10. Loss is reported at \$25,000; insurance \$4,000.

N. A. LOGAN & Co.'s mill at Michigantown, Ind., was recently burned. Loss reported at \$6,000. Insurance only \$600.

C. C. PHILLIPS, Philadelphia, Pa., manufacturer of grinding mills had his stock recently damaged by fire; insured.

THE citizens of Gary, Dak., offer a bonus of \$1,500 cash to any proper party that will erect a good roller mill in that place.

THE mill owned by the Texas Mill & Elevator Co. at Corsicana, Tex., will soon have its capacity enlarged to 500 barrels per day.

KIRTLAND BROS., Oblong, Ill., have just placed the contract to change their mill to the roller system with capacity of 75 barrels per day. It is a steam mill and the only mill at Oblong.

THE boilers in Eaton & Parks' flour mill at Sullivan, Ind., exploded Dec. 19, severely injuring several persons, including the proprietors, and doing damage to building and machinery estimated at 3,000.

JUDGE J. E. LOOMIS, the well known southwestern representative of E. P. Allis & Co., was seriously hurt in a railroad accident near Ft. Worth Texas. His many friends will be glad to learn that he is recovering rapidly.

**NEW MILLS**.—A 100-bbl. roller mill at Stuart, Neb. A 100-bbl. mill at Stevenson, Ala., by Johnson & Allison. A small mill by A. A. Kelly, of Jonesboro', N. C. A 50-bbl. mill by Chas. Schreimer at Kerrville, Tex. A \$30,000 mill in Fannin Co., Tex., by the Farmer's Alliance.

A Corry, Pa., special of Jan. 1, says: The Corry City Flouring Mills, owned by Starbird, Hammond & Allen, were destroyed by fire at 4 o'clock this morning. The fire originated in the basement and cannot be accounted for. The building was a large three-story brick, and was equipped from top to bottom with the latest improved machinery for the roller process. The loss is \$25,000; insurance \$28,000.

THE boiler in Eaton & Parks' mill, at Sullivan, Ind., exploded Dec. 11, making a fearful crash and causing a great deal of excitement. An alarm was immediately given, and by the promptness of the firemen the fire was extinguished without doing much damage. Michael Ambrose, the miller, was seriously hurt, being terribly mangled about the face, body and head. Charles Parks and Jeston Eaton, the proprietors, were both injured, though not seriously. Fred. Eaton, the engineer, escaped without injury. He became alarmed before the explosion, and ran out of the way. The engine room building is a total wreck, and the mill machinery and buildings are damaged about \$3,000. As to how all parties escaped as they did is a mystery. There was scarcely any water in the boiler,

and young Eaton, the engineer, had complained to the proprietors of the danger, but they were so rushed with work they paid no attention to the matter.

THE Cummer Engine Co., Cleveland, O., has received the following letter from Geo. W. Cissel & Co., Washington, D. C., and it is self-explanatory: "Last spring we concluded to build a first-class 400-bbl. mill, and engaged E. G. Metz as our head miller and E. Corbett as our millwright, and sent them out to investigate the different kinds of flour machinery. Upon their return they reported a decided preference for the Jonathan Mills Universal flour dresser for the entire bolting system of our mill, except the scalping reels for the different wheat breaks. Having implicit confidence in their judgment, we placed our order with you for 20 36-inch dressers. The mill was completed and started Sept. 1, the machinery running perfectly. It has not stopped an hour since, nor has there been a change of a cloth or spout. Two weeks after starting the demand was so great for flour that the mill was forced to run day and night, and has done so ever since. The yields are perfectly satisfactory, and the different grades of flour are unsurpassed by any similar grades from any of the best mills of this country, which speaks well for Mr. Corbett as a milling expert. His system, we think, has no superior, and do not know how to say enough in praise of it; also your flour dressers, which have greatly helped to make the mill such a perfect success. There is not a single one of the whole 20, but what is doing its work perfectly satisfactory and with ease. It gives us great pleasure to inform you of our unqualified endorsement of your Universal flour dressers, as they have proved themselves perfect in their operations on all kinds of material, from the highest to the lowest."

The following are among the numerous orders placed with the Case Manufacturing Co., Columbus, Ohio, since our last issue: From Leroy Atkins, Trenton, Mo., for a full line of rolls, centrifugals, scalpers, &c., for a complete roller mill on the Case system, using 10 pairs of rolls with patent automatic feed; from D. S. Shellabarger & Co., Decatur Ill., for all necessary machinery for a roller corn-meal mill on the Case system; from W. T. Pyne, Louisville, Ky., for one additional pair of rolls, to be shipped to Steinburg & Co., Scottsburgh, Ind.; from Richton & Co., Williamstown, W. Va., for additional rolls; from G. N. Miner, Cedar Falls, Iowa, for all the necessary rolls and other machinery for a roller corn-meal mill on the Case system; from Benson & Higby, Fairmount, Ill., for rolls, purifiers, scalpers, &c., for a full roller mill on the Case system; from A. Dietly & Son, Moreheadville, Pa., for one additional pair of rolls with patent automatic feed; from R. Tuttle & Co., Columbia City, Ind., for an additional pair of rolls with patent automatic feed; from Elliot & Moore, Milford Centre, O., for two pairs of rolls with patent automatic feed; from Henry Muntz, Conway Springs, Kan., for one improved centrifugal reel; from Castru, Mallory & Co., Flint, Mich., for rolls to be shipped to W. H. Loomis, Mt. Morris, Mich.; from A. L. Strang & Co., Omaha, Neb., for all necessary machinery for a roller corn-meal mill on the Case system, to be built at Omaha, Neb.

## A LOOK AHEAD.

S. H. Richardson says: "Two years from now the trade will think less about a 'visible' of 100,000,000, or for that matter, 125,000,000 bush. The construction of innumerable small elevators at country points along the lines of railroads is educating the farmers to new ways of doing business. The wheat grower is told that the way for him to do is to put his grain into these elevators where he can store it at small cost, and be in a position at

any time to take advantage of booms in the market. The advantages of the new way are so apparent to him that he very willingly pushes his wheat to the front. Then when the warehouses are full, the speculators take a hand, and, by depressing prices, seek to count the small holders out. Every argument that can be brought forward is sung into the ears of the farmers, and they are told that the markets are going down, down, down to the bottom of the bottomless pit of depreciation. The wise farmer pays no attention to the talk of wreckers, but waits for the boom that was held out as one of the inducements for him to remove his wheat from his granaries into the warehouses on the railroads. He is in as good a position to form an independent and intelligent judgment as to the course of the market as the men have who own the elevators or manipulate the price of breadstuffs at the great speculative and distributing centers. He knows that the fluctuations of a day, a week, or a month cannot change grand results, and that in the years of plenty the general average of prices will be low and tendency of values downward, while in years of scarcity and partial crop failures higher prices must inevitably prevail sooner or later during the season. These facts are patent to him, as they are to every intelligent man. Farmers are developing into shrewd merchants. And as the years go on they will understand better and better the general laws of trade and the causes that influence the prices of the commodities they produce. They will feel their strength, and the efforts of speculators will be powerless to move them from the positions they will take. The wheat trade is entering upon a new era in its development, and producers and grain merchants will be greatly benefited thereby. What difference does it make whether the wheat that is raised is held back by the farmers as an 'invisible reserve,' or put in warehouses as a 'visible supply?' Very close estimates are made as to what the crop will be before a bushel of grain is moved. The trade is oppressed by the enormous proportions of a 55,000,000 or 60,000,000 bus. 'visible,' representing a money valuation of \$40,000,000 or \$45,000,000, yet we have before us the spectacle of railroad capitalization running up in the billions of dollars lifted bodily and advanced from 20 to 50 per cent. Just think of it for a minute. Our whole 'visible supply' of wheat represents less money than the capital stock and bonded debt of many individual railroads. It ought to be no load to carry. The country could lift it up without feeling the weight of it any more than a boy would a box of matches. If the same crop conditions that exist at this time were to exist three years from now, with the people educated up to the changed methods of moving grain, we would see \$1.25 or \$1.50 for wheat. If the election of one man to the directory of the St. Paul road was sufficient to raise the price of that stock from 64 to par, and advance the whole stock list to a point that represents enhanced values 10 or 20 times greater in the aggregate, than the value of all the wheat in sight, surely believers in wheat ought not to lose faith in that commodity. When the country gets under it the load will not be felt."

We will send the U. S. Miller and The Milling Engineer for one year for \$2.00.

# Important Notice to the Milling and Mill-Furnishing Public

We publicly announced sometime since that we had determined to no longer submit to the secret violation of our injunction by the Geo. 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 of Congress the application had to be granted, and hence all proceedings are at a standstill, until a 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 Geo. 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 Geo. 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 anyone but ourselves will be charged as infringers, and held liable as such.
  - 5th. Everyone, who with knowledge of these facts, helps or assists the Geo. T. Smith Middlings Purifier Company, Samuel L. Bean, or Kirk & Fender, in violating the injunction may be made liable as a joint *tortfeasor*.
  - 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, etc.

## Milwaukee Dust Collector Mfg. Co.

**NOTE.--The Prinz Dust Collector has received highest honors and Silver Medal at Paris Exhibition and Silver Medal at Koenigsberg, Prussia.**

### THE CENTURY for 1885-86.

The remarkable interest in the War Papers and in the many timely articles and strong serial features published recently in the CENTURY has given that magazine a regular circulation of

**MORE THAN 200,000 COPIES MONTHLY.**

Among the features of the coming volume, which begins with the November number, are:

#### THE WAR PAPERS

BY GENERAL GRANT AND OTHERS.

These will be continued (most of them illustrated) until the chief events of the Civil War have been described by leading participants on both sides. Gen. Grant's papers include descriptions of the battles of Chantanooga and the Wilderness. Gen. McClellan will write of Antietam, Gen. D. C. Buell of Shiloh. Gens. Pope, Longstreet and others of the Second Bull Run, etc., etc. Naval combats, including the fights between the *Kearsarge* and the *Alabama*, by officers of both ships, will be described.

The "Recollections of a Private" and special war papers of an anecdotal or humorous character will be features of the year.

#### SERIAL STORIES BY

W. D. HOWELLS, MARY HALLOCK FOOTE,  
AND GEORGE W. CABLE.

Mr. Howells' serial will be in a lighter vein than "The Rise of Silas Lapham." Mrs. Foote's is a story of mining life, and Mr. Cable's a novelette of the Acadians of Louisiana. Mr. Cable will also contribute a series of papers on slave songs and dances, including negro serpent-worship, etc.

#### SPECIAL FEATURES

Include "A Tricycle Pilgrimage to Rome," illustrated by Pennell; Historical Papers by Edward Eggleston, and others; Papers on Persia, by S. G. W. Benjamin, lately U. S. minister, with numerous illustrations; Astonomical Articles, practical and popular, on "Sideral Astronomy"; Papers on Christian Unity by representatives of various religious denominations; Papers on Manual Education, by various experts, etc.

#### SHORT STORIES

By Frank R. Stockton, Mrs. Helen Jackson (H. H.), Mrs. Mary Hallock Foote, Joel H. Chandler Harris, H. H. Boyesen, T. A. Janvier, Julian Hawthorne, Richard M. Johnston, and others; and poems by leading poets. The Departments,—"Open Letters," "Bric-a-Brac," etc., will be fully sustained.

#### THE ILLUSTRATIONS

Will be kept up to the standard which has made THE CENTURY engravings famous the world over.

#### PRICES, A SPECIAL OFFER.

Regular subscription price, \$4 a year. To enable new readers to get all the War Papers, with contributions from Generals Grant, Beauregard, McClellan, J. E. Johnston, Lew Wallace, Admiral Porter and others, we will send the 12 back numbers, November, 1884, to October 1884, with a year's subscription beginning with November 1885 for \$6 00, for the whole. A subscription with the 12 numbers bound in two handsome volumes \$7.50 for the whole. Back numbers only supplied at these prices with subscriptions.

A free specimen copy (back number) will be sent on request. Mention this paper.

All dealers and postmasters take subscriptions and supply numbers according to our offer, or remittance may be made directly to

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*The ideal young people's magazine. It holds the first place among periodicals of its class.*

BOSTON JOURNAL.

### ST. NICHOLAS.

An illustrated monthly periodical for boys and girls, appearing on the 25th of each month. Edited by Mary Mapes Dodge. Price, 25 cents a number, or \$3 00 a year, in advance. Booksellers, newsdealers, postmasters, and the publishers take subscriptions, which should begin with the November number, the first of the volume.

ST. NICHOLAS aims both to satisfy and to develop the tastes of its constituency; and its record for the past twelve years, during which it has always stood, as it stands to-day, at the head of periodicals for boys and girls, is a sufficient warrant for its excellence during the coming season. The editors announce the following as among the

#### LEADING FEATURES FOR 1885-86:

A Serial Story by Frances Hodgson Burnett. The first long story she has written for children.

A Christmas Story by W. D. Howells. With humorous pictures by his little daughter.

George Washington by Horace E. Scudder. A novel and attractive Historical Serial.

Short Stories for Girls by Louisa M. Alcott. The first—"The Candy Country"—in November.

New "Bits of Talk for Young Folks," by "H.H." This series forms a graceful and fitting memorial of a child-loving and child-helping soul.

Papers on the Great English Schools. Rugby and others. Illustrations by Joseph Pennell.

A Sea-coast Serial Story by J. T. Trowbridge, will be life-like, vigorous, and useful.

"Jenny's Boarding House," a serial by James Otis, dealing with news-boy life and enterprise.

Frank R. Stockton will contribute several of his humorous and fanciful stories.

"Drill." By John Preston True. A capital school-story for boys.

The Boyhood of Shakespeare, by Rose Kingsley. With illustrations by Alfred Parsons.

Short Stories by scores of prominent writers, including Susan Coolidge, H. H. Boyesen, Nora Perry, T. A. Janvier, Washington Gladden, Rossiter Johnson, Joaquin Miller, Sophie May, Hezekiah Butterworth, W. O. Stoddard, Harriet Prescott Spofford, and many others.

Entertaining Sketches by Alice W. Rollins, Charles G. Leland, Henry Eckford, Lieutenant Schwatka, Edward Eggleston, and others.

Poems, shorter contributions, and departments will complete what the *Rural New-Yorker* calls "the best magazine for children in the world."

THE CENTURY CO., NEW YORK.

We will send Harper's Weekly and the U. S. Miller for one year for \$4.10.

We will send the U. S. Miller and American Miller for one year for \$1.50.

#### ENGLISH WARS.

The wars which have been waged by Great Britain since Queen Victoria ascended the throne number twenty-five, or which twenty were due to the Liberals and five to the Conservatives:

*Liberal Wars*—1839, Afghan war; 1839, Aden rebellion; 1840, Syrian war; 1841, China war; 1841, Cabul insurrection; 1847, Second Sikh war; 1850, Kaffir war; 1851, Burmese war; 1854, Crimean war; 1856, China war; 1857, Persian war; 1857, Indian mutiny; 1860, China war; 1860, New Zealand war; 1865, New Zealand war; 1863, Ashantee war; 1873, Ashantee war; 1881, Transvaal war; 1882, Egyptian war; 1884, Soudan war.

*Conservative Wars*—1843, Scinde war; 1845, Sikh war; 1867, Abyssinian war; 1879, Zulu war; 1879, Afghan war.—*Philadelphia Press.*

#### A Tale of Nine Cities

Is the euphonious title of a little book giving a brief description of the points of interest in the nine principal cities of the great Northwest and Far West, viz: Chicago, Milwaukee, St. Paul, Minneapolis, Council Bluffs, Omaha, Denver, San Francisco and Portland, Oregon. A correct colored map of each city is made a part of this instructive book, which is being distributed by the Chicago, Milwaukee & St. Paul Railway.

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## A REMARKABLE GAME.

One of the most novel games of poker on record was played by Mr. Lemuel Merriwether, now business manager of Effie Ellsler's company. A number of year's ago Mr. Merriwether, then quite a young fellow, was farming in Union county. One day toward the close of the winter season he received a visit from a neighbor and a game of poker was suggested. A young friend of Merriwether's who had a half interest in the farm, which was rented, also joined the party. None of the young fellows had any money, so they decided to put up whatever they owned as collateral, set a price upon it, and play for it. Merriwether had a bull calf, forty bushels of potatoes and some corn, his partner had an old sow, twenty bushels of turnips, and four cords of firewood; the neighbor had a brood mare, some wheat, and a dozen sides of bacon. Whatever was portable of these effects was brought to Merriwether's cabin before the game began. The brood mare and the bull calf were tied outside the door. The game lasted three days and three nights, and was one of the most exciting contests on record. Some one would bet a side of bacon on "two pair," and the man with "a bob-tail flush" raise him a cord of fire wood, or bet a bull calf on "three aces" and have him called with a sow, by a man who held a little "straight." A "jack-pot" was played, which perhaps has never been equaled. One of the boys opened with a pair of aces for five bushels of turnips, another one "staid" on a pair of queens for half a cord of fire-wood. Merriwether glanced cautiously over his hand and didn't have a pair. He saw the bets already made and raised them a bull calf better. There was considerable excitement at this move. The first man added enough bacon to his stock to make it right and the other supplied his share of turnips and cord-wood. The first man drew three cards to his aces, the second one held up an ace and drew two cards, and Merriwether stood "pat." It was Merriwether's first say, and he said laconically: "I bet my stack," which consisted of a few fragments of cord-wood, a few bushels of turnips, and a third interest in the brood mare. The man who had opened the pot with a pair of aces did not better his hand. He studied for fully five minutes and then whispered sharply: "I pass." The next man looked at Merriwether's passive face a moment, and said: "I call it." He showed down his pair of queens not having bettered in the draw, and Merriwether's pat hand fluttered down upon the table and there was not as good as a pair in it. He saw his competitor sweep in the last of his year's labor on the farm, bacon, turnips, bull calf, and all, and then quietly fell under the table and slept like a child.—*Louisville Commercial.*

## THE CHICAGO MANUAL TRAINING SCHOOL.

The promise made by the Commercial Club of this city that a first-class school would soon be found on Michigan avenue and Twelfth st. is being grandly fulfilled. As the wants of the school are developed the necessary brains and means are ready to meet them. In the material evolution of the project there came first the lot, for which twenty-five thousand dollars were paid; then the building, at a cost of fifty thousand; then the equipment of the carpenter shop; then foundry and blacksmith shop, all of which have been noticed in these

columns. The boys constituting the first class, who were admitted less than two years ago, having passed through the carpenter shop, foundry and blacksmith shop, were ready for vise work in iron in September of this year, and have been engaged in chipping and filing since that date. They are now busy in the machine shop, the equipment of which is nearly complete. A planer, a shaper, a drill, and three engine lathes are already in position; five additional engine lathes and two hand lathes will be ready for use by the time these lines are in print, thus practically completing the equipment of the school as originally designed. During the last vacation the capacity of the drawing room was doubled, an additional school room was seated, and a chemical laboratory for pupils' work was furnished. The school has now over 150 boys in attendance, in charge of eight teachers. The junior, or entering class, has hitherto been limited to seventy-two, but preparations are now being made to admit twice that number next September. The next examination for admission will be held June 26, 1886, and will cover only the English elementary studies. The *Industrial World* has repeatedly noticed the excellent work done by the pupils of this school. The display of last June was remarkable, and those at all skeptical of boys' ability to do good work in wood and metal while at the same time they are carrying on high-school studies, will do well to visit the school where they will be courteously received at any time during school hours.

The growth of the manual training idea has been very rapid of late. Baltimore, Toledo and Philadelphia have already added manual training to their public school course, and it has gained a foothold in nearly or quite fifty cities or villages in the United States. The Chicago school board is having the matter under advisement, and it is to be hoped that they will not permit this city to be outdone by others. There is a vast amount of latent hand power in our school boys that ought to be developed, and its development has been proved to be not only not a hindrance but an actual help to their intellectual progress. The boy who never had any ambition to "make something" can hardly be called a normal boy, but our schools have thus far afforded him no opportunity to make anything except pictures. The manual training school boy is delighted with the chance to do something as well as to say something, to produce something with his hands as well as with his brains. The shop seems to be more his natural element than the school room, even though he has no idea whatever of becoming a mechanic.—*Industrial World.*

## PLEASANT PARAGRAPHS.

HOW A CHICAGO MILLIONAIRE PAID A DEBT.—A correspondent of the *Kansas City Times* tells the following story:

Prior to the panic of 1873, Mr. H. H. Honore held about \$9,000,000 or \$10,000,000 of Chicago property, on which he owed about \$5,000,000, and no man in Chicago had better credit. He carried a bank account at St. Louis, where he had the confidence of wealthy capitalists. During the squeeze of 1873, and near the first of the year, he was in St. Louis, and was in conversation with the President of the bank where he did business.

"Mr. Honore," said the banker, "your account is overdrawn here some \$2,500, and as it is near the first of the year we would be exceedingly obliged if you would balance the same to-day."

"It is impossible and out of the question for me to do it to-day, and the probabilities are that it will be many more days before I can," returned Mr. Honore.

"Well," says the banker, "can't you give a note, draw a draft, do something, just so the book-keeper can balance the books?"

"Draw a draft, who the d—l would I draw a draft on? I might as well telegraph the Czar of Russia for funds as to draw a draft."

"Well, Mr. Honore, draw a draft on the Czar, that will square the books, and that's the main thing just now."

So after some conversation a sight draft for the amount was regularly drawn and started on its mission, and the proper credit given Mr. Honore. The draft passed through many banking firms in this and the old country, and and by the time it reached the Czar had many blue ribbons and seals belonging to the different institutions through which it passed.

It was presented to the Czar through one of his agents, who desired instructions what to do with it. The Czar looked it over, but could not understand how he came to owe money to Mr. Honore, but as everything appeared regular, he instructed that it be paid, but told his secretary to inform Mr. Honore that the next time he drew a draft to send an itemized bill.

It is said that Jay Gould's father, an honest old Delaware farmer, started him out with a kick and half a dollar, and told him to "go to the devil." Jay is a dutiful and obedient boy.

THE new Merchants' Exchange building in Memphis was opened with prayer, in the course of which one member said: "They deal in futures here."

"Yes, I see," said another; "and by George, they might as well open a 'jackpot' with prayer."

ALSO "ENGLISH AS SHE IS SPOKE."—Highly educated Teuton who knows everything—"Der fault I have to find mit der English is dot it has not dot perspikooity dot der Tcherman has. Now, for example: in der English you say science. Dot conveys no idea. In Tcherman we haf der simple vord, Wissenschaftlichen, vich is melodious und comprehensif. It is der same mit all your papers. You haf a Real Estate Journal. Dot is three words. In Tcherman we say Grundeigentumszeitung, in one. It is more flexible. In your theatres you haf a paper called der 'Entr' acte. We call such a paper 'Theaterzwisehenakszeitung.' It is more beautiful. English is a veak langkwitch; unt pesides, Tchermans speaks it unt write it better as der English."

For \$5.00 we will send Gibson's recent work on Gradual Reduction Milling, The Northwestern Miller and U. S. Miller for one year.

"You seem to be a man who is hard up for money," said Gilhooly, who is always trying to borrow money, to Col. Lordly.

"You are mistaken, sir," responded Lordly loftily, "I am well provided with money."

"Blamed glad to hear it. Let me congratulate you that you are in such efficient circumstances, and—and—then you won't object to lending me \$5."—*Texas Siftings.*

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## WEBSTER'S PRACTICAL A NEW DEPARTURE IN DICTIONARIES.

**An Industrial Revolution.**—In a large Connecticut manufacturing establishment there is in operation a new style of furnace which produces more steam-power from a consumption of 1,000 lbs of coal than can be generated from 20,000 lbs burned in the ordinary way. In other words, the new contrivance already saves nineteen-twentieths of the fuel, and it is believed that before being publicly announced it will be so improved that the saving will reach 49 fiftieths! The facts already developed are simply incredible to one who has not actually seen them verified.

**A Remarkable Coincidence.**—While the new Furnace was in process of construction, the editors and publishers of Webster's Unabridged were engaged upon their new work which is as great an improvement upon all previous Dictionary productions, and just as valuable in its way as is the incredible fuel economizer above alluded to. Webster's Practical is not only a new compilation by the leading Dictionary House of the world, but it embodies several new features which, for ordinary use, render it pre-eminent among dictionaries—not excepting even the Unabridged.

**1st, Condensation.**—By grouping all derivative and compound words under their root or leader (as in the "Book" example quoted below), such words are accurately treated in one-third of the space required by the old arrangement. By this means nearly all the desirable material of the four and five-dollar dictionaries is presented in a convenient and handy form in Webster's Practical.

**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.

**3d, Ready Reference.**—Not only do we comprehend and remember more readily by the new grouping method, but we do it in less than a fourth of the time required when the words are classified in the old way. Hence, no one who values time would hesitate to pay one dollar for Webster's Practical rather than accept the best of the older dictionaries as a gift.

**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.

**7th, Compendium Matter.**—Still another invaluable feature of Webster's Practical is its compendium matter, over one hundred pages of which is devoted to the most complete Pronouncing Vocabulary ever compiled of Biblical, Classi-

cal, Mythological, Historical and Geographical Proper names. With Webster's Practical Dictionary at hand, one need not be at a loss to correctly pronounce or spell the most difficult words.

**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, book, n.** A collection of sheets of paper, etc., bound together; a literary composition, written or printed; a subdivision of a literary work. (*Mor.*) A volume in which accounts are kept. — *v. t.* [BOOKED (bookt), BOOKING.] To enter, or register in a book. — *Book'ish, a.* Given to reading; more acquainted with books than with men. — *Book-blind'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. — *cover, n.* (*Bind.*) A case for a book; a cover of cloth or other material prepared for casing a book. — *keeper, n.* One who keeps accounts. — *keeping, n.* Art of recording mercantile transactions and keeping accounts. — *learned, -lern'd, 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, place 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.* One who is 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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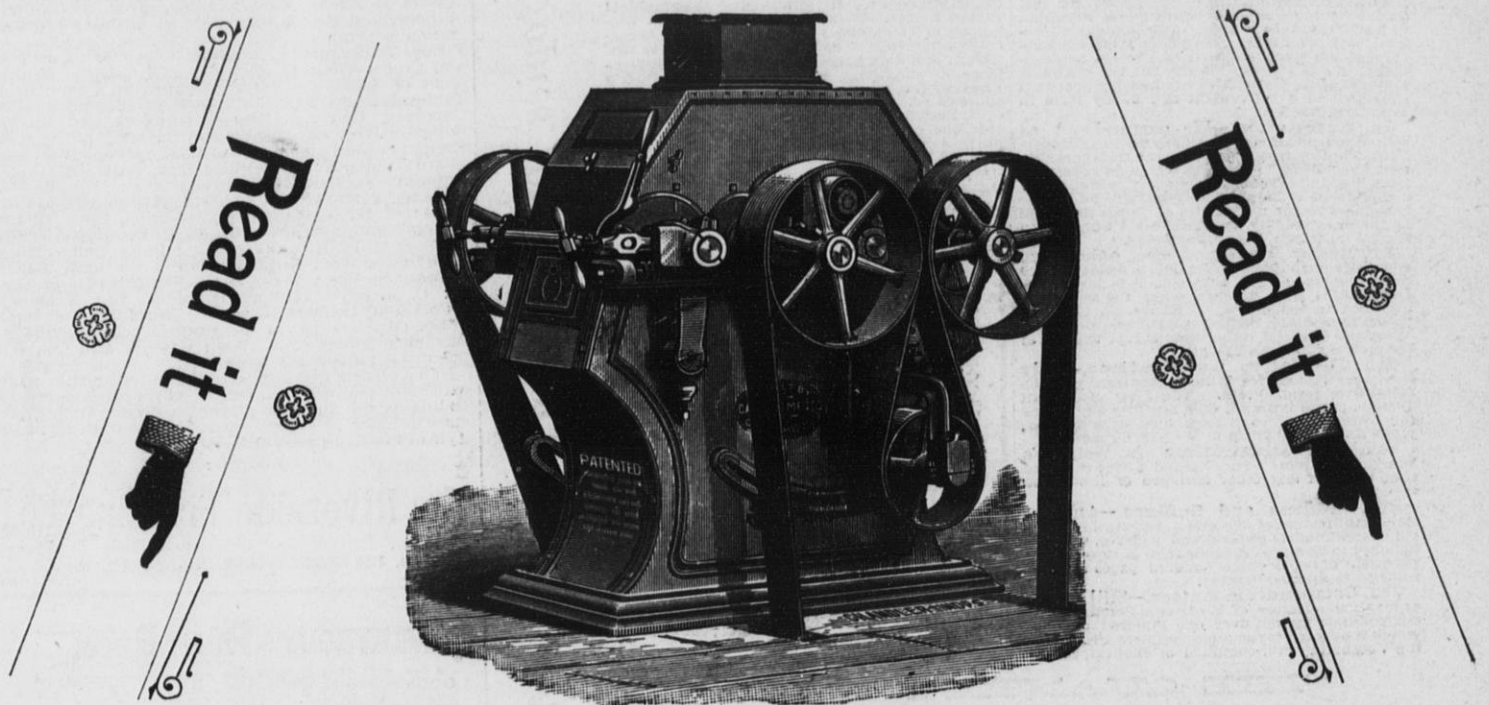
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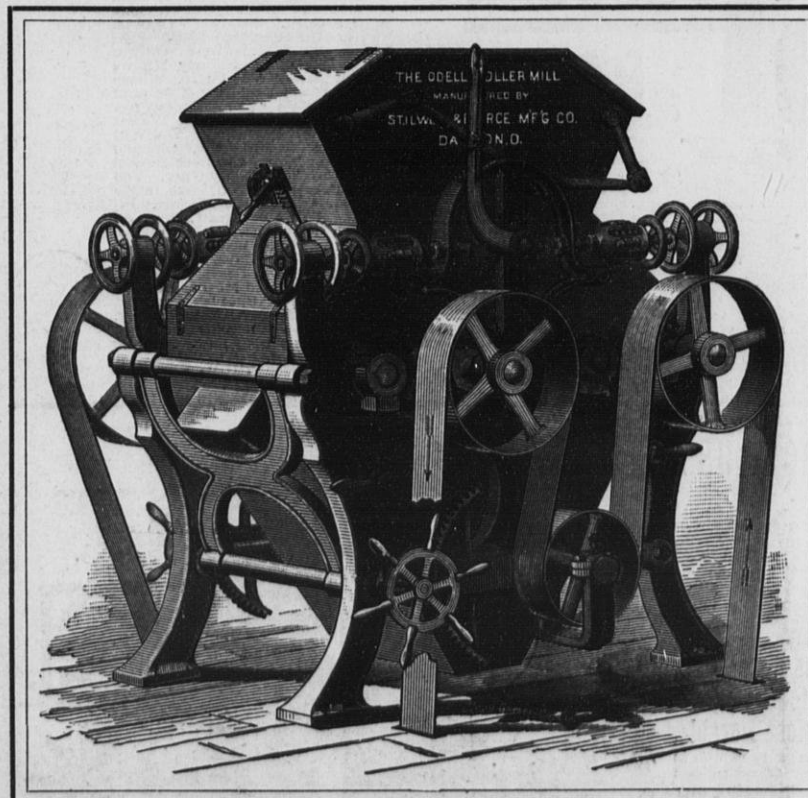
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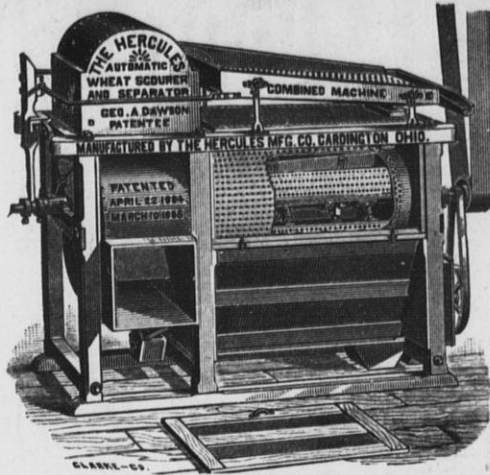
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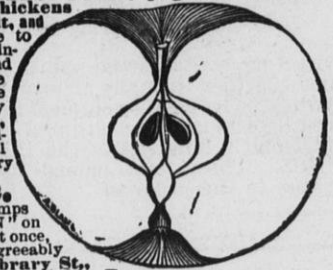
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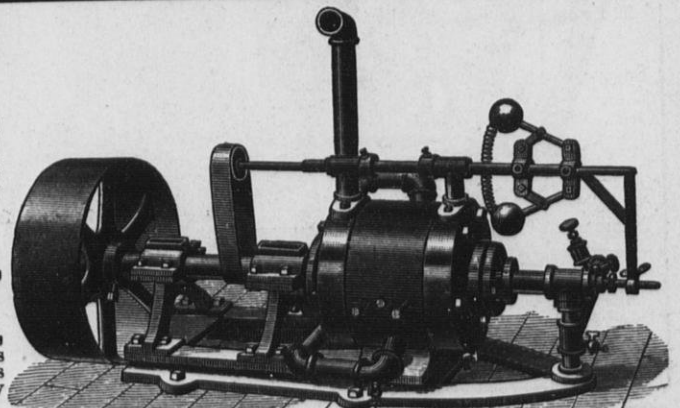
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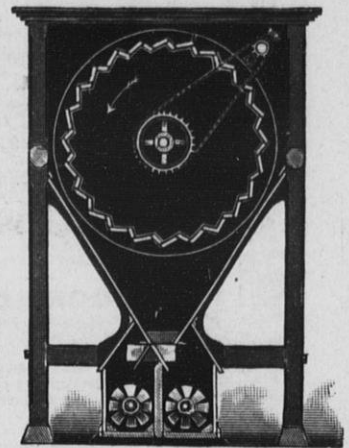
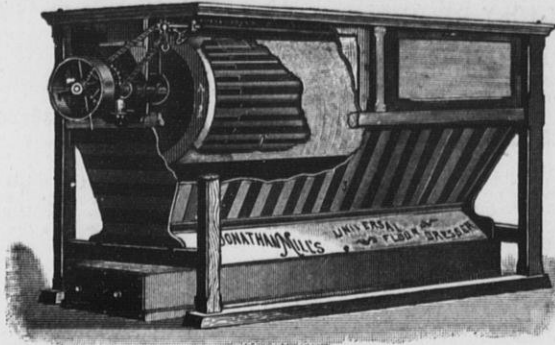
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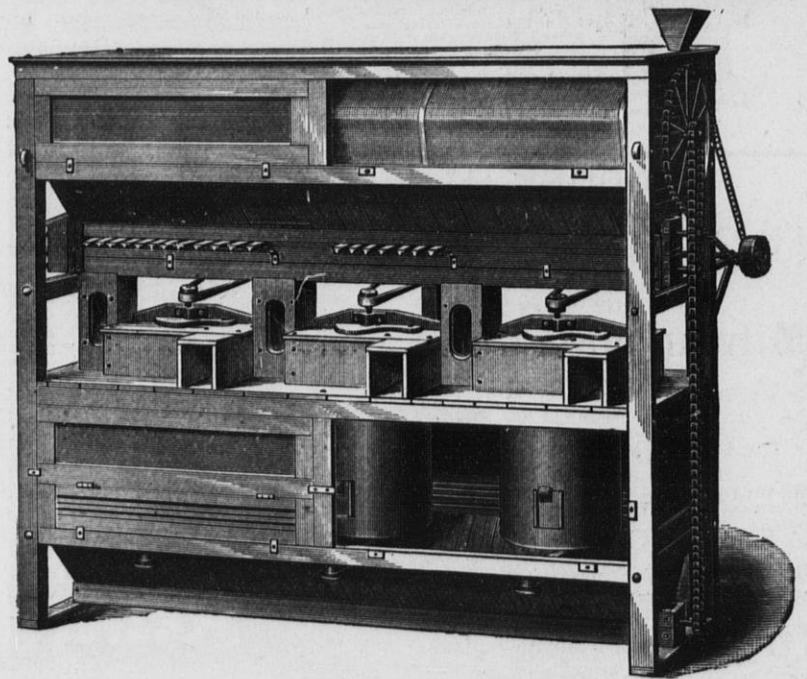
Cor. West Water St.,

MILWAUKEE, WIS.

## The Wilcox Tailings Cleaner

THIS IS A NEW MACHINE WHICH MILLERS

MUST HAVE



### Immense Reduction in Low Grade!

### TESTIMONIALS.

### Indispensable in any Mill!

Cream City Mills, Milwaukee, Wis., September 9, 1885.

The Cockle Separator Mfg. Co., Milwaukee, Wis.

GENTS: In regard to the Wilcox Tailings Cleaner that we are using on tailings, we take pleasure in acknowledging it as an improvement that millers must have, as the results are valuable upon several points. From its peculiar construction it adapts itself to handling tailings superior to anything we have ever seen. We hope it will have the success a good machine deserves.

Very truly yours,

A. W. CURTIS & CO., Proprietors.  
ED. PHILLIPS, Head Miller.

The Cockle Separator Mfg. Co., Milwaukee, Wis.

GENTS: I take pleasure in informing you that I have been running a Wilcox Tailings Cleaner for a few months, and find it truly to be the "Miller's Friend." It makes more perfect separations than any other machine in the market, and gets all the Middlings out of the Tailings, reducing low grade to about two per cent. If I could not get another machine like it I would not sell it for \$1,000.

Yours truly,

W. H. COWDEN.

Write for circulars and prices.

## COCKLE SEPARATOR MFG. CO., MILWAUKEE, WIS.

Manufacturers of Kurth's Patent Improved Cockle Separator, Richardson's Dustless Oat Separator, Beardslee's Patent Grain Cleaner, and Wilcox's Tailings Cleaner.

# The United States Miller



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Single Copies, 10 Cents.

## JACKSON, MICHIGAN FESTIVITIES.

On New Year's evening, Mr. Geo. T. Smith, President of the Geo. T. Smith Middlings Purifier Co., gave a grand banquet at the Hibbard House in that city to the company's legal advisers, principal employees and traveling salesmen. Forty-five guests sat down to enjoy the good things set before them. Among those present from out of the city were: Col. Rodney Mason, of Detroit, Messrs. Howland Arnold, of Toronto, Ont., the two lawyers who carried the Geo. T. Smith Canadian patent suit through the various Canadian courts and finally to the English privy council, where the suit was decided in their favor; John Webster, the Geo. T. Smith representative in Toronto, Wade Wilson, eastern agent, John M. Roe, of St. Louis, southwestern agent, W. D. Gray, milling engineer and expert with E. P. Allis & Co., Milwaukee, Hon. J. G. Flanders, of Milwaukee, one of the attorneys of the Purifier Company in the suit against the Milwaukee Dust Collector Company; Mr. Duncan, superintendent of the Purifier branch works at Stratford, Ont.; Chas. H. Scott, agent in Maryland, Delaware and the Virginias; W. I. Keal, agent of the Michigan territory; H. J. Wright, of Rochester, N. Y., representative in New York.

Short addresses, highly entertaining, were made by Col. Mason, of Detroit, Mr. Howland, of Toronto, and by several others present.

Mr. John E. Winn, who has charge of the legal and advertising business of the company, was called upon and addressed the gentlemen present substantially, as follows:

"The gentlemen he saw before him were a company trained to be constantly on the alert for something new and original, which was a sufficient reason why he should not attempt to occupy their attention with a speech. He felt, however, that he could not do less than acknowledge the courtesy their invitation expressed. This was the fourth annual banquet at which, with thoughtful consideration and characteristic liberality the Smith Purifier Company greeted its principal employees and welcomed home its traveling salesmen. Most of the gentlemen who had met there a year ago, were again ranged around the festal board of their genial host. Some present, were veterans and their memory extended back to the time—less than a dozen years ago—when the annual business of the Smith Purifier Company was less than \$75,000; the books of the company to-day show that during the year just closed, it has shipped from here nearly \$2,000,000 worth of

machines, distributed to every section of the globe where wheat is milled. Its large Canadian business would swell this many hundreds of thousands more. While the company appreciates the part which the gentlemen have taken, and the valuable aid rendered in building up its material interests at home, at the same time it is by no means insensible to the influence of their gentlemanly bearing and honorable conduct upon its reputation and character abroad. Their work was not limited to the taking of orders. They were the company's representatives. The company looks to them for information as to the practical developments of milling and expects them to suggest whatever improvements their observation and experience among the millers of the country lead them to think desirable. Reliable statistics prove that over 82 per cent. of all middlings purifiers in use in this country are the Geo. T. Smith machines. The company is not content with the degree of acknowledged excellence already attained for its machines, but is constantly seeking to make further improvements. In presenting the card of the Geo. T. Smith Middlings Purifier Company, its agents have no apologies to make. It never had an obligation to go to protest. It never broke faith with a customer. The courts have universally decided that it had its quarrels just. It has made friends of its former foes. It has overcome that prejudice which always exists against anything revolutionary, and the opinion of the highest court in Christendom has demonstrated that it is one of the greatest inventions of the world. No machine ever effected a more complete revolution in a great industry than the Middlings Purifier. The Purifier brought about the development of the spring wheat producing prairies of the great Northwest, which for centuries had lain neglected by the world, known vaguely and to song as "the Land of the Dakotas." Now visit the busy mills, the smiling farms, the happy homes in the "Land of Laughing Waters," and be convinced that its later history could not be written with the name of Geo. T. Smith and his Middlings Purifier omitted. That machine was not only the direct cause of the settlement of the great "New Northwest," but its invention marks an epoch in the history of milling. The world is familiar with the war its inventor fought to protect and defend his title and with his triumphant victories. But Smith was not content. He and his company saw the possibilities of the centrifugal reel, and have spared neither work nor expense until they have brought it to a degree of per-

fection never hoped for even by themselves. The results they have obtained from the centrifugal are producing almost as much commotion among the millers of the world to-day as those of the Purifier did a dozen years ago. The Eldred mill demonstrated the success of their efforts with the centrifugal, and to-day there is a hasty scramble among the progressive millers of the country each to get the new system of bolting before his neighbor does. During the past year no less than twenty-six mills, ranging in capacity from 100 to 500 barrels each per day, have adopted the full centrifugal system of bolting, using the Geo. T. Smith machines. Plans are being made for many more. No machine was ever brought to a higher degree of perfection than this, and yet, always "Improvement" is the watchword and "Progression" is the measure of every man's success in the service of this company. The company appreciates the services and character of the gentlemen present, and extends to them a royal welcome to the hospitalities of its home, wishing them life, health and abundant success as they enter upon the new year."

As the "wee sma' hours" came on, the pleasant social gathering gradually broke up, each participant feeling that one of the happiest events of a life-time had passed.

## RECENT 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 December 29, 1885. No. 333,188—Grain drier, S. E. Worrell, Hannibal, Mo.; No. 333,351—Feeder for flouring mills, E. M. Smith and C. H. Heck, Tecumseh, Mich.; No. 333,420—Grain Scourer, J. McGill, Lockport, N. Y.; No. 333,463—Dust collector, N. W. Holt, Jackson, Mich.

Issue of January 5, 1886. No. 333,561—Barley machine, S. Spitzer, Vienna, Austria; No. 333,570—Feed regulator for roller mills, E. Strong, Kalamazoo, Mich.; No. 333,866—Roller mill, F. Lauhoff, Detroit, Mich.; No. 333,908—Grain drier, F. W. Wiesebrock, New York, N. Y.; No. 333,939—Grain drier, H. R. Foote, New York, N. Y.; No. 333,965—Rice huller and cuticle remover, J. S. Moore, New Orleans, La.; No. 333,980—Grinding mill or decorticator, J. Touya, Jr., Tarbes, France.

Issue of January 12, 1886. No. 334,246—Flour bolt, A. Y. Leake, Marietta, Ga.; No. 334,389—Roller mill, E. C. Keyser, Abilene, Kas.

Issue of January 19, 1886. No. 334,460—Roller mill, J. T. Obenchain, Logansport, Ind.; No. 334,643—Cockle separator, B. Cloutier, Minneapolis, Minn.

Issue of January 26, 1886. No. 334,801—Feed regulator for roller mills, J. R. Palmer, Dayton, Ohio; No. 334,897—Grain drier, C. F. Shedd, Fairfield, Neb.

## RELIGIOUS ASPECTS OF PROTECTIVE TARIFF.

REPLY TO J. C. BATES, OF CHICAGO.

NORTHWESTERN TARIFF BUREAU, }  
MILWAUKEE, JANUARY 10, 1886. }

Editor of the United States Miller:—

Mr. J. C. Bates, of Chicago, fiercely assails the extract from my lecture at Rockford, Illinois, you published in December. Its title, "Religious Aspects of Protective Tariff," made him very angry, with his denunciations of Protectionists as "masquerading monopolists," "pretending to be public benefactors," "style like Mormons," "extortioners," "robbers," &c.:

I shall be gentlemanly in my reply.

"Indecent words admit of no defense;  
A want of decency's a want of sense."

The Hon. William D. Kelley, whom Mr. Bates coarsely assails, needs no apologist. No one in this great country more perfectly evidences the truth of the poet's couplet:

"Honor and shame from no condition rise,  
Act well your part, there all the honor lies."

This venerable gentleman, now in his seventy-second year, born of poor parents, was early left an orphan. He filled the position of prosecuting attorney of the city and county of Philadelphia, and honored the bench as a judge of the Court of Common Pleas. Elected thirteen times, I believe in succession, to Congress, he has spent more than a third of his life as a Representative of Philadelphia, the birth-place of American Liberty, and of himself. He is the acknowledged "Father of the House." His long and faithful services to his constituency, second to none in the world, has established a character for ability and integrity, unsullied by a single stain, and won for him a fame, well known and appreciated by his countrymen, mostly by the toiling masses, as a true friend and fearless advocate of their rights. Revered at home and respected in foreign lands. Such a man cannot be injured by the venomous fangs of any assailant.

When the time comes—and may God in His goodness long avert it—for encomiums to be said upon William D. Kelley, some honest free-trader, possessing a loftier spirit, moved by higher and nobler motives than the one referred to, casting out all remembrance of opposition, may truthfully repeat what Breckenridge said of Henry Clay:

"If I were to write his epitaph, I would inscribe as the highest eulogy on the stone which shall mark his resting place: 'Here lies a man who was in the public service—years, and never attempted to deceive his countrymen.'"

Mr. Bates says:

"Not a few people have become impressed with the idea that the tariff is something akin to the Constitution—not to be meddled with or changed in any way."

Does he not know that the framers of the Constitution provided for changing that instrument; that it has been "meddled with" and "changed" some fifteen times. He should count the amendments; about the same number of changes have occurred in our tariff laws. The chief cause for framing the Constitution was the necessity of passing a law "for the encouragement and protection of manufactures." With the single exception of defining the oath of members of Congress, the first law ever passed, binding alike on all the States was the tariff act of July 4, 1789,—"the great principle (of protective tariff) was then established by the fathers of the Constitution, with the father of his country at their head."

I spoke to intelligent American citizens at Rockford, Illinois, not to persons ignorant of the Constitution and history of their country. The courteous and extremely kind treatment accorded to me by several of the leading citizens of Rockford, is among my most pleasant recollections. Nor could I discover the semblance of any dislike or aversion to a lecture by one "not to the manner born," which seems, to Mr. Bates, to be an insuperable objection, except when that foreigner is more desirous of promoting the welfare of a foreign country than for furthering the prosperity of the United States.

Mr. Bates says:

"People who look into tariff questions are fully cognizant of the fact that where the duty is so high that it prohibits importation, the government does not receive any revenue from the articles so taxed."

Will he be kind enough to name some article on which the "duty is so high that it prohibits importation," and on which "the government does not receive any revenue." All will admit, that if nothing is imported, there will be no import tax collected.

The staple argument of free-traders, for many years past and until quite recently were, that the tariff was so high that the revenue was largely in excess of the government needs, and, therefrom was great danger to our institutions; and, that, the only way to avert that danger, was by lowering the tariff, to lessen the revenue. British free-traders worked in harmony with their Anglo-American free-trade brethren—130 in number—the Cobden Club having secured more allies in the United States, than in all other countries outside of England, all worked hard to secure a reduction of our tariff. The American members of the club claiming that it was for the interest of Americans. The Englishmen were more honest, openly avowing that their efforts were for the welfare and benefit of England. As an English manufacturer said to Robert P. Porter: "If you would give us half a chance we will beat you out of your home market. \* \* \* You are the richest country on earth, and why can't you give us a chance to share your wealth?"

Mr. Bates asks:

"What advantage to the farmer, stock raiser or mechanic? Perhaps it makes his coat cost a dollar or two per ton more, causes him to pay two or three cents per pound higher for his sugar, a good round price for clothing and implements, in fact more for everything he consumes in his family."

It would be difficult to crowd more errors into the same space than are in the above extract. Coal of a like quality, though there is no anthracite coal there, is as cheap here as in England, as any person can ascertain from examination. As to sugar, every one ought to know that it is cheaper in this country than in any other part of the world, and that we exported immense quantities to England. Low as it is, the English laborer rarely gets any to sweeten his cup of tea, on which, when he does obtain one, the poorest laborer in England pays as much tariff on his cup of tea as does the Marquis of Westminster on his. The same is true of coffee, both bearing a high tariff in England, while both are admitted free of duty into the United States, a great benefit to the poorer classes. Clothing, such as is generally worn by "the farmer, stock raiser and mechanic," is cheaper here, better made, better cut, and more style to it, than in any other country. There is no army in the

world so well clothed, or so cheaply clothed, as is the American army, and with American-made cloth.

(I quote briefly from Hon. Thomas H. Dudley, late U. S. consul at Liverpool, England.)

All cotton goods are cheaper here than in England; all wooden ware furniture, all tools, axes, hammers, &c., are cheaper here than in England. In one year we exported to England about \$150,000 of edge tools, where they sell in preference to those of English make. Crockery, such as is generally used by "the farmer, stock raiser and mechanic," is far cheaper in the United States than in England; plates in New Jersey 80 cents a dozen, same quality in England 91 cents a dozen. All kitchen furniture, pots, pans and kettles are cheaper here than there. Pressed glass is far cheaper, and far better, here than in England. We export largely of certain articles of our manufactures to England because they are preferred. In one year \$740,833 of mowers, reapers, plows and agricultural implements; \$221,510 of carriages and carts; \$610,551 worth of clocks; \$100,505 worth of watches; \$156,123 wearing apparel; \$964,279 furniture and wooden ware; \$41,145 of glass and glass-ware; \$26,020 stoves; \$867,902 of machinery; \$519,458 manufactured iron, &c.; \$480,302 musical instruments; \$777,067 sewing machines; and \$65,182 lamps, &c., &c.; or a total of \$5,581,897 of the few articles above enumerated. In 1881 we exported to England 150,000,000 yards of cotton goods. The value of our exports of domestic merchandise, during 1885 is figured at \$726,682,946. With such, factshow foolish appears the following statement of Mr. Bates:

"The question to be decided by the people of these United States in the interest of labor, trade and commerce is: 'Shall we manufacture exclusively and solely for the home market, or letting down the bars which exclude us from foreign trade, shall we manufacture for the world?'"

The very fact that England let down her bars, let us into her market, and we are manufacturing for the world, and that is why the shoe pinches so in England, and why she is contemplating putting up the bars. That's what's the matter; as an English lord said:

"The real trouble is that the United States keeps an opposition shop in the same line as ourselves."

Mr. Bates says farming implements are higher through the tariff, &c. Mr. Dudley, present at an Agricultural Fair, where fifteen acres were covered with implements, says:

"The cheapest mower that was on the ground was 510 francs, which in our money is about \$102. You can buy just as good a mower here or in any town in the United States for \$65. The lowest reaper that was there (without a binder) was 925 francs, or in our money about \$185. You can buy as good a one in the United States for \$110. The lowest priced horse rake that was there was 250 francs, or \$50 of our money. You can buy as good here for \$27. The plows, harrows, cultivators, were twenty per cent. dearer than they are in the United States. There was not a fork, hoe, shovel or spade there, in the whole exhibition, but what was dearer in price and, most of them, inferior in quality to those which we make in this country. And so with carriages, wagons, carts, barrows, &c."

Bedsteads, bureaus, tables, wash-stands, sofas, chairs, wash-tubs, pails, trays, churns, &c., &c., all are cheaper here than in England.

There is a child-like simplicity about Mr. Bates' question:

"If the people are to be taxed, why not let the government have the benefit of such taxation, particularly as there is no revenue from

heavily "protected" articles as already explained?"

American free traders for years have had but one cry: "Surplus revenue from high tariff." John Bright said recently: "The danger of the excessive revenue the Americans were receiving from their high tariff would ensure their lowering it;" and, alluding to our paying our debt so rapidly, principally through our tariff revenue, he pronounced it "the most marvelous feat of financing the world ever witnessed."

Prince Bismark bore testimony to the wisdom of our tariff, recommended it to the Reichstag. Prussia adopted a tariff and is now exporting largely to England, and is underselling the Englishman at his own doors, while the wages of German labor has been increased over 20 per cent. since the tariff was adopted.

The noted Count Andrassy of Austria-Hungary said in the Reichstag:

"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 industries, but in fact had the expenses of that enormous war paid by Europe."

The annual value of our manufactures exceeds those of Great Britain by more than a thousand millions of dollars. Our exports largely exceed our imports. Our home market for our 60,000,000 of people is the best in the world. We are the best able to consume, because we earn the most through our higher wages.

Annually, from the earnings of our American laborers, &c., there are millions upon millions of dollars sent to Great Britain and Ireland, to save their foreign relations from want and suffering, and keep the aged and infirm from the poor houses and filling pauper graves.

The Register-General of England says that every seventh person that dies there dies a pauper. John Bright says "America is the home of the workingman." "Labor is honored more in America than anywhere else in the world." "Millions from other countries have entered it and found rest." "During fifteen years 2,500,000 people have left England for America, and every one of them is in better circumstances than they could have had they remained in England."

Mr. Bright says "that there is in those who earn their living by their daily labor, particularly in the agricultural districts, an absence of hope of any independence as he advances in life. "In the United States that hope prevails everywhere," and also:

"There has always existed among all the population (of America) an amount of comfort and abounding prosperity, such as I believe no other country in the world, in any age, has displayed."

Fawcett, the great English free trader says, hardly an agricultural laborer can be found in England, "who has been able to save one week's wages." Mr. Burt, M. P., says: "The laboring man in England is lucky if he escapes ending his days in the workhouse."

Had Mr. Bates read the newspapers, he would have known, that when he was writing his article, under "protective tariff" in America, those whom he calls "masquerading monopolists," owners or managers of large manufactories, more than a dozen of

them, were *unsolicited* advancing the pay rolls of their employes from 10 to 15 per cent., while under "free trade" in England, they had reduced their pay rolls 5 to 6 per cent., with the agreement that unless times got better by the 15th of January, 1886, a further reduction of wages of 5 per cent. was to be made. Thus, the "masquerading public benefactors," who style themselves "Protectionists" in America, *unsolicited* raise their pay rolls under the "robber tariff," while English free traders lower their pay rolls in England. "A protective tariff does," as the *Inter-Ocean* said, "stand at the elbow of every laboring man to help him to better wages, &c."

It is the prosperity of our home market and its needs that has caused the raising of wages here while they are lowered in England. The internal commerce of the United States is over \$10,000,000,000, very many millions in excess of the combined internal and foreign commerce of Great Britain, and nearly equal to the entire foreign commerce of all the European nations combined. Thus our home market is what creates our home trade. To deprive us of this market the Cobden Club spends its millions of dollars, deriving much aid and comfort from American free traders. Then why misrepresent the advantages of the American home market? What kind of patriotism is that which aids foreigners in their attempts to deprive us of such a market? The highest known English free trade authority, Adam Smith, says:

"Whatever tends to diminish in any country the number of artificers and manufacturers tends to diminish the home market, the most important of all markets, for the rude produce of the land, and thereby still further to discourage agriculture."

Mr. Bates says:

"Great Britain is so much of a free-trade country to-day that her laborers are better housed, better fed, and better clothed, than they ever were under protection, &c., &c."

Nothing is more calculated to deceive than the reiterated assertions of American free traders, who in many instances have been beguiled into the belief that England has free trade. A great many American free traders know no better—they are honestly ignorant, and are to be pitied. If England has free trade, what is her need of about 30 custom houses, about 3,000 customs officers, a numerous fleet of revenue cutters constantly cruising on her coasts?

Sir John E. Eardley Wilmot, M. P., says in his pamphlet, "Free or Fair Trade":

"Our coast everywhere bristles with custom houses, and we even find the solitary officer in his hut on the summit of Shakespeare's Cliff at Dover, carefully guarding against the introduction \* \* \* from the opposite shores of France."

Will Mr. Bates explain why all these precautions are needed to protect a "free trade" country, or why it was that in 1881 England collected \$5,000,000 more tariff dues on American products into England than we collected in the same year on British products into the United States?

As to the condition of English labor, let him read the reports made to the royal commission inquiring into the causes of labor suffering; or the "Bitter Cry of Out-cast London" or "The Horrors of English Labor."

The *New York Times*, an American free trade journal, recently said:

"The suffering among the poor of London, which is always great, is now said to be unprecedented. \* \* \* Any day during the

past fortnight one could see thousands of faint and ragged wretches prowling outside the wharves, each ready to fight the other in order to be one of a score who were admitted to a days' work for 40 cents, if a ship happened to come in. \* \* This is a sample of all industries, while the farmer's prices have reached a starvation point."

I trust that Mr. Bates, with his tender sympathy for farmers, has read what an Englishman, invited to dinner at a farm house in Long Island, quite recently wrote home:

"I wonder how often in 'Merrie England,' a farmer with his family and two men servants, sits down to roast turkey, chicken pie, four or five vegetables, and cranberry pie, to say nothing of both whiskey and beer to drink."

Ireland has free trade, and suffering and want that beggars description.

In Glasgow thousands are on the verge of starvation, the workhouses so gorged no more inmates can be received; public charity taxed to its utmost, as never before. Of Glasgow Mr. Bright said: "Forty-one thousand families live in homes having only one room." Was it as bad under protection? Could it have been worse? Mr. Bright further said of Scotland: "There passes before my eyes a vision of millions of families—not individuals, but families—fathers, mothers and children, passing ghastly, sorrow-stricken, in never-ending procession from the cradle to the grave." Was it as bad as that under protection? Could it have been worse?

English and Scotch iron manufacturers get rich, with dividends of one hundred and twenty per cent., wrung from the heart's blood of their pauperized labor, to whom they pay about one-third the amount of wages, as is paid by the "masquerading monopolists" in America.

Mr. Bright corroborates what I assert. Recently he said:

"I know a gentleman who told me that his firm (shipowners) made profit of £10,000 (\$50,000) on a single cargo—of a single ship laden with wheat coming from San Francisco to this country. I know a gentleman who has large iron-works and collieries, and I recollect, in the year 1873, twelve years ago, he told me that in the last year, the dividend upon these works was 120 per cent.; that is, that for every £100 of capital that he had in the business during one year, he had cleared £120; and he said: 'Things are getting very bad indeed, for this year', and he smiled pleasantly as he said it, 'the dividend has fallen to 90 per cent.'"

Those are the men in England who reduce the wages of their labor, and "smile pleasantly." Are they "masqueraders," or oppressors of labor? It is possible to, "smile and smile"—he can conclude the quotation.

Mr. Bates says:

"To argue that the citizen of the United States, commercial treaties and all other things being equal, as we must insist they shall be, cannot compete successfully with the British manufacturer, is but stuff and nonsense. The American citizen is always equal to the opportunity. Give him the opportunity and he will easily demonstrate his ability to be equal to any emergency."

The truth is, every time the American people have tried free trade or a very low tariff, they have miserably failed, and have never been "equal to the opportunity." Mr. Bates may cry "stuff and nonsense," but the assumption is destroyed by the facts. The British manufacturer "has beaten us every time." British manufacturers boast as to cotton goods: "If the United States were to abolish the duty on cotton goods we should shut up every one of their cotton mills in less than two years." As to iron, &c.: "If the



duty on pig iron was removed, we could close up every blast furnace in America, &c. &c." The same threats have been made as to woolen mills, &c., &c. Threats not made wildly, but by responsible parties, in some instances by members of Parliament, showing the aim and purpose of the English free trader, and his coadjuter, the American member of the English Cobden Club.

I am a firm believer in the doctrine first enunciated at Bunker Hill:

"There's nothing impossible with Americans."

But the possibility lies in that "sober second thought" of our American people, which judiciously applies a remedy to existing evils, called the American System which began with the first act of Congress, July 4, 1789, aptly termed the Second Declaration of Independence. Separation from the mother country had been secured through long and bloody war. The heroism, cool, determined, unflinching courage of American volunteers, their marches over frozen ground visible by the bloody tracks of their shoeless feet, had secured for their countrymen, and others from foreign lands, what was termed political independence. But nothing is more truly attested, than that after all the grand and righteous achievements of the Revolution, the American remained a bondsman to the manufacturing power of Great Britain. Nor could he, or did he emancipate himself from that bondage, until, armed by the Constitution, he sheltered the starving laborers and mechanics under the ægis of the tariff act "for the encouragement and protection of American manufactures." Then it was the American became "equal to the emergency." I have no space to elaborate, but will very briefly refer to the converse.

Persistence for a time in the "sophism" of nearly free trade, brought the country to such a low ebb, and so impoverished the American people by a depleted treasury, that they could not borrow money, even from free trade England, at twelve per cent. interest. The pettiest principality of Europe could borrow money at a far less rate of interest. Nay more, and far worse—and I hope Mr. Bates will refute these statements if he can—under nominal free trade, really but very low tariff, the United States Government could not raise the money with which to pay its President the salary due him, as a servant of the people. The President of the United States had to, and did, give his individual notes to the money brokers in Washington, who "shaved them at a heavy discount, they knowing that, as soon as the protective tariff was re-enacted, which was done, money would flow into the treasury and the notes become good.

Mr. Bates concludes his communication with: "LONG LIVE THE KING."

The affinity of free trade with royalty, and its antagonism to republicanism, has long since been well established. Free trade keeps laborers as subjects, in helpless, abject depression. On the other hand, a protective tariff helps "every laboring man in this country to better wages, to a more independent condition, and to a higher development of his faculties."—(*Inter-Ocean.*)

I trust I shall not be deficient in charity, or lacking in that respect due to every adversary, did I intimate that had Mr. Bates been living in the days just preceding the American Revolution, he would have been of those described by Thomas Jefferson, whose:

"Minds were circumscribed within very narrow limits by an habitual belief, that it

was their duty to be subordinate to the mother country in all matters \* \* \* and to direct all their labors in subservience to her interests."

American protectionists, too, cry "Long live the king,"—not any European king, but our AMERICAN LABOR KING. Solon Chase says: "*In America Labor is King.*" It was crowned by protective tariff, and regally robed. Webster claimed: "*The Laborer of the United States is the United States.*"

Until labor decrees otherwise, it will so remain. So far, its votes have ever been cast for protection, and never for free trade!!

JOHN W. HINTON.

#### PAPERING, PAINTING AND VARNISHING.

While city people as a rule select the spring-time and early summer for renovating their houses, country-folk, who have leisure time during the winter season, often paint and paper their houses themselves at this time, thus saving a large expense.

In ordinary country homes three coats of paint are considered sufficient. The paint in common use for painting woodwork is chiefly composed of white lead, linseed oil and turpentine, with some "drier." The white lead gives a body to the paint and forms a soapy compound, by combining with the oil. The "driers" quicken the hardening. The linseed oil soaks into and fills up the pores of the wood. The turpentine is merely used to save oil and make the paint sufficiently thin to work easily. It evaporates quickly and affords no protection to the wood. Red lead is much employed with the priming coats, and for the first coat in painting iron-work. It sets hard and dries well. The proportion of ingredients in mixed paints depends upon the quality of the materials, the kind of surface and the degree of exposure. A colored lead paint is made by adding pigments to white lead base. When red lead is used the mixture does not require so much of the "drier."

The proportions of the ingredients for the different coats are approximately as follows: First, or priming coat, one gallon of oil to five pounds of white lead and drier as may be required. Two-coat work requires one gallon of oil to ten pounds of lead. Three-coat work the same quantity as for one-coat work. After the first or priming coat is put on, all holes or cracks should be stopped with putty.

In painting outside work exposed to the sun, sufficient turpentine should be added to prevent blistering and in cold weather to make it work freely. All knots should be shellaced before the first coat is put on. When colored paints are used each succeeding color should approach more nearly the final color. The pigments which are ground in oil are the best. White lead must be kept in close vessels, or the action of the air will give it a brown shade. White lead should not be used for painting iron-work. The best paints for iron-work are those in which the oxides of iron form the bases. The red oxide is commonly employed.

Zinc-white is used for inside work, but is unsuitable for outside work. Plaster which is painted should be smooth and free from bubbles or blisters, and should be perfectly dry. Plastered walls should be washed down with a distemper and left for some months before painting. Each coat, both on plaster

and wood-work, ought to be sandpapered smooth and all holes stopped before the next coat is put on.

For outside work drabs, grays, browns and reds are the most durable colors. Burnt umber and yellow ochre, mixed with white lead as a basis, make a drab of warm tint for outside work. Yellow ochre and Venetian red make a good buff. Indian red and indigo make a warmer shade of gray than lamp-black, which is usually used alone with the lead, for a gray. Prussian blue and yellow ochre make a pleasant shade of brown. Green may be formed by mixing Prussian blue and burnt sienna, or Prussian blue and raw umber, or with indigo and burnt sienna. Any of the above pigments which do not contain lead may be used for inside work. In general, it is not well to use too many colors in painting, as it adds to the expense, and has a tendency to cheapen the effect.

Varnishes made from amber, gum animé and copal are the most durable and are adapted to work which is exposed to the weather or that requires frequent cleaning—such as coaches and carriages and for the best joinery and fitting of houses. Turpentine varnishes are made from soft gums dissolved in turpentine. These dry quickly and are lighter than oil varnishes, but are not so durable. Lacquers are made with softer gum dissolved in alcohol. They dry more quickly and become harder and more brilliant than turpentine varnishes, but should only be used for cabinet or inside work.

Walls that are to be papered ought to be thoroughly dry before the paper is hung. Any defects in the surface of the walls should be remedied and the whole sandpapered and rubbed smooth with pumice stone. Then give a coat of size, which prevents the plaster from absorbing the paste. In repapering old walls, the old paper must be removed and the walls thoroughly scraped and cleaned to prevent any possibility of injury from the decomposition of the old parts.

We will send Harper's Weekly and the U. S. Miller for one year for \$4.10.

WHEN the Prince of Wales visited Ireland, a Land Leaguer shouted out in the hearing of His Royal Highness: "Down with him!"

"Whist!" exclaimed his companion. "Ye disremember Mr. Parnell told us to preserve an indignant brutality."

What Mr. Parnell did say was "dignified neutrality." There is another story related of an Irishman giving vent to his feeling by calling for "Three cheers for ould Pireland."

"Three cheers for hell," growled out a non-sympathizer.

"Oh, every man for the country he loves best," was the ready retort.

THAT wild young scapegrace "Prince John" Van Buren, on one of his visits to Washington, stopped at Willard's, where his father, the President, came and, after a kindly greeting, said: "John, I had hoped you would some time prove to be a worthy representative of our family, but I fear you never will; in fact, I am convinced that you will bring disgrace rather than reflect credit upon it." "Father," said John, "you may think because you happen to be President of the United States that you are something more than an ordinary man, but permit me to say that you will never be known in history except as the father of John Van Buren."

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# UNITED STATES MILLER.

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MILWAUKEE, FEBRUARY, 1886.

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.

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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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The directors of the Merchants' Exchange in St. Louis, have declined to grant the petition for the abolition of flour grades.

We will send you a copy of "Leffel's Construction of Mill-dams, and Bookwalter's Millwright and Mechanic," and "The U. S. Miller" for one year for \$1.30. Don't miss it.

SECRETARY MORGAN of the Merchants' Exchange, St. Louis, figures the production of St. Louis flour mills for 1885 at 1,838,782 barrels; for 1884 at 1,960,737 barrels, and for 1883 at 1,892,633 barrels. In addition to this 787,412 barrels of flour were made by outside mills belonging to St. Louis parties. In 1885 there was also made 483,786 barrels of corn meal, and 67,118 barrels of hominy and grits.

We have received from Col. W. L. Barnum, Secretary of the Millers' National Insurance Co., No. 205 LaSalle st., Chicago, Ill., a report showing the condition of the company's financial affairs Jan. 1, 1886. The total surplus over all liabilities is shown to be \$952,229.61. The total loss paid during the year 1885 amounted to \$122,805.67. Since its organization, about ten years ago, losses have been paid aggregating \$533,066.66. This condition of affairs is certainly pleasant to policy holders, and has only been secured by careful inspection and great care in taking risks.

We will send the U. S. Miller and The Milling Engineer for one year for \$2.00.

We have received the first number of *The North Dakota Farmer*, published at Jamestown, Dak. It is a handsomely printed and ably edited twenty-pages paper, and will, no doubt, represent the agricultural interests of Dakota better than they have ever been represented before by any Dakota publication. Success to *The North Dakota Farmer*.

The price of corn has either got to go up or the railroad tariff on corn to come down before much corn is shipped from points west of the Mississippi. With corn at 40c. per bush. in Chicago, and freight at 25c. per 100 lbs. from the river, the western farmer has little to gain by shipping his corn.

SENATOR PLATT of Connecticut, has introduced a bill to the Senate, which, if passed, will remove all local license charges on commercial travelers, commonly styled "drummers" in all parts of the Union. These local license laws have been the cause of great annoyance and expense to salesmen traveling in the South, representing firms from other States. The result of the abolition of these absurd laws will be the means of bringing the business men of the Southern States into closer business relations with those of Northern and Eastern States. We trust that the bill will become a law.

LATER.—The U. S. Supreme Court has decided that such restriction to trade as are referred to above are unconstitutional.

We hope that all of our subscribers, whose subscription expire with this number, will renew at once. Look over our list of combinations with other papers. You can save time and money by sending your orders to us.

A CONTRIBUTOR to the *Deutsche Rundschau*, published in Berlin, Germany, claims that the centre of gravity of the world's commerce is gradually moving from Great Britain via Germany to the United States of America. He claims that the commerce of England has declined seven per cent. in the last seven years, and that German commerce has increased proportionately, but that the advantage will finally settle down in the United States, which is now the greatest manufacturing country in the world. "The people of the United States," he says, "are not only able to feed themselves from the products of their soil, but they can also supply from their surplus a heavy British and Continental demand. They also have the raw materials of iron and cotton goods in abundance close to the place of manufacture, and thus possess a double advantage.

ALL persons connected in any way with the milling industry will find it to their interest to have a copy 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 guaranty of a valuable paper.

H. W. CALDWELL of Chicago, Ill., inventor of the Caldwell Conveyor, accomplished a feat in the mailing of catalogues never before attained by any one so far as our knowledge goes. He had directed and mailed in twenty-four hours 26,000 catalogues and all sent out at once. If you want to know how it was done, write him at No. 40 S. Canal street, Chicago, and he will explain.

THE Daisy Roller Mill Co. has been incorporated with a capital stock of \$100,000. The incorporators are E. P. Allis, L. R. Hurd, Edwin Reynolds and W. D. Gray.

MESSRS. FAIST, KRAUS & Co. will remodel and start up the mill they recently purchased of Herman Nunnemacher. The mill will be known hereafter as the "Duluth Mills" and will have a capacity of 800 barrels per day. It is a full roller mill and power is furnished by a fine steam engine.

For \$5.00 we will send Gibson's recent work on Gradual Reduction Milling, The Northwestern Miller and U. S. Miller for one year.

## A Tale of Nine Cities

Is the euphonious title of a little book giving a brief description of the points of interest in the nine principal cities of the great Northwest and Far West, viz: Chicago, Milwaukee, St. Paul, Minneapolis, Council Bluffs, Omaha, Denver, San Francisco and Portland, Oregon. A correct colored map of each city is made a part of this instructive book, which is being distributed by the Chicago, Milwaukee & St. Paul Railway.

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

## NOTES FROM BEYOND THE SEAS.

Mr. W. A. Gibbs, of Gillwell Park, Chingford, England, has invented a cylindrical grain drier, which is said to have many valuable features not found in other machines of a similar nature.

Mr. Julius Schleisinger, of Milwaukee, has established permanent headquarters at 59 Mark Lane, London, E. C., for the Milwaukee Dust Collector Co., the Cockle Separator Co., and the Superlative Purifier Co. He has met with remarkable success in introducing the different machines manufactured by the above companies into British and Continental flouring mills. He will be pleased to have his American friends call on him when visiting London.

British millers and bakers are complaining of the extensive introduction of American meal worms into that country. They say their native "bug" is satisfied with damp and musty flour to operate upon, but the Yankee pest is only pleased when he gets to work upon the finest brands of flour in the land.

The Germ Milling Co. own a patent for extraction of the germ by means of smooth rolls in the gradual reduction process, and they have brought suit for the alleged infringement of this patent against Messrs. J. & H. Robinson of Deptford, London, and also against several other extensive milling firms. This suit has been pending for a long time and has been a regular "Cochrane" case for the British Millers' Association and others. Indications now are that a trial or compromise will soon be reached.

Sweden has been a heavy buyer of German flour since October 1, 1885.

We have received a pamphlet from Mr. Eugene Kreiss of Hamburg, Germany, the Continental representative of the Geo. T. Smith Middlings Purifier Co. It seems that Messrs. Seck Bros., of Dresden, have brought out a purifier, which they call the "Reform," very similar to the Smith machine. Mr. Kreiss produces in his pamphlet strong arguments to show that Seck's improvements are rather disparagements to the machine. The Secks' retaliate in another lengthy pamphlet, and thus the purifier war goes gaily on in Deutschland. Both parties are selling lots of machines and taking in a beautiful harvest of "marks."

A contributor to an English paper, in a recent communication says:

"It is pleasant to note that the milling industry of this country, with all the obstacles in the way, is now in the front,—meaning those who have adopted the roller milling system. It is much to be regretted that a similar compliment cannot be paid the baking industry, and that London is behind many provincial towns in the manufacture of bread. Whether this is due to the larger consumption of foreign flours, inferior flours from the provinces, or flours from old musty wheat, are questions which individuals should have no difficulty in solving, and it is high time the British capital was in advance of this ignoble state of things. And however difficult it may be to break through the tramels of old-established routine, an effort

should be made to take the lead—her legitimate position. However inferior the quality of bread may be, consumers become habituated to it, and even prefer it to a better quality. But that is no reason why such ignorance should exist, or even be tolerated, in the present age of technical education."

A Bavarian (German) correspondent makes the astounding statement, that the damage done by lightning in that province has increased 300 per cent. during the past fifty years. It seems to us as if this was a misplacement of the electric fluid. Now, in Bavaria no one ever goes fast enough to get struck by an intelligent "streak o' lightning," while in this country we have 500,000 able bodied politicians that are daily hoping to have "lightning strike 'em."

The Bill for the construction of the North Sea Canal, which has now been laid before the German Parliament, describes the canal as being primarily destined for the use of the Imperial Navy. It will connect the Elbe estuary and the Bay of Kiel via Rendsburg, and cost 156,000,000 marks, whereof Prussia undertakes to contribute 50,000,000 and the Reich the rest.

Queensland, South Australia, Tasmania, Victoria, West Australia, New South Wales and New Zealand are preparing to unite as one Government, subject only to Great Britain. The provinces, if we may so term them, will have a territory nearly as large as the United States. They have little of common interest with the Mother Country, and it would not be surprising if they established themselves as an entirely independent nation in the course of a few years. Why should there not be a great republic at the antipodes?

The wheat crop of Russia for 1885 is quoted at 215,390,000 bushels, against 265,960,000 in 1884. The average from 1870 to 1881 inclusive is 197,848,000 bushels. The rye crop this year is quoted at 743,750,000 bushels, against 684,250,000 in 1884. The average from 1870 to 1880 inclusive is 570,000,000 bushels. The oat crop is quoted at 410,550,000 bushels, against 499,800,000 in 1884. The barley crop is quoted at 104,125,000 bushels, against 132,685,000 in 1884.

Messrs. Harrison & Co.'s flour mill at Port Adelaide, is the first in South Australia to be lit up by electricity. The electric light has already been introduced into several mills in New Zealand.

The losses to insurance companies by fires in English flour mills have been so great during the year 1885 that milling risks are no longer sought for. The Royal Insurance Company has given notice of its intention to avoid milling risks hereafter. The insurance companies claim that such risks do not pay.

JAPAN was added to the nations adopting the metre and kilo as official standards of measurement, at the recent meeting in Paris of the International Committee of Weights and Measures. The states who have adopted these standards now number twenty-two, with a total population of 459,000,000.

## TIGHT BELTS.

A large quantity of belt is required to transmit a little power. The sooner we investigate and believe the above fact, the better it will be for our shafting, machinery and coal-heap. We may look at the fact as we please, it will bear it, and find that a slow-running belt, to carry a given power, must be very wide. If running at high speed, we must have the same number of square inches of belt passed over the pulley, but the belt need not be as wide to do it.

When a belt slips, the most natural action on the part of the attendant is to throw a handful of powdered rosin between belt and pulley. The next move, when rosin fails, is to tighten the belt. Often we find belts strained up until they are tight enough for fiddle strings, until hangers are pulled out of line, boxes cut and shafting sprung.

A certain machine company drive their works by long loose belts which claim attention from their very looseness. These belts are 10" to 12" wide, about 16 feet from pulley to pulley, and are slack enough to permit the upper or slack side of the belt to "bag" down 12" or 18", a plane passing through the two shafts being about 45° from the perpendicular.

If this machine company had followed the example of many power users, they would have used belts 5" or 6" wide, strained them very tight, and have been continually troubled by the belts breaking and wearing out. The belts above described, ran upon large pulleys (from 24" to 48") having a speed of 250 or 300 revolutions per minute.

Probably, these belts would have done one-half more work than was put upon them, but from the fact of being loaded light, they did their work with very little wear and tear. They needed very little looking after, save to keep them oiled and clean.

At the Novelties Exhibition at Philadelphia, a centrifugal pump was shown raising a very large quantity of water, and being run with a 1½" belt. Here, high belt-speed was used as a factor, but the little belt was strained very tight. It would soon give out, and need constant patching.

When putting up a machine to run by a high-speed belt, don't make the mistake of cutting down the width of the belt too much. Let it go wide enough to transmit the required power without being too tight.

A certain builder of "gauge" lathes built a lathe to make button-hook handles. The handles were about ¾" or 1" in diameter, and 1½" long. When the belt was at its highest speed it ran over 4,000 lineal feet per minute, yet the belt was made 4 inches wide. Just think of it; a round sewing-machine belt would almost have done the work, yet here was a 4" belt. The builder of that lathe says he would do the same thing again, for the belt service was complete, there was no slip of belt, no excessive friction, and the lathe spindle always ran true and cool.

When we see a man putting on a 14" belt with clamps, and using a 24" monkey-wrench wherewith to screw up the clamp bolts; then we can say to ourselves that this man is doing a poor job.—By James F. Hobart in *The American Machinist of January 9.*

We will send the U. S. Miller for one year and Ogilvie's Handy Book for \$1.00.

## NEWS.

**BURNED.**—Buck & Renie's mill at Homer, Mich.

**BURNED.**—Fullenweider & Co's mill at Salem, Iowa.

J. D. MOORE & Co., Fremont, O., millers, have assigned.

JOHN TUCKER, miller at Wichita, Ks., has made an assignment.

THE Eagle Star Mill & Grain Co. succeed Kaune Bros, at Breese, Ill.

RUSSELL & VOORHEES, Friendship, N. Y., have dissolved partnership.

HODD & CULLEN will soon have their mill at Stratford, Ont., completed.

G. H. FRAZER'S 75-bbl. roller mill, at Morden, Man., has been completed.

D. B. Knight, of the milling firm of Knight & Smith at Boone, Ia., is dead.

A VERY large amount of flour is stored in Duluth, awaiting spring shipment.

**BURNED,** Valentine & Repy's mill at Salem, Neb. Loss \$30,000; insurance \$13,000.

L. R. MAYNARD, of Flora, Ill., is succeeded in business by T. H. Shepherd & Co.

F. DIETTES, Travare, Dak., has completed and started up his 100-bbl. roller mill.

LONG & GRISTWOOD, millers at Fenwick, Mich., succeed Herrick & Gristwood.

ENGLISH & ENGLISH'S flour mill at Austin, is burned out. Loss \$5,000; insurance \$1,000.

A. SPINDLER, Woodland, Mich., is succeeded in the milling business by Snow Bros.

S. R. WILLIAMS & Co.'s mill at Lebanon, Tenn., was damaged about \$1,000 by fire, recently.

MARTIN & SONS have made extensive improvements to their oat-meal mill at Mt. Forest, Ont.

J. J. Girard, a Minneapolis miller has invented a dust collector to be used inside of purifiers.

WRIGHT, SCHNEIDER & STULTZ succeed Turk & Wright in the milling business at Alma, Mich.

THE mill of the Lakeside Milling Co., at Bingham Lake, Minn., was recently destroyed by fire. Loss, \$20,000.

A FAMILY in Omaha was poisoned by white lead, which in some mysterious manner found its way into the flour.

JAMES H. FRASER'S saw and grist mill at Nelson, Man., burned recently. It will probably be rebuilt at once.

O. C. MORRILL is building a 50-bbl. mill at Little Falls, Minn. August Miller is building a 50-bbl. mill at Ashby, Minn.

HARDISTY & FRASER, millers, at Edmonton, Man., have dissolved partnership, and D. R. Fraser succeeds to the business.

CITIZENS of Ellendale, Dak., offer \$2,000 and a building site to any one who will put up a first-class roller mill at that place.

MESSRS. E. P. ALLIS & Co. have removed their Canadian headquarters from Stratford to No. 20 Wellington st., E. Toronto.

THE HUDSON BAY Co.'s mill at Edmonton, Man., was recently destroyed by fire, together with a large amount of grain. Loss \$50,000.

**BURNED,** Jan. 21, Guenther & Smith's flour mill at Hayton, Wis., with a considerable

amount of grain. Loss \$5,000; insurance \$1,800.

HENDERSON & PETERSON'S steam flour mill at Muskegon, Mich., has been changed to the roller system, and has a capacity of 125 bbls. per day.

THERE are seven flour mills in Kansas City, Mo., employing 99 persons, with an invested capital of \$235,400, and paying \$203,000 wages during 1885.

THE Russian thistle, brought to this country by Mennonites in their seed wheat, is so thickly spreading in parts of Dakota as to cause serious alarm.

OTTERVILLE, Man., citizens are willing to furnish a good water-power, and cash bonus to secure the erection of a good flour mill, which is badly needed there.

THERE was a small explosion in the City Roller Mills, Winnipeg, Man., recently. Damage slight. All the Winnipeg mills are shut down at present and making repairs.

THE CUMMER ENGINE Co., have just received an order for three more of the Jonathan Mills' Universal Flour Dressers, from E. Goddard & Sons' Flour Mill Co., of St. Louis, who had five in use before, four of which displaced centrifugals.

MESSRS. HUNTLEY & HAMMOND, of Silver Creek, N. Y., have established a branch house in Minneapolis, where they are ready to fill all orders from western millers for bolting cloth, promptly. A. T. Shuler has charge of the Minneapolis house.

DURING 1885, there were, according to Dun's commercial agency, reported 10,637 failures in the United States, as against 10,968 for 1884, and the liabilities for 1884 were \$226,343,427, and only \$124,220,321 for 1885. A very creditable showing, considering the circumstances.

THE *Railway Age* figures up the railroads built in 1885 at 3,113 miles, less by 700 miles than that built in 1884. No year since 1878 has so low a record. Most of the year's work was done in the Southern States, and in the belt between the Missouri River and the Pacific States and Territories.

**BURNED.**—Jan 19, D. T. Finch & Son's flour mill at Middlebury, Barry Co., Mich. A grain elevator adjoining, containing 13,000 bushels of wheat and some flour was also burned. Loss estimated at from \$22,000 to \$25,000 with \$13,000 insurance. The loss is supposed to be the work of an incendiary.

A FIRM in Chicago is charged with importing potato starch as farina. The former is subject to a duty of 2 cents per pound, while the latter is admitted free. The imports were in bond via New York. A seizure of 200 bags potato starch was made, on which no duty had been paid, and it is reported that in all 1,400 bags have been discovered on which no duty was collected.

GRAIN ELEVATORS IN DAKOTA.—The following appeared recently in the *Chicago Inter-Ocean* as a special telegram from St. Paul, Minn.: "A company of Eastern capitalists is about to be organized for the purpose of erecting elevators along the various lines of railroad in North Dakota, which will be conducted on an entire new plan. They propose to furnish to each farmer a separate bin in which to store wheat, and in this way, when he is ready to sell he can always get the identical wheat which he delivered. They also propose

to loan money at 7 per cent. interest, to be secured by wheat in store. The gentleman who is working the matter has spent much time in Dakota, and is said to be quite confident of the success of his scheme. Just when they will begin building operations is not known, but it will probably be early in the spring."

THE Manitoba Milling and Brewing Company (Limited) has been incorporated with a capital stock of \$100,000, in shares of \$100 each. The business of the company is to be carried on in this province, with headquarters at Carberry, and will include the purchase of and manufacture of grain into flour, bran, shorts, etc., storing and cleaning, and such other business as is usually done by millers and proprietors of elevators, besides that of malting and brewing.

THERE are no less than five new roller-process flouring mills now about to be completed in Manitoba and the Territories. Two of these have already commenced to grind, and the remainder will be in operation in about a month's time. These mills have a capacity of from 100 to 150 barrels per day each, and are located at Regina, Qu'Appelle, Virden, Oak Lake and Morden. In addition to these, a stone mill at Fort Qu'Appelle is being changed to the roller system, and several mills are being agitated for at other points.

NEW MILLS—A roller mill at Coleman, Tex.; a roller corn mill at Pendletonville, Tex. by C. A. Boase; a 125 bbl. roller mill at Cuthbertson, Neb.; a 100 bbl. roller mill at Virden, Manitoba, by Willing & Dier; a roller mill at La Grande, Oregon; a new mill in place of one recently destroyed, by the Long Lake Milling Co. at Hubbard, Minn.; a 100 bbl roller mill at Cleburne, Tex.; a number of companies have been organized in Texas for the purpose of building roller flour mills.

THE Cummer Co. report their trade on the reels constantly on the increase, and that they are receiving many repeated orders. They have also just received orders for a 100 h.-p. engine with boilers, etc., complete, for Messrs. Stinnett, Rucker & Co., of Sherman, Texas, and for an engine of 170 h.-p., for G. W. Straight, of Chicago, Ill. Among their recent shipments are a 415 h.-p. engine to the Manchester print works, of Manchester, N. H.; a 160 h.-p. condensing engine to Cowden Bros. & Hoppe, of Hanna, Ind.; an 89 h.-p. engine to the Somersworth Machine Co., Dover, N. H.; and one of 90 h.-p. to Frank Baer, of Greensburg, Pa.

THE following are among the many orders received by the Case Manufacturing Co., Columbus, Ohio, since our last issue: From Stitt & Middlepaugh, South Pueblo, Col., for 2 pairs of rolls with patent automatic feed; from A. A. DeLoach & Bro., Atlanta, Ga., for 2 pairs of rolls and 1 No. 2 single purifier with automatic feed, to be shipped to J. B. Florence, Powder Springs, Ga.; from John Ewing, Shirleysburgh, Pa., for rolls; from Alex. Campbell, Senecaville O., for 1 No. 1 single purifier; from W. T. Pyne, Louisville, Ky., for rolls to be placed in the mill of M. V. Getty, Lexington Ind.; from Bonnot Bros., Louisville, O., for 10 pairs of rolls with patent automatic feed; one 5-reel scalping chest and 2 purifiers; from D. F. Allen & Co., Frankfort, Ind., for all the necessary rolls and other machinery for a roller corn

meal mill on the Case system; from Marshall, Kennedy & Co., Pittsburgh, Pa., for all the necessary rolls and other machinery for a roller corn meal mill on the Case system; from Blair & Woods, Hartstown, Pa., for 2 pairs rolls and 1 No. 1 single purifier with patent automatic feed; from Jackson Bros., Cawker City, Kan., for rolls, purifiers, scalpers, centrifugal reels, bolting reels, and all necessary machinery for a full roller mill on the Case system, using 12 pairs rolls with patent automatic feed; from J. M. Berry, Augusta, Ga., for 14 pairs of rolls with patent automatic feed, to replace rolls of other manufacture, the Case system of separation will be used in the construction of the mills; from the Simon Gebhardt & Sons Flour Co., Dayton, O., for 4 additional pairs of rolls with patent automatic feed.

A change has just been made in the well known machinery firm of G. S. Cranson & Son, of Silver Creek, N. Y., by which it is calculated to be a gainer in several ways. W. W. Huntley, formerly of Huntley, Holcomb & Heine, and now of Huntley & Hammond, and C. G. Hammond, of the last mentioned firm, have joined forces with Cranson & Son, and under the style of Cranson, Huntley & Co. will direct their energies toward the building up of an extensive mill-furnishing business, giving particular attention to the several buckwheat machines which Cranson & Son have been so successful with in the past. The new firm will immediately begin the enlargement of its shops to double their present capacity, adding a foundry among other things. Its trade in the Cranson roller buckwheat shuckers, and also its new scouring and polishing machine for buckwheat and grain are large and growing. A full line of all kinds of mill furnishings will be carried.

An esteemed contemporary contains an interesting article on "Mill Bookkeeping." The method is no doubt a good one but in actual practice, especially in large establishments, it is difficult to find any two sets of books kept exactly alike. Every bookkeeper has his own notions, which according to his idea are a little better than any other fellows.

#### RYE MILLING

The Hamburg Correspondent describes a new process for milling rye. Various attempts had been hitherto made so to separate the rye husk that the adhesive layer immediately beneath it, and which is so nutritious, would be incorporated with the kernel and preserved. With the machine in question the rye is cleaned from sand, etc., slightly moistened with water, and then the grains are fed into a "shelling machine." The friction under pressure of the wet grains with each other loosens the outer husk completely. After the shelling process the rye is brought under an "aspirator," which blows out the moistened woody fibre and exposes it for a short time to a strong air current that deprives it of more of its humidity, so that after the milling process, which lasts about eight minutes, it is dryer than at first. A great change in the composition of the kernel is said to be effected by this process. The bran is greatly reduced as compared with the unshelled grain, while at the same time there is no appreciable reduction in the proteine. The bread made from this rye is said to be of a lighter color and decidedly of a finer qual-

ity than that produced from the unshelled, and thus possesses superior digestive qualities, as the bran particles not only prevent the gastric juice from coming into contact with the starchy matter under them, but also have an irritating effect on the intestines. The flour gains in keeping qualities by this process. The husks have no nutritive value, but may be utilized in paper making and for packing.

DR. COWAN'S "Science of a New Life" should be read by every man twenty-one years of age. It is a scientific work in plain language that any one can understand, and is not an advertisement for any physician or medicine, and must not be confounded with another work bearing a similar name published by a Buffalo medical institution. See descriptive advertisement on another page.

**DIRECTIONS FOR SETTING UP PUMPS.**—Never use pipes of smaller size than that given in the tables; when long pipes are used, it is necessary to increase the diameter to allow for the increased friction, especially in regard to the suction pipes.

Use as few turns and angles on pipes as possible, and run every pipe in as direct a line as practicable. Bends, returns and angles increase friction more rapidly than length of pipe.

See to it that the pump has a full supply of water.

In pumping very hot water, always flood your pump by placing it so that it will be supplied from a head.

A gallon of water (U. S. standard) weighs 8 $\frac{1}{8}$  lbs., and contains 231 cubic inches.

A cubic foot of water weighs 62 $\frac{1}{2}$  lbs., and contains 1.728 cubic inches, or 7 $\frac{1}{2}$  gallons.

Doubling the diameter of a pipe increases its capacity four times.

Friction of liquids in pipes increases as the square of the velocity.

Each nominal horse-power of boilers requires 30 to 35 lbs. of water per hour.

To find the area of a piston, square the diameter and multiply by .7854.

To find the pressure in pounds per square inch of a column of water, multiply the height of the column in feet by .434.

To find the capacity of a cylinder in gallons. Multiplying the area in inches by the length of stroke in inches, will give the total number of cubic inches; divide this amount by 231 (which is the cubical contents of a gallon in inches), and the product is the capacity in gallons.

Ordinary speed to run pumps is 100 feet of piston per minute.

To find quantity of water elevated in one minute running at 100 feet of piston per minute. Square the diameter of water cylinder in inches, and multiply by four. Example: Capacity of a five-inch cylinder is desired. The square of the diameter (5 inches) is 25, which, multiplied by 4, gives 100, which is gallons per minute (approximately).

To find the horse-power necessary to elevate water to a given height, multiply the total weight of column of water in pounds by the velocity per minute in feet, and divide the product by 33,000 (an allowance of 25 per cent. should be added for friction, etc.)

We will send the U. S. Miller for one year and Ropp's Calculator for \$1.00.

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Don't order your Cloth until you have conferred with us; it will pay you both in point of quality and price. We are prepared with special facilities for this work. Write us before you order. Address, CASE MANUFACTURING CO. Office and Factory: Fifth St., North of Waughten, Columbus, Ohio.

### SITUATION WANTED.

Short advertisements will be inserted under this head for One Dollar each insertion.

WANTED—A practical Oatmeal Miller, one who understands his business and is willing to attend to it. Can receive additional information by calling on, or addressing CHARLES D. DANA, 10 State St., Chicago, Ills.

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FOR SALE a 75-barrel Roller Mill with Steam and Water Power. A Rare chance. Located in one of the best wheat counties in the state. Reason for selling, old age and ill health. For particulars address MAT. WOLFE, De Graff, Ohio.

### CHANGED \* HANDS.

THE ST. JAMES HOTEL, at Stevens Point, which is well and favorably known to the traveling public has recently changed hands. The present proprietor, Mr. Warren D. Fox, of the famous Fox House, Portage, has taken charge, and will make it second to none in the State.

### GANZ \* & \* CO.,

Budapest, Austria-Hungary.

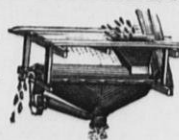
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## TESTING LUBRICATING OIL.

Lubricating oil is a very important item in locomotive service, and one which often tries the patience of the purchasing agent as well as the engineer, unless the agent has fixed on one source of supply and has the grit to say No to the multitude of drummers from the thousand and one manufacturers, doctors, and producers of oil, who, like the Irishman's flea, are always on hand, every one with the best, at a few cents per gallon less than the man who preceded him.

I send you a sketch of a simple machine we rigged up out of part of an old drill press which has done service for years.

This oil tester, though making no pretensions to style or elaborate workmanship, was a sort of air-brake on the glib tongue of many a young man, and sometimes staggered the old ones. I remember one day a fine young man came into the machine department with a note from the purchasing agent, asking to have Mr. Blank's samples of oil tested, and report sent over to office.

This young man professed to be delighted to come across practical men, etc., and how gladly he would show the value of his wares. The first sample was put on the journal of machine, weight on lever adjusted, thermometer put in, time and temperature taken, and off she goes. But it was very soon apparent that oil No. 1 was not the kind to blow about, as the temperature rose 70° in five or six minutes. I told him that was not the kind we wanted. He handed out another bottle. The machine was cooled, cleansed, and another trial started, but he suddenly remembered something he forgot at the hotel, would be back in a few minutes. He forgot to come back.

This machine was not built to any special scale of dimensions, but after being run awhile to smooth everything nicely, a test of sperm oil was made; also of tallow and cylinder oil. The sperm oil was considered a standard to govern other tests, and the oils that came nearest to sperm, or run longest with the least rise in temperature, were considered best. The lever had  $\frac{1}{4}$ " hole drilled through in center, also in top brass to within  $\frac{1}{4}$ " of journal to insert bulb of thermometer, which cost 20 cents.

A record of test, with name of oil, name of manufacturer, price of oil, gravity, etc., was filled out with data as follows:

Temp. at start.	Time.	Temp. at stop.	Time.	Result.
50°	9.10	120°	9.40	Rose 70° in 30 min. Good.

Some oil would rise 70° in 7 minutes; other oil would run 90 minutes and not rise 50°. In this way we soon found who had the good oil. The whole machine did not cost over seven or eight dollars. No limit was made to the oil used on journal. This machine saved us lots of trouble, as men with light hydrocarbon oils gave us a wide berth.  
—By J. J. Bingley in the American Machinist.

"DON'T you think," said Mrs. Keeper, "that when Adam realized the vastness of the world into which he had been ushered, he must have had a great deal on his mind?"

"Well," responded Mrs. Blunt, "from the photographs I have seen of him, I should say that whatever he did have on must have been on his mind."—Troy Press.

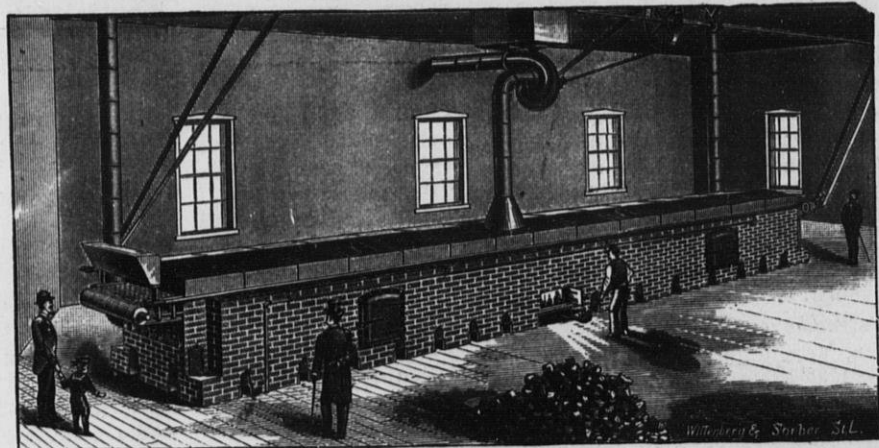
## S. E. WORRELL'S "WEB" DRIER.

The accompanying illustration shows a new invention, for which a patent has been allowed, for drying brewer's grains, distillery slops, starch refuse, and substances of a similar character, which from their glutinous nature, cannot be successfully operated upon by existing drying machines. It is also well adapted for damp grains of all kinds. The patentee, Mr. S. E. Worrell, who has an extended experience with drying machinery, and is the inventor and maker of a combined drier and cooler which has been very successful on grain, has made extended drying tests of the above-mentioned materials on his cylinder machine, but the results were not satisfactory from two causes: first, the substance "balling," and secondly, adhering to the hot metal surfaces. The "Web" drier was designed with the view to and does entirely overcome these serious objections. This is accomplished by acting on the material without agitating it.

The machine is simple, and a few words, with the aid of the cut, will clearly explain its construction and operation. It consists of an endless web of galvanized wire cloth drawn over two large rollers, one journaled at each end of the drier. The fire box is underneath in the middle; from both sides of this extend

be removed from the interior of the heating tubes while the machine is in operation. Any kind of fuel can be used. A very effective system of drainage is provided for disposing of the condensed water that collects on the interior of the iron cover. The action is continuous and only requires the attention of one man for supplying the fuel. The inlet and discharging openings are furnished with self-closing gates, and no hot air can escape without doing its work. Motion is transmitted to the endless web by the worm gearing shown at the right end.

In operation the material to be dried is supplied to the hopper seen at the left of the cut; in the bottom of this hopper is a device for disintegrating and spreading the damp material to an even thickness across the entire width of the upper wire cloth; this carries it into the machine where the drying process commences. This is accomplished by the hot air being drawn up through the meshes of the web and the interstices of the material, the latter laying in a loose, fluffy condition allows the air to freely circulate between the damp particles, thus absorbing the moisture which is carried up with it and discharged through the blower. The rapidity of this action will be understood by those



WORRELL'S GRAIN DRIER.

a number of cast-iron heating pipes through which the hot gasses of combustion pass into the soot boxes at each end of the machine, and from thence into the two upright pipes seen in the cut. The entire furnace is covered with iron dust shields to prevent the scorching of the small particles of the material being dried that may drop down through the wire cloth. The whole heating arrangement is surrounded by a brick wall, which is an excellent non-conductor of heat, therefore well adapted for this purpose. The top of the apparatus consists of a close-fitting sheet-iron cover, to which is connected the suction spout of a powerful exhaust fan. This blower greatly accelerates the upward movement of the hot air, which it will, of course, be understood is the drying agent, and it has been clearly demonstrated that this is the best and most economical agent for removing moisture from damp material of a granular nature. The numerous small openings in the bottom of the brick work are gates for regulating the distribution of the air.

One of the most important features of this drier is the novel construction of the furnace, which, while it presents an unusually large amount of heating surface, is provided with the means of producing a regular radiation of the heat, and is so arranged that the soot can

who know what a great affinity hot air has for water. The drying process is in this manner continued until the material reaches the opposite end of the machine, where it is discharged in a thoroughly dry condition. Of course the damper the substance the longer it must remain in under the influence of the hot air currents, and vice versa, so provision is made for graduating the movement of the web to the requirement of the substance being dried. A revolving brush is placed under the discharging roller for removing any particles that may adhere to the wire cloth.

This machine is very durable, no part being subject to much wear except the web, which can be renewed at small expense. A number of "idlers" are supplied for supporting the weight of the wire cloth and its load, and means are provided for taking up the slack in the web while the drier is in operation. While the cut is an excellent representation of this machine, its great reduction prevents showing a number of small but important details.

Any further information desired relating to this machine can be obtained by writing to the inventor. Mr. S. E. Worrell, Hannibal, Mo., who will be pleased to answer any inquiries for interested parties, and to him such are referred.

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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., Feb. 1, 1886,

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, 1880, less than 5,100 COPIES each, and are frequently in excess of that. 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, 1880, 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.

Sworn to and Subscribed before me at Milwaukee, Wis., this 25th day of November, A. D. 1885.

E. HARRISON CAWKER,

G. McWHORTER,

Justice of the Peace.

Publisher.

THE total immigration to the United States for December 1885 was 11,512.

A MAINE man runs a wind-mill by steam-power, and a Milwaukee man runs one by water-power, so that the arms go around whether the wind blows or not. Both are for ornamental purposes in landscape gardens.

UNITED States Circuit Judge Brewer recently made a decision of great importance. He decided that where a person was engaged in the manufacture of beer while it was legal to do so, he could not be prohibited from continuing the manufacture by a state law without first being paid the value of the property destroyed by reason of such prohibition. This was in the case of the State of Kansas against John Wallraff, of Lawrence, Ks.

We will send St. Nicholas Magazine and the U. S. Miller for one year for \$3.60.

A FEW months ago an employe of the Milwaukee Dime Museum lay upon his death-bed. His comrades made up a purse and ascertained the exact expense of the funeral to be, and told him that they had enough to pay for everything and three dollars over. "Now," said the spokesman, "shall we spend the three dollars going out to the buryin' or comin' back?" The dying man seemed to meditate for a few moments, and then answered slowly and with difficulty: "Spend it—going—out—boys—for—I shan't be with you—coming—back." He then turned his head slightly on his pillow and fell asleep forever.

BRADSTREET'S, in an article entitled "The World's Wheat Supply" (published Jan. 30), estimates that all the available wheat from exporting countries, except the United States will be required by other countries than Great Britain; that in all probability Great Britain will require 45,000,000 bushels of United States wheat before July 1, which will leave our total supply July 1 of wheat, visible and invisible, at only about 50,000,000 bushels, or what is appropriately termed, a "famine reserve." If these figures are approximately correct, and they appear to have been compiled with great care—may we not look for an early and considerable advance in the price of wheat?

We will send the U. S. Miller and American Miller for one year for \$1.50.

At about 8 A. M. Sunday morning January 10, fire was discovered in the boiler-room of J. B. A. Kern's immense flour mill on Commerce street, but fortunately it was extinguished before doing a great deal of damage. The fire was so located as to be very difficult of access, but by hard work it was reached and extinguished before any very great damage was done. Mr. Kern's mill is the largest in this state, and it would indeed be a great loss to Milwaukee flouring interests to have it destroyed.

We will send you a copy of "Leffel's Construction of Mill-dams, and Bookwalter's Millwright and Mechanic," and "The U. S. Miller" for one year for \$1.30. Don't miss it.

We will send The Milling World (weekly) and the U. S. Miller for one year for \$2.00.

Under date of Jan. 18, 1866, Messrs. Wm. Klein & Co. of Liverpool, England, write us as follows: The flour trade is steady with fair retail demand. Stocks of foreign flour are not heavy, and were it not for country flour being pressed on the market at extremely low figures, there would be a good show of buoyancy both in price and demand, meanwhile, however, many English mills are at last being shut down or run on short time, and the present outlook is encouraging; the following may be said to represent fairly the present position. During the last three weeks although the whole community of flour and wheat manipulators on both sides of the Atlantic, with few exceptions, has been on the Bear tack, and although backed up by an almost unprecedented stagnation of business, prices for flour can only be quoted a few cents down in America and a bare 6 pence per 280 lbs. lower on this side; the rise so long expected, may not come at once, but if prices remain so steady when the whole trade is bearish, there is the probability almost amounting to a certainty that when once the current is turned, and the Bulls are in the majority, prices will be run up 25 per cent. over their present values. Dealers and Bakers will do well therefore, to replenish their stocks while they are able to do so at present low level. Prices cannot well go lower and may go up many shillings before the month is out.

We will send the U. S. Miller and The Milling Engineer for one year for \$2.00.

We will send the U. S. Miller for one year and Ogilvie's Handy Book for \$1.00.

## MORE TROUBLE AHEAD FOR MILLERS.

Patent suits have not bothered the millers in this country for so long a time that many have almost forgotten the trials endured in the past, but it now looks as if there was going to be a "right smart bit of a fight" over the R. L. Downton patent. We are reliably informed that R. L. Downton, by his attorneys, Messrs. Parkinson & Parkinson, the widely-known Cincinnati patent lawyers, have commenced suit against a wealthy milling firm in Ohio for infringement of Downton's patent, and are preparing to commence suits in St. Louis and at several other points.

The patent on which suit is brought, is No. 255,150, and was granted to R. L. Downton, March 21, 1882, and contains the following clauses:

1. The herein described process of reducing grain to flour and middlings, consisting in passing it through a series of sets of rolls, revolving at different speeds, and in the same direction, at the point of their nearest approach to contact, and of successive degrees of fineness of dress, the first part of said series of rolls having a dress of round corrugated oval flutes, and the latter part of said series having a dress of sharp or serrated flutes, arranged at an inclination to the axis and through bolts arranged intermediate of each set, and the succeeding set of rolls substantially as, and for the purpose described.

2. In the manufacture of flour and middlings, a series of sets of rolls of successive degrees of fineness of dress, arranged to revolve in the same direction at the point of their nearest approach to contact, and at different speeds, the first part of said series of rolls having a dress of round or oval flutes,

and the latter sharp or serrated flutes, arranged at an inclination to the axis, in combination with bolts, arranged intermediate of each set, and the succeeding set of rolls, substantially in the manner as, and for the purpose herein shown and described.

The officers and members of the Millers' National Association will, no doubt, look after their interests as a body. There is only one of two things to do—FIGHT OR COMPROMISE.

CAWKER'S FLOUR MILL DIRECTORY for 1886 shows the number of mills in the various States and Provinces as follows: Alabama 295; Arizona 10; Arkansas 196; California 199; Colorado 37; Connecticut 169; Dakota 87; Delaware 78; District of Columbia 7; Florida 23; Georgia 364; Idaho 16; Illinois 806; Indiana 863; Indian Ter. 6; Iowa 566; Kansas 426; Kentucky 488; Louisiana 33; Maine 167; Maryland 300; Massachusetts 223; Michigan 640; Minnesota 359; Mississippi 188; Missouri 713; Montana 13; Nebraska 210; Nevada 16; New Hampshire 140; New Jersey 344; New Mexico 29; New York 1,536; North Carolina 632; Ohio 1,135; Oregon 121; Pennsylvania 2,396; Rhode Island 36; South Carolina 190; Tennessee 536; Texas 512; Utah 87; Vermont 189; Virginia 506; Washington Ter. 49; West Virginia, 360; Wisconsin 653; Wyoming 1. Total in United States 16,950. Total in Dominion of Canada 1,339. Grand total in United States and Canada 18,289.

The Grand total shown in the 1884 Directory was 25,050. This shows an apparent decrease of 6,761 in the number of American flouring mills.

This needs a word of explanation. The United States Census for 1880 reported about 25,000 mills in the United States. In making that census every little mill that ground cornmeal, or feed even, was no doubt included. In Cawker's Directory for 1884 every thing was included that we had reason to believe made a *business* of grinding grain, no matter how small a concern it might be. In the 1886 Directory the plan has been to include only establishments manufacturing *flour* from wheat and rye, and cornmeal and oatmeal mills of some considerable importance. In the Southern States there are innumerable cotton gins and thousands of saw mills, and probably the majority of these have a portable grinding mill of some sort for grinding cornmeal, feed etc., and these can certainly not be considered flouring mills from a trade point of view—to say the least they are not such establishments as general mill-furnishers, flour and grain brokers, flour exporters and importers, transportation and insurance companies, etc., desire to reach, and for whose use Cawker's Directory has been compiled.

Judging from what we have learned from a large correspondence, from interviews with manufacturers and commercial travelers constantly visiting mills in all sections of the country, we believe the *capacity* of the flouring mills in the United States for making good flour is greater to-day than ever before, but there is no doubt in our mind but what there is a considerable decrease in the *number* of establishments in actual operation, though by no means as great as the figures above, at first glance and without explanation, would indicate.

We will send the Deutsch-Amerikanische Mueller and the U. S. Miller for one year for \$1.50.

#### A SLY DODGE.—MILLERS BEWARE.

Millers will remember that not long since, the Secretary of the United States Treasury, made a ruling, making it easy for millers exporting flour in jute sacks to recover a Drawback on them. The following letter from Mr. S. H. Seamans, Secretary of the Millers' National Association, will show that the party or parties, whose greed was thwarted by the straight-forward, business-like ruling of the United States Treasurer, is quietly trying to defeat that ruling, by means of a neat little clause slyly added to a bill, which might very easily slip through Congress and become a law, if the attention of Congressmen was not specially called to it.

NATIONAL MILLERS' ASSOCIATION.  
SECRETARY'S OFFICE.  
MILWAUKEE, WIS., FEB. 4, 1886.

DEAR SIR:

I desire to call your attention to the paragraph that has been inserted in a bill introduced Feb. 1st, in the House of Representatives by the Hon. Abram S. Hewitt, of New York, which reads as follows:

"Drawback is extended to cover the whole amount of duty paid and proof of the landing abroad shall be furnished. When the drawback is less than \$100,000 the fee for the consular certificate shall not exceed 50 cents."

This, of course, reads very innocently, but the practical effect of it would be to kill the collection of drawback on flour bags, as I will try to demonstrate to you.

"Proof of landing abroad," as understood in customs laws, must consist of the sworn declaration of the merchant to whom the merchandise is consigned and a certificate of the master and mate of the exporting vessel, and the merchants and the master and the mate must all appear before the United States Consul at the port of delivery. In the exportation of large quantities of flour bags made up of innumerable small shipments from various millers, and invariably consigned to the order of the millers themselves, the task of hunting up at the port of delivery say, for example, Liverpool, every man to whom the flour can finally be delivered, and of then getting the master and mate of the steamer to go around with such consignees and execute innumerable certificates, would be found absolutely impracticable in the conduct of business. The necessity alleged for such certificate is proper proof that goods entered for drawback have left the United States, and been landed beyond the jurisdiction of this country. We maintain and we believe, no sensible man can gainsay it, that the filing at the Custom House of the export B "L," which can always be verified and compared with the manifests of the exporting vessel at the pleasure of the Customs officials, is full and ample proof of export, such as any business man or bank would accept for like purposes, and which should be perfectly satisfactory to the Government. In fact, it is to-day perfectly satisfactory to the Government officials and we much doubt, if the Treasury Department is responsible for the paragraph in the proposed law that we call your attention to. In our opinion, it has been slipped in with the sole design of thwarting the flour bag drawback, and in the hope that no parties interested would happen to see it until it became a law.

I should advise you to at once notify such representatives, and especially such members as are on the Committee of Ways and Means, of the true import of this paragraph, and the disastrous effect it would have upon the milling interests. It reads so innocently and looks so plausible that unless our representatives have their especial attention called to it, we doubt whether they can catch its true application.

We trust you will give this important matter your earnest and speedy attention.

Yours Respectfully,  
S. H. SEAMANS, Secretary.

*Rules for Engineers and Firemen, for the management and care of Steam Boilers, as adopted by the Hartford Steam Boiler Inspection and Insurance Company.*

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 his boilers. *Never unbank nor replenish the fires 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*. Don't 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 above 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 down, under a pressure *not exceeding* 10 lbs. Where surface blow-cocks are used, they should be often opened for a few moments at a time. The blow-off valve should be opened wide once a day, oftener if the water contains much sediment. The time required to open wide and close the valve is long enough.

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 the 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-VALVES AND PRESSURE-GAUGE.**—Should the gauge at any time indicate the limit of pressure allowed, see that the safety-valves are blowing off.

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.

#### OUR EXPORT OF BREADSTUFFS.

The total value of exports of breadstuffs from the United States for the twelve months ending Dec. 31, 1885, was \$129,757,260. The exports for the year 1884 were valued at \$147,813,403.

During the year 1885 there were exported 9,548,358 barrels of flour and 52,702,036 bushels of wheat. During the year 1884 9,047,071 barrels of flour and 80,627,215 bushels of wheat were exported. These figures are taken from latest official reports and show that our exports of flour are constantly increasing, while our wheat export is decreasing. This is well.

ITEMS OF INTEREST.

THE recent demand for English hansom cabs has disclosed the fact that the wheels imported there are of American make. Buyers here have therefore actually paid the cost of freight to and from London, and duty on their re-importation of these articles manufactured in their own country.

THE Osage orange is the most durable timber that grows in America, and is a wood that shrinks and swells so little by changes of dry and wet that it is not perceptible. It is said wheels made of the Osage will last for fifty years without paint or shelter.

RUSSIAN COMPETITION.—Leo Weltz, a prominent horticulturist of Ohio, and a member of the State Board of Agriculture, who went abroad several months ago, has returned, and is in Washington. He brought back with him four varieties of what the Russians consider their very best milling wheat. He also brought the information that Russians are devoting themselves with great earnestness to wheat raising, and with improved methods and these new varieties of seed they expect to regain their lost prestige and supply the European markets to the exclusion of the American product. Mr. Weltz says that wheat raising is the great question in Russia now. The farmers there are even giving up rye to devote their lands to wheat. Mr. Weltz brought over quantities of Russian oats and barley of varieties which he thinks are better than the farmers here have. The Agricultural Department at Washington city will take seeds and try them, making general distribution in due time, if the results of experiments are encouraging.

A NON-CONDUCTING FABRIC introduced by William P. Adams, Brooklyn, N. Y., is formed of a layer of asbestos felt, lined or faced on one side by pliable-canvas which has been rendered fire-proof by saturation in a solution of tungstate of soda and on the other by a facing of asbestos cloth. Upon the canvas backing a layer of close but pliable felt is laid, and over this is placed a facing of durable canvas rendered fire-proof, also by saturation in a solution of tungstate of soda. These are basted and quilted together to unite them in an integral fabric.

OIL PAINT FOR FLOORS.—For the painting of floors with oil paint we should, says the *Builder and Wood-worker*, only such as contain earthy coloring substances, and no lead, as all paints containing the latter wear off too easily. A floor that is covered with oil paint, and which is comparatively easily rubbed off, can safely be considered to contain lead. Lead is generally added on account of its superior density and body, and also being much more easily applied than most other substances. Even varnish that has been prepared by the use of litharge is objectionable on account of being too readily worn off. Two coats of paint are usually employed, and care should be observed not to apply the second coat before the first is fully dry. If it is desired that the floor should present a varnish-like lustre, the following may be employed, whereby the paint becomes even more durable: Dissolve two parts of shellac in eight parts of alcohol of about eighty per cent., and add to it one quarter of a part of camphor. When the whole has been completely dissolved, it can be filtered or strained through a

cloth in order to separate the suspended impurities. With this lac the floor is painted over once or twice as may be required. By the application of the lac, the paint adheres much better, and is not so easily worn, as though it were directly exposed; and when the lac has been partially removed, all that is necessary is to renew the simple application of the varnish.

KANSAS lands in the last ten years have yielded products valued at the enormous aggregate of \$1,046,262,364. Yet it is one of the youngest of the States. In 1883, the corn crop was nearly double that of any other State. It stands fifth in the amount of wheat grown.

BRADSTREETS' of Dec. 19, contains a very comprehensive article on the subject of boycotting. From these reports it appears that 237 cases have occurred in the United States during the last two years. Bradstreets' says:

The following specially prepared table contains a classified list of boycotts within two years, showing the grand totals of claimed successes, admitted failures, and others:

THE BOYCOTTED.	TOTAL NO.	CLAIMED GAINED.	ADMITTED L. ST.	STILL ON.
Newspapers.....	45	13	10	22
Hat manufact's and deal'rs.	22	4	..	18
Cigar manuf'rs and dealers.	26	11	5	10
Carpet manuf'rs and deal'rs.	13	..	1	12
Clothing manfrs and deal'rs.	14	1	..	13
Nail manufact'rs and mills..	10	..	..	10
Dry goods dealers.....	7	..	..	7
Boot and shoe mfrs and dlrs.	7	..	1	6
Stove makers and dealers...	5	3	..	2
Flour mills.....	3	1	..	2
Hotels and public houses...	4	3	..	1
Breweries.....	4	3	1	..
Printers, etc.....	3	..	..	3
Bakers.....	2	1	1	..
Excursion steamers.....	5	5	..	..
Silver factory, watch cases..	3	..	..	3
Tailors.....	4	2	..	2
Theatres (musicians).....	2	2	..	..
Publishers.....	2	2	..	..
Street railway.....	1	..	1	..
Steamship company.....	1	1	..	..
A special beverage.....	1	..	..	1
Postmasters.....	2	2	..	..
Starch maker.....	1	1	..	..
Baking-powder maker.....	1	1	..	..
Washing preparation maker	1	1	..	..
Can maker.....	1	1	..	..
Stereotype plates.....	1	..	..	1
Pianos and organs.....	1	..	..	1
Broom manufacturer.....	1	..	1	..
Cooper works.....	1	1	..	..
Box manufacturer.....	1	..	1	..
Knit goods manufacturer...	1	..	1	..
Chinese employers.....	41	40	1	..
Totals.....	237	99	24	114
Excluding Chinese boycotts.	196	59	23	114

SINCE the obelisk in Central Park, New York was smeared with parafine to prevent its disintegration from atmospheric changes, the application of this substance to buildings of marble or stone as a preservative is becoming quite common. The latest example is the Exchange Building, on Broadway, just below Wall street, which has been treated with acids over its entire surface as a cleansing process. Mechanics are now going over the entire surface of every block, column, sill and pediment with a sort of brazen blow-pipe from which three strong pencils of flame are projected against the marble for the purpose of heating it. This done the parafine is applied with a small brush. The buildings appear to be thoroughly renovated by this treatment.

THE *Scientific American* says: "The best remedy for bleeding at the nose, as given by Dr. Gleason at one of his lectures, is in the

vigorous motion of the jaws as if in the act of chewing. In case of a child, a wad of paper should be inserted between the teeth, and the child told to chew it hard. It is the motion of the jaws that stops the flow of the blood. This remedy is so very simple that many will feel inclined to laugh at it, but it has never been known to fail in a single instance, even in the severest cases."

[Now if this thing would work t'other way, i. e. if a vigorous working of the jaws would produce bleeding at the nose, what pleasant companions some of our friends would be.—Ed. U. S. MILLER.]

We will send Harper's Magazine and the U. S. Miller for one year for \$4.20, or the Century Magazine and U. S. Miller for \$4.60.

PATENT SOLICITORS.

In no profession is there more need of skill and probity, special training and experience, than in that of the patent solicitor. Besides being thoroughly trustworthy, he should be at once a lawyer, a physicist, a chemist, an engineer, an electrician, and many other things too numerous to mention. Indeed his profession is one that calls for the exercise of a greater range of knowledge than it falls to the lot of one man to possess, so that the patent solicitor who does justice to his client should, in addition to his attributes, be possessed of sound judgment, and be able to utilize to the best advantage the knowledge of others who may be better versed than himself in particular branches of the arts with which he may from time to time have to deal. Failure to grasp the essence of an invention, or to cover it effectually in a specification, may lead to incalculable loss on the inventor's part; so may carelessness or infidelity. These are very important considerations, when it is borne in mind that the value of the interests yearly entrusted by inventors and others to patent solicitors represents an enormous sum.

Many persons fail to realize the numerous dangers that a patentee whose invention is commercially successful may be expected to encounter. They blindly imagine that if their application, which they often fill out themselves, is filed, and the fees paid that their patent is all right. Of the many thousands of applicants for patents how many are there who know the legal meaning of the term inventor; or who have anything like an adequate notion of what is or what is not proper subject matter for the grant of letters patent, and how is it to be expected that such questions can be solved by those who have had little or no practice, when one remembers the extreme difficulty experienced at times by the most learned judges in determining them? Viewing the many difficulties that necessarily beset the inventor, there can be no doubt that any attempt to render the services of patent solicitors superfluous will ever succeed in practice. The official rules of practice of the U. S. Patent Office say that as the value of patents depends largely upon the careful preparation of the specifications and claims, the assistance of competent counsel will, in most cases, be of advantage to the applicant; but the value of their services will be proportionate to their skill and honesty, and too much care cannot be exercised in their selection.

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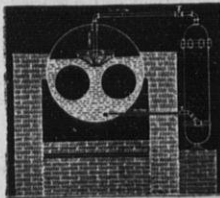
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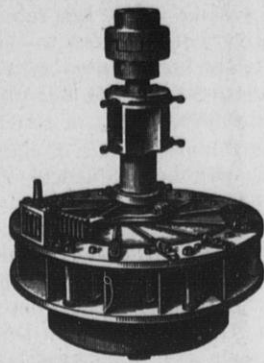
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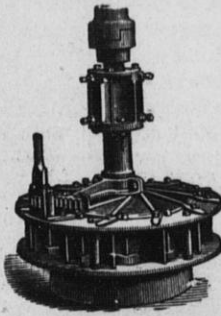
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Shipping Facilities the Best in all Directions.

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This Wheel is considered one of the most correct that has been devised, gives the highest results, and, with late improvements, is now the best, most practical, and efficient Partial Gate Wheel in existence.

For Economy, Strength, Simplicity, Durability, and Tightness of Gate, it has no equal.

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**JONATHAN MILL'S UNIVERSAL FLOUR DRESSER.**

Over five hundred of the Mills' Universal Flour Dressers have already been placed in American flouring mills in the comparatively short space of time since they were placed on the market, and they have given universal satisfaction. This must be highly gratifying to the manufacturers, THE CUMMER ENGINE CO., of Cleveland, O., and to the inventor, Mr. Jonathan Mills, now a resident of Cleveland, O., a gentleman, so well known to the milling and mechanical world that his name alone is a guarantee of excellence.

The inventor says: "The true principle in bolting is incorporated in this machine, in the rapid, continuous delivery of the chop to the cloth by the solid corrugated inside cylinder, or drum. This cylinder travels with and in the same direction as the cloth, and at the same speed; therefore it is not a centrifugal reel; it travels at a speed just fast enough to insure a continuous, even, and gentle sliding action of the chop, which does not slide down the up-travelling side of the

and the fluted cylinder revolve in the same direction, and at the same speed, this rapid and continuous delivery of the stock to the cloth by the action of the inside fluted cylinder is the cause of the great capacity and pronounced and defined separations.

By putting these machines in place of your centrifugal reels you will be enabled to do much clearer and better bolting, and in many instances it will enable you to take a great portion of the flour from the head end of the reel and send it in to a higher grade than can be otherwise done. In many places where our Universal Flour Dresser has taken the place of centrifugal reels, it is doing twenty-five, fifty to seventy-cents per hour better work than they were able to do with the centrifugal reels. A milling year is computed to be three hundred working days of twenty-four hours each, and it can be readily figured that a saving of only five cents per hour for a milling year would amount to \$360, and a saving of twenty-five cents per hour would amount to 1,800 in the same period. It often

through the cloth to knock down their flour twenty-five cents an hour—little dreaming that the main cause of not making any profits out of their mills centered right in some forced action of their bolts. Bear in mind that twenty-five cents an hour means a profit or loss of \$1,800 per milling year. Our experience, as well as that of those who have thoroughly tested these reels, goes to prove that there is no further need for six-sided reels, or bolts with forced action, in any mill.

In the accompanying illustrations of the Mills' Universal Flour Dresser, Fig. 1 shows a perspective view of the reel looking from the head end. The arrow shown on the reel head denotes the direction the reel is to revolve. These cylinders are built up on to a cast-iron head and tail disks that are keyed fast on to the shaft. These heads are set back far enough to admit of feeding the stock in at the head end and discharging at the tail. Fig. 2 gives the reader an idea of the shape of the inside cylinder and shows the brush; it shows a section through the machine, looking at it from the head end. The reels all run over towards the left, when looking at them from the head end. Fig. 3 shows the cylinder with cloth on. The reels are built with round wooden heads and tails, 1½ inches thick and the cloth is easier tacked on or taken off than on an ordinary 6-sided reel. The cloth, when properly put on, forms a straight cylinder. The cloth is made so as not to meet around the reel by half an inch. It is then laced over and under easily, and the seam covered with a piece of old bolting cloth pasted over. The cloth is supported by flat steel hoops, 12 inches apart, which are flannel covered to prevent chafing. Each hoop is supported by six short wooden studs, fastened to the apex of the flutes of the inside cylinder, and the cloth, hoops and cylinder being positively connected, all travel together as one.

The apex of the flutes is about two and a half inches from the cloth, which is a sure preventative from overloading or sagging the cloth in the least. The fluted cylindrical form of this reel, and solid manner in which it is built, make it strong and stiff, and insures the durability of the cloth, which so far shows no sign of wear on any of the

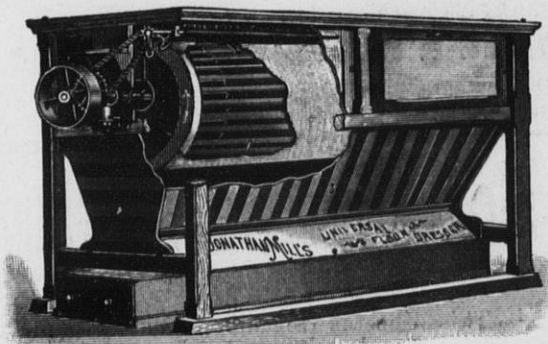


FIG. 1.

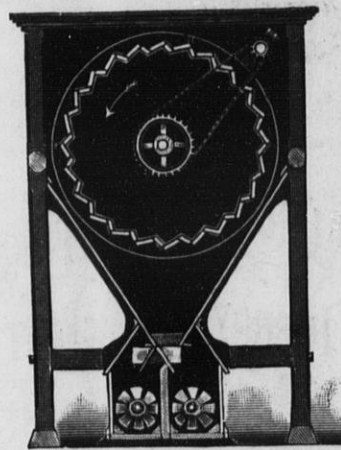


FIG. 2.

cloth quite as fast as the travel of the cloth. For this reason the cloth is rapidly delivering the chop on the corrugated-inside cylinder, and the corrugated cylinder is as rapidly delivering the chop back on the cloth at a higher point than where it left it. The rapid and gentle action in which this constantly agitated chop is delivered to the cloth insures that every particle of flour in the chop is delivered on the cloth without any force or violent action that would cause dirty or muddy looking flour. The separations are pronounced and perfect. We do not believe there is a spot or place in any mill where 6-sided reels or the forced bolting of centrifugals can be as profitably used as Mills' Universal Flour Dresser. It has been repeatedly proven by the actual working, that they will do more and better bolting than can be done by any other device now in use and it will be greatly to the interest of every new mill to adopt them for the great saving of room and power, and more so for their increased capacity and superior separations."

It requires less than half of one horse power to drive either size of the Mills' Dresser.

In writing further concerning this machine, the manufacturer says:

The revolutions of the reel and cylinder are such as to cause the chop to be cast off the fluted cylinder against the cloth with a gentle action, sufficient to make the most perfect and rapid separations ever accomplished by any bolting device, and although the cloth

happens that the flour from the centrifugal reels is not quite good enough to send into a higher grade than the lowest grade in the mill, when by handling it on our Flour Dresser it would go into a grade higher that would bring seventy-five cents to a dollar per barrel more money. In that case the money value

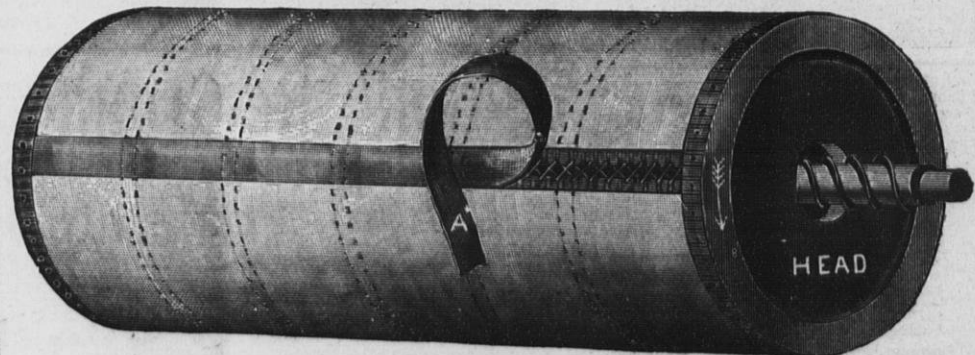


FIG. 3.

of our reel over the centrifugals would be based on the number of barrels made per hour.

In many mills where they can show no profits at the end of the year, they are running poor bolting reels, and losing a little on one and the other reels about the mill—five cents an hour here, and five cents there, and twenty-five cents an hour on some forced bolting reel that is slam-banging enough impurities

reels we have placed. The reels can be driven from either end.

**BOLTING SYSTEM.**

Figs. 4 and 5 show how conveniently this Dresser may be put into mills by setting the bolts on top of each other. The cut shows a side-driving pulley on the middle reel; the cross-shaft is shown in the tail end view (Fig.

5). The power to drive the middle reel is applied by bevel gears. The power is transmitted through the middle Reel to the Reel below, and the one above by sprocket chains at the head end of the reels. The flour can be taken off through the spouts, as shown at the middle and upper reel. The spouts show leading off to the left, but can just as readily be attached to the other conveyor and lead off to the right or spout straight down.

One of the conveyors is to return the cut-offs of the reel to the next reel below; either

and best manner of brushing the cloth that has ever been devised, as the bristles are long, soft and pliable, and the brush is applied to the cloth on the up-traveling quarter of the cloth, and its operation tends to drive back any material that has fastened into the mesh of the cloth.

Fig. 5 shows the tail end view of three of our reels, showing how the middle reel is driven, how the conveyors are driven, and how the tailings can be spouted away from each reel. The tailings spouts can be led

CO., CLEVELAND, O., and in their letter mention that they have seen this article in the UNITED STATES MILLER.

**ELECTRO-PNEUMATIC TRANSIT.**—A prominent electrician of Philadelphia has received letters patent for an invention which he says will revolutionize the mail, telegraphic and telephonic systems now in use. His plan is termed an electro-pneumatic transit, and is designed to carry letters and packages from city to city at a rate of nine miles a minute.

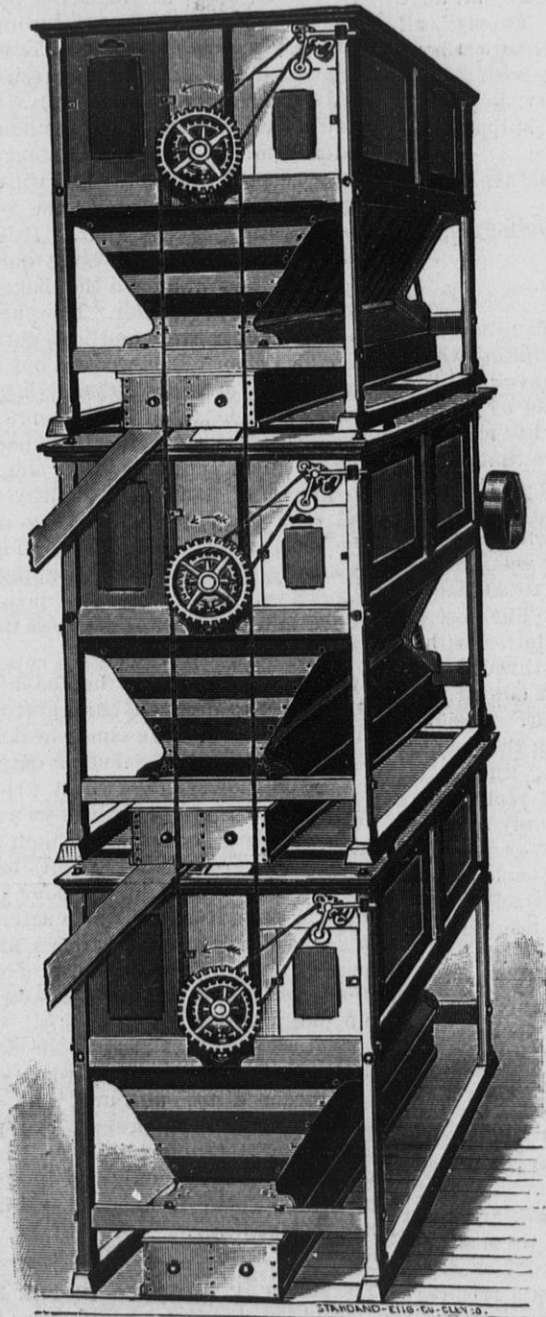


FIG. 4—TOP END.

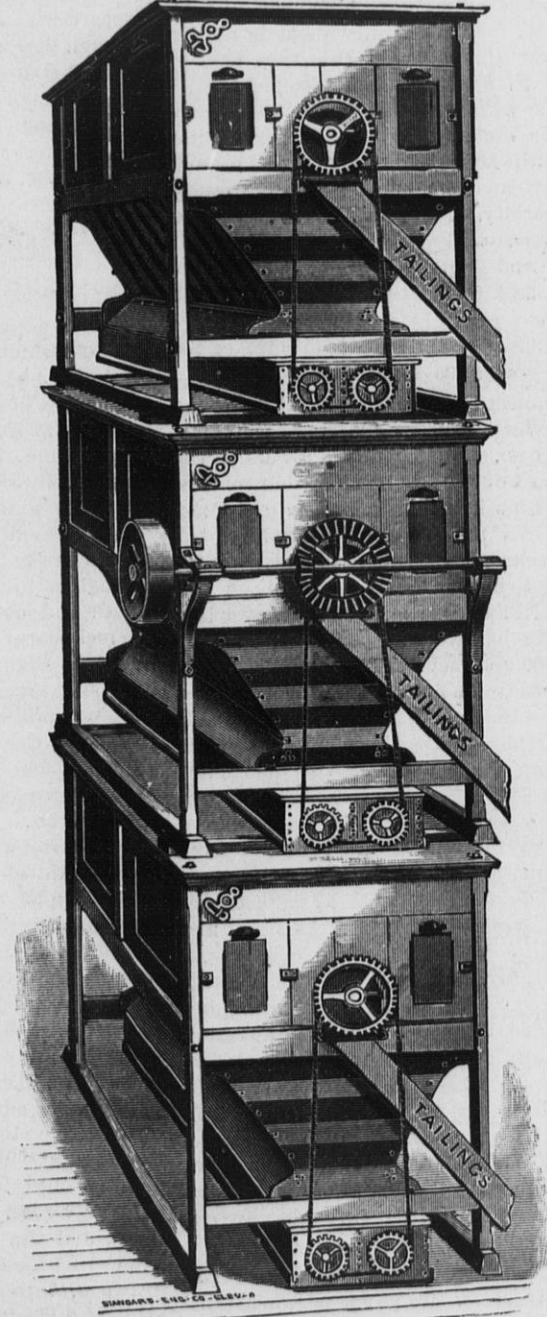


FIG. 5—TAIL END.

conveyor can be used for that purpose at the option of the millwrights in setting up the Reels. rither reel can be fed in to just above the sprocket wheel by putting a pocket on to join the spout to. Every millwright and miller knows how to put on a spout pocket. The upper reel can be fed in at the top or by putting on a pocket just above the sprocket wheel. We show how the cloth-cleaning brush is driven. The brush is easily and quickly thrown on or off the cloth, or made to brush hard or easy at the option of the miller. This is the best constructed brush

off in any direction best suited to accommodate the location. The power is transmitted through the center reel to drive the one below and the one above. Reels can be driven by belt or sprocket chain direct on to either reel that may best suit the location of driving shaft in mill.

The reels are all built with the view of setting them one upon the other or separate, as may be required. Parties desiring full and complete information regarding the Mills' Universal Flour Dresser and System of Bolt-

The tube will be of brass, incased in iron, through which a close-fitting metallic carriage containing the articles will be projected by a volume of compressed air. Intermediate cities and towns will have tubes connecting with the main tube, and the destination of the carriage will be under the control of the operator at the main office, who will manipulate the switches by electricity, and thus be enabled to send the carriage to any desired point. It is also intended to introduce it for local use, to take the place, in a measure, of the telephone.

**DUNLOP BROTHERS' ANNUAL GRAIN AND FLOUR CIRCULAR.**

In again presenting our annual report, accompanied by the various tabulated returns of imports, stocks, &c., applicable to the corn trade at this port for the year now closing, we would offer for your consideration a few comments on the results shown by these tables.

Turning first to prices, we observe that, although the year opened briskly, starting from a low level, it closes with but slight improvement. Wheat is only about 1s per 240 lbs. higher than it was this time twelve-months. Flour shows some irregularity as compared with last year's prices. Town-made, for example, is only 6d per 280 lbs. dearer, while Minnesotas are 1s to 1s6d higher, and American choice winter wheat brands, from scarcity, realize about 2s more. Hungarians, on the other hand, are a trifle cheaper; and English, French, and German all 1s to 2s lower. Indian corn, oats, and barley, are each 1s to 1s6d per boll (6 bushels) cheaper, while other articles of the trade are comparatively unchanged.

With respect to *Imports*.—Wheat shows an increase over last year equal to 25 per cent., or 120,000 qrs., and is within 54,000 qrs. of the large import of the year 1882. Flour reaches a total of no less than a million and three-quarter sacks per 280 lbs., exceeding the previous year by 260,000 sacks, and is by far the largest import ever recorded on our market. Indian corn is 92,000 qrs. over last year, while barley and peas are less by about 31,000 qrs. each. There is little difference to note in the figures relating to beans, oats, and oatmeal. As to the sources of this year's wheat supply, we find that while America and Canada still provide the greater proportion—viz.: 78 per cent.—yet this is about 14 per cent. less than they contributed in 1884; so that the balance drawn from other countries—Russia, India, Hungary, &c.—has risen to 22 per cent., as against 8 per cent. last year. Of flour, America and Canada have again furnished over 82 per cent.; Hungary, however, has given us this year about 60,000 sacks additional, raising her proportion to fully 11 per cent.—England, Germany, and France providing the balance.

The *Exports* exceed those of the previous year—in flour by 229,000 sacks, in Indian corn by 83,000 qrs.; and although wheat and barley fall somewhat under last year, yet this table indicates that from our market, as a distributing centre, an extending area is drawing supplies.

*Stocks*.—As was to be expected from the increased imports, the stock of wheat has been augmented some 65,000 qrs., and flour 121,000 sacks, barley 14,500 qrs., oats nearly 9,000 qrs., oatmeal 5,000 loads, peas 8,500 qrs., Indian corn 1,700 qrs., while beans show a diminution of nearly 10,000 qrs.

Looking at the average *Weekly Consumption and Export* of wheat and flour, we ascertain from the returns that, as regards both of these articles, there is an increase, wheat standing at 10,474 qrs., and flour at 31,682 sacks per 280 lbs., as against 9,725 qrs. and 31,255 sacks respectively for 1884. This increase in wheat is to be accounted for by the greater activity known to have prevailed among our home millers.

In reviewing the past year, we may predict that it will be remembered by the trade as a time of disappointment and perplexity. The improvement in prices with which the year opened was not long maintained, while a sharp advance in April, during the acute phase of the Afghan difficulty, was immediately followed by a corresponding decline. The effect, too, which might have been expected to result from the undoubted shortage of the American winter wheat crop, was completely neutralized by the huge proportions of the "visible supply" all through the year. We may venture to hope that the coming year will bring with it early indications of increasing activity, and a more encouraging future alike to shipper and importer.

GLASGOW, Scotland, December 31, 1885.

**OUTLINE OF MODERN MILLING PROCESSES, &c.**

BY W. JAGO, F. C. S.

Bakers generally are fairly familiar with the old-fashioned method of grinding wheat on stones, but in many cases have but little knowledge of the new methods of gradual reduction. Enquiries addressed to me, from time to time, lead me to believe that a brief description of modern milling will be of interest to many readers.

In stone mills of more recent date the meal, coming from the stones, was dressed through a long reel some 20 to 30 feet in length and clothed with silk. The part of the reel nearer to the stones is clothed with a finer silk than the other end; through this finer silk the flour passed, and constituted the stone-millers' household flour. Through the part of the reel clothed with the coarser silk another product passed, known as "sharps"; over the tail of the reel passed out the bran. Until comparatively recently these sharps were considered to contain no flour worth taking out, and were sold by the miller as food for pigs. A discovery which revolutionized milling was that these sharps contained a quantity of valuable flour and only required to be purified in order to yield flour of a very high quality. The millers' purifiers are simply machines for dressing these sharps, or as they are now frequently termed "middlings." These purifiers are of very simple construction; viewed from the outside they look like a large wooden box; they contain within a set of sieves placed slightly obliquely. These sieves are kept shaking by an eccentric or crank arrangement, and the sharps fed on to them at the head. By means of a fan a current of air is drawn up through the sieves; this removes all light fluffy matter from the sharps. The heavier portions pass through the sieves and constitute the purified middlings, while the waste sharps pass over the tail of the purifier. These purified middlings were really a coarse flour and were then simply ground on stones into flour of the proper state of fineness. This flour, after re-dressing, was found to be far whiter than that which was obtained from the silk reel, and was the patent flour of the stone miller. These purified middlings were often reduced to flour on rolls, and so such millers frequently assured their customers that their flour was roller made. In the old days of stone-milling, when the sharps were sold as pig food, the

man who could succeed in making the fewest of them was considered the best miller. But with the invention of the purifier, milling underwent a revolution, and now the miller's aim is to make as much sharps and as little flour as possible during his first grinding or reduction of the wheat. For this gradual reduction, rolls are found to answer far better than stones; the grain passes through a series of rolls, set at gradually diminishing distances, and so is step by step broken up into fragments (sharps), a small quantity of flour, and tailings which ultimately become pure bran. The middlings are purified and in their turn crushed into flour between other sets of rolls. Straight-grade flour is the whole of the flour that is produced mixed together. Patent flour is that of some of the purest and whitest middlings taken out separately; the remainder going to form a bakers' flour. It is evident that in proportion as a large quantity of patent flour is removed the bakers' flour must of necessity suffer. The patent flour contains more starch and less gluten than the bakers', hence it is weaker, but is also of better color; of course, there is a good deal of difference between the patents and the households of some millers compared with those of others. Some millers simply make two grades of flour only slightly different from each other; others make a patent of very high class; the bakers' flour must necessarily then be correspondingly low. Such is a very brief account of principles of modern milling which it is hoped may be of interest to some readers.

It will be noticed that the above description applies to different grades of flour obtained from one and the same wheat mixture. At times a low grade flour is obtained by working on a lower grade wheat. It is somewhat difficult to advise a would-be purchaser of cheap flour in other words than Punch's laconic advice to those about to marry, "DON'T!" But if low priced flour must be bought, I think it on the whole safer to take a household flour produced from a high class wheat mixture with a certain proportion of patent removed, rather than a straight run from cheap and inferior wheats. Working on high class wheats none of the flour produced is bad, but with cheap wheats, which often means dirty, unsound, and inferior wheats, none of the product can possibly reach a high standard of excellence; too often the flour is not only bad in color and strength but also is unsound.—*British and Foreign Confectioner.*

**TO MEASURE BELTING IN THE ROLL.**—A simple method, which is very closely correct, is as follows: The sum of the diameters of the roll and the eye in inches, multiplied by the number of turns made by the belt, and this product multiplied by the decimal .1309 will be the length of the belt in feet.

**THREE LITTLE WICKS.**—There are three little wicks to the lamp of man's life—brain, blood and breath. Press the brain a little, its light goes out, followed by both the others. Stop the heart a minute and out go all three of the wicks. Choke the air out of the lungs and presently the fluid ceases to supply the other centers of flame, and all is soon stagnation, cold and darkness.



**NOW READY FOR DELIVERY!**

**CAWKER'S**

**American Flour Mill and Mill Furnishers' Directory**

— FOR 1886, —

Is NOW READY FOR DELIVERY. In compiling this book it has been our aim to give the correct address of all firms or persons owning flouring mills in the United States and Dominion of Canada; to state wherever we have succeeded in obtaining reliable information, whether steam or water power is used; to give the capacity of mills in barrels of flour per day of 24 hours; to state whether millstones or rollers or both are used; to state whether cornmeal, buckwheat flour, rye flour or oat meal are made as a specialty, and finally to indicate by a sign whether the party opposite whose name it is placed is rated to be worth \$10,000 or more. We have also added a list of LEADING MILLWRIGHTS in almost every state and territory, and a list of the PRINCIPAL FLOUR BROKERS, FLOUR EXPORTERS AND IMPORTERS in various parts of the United States, Canada and Europe. MILLERS will find this a very valuable feature, worth many times the cost of the book to them. The SPECIAL points of information in this Directory are in most cases obtained from DIRECT CORRESPONDENCE. The Directory is published in pocket-book form, size of page about 4½ inches by 7¼, those for pocket use by commercial travelers being printed on French folio paper, thin, light and strong, and those for office use on elegant book paper. All copies are strongly and handsomely bound. In ordering, specify which kind you desire. PRICE, single copy, \$10.00; three copies, \$25.00. No deviation can or will be made from these prices.

Flour Dealers, Millers, Mill-furnishers, Insurance Companies, Transportation Companies, etc., and their traveling agents will find this a most valuable book to have for constant reference. We will send this Directory by mail, post paid, to any address in the World on receipt of price. Order now while the work is new, and secure immediate benefit therefrom. Address all communications, and make all Checks, P. O. Orders, etc., payable to

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## TEACHING THE HAND.

"What shall our children do when they leave school?"

This is a question which has long been pressing upon parents for an answer; it is a question which the grown childrer have had to solve for themselves later; and it has now forced itself upon those who have accepted the responsibility of directing the youth of our land.

For years this problem in the prevailing system of education has forced itself on Mr. S. M. Inman. He soon came to the conclusion that the fault was not in the studies pursued in our institutions of learning, considered in themselves, but in the failure to combine practical with literary education. Add the study in a practical way, of the mechanic arts to the curriculum, and we should have on graduation day, not only a class of finished scholars stepping into the arena of life, but a class of young men who have already developed the talent for some of the various branches of wood-work, of iron-work, or of the other pursuits out of which a living can be made.

These observations, by the *Atlanta Constitution*, were made at the instance of an inspector of the Atlanta, Ga., University, by a committee appointed to investigate the matter in relation to introducing manual training in the public schools of that city.

C. C. Tucker, who has charge of the institute, stated that the attendance upon the industrial class does not interfere with the other college studies, but merely takes its place as one of them. The scholars are divided into three classes, one of which has twenty-four members, the second fifteen, and the third thirty-two, being graded according to proficiency just like the literary classes. The class exercise lasts one hour and a half, being four hours and a half in all. This arrangement serves the double purpose of filling in the day's exercises in the industrial room, and yet of keeping each scholar only one and a half hours from his other studies.

"Does this work attract attention from the literary studies?" asked Commissioner Smith.

"It rather serves as an incentive," replied Prof. Chase. "It is a relaxation from mental studies, and sends the scholars back to their classes brightened up and ready to do such vigorous thinking that the time after all is not lost, but serves as a recess."

By this time the party had entered the building, where Mr. Tucker stood ready to receive it.

"We only teach the elementary principles of wood-work," said Mr. Tucker, under the rigid cross-examination of Commissioner Smith. "You see there are certain elementary principles which underlie all wood-work which, when mastered, enables the scholar to choose for himself the trade he wishes to learn. Here he follows the bent of his mind, and can make no mistake in after life as to his occupation. In iron-work, also, there are elementary principles, which underlie every line growing out of the use of metal. The tools, also, are the same, in fact, the variations being merely for special adaptation to special lines of work. This is true of all other lines of industry. Thus you will see that the pupil, serving his regular class time here by the time his three years' course is finished, has not only completed his literary education, but has developed at the same

time his special aptitude for some line of trade, and is thus saved the apprenticeship he would otherwise have to serve. At present we are only engaged in wood-work, in which we have been so successful that the iron department will be added shortly.

"Do industrial schools gain anything from being located near manufactories?" asked Commissioner Smith.

"It adds to their value tenfold," answered Mr. Tucker. "Here we teach the science of the work, with enough of the practical manipulation to make the scholars familiar with the use and care of tools. With large factories near around, the class could be taken out twice or thrice a month, and by inspection of the actual work, greatly supplement what they have learned here. The factories around Atlanta would be of such value to scholars that it could not be computed by a money value. It is a good thing to be near the shops."

"Let me give you another point," said Professor Chase, as the party walked back to the main building. "Last summer, during vacation, many of the university scholars, instead of teaching school or looking to the learned professions, went to work at the different trades, for which they had developed a talent in our industrial school, and came back with more money than the school teachers. You see it turns their minds to work."

"This is a great success," said Mr. Roffe, as he wiped his hands with his apron. "We familiarize all these boys with the use of tools, the manipulation of wood and iron, and the general principles which underlie the mechanic arts."

"We have now thirty boys, and have applications which we cannot accept. Most of these boys are shopboys, who come up here to learn the principles of the trades which they are learning. It is our plan to familiarize our students with wood and iron, so that they will readily find out the trade for which they have a talent. Another point about the school is that the bright side of the trade is presented."

"When a boy enters a machine shop, he is at first put to cleaning off grease, and such other work as disgusts him with the whole business. Here we put him at the lathe or bench at once. He goes to work with enthusiasm, has a pride in his surroundings, and will develop into a good and self-respecting workman. Thus we help to form his character as well as to instruct him."

A more willing and intelligent-looking set of workers was never seen. Such scenes, repeated in every town of Georgia, would add brawn to the arm, wealth to the purse and cultivation to the brain.—*American Machinist*, N. Y., Feb. 15.

S. S. STOUT.

H. G. UNDERWOOD.

STOUT &amp; UNDERWOOD,

(Formerly Examiners U. S. Patent Office.)

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PATENTS

66 Wisconsin Street,

MILWAUKEE, WIS.

TELEPHONE NO. 502.

E. T. BARNUM, Manufacturer of Wire and Iron Work, at Detroit, Mich., writes to the trade, as follows: "About twenty years ago, in 1866, the undersigned started, in a small way, the manufacture of wire and iron work, giving employment to less than ten men. At that time the wire business was in its infancy, and the practical uses of wire work were very imperfectly developed. In 1879, the business had increased so that buildings four stories high and one hundred feet square were secured, giving employment to over four hundred men. In 1882, a joint stock company was organized (of which I was president and general manager), and, in order to meet the wants of the trade, buildings were erected and occupied in 1883, giving employment to over seven hundred men. The panic in the Spring of 1884 found the company with a large stock of manufactured goods ready for the Spring trade, and being somewhat extended for the times, together with internal dissensions among a few of the stockholders, finally resulted in the E. T. Barnum Wire and Iron Works going into the hands of a receiver, showing assets of \$115,000 over liabilities. Recently, December 3d, 1885, a fire occurred, burning the works, which were the most extensive and complete in all its appointments, in the world. This fire has destroyed the work of years, and at a time when re-organization was being perfected. I would respectfully announce that notwithstanding these misfortunes, I have made arrangements to promptly fill orders for wire and iron work that may be sent me, and that I propose, as soon as possible to get the business in running order again. Letters intended for me, but addressed E. T. Barnum Wire and Iron Works, frequently get into other hands. For the present please leave off the Wire and Iron Works, and address your letters. E. T. BARNUM, Detroit, Mich.

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This Railroad is now the acknowledged Fishing and Hunting Line of Wisconsin: Milwaukee to Sheboygan, Sheboygan Falls and Manitowoc.

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Through the most wonderful Mineral Region of the United States; The Gogebic, Montreal and Penokee Iron Ranges. A new and rich field for the Prospector, Speculator and Capitalist. Picturesque scenery and interesting sights for the Tourist. The line terminates at ASHLAND, Lake Superior, well known as a desirable Summer Resort.

The Guide Book for 1886, a book of fifty-six pages, contains full information, Maps and Engravings of the country traversed by the Line, and will be sent on application to the General Passenger Agent.

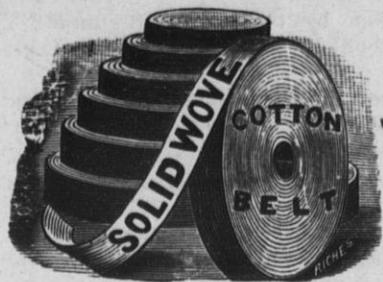
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## PLEASANT PARAGRAPHS.

A YANKEE clinched his argument with an Englishman as to the relative size of the Thames and Mississippi by saying: "Why, look here, mister, there ain't enough water in the whole of the Thames to make a gargle for the mouth of the Mississippi River."

A MAN that has plenty of corn in his barn is always of an even disposition, but the one who has it on his feet is invariably cross-grained.

TOMMY'S REASONS.—Fond papa (proudly displaying the accomplishments of his six-year-old boy to the visiting clergyman): "Now, Tommy, tell the gentleman what you would like to be, when you grow up to be a great, big man."

Tommy (pointing at the distinguished visitor): "I'd like to be a minister like him."

Visiting clergyman (greatly gratified): "Ah, my young friend, you would like to be a clergyman like me, would you? And, now, tell me why you would like to be clergyman like me."

Tommy (promptly): "'Cause I heard pa say yesterday that you had the softest job of any man he knew. Nothing to do but talk an hour or so, every Sunday, live free on the members of the congregation, and be worshipped like a little tin god on wheels by all the women in the parish."

QUITE A NOVELTY—IN HIS WAY.—The wife of a New York cashier remarked at the supper table:—

"Have you read the late novel by Wilkie Collins?"

"Haven't read it."

"Well, there is a cashier of a bank in it just like you. He is honest and faithful, and does not run off with his employer's money."

"That's the way it is with those novelists. They are so unnatural and improbable in their descriptions of men."

MRS. MULLIGAN—And so you have no mother now?

Motherless Boy—No, mum.

Mrs. Mulligan—Well, me boy, whenever you feel the want of a good licking come to me and I'll be a mother to you.

THREE MYSTERIOUS BASS.—"Another funny thing happened to me the other day, this time up a Lackawaxen," said John Gilbert, the traveling groceryman. "I was waiting there for a train, and, as by no way that I could figure it, could it get there under three hours, I walked over to gaze on the Delaware. I strolled up and down the river bank a while, and then noticed a canal that crossed the river by a big viaduct. I walked up the canal bank and watched the boats go by. They were loaded with coal. Thirsting for information, I finally said to a boy who came along on a mule, wearing his father's trousers rolled up to his knees:

"Where is this coal going to, my little man?"

"To market, pop?" he replied.

"Then I watched more boats, and, not being able to still my longing for knowledge, by and by I said to a man who was working the tiller of one of the boats:

"How many tons do you carry?"

"As many, begorra, as any other boat that roons this detch!"

"Surfeited with information, I returned to the river. I walked up and down, and pres-

ently I saw a pine peg, which was driven in the sand near the water. There was a string to it.

"Now I wonder what that is?" I said to myself.

"Not being able to answer the question, I went and pulled the peg out of the sand. The string came out of the water pretty hard, and I found that three big black bass had got fast on it in some way through the gills. There was no mistake about it. There was the peg, there was the string, and there were the bass, alive and kicking.

"Well," I says, "that's certainly the funniest thing I ever did see."

"I had heard of eels traveling overland from one pond to another; perch that climb trees were old acquaintances of mine; catfish that swear at you like troopers when they take the hook, I had seen and heard; but bass that could come out of the water, string themselves like these, shove the peg in the sand, and get back in the water again, was more than I could explain.

"When I go back home and tell this," I said to myself, "people won't believe me, and then I'll feel bad."

"So I looked around to see if there was any one near that could enlighten me on this curious subject. I saw no one but a pious-looking old gentleman, who was fishing along the river quite a way below. As he was so intent on his sport that he seemed oblivious to all around him, I didn't like to disturb him in his gentle recreation, and so walked back to the hotel and told the landlord that he might cook the bass for my supper. He did, and they were good. After supper I went down to get the train. There was a pious-looking, white-haired old gentleman there, with a fish pole on his shoulder. He seemed to be very mad. As I got on the train, I heard him say:

"Yes, sir; by the jumping jimminy! Three old sockers; and I'll give six dollars to know what became of 'em!"

"That man ain't as pious as he looks," I said, as the train moved out.

"And then the thing struck me all of a sudden, and I said I'd bet anything that the white-haired old man had found some bass that had strung themselves just as mine had, and that he'd gone and lost 'em some way or other.

"I say, don't it beat everything how these funny things will keep happening to me?"—*New York Sun.*

"JULIA, I don't see why you are going to marry Harry Bascomb. He hasn't any money, and it is not likely that he'll ever have any."

"Fanny, I'd scorn to marry for money. Harry is handsome and a fine athlete. He would bring to me a sense of protection."

"Oh, that's all right, Julia. Every one to her mind. You may marry for protection; I intend to marry for revenue."

SNOOPS was a young man who had been married a year, and he was telling a friend how diffident he was when single. "Were you much embarrassed when you popped the question?" asked the friend.

"Embarrassed! Well, I should say I was. I owed \$1,500 for board and clothes and one thing or other, and didn't have a cent to pay it with.

"UNCLE James," said a young lady who was spending a few days in the country, "is

that chicken by the gate a Brahmin?"

"No," replied uncle James, "he's a Leg-horn."

"Why, certainly, to be sure" said the young lady. "How stupid of me! I can see the horns on his legs."

"Is the old man any better?" asked a boot-black of a newsboy yesterday.

"Better!" echoed Jim, "I should say he was; you ought to have seen him sling stove wood at mother this morning."

HE KNEW.—"What do we call those animals that live partly on land and partly in the water?" asked a New York teacher of the new boy.

"Bathers," replied the little boy, who had been to Coney Island on several occasions.

"You are getting to be bright. Perhaps you can give me the name of some of the migratory birds."

"Bank cashiers."—*Texas Siftings.*

"YES," thundered the preacher from the pulpit, "the hairs of our head are all numbered."

"I wonder where the back numbers go to?" said the bald-headed man in the front pew, rubbing his shining scalp.

"Do as I do; get a reprint," said the man behind him, and he took off his wig and fanned the flies away with it.—*San Francisco (Cal.) Chronicle.*

A FATHER'S MISTAKE.—Young Mr. Featherly, a guest, declined cake, and Bobby's eyes grew big with astonishment. "Don't you want any cake?" he asked.

"No Bobby," replied Featherly, "I seldom eat it."

"How's that, pa?" inquired Bobby, turning to the old gentleman; "you said at the dinner table Mr. Featherly always takes the cake."—*New York Sun.*

A LITTLE boy was trudging along the street with a slate under his arm, when an old lady stopped him and said kindly: "That is right, my little boy. I love to see little boys who are anxious to learn and are fond of going to school. Here's a nickel for you."

"Thank ye, mum," said the little boy.

"Been buying a new slate, I see?"

"Yes, mum; it's for me fader."

"For your father?"

"Yes, mum; he keeps a saloon on Second avener."—*New York Sun.*

COUNTRY MERCHANT (to Chicago drummer)—"A St. Louis firm offers me eighteen months' time."

Chicago drummer—"Only eighteen months! They're trying to swindle you."

Merchant—"What time can your house give?"

Chicago drummer—"Four years are our usual terms; but I'll tell you what I'll do. You give me an order, and if the account is not paid in 30 days I'll take 10 per cent. off; if not paid in 60 days, 20 per cent. off; and if not paid in ninety days, 30 per cent. off."

Merchant—"And if not paid in 4 months?"

Chicago drummer—"Then I'll wipe the account off the books altogether, and send you a framed photograph of our monster establishment. No St. Louis firm can do business in this territory while the representative of Alexander Rockbottom & Co. is abroad."—*New York Sun.*

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[OVER.]

**NINE ROOMS AND TWENTY-FOUR SOLDIERS.**

An exchange tells this story of a French sergeant to whom was intrusted the oversight of twenty-four soldiers, and who, doubtless, had a chance to find out for himself the truth of Longfellow's statement that "things are not what they seem."

In the building which the soldiers were to occupy there were nine rooms, so he arranged his men in the following manner, taking care

3	3	3
3	3	3
3	3	3

to keep the center room to himself, so that he could thus manage a sort of war-like "puss in the corner." By this disposition of the men the brave sergeant had nine stationed on each face of the building, and so flattered himself that it was well guarded. By and by the soldiers grew tired, and not seeing any signs of danger, they knocked at the door of the center room and asked permission to alter the arrangement, so that they might have a little amusement.

The Sergeant gave consent on condition that there should always be nine men on each side of the house, and then retired to rest.

4	1	4
1		1

About an hour afterward he went his rounds and found his men arranged thus: He counted carefully. There were nine on each side, so he went peacefully to bed again, quite satisfied with the conduct of his men, and not imagining that four soldiers had gone for a walk in the town, as you may see if you count the number in the plan adjoining.

Not long afterward the truants returned, bringing with them four friends. There were now twenty-eight men in the building.

2	5	2
5		5
2	5	2

For the second time the Sergeant went his rounds and found the rooms occupied as follows: "Nine on each side," he thought, "certainly I am a lucky fellow to have such a trustworthy set of men under me." And yet there were four more soldiers than there were at first, and eight more than when he last went round. Truly, things are not what they seem.

Soon after the Sergeant had retired four more fresh soldiers came in, so the number of the detachment was increased to thirty-two. Once more the vigilant Sergeant went round. Once more he found nine on each side, and went back to his room without suspecting mischief.

1	7	1
7		7

Who should he be doubtful, when there were always nine on each side? By and by four more men came in, and the number in the building was raised to thirty-six. The men were at first afraid that they would be found out, but after a little while they managed to arrange themselves, so that the magic number should still be found on each side; neither more nor less.

And so for the fourth time the Sergeant counted and was satisfied.

0	9	0
9		9
0	9	0

Made bold by their success in puzzling their leader, the men agreed that half should leave the building, only eighteen remaining behind. While they were gone the Sergeant came round for the last time, and found the arrangement as follows:

What more can a man wish? There were nine on each side; and yet there were six men less than at first, and eighteen less than when he last went round.

5	0	4
0		0
4	0	5

It is easy to explain how the Sergeant was deceived. The corner rooms are counted on two sides of the house at once. The more there are in these rooms, the fewer there are in the whole building; and the fewer there are in the corner rooms, the more there are in the house.

THE longest spans of overhead telegraph wire in the world have been recently put up by the French in Cochin China. They cross the river Mekong, posts 160 feet high having been placed on each side of the river at a spot where the width is 2,560, and from these silicious bronze wires—one .04 inch and the other .055 inch in diameter—are extended across the stream.

THE Panama Railway Company has been laying many miles of extra track of late for switches and branch lines, and contemplates the construction of an additional line across the isthmus. Three passenger trains are now running daily, and an increased number of freight trains. A large amount of new rolling stock has lately been added. One cause of the increase in traffic is the transportation of men and materials for the Panama Canal Company.

DANIELS' "Lehrbuch der Geographie" for the present year, gives the population of the world at 1,435,000,000, speaking 3,064 languages and dialects. There are, it says, 1,100 forms of religious belief. Christendom includes 432,000,000, divided between 208,000,000 Roman Catholics, 123,000,000 Protestants, 83,000,000 Greeks or Orthodox, and 8,000,000 in one hundred various sects. The Jews number 8,000,000, the Mohammedans 120,000,000, and the followers of Brahma 138,000,000. The Pagans proper are estimated at 234,000,000, and the Buddhists at 503,000,000.

A LAUGHABLE MISTAKE.—You remember Louise Eldridge's adventure with a mustard-poultice, don't you? It's a good many years ago, when Louise was young and charming. Capt. Eldridge and she were stopping at a country hotel, when in the middle of the night the Captain was taken with cramps, and Louise slipped on her dressing-gown and went down to the porter, who took her to the kitchen, where she manufactured a rousing mustard-poultice. She ran rapidly up stairs so that the blamed thing should not cool. She flew along the passage till she saw a dim light over the transom. She flitted into the room, she rushed up to the bed, she pulled down the spreads, she yanked up a night-gown, and she clapped a red-hot mustard-plaster on the pit of a stomach, saying: "That will relieve you, my dear!" And a great big strange man sat up and cursed like a pilot off Sandy Hook. Poor Louise! she had cramps herself before she gained her own room and fainted on the hearth-rug, while the man with the mustard-poultice went raging around to find his unknown assailant.—N. Y. Mirror.

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## WHEAT PRODUCT OF HUNGARY.

CONSUL STERNE.

In the following report on the wheat crop of Hungary of the past year, 1885, the district of Croatia-Slavonia is not included. That district produces but little grain, being heavily timbered for the most part, and so will not materially alter the figures presented.

One hundred and fourteen millions of bushels of wheat were raised on 7,940,000 acres, the average per acre being about 14.4 bushels. In 1884 the quantity raised was 105,000,000 bushels, with an average yield of 13.2 bushels to the acre, and in 1883, 90,000,000 bushels, with an average of twelve bushels to the acre. This shows an excess for the present year of 11,000,000 bushels above the average of the three years, and was therefore satisfactory as to quantity, though it does not equal the result for 1882, which was, however, one of the best years known in Hungary.

In quality the result for 1885 is even more satisfactory. The wheat is very superior in weight and color, and much of it possesses the character of being what is termed "Stahl-Weizen" (steel wheat), because of its hardness, a quality for which Hungarian wheat is celebrated in good years. In respect to general quality the present crop is specially superior to that of the preceding year, which was so deficient in this point as hardly to deserve the name of "Hungarian wheat," and brought the lowest price known for years, much of it yet being reported to be in the hands of the producers.

Notwithstanding these comparatively good results of 1885, the producers are anything but happy, for in spite of its superior quality the wheat of 1885 sells at but little more than the very inferior article of 1884, and there is thus far very little demand for it. While it is true that the suddenly sprung "Bulgarian difficulty" has caused a slight advance and more life in the wheat market, the normal prices for the present can be quoted at 80 cents a bushel for fall, and 88 cents for spring delivery. To alleviate to some extent the present unfavorable condition, the railways of the state have made some reductions in the rates of freight, but while such a remedy might cause some relief where there is only a question of competition with the other large grain-producing countries, the same will not cure the difficulty of to-day. While formerly there was only the bugbear of competition, by America first of all, it has now come in the shape of the wall of protection which the former customers of Hungary are erecting, the lately established additional duty on grain by Germany being the last brick in this wall.

The gradually growing unfavorable position of Hungary as a purely agricultural state is no doubt the cause of its present great effort to develop manufacturing and other industries. Thus it is hoped to overcome the danger by creating a larger home consumption which a manufacturing population is supposed to supply. More attention is to be paid to the raising of cattle and the products of the dairy; and instead of placing the simple grain upon the market, as much of it as possible is to be converted into other forms, such as high wines, starch, &c., thus creating more profitable articles of export, and at the same time obviating the necessity

of importing such articles. Even Hungary has an attack of the "protective fever." Sure it is that farming for grain only is not profitable at present prices, and much of it is carried on at a positive loss for many of the large estates are in the hands of masters who have made their contracts on a basis of the formerly ruling high prices and on leases running from seven to fourteen years.

I have said this much upon the subject of wheat, because it is the most important product of Hungary, and also because the prices of wheat in Europe, and indirectly in America, are to some extent governed by the exhibit of Hungary.

## A SOFT WHEAT CRAZE.

In every community there is some genius whose mission is to show that the part is greater than the whole, that the lesser involves the greater, and so forth, and he is busy at present in Manitoba endeavoring to persuade the farmers of that Province to extend the cultivation of White Russian or other soft spring wheat at the expense of the Red Fife. The idea is that White Russian will sell for nearly as much as the Red Fife and that it grows fifteen bushels to the acre more than the other. The truth, however, as opposed to the idea is that it won't and doesn't. It may be a few days earlier; but, unless unduly delayed, the Red Fife ripens early enough to escape any frost that would spare White Russian, and in the very unusual event of damage by early frost the Fife wheat frozen is worth as much as the other untouched. The latter, if frozen, is unmarketable. It is also more liable to blight and smut. It will not clean like the other, and is in every way inferior. If farmers wish to damage the interests of the Province, send immigration elsewhere, and generally destroy the enviable reputation they have acquired, they will discard the hard and adopt the soft wheat; if they don't they won't. The experiment has been tried in Minnesota, and it failed. Those who tried it wish they had not and are getting back to former lines as quickly as they can.—*Montreal Herald*.

## AN INFANT LOCOMOTIVE.

John C. Gould, machinist and musician, of No. 69 Whiting street, New Haven, Ct., has constructed a full-fledged locomotive, which is 20 inches long from the cab entrance to the catcher tip, or 33 inches long with the tender. Gold mounted steel bands circle the brass boiler, from which a steam pressure of 100 pounds can be developed. A miniature steam gauge within the cab registered as high as sixty pounds of steam. By other signs the constructor can easily tell when his pet is under a greater pressure. It took about one year to build the locomotive, and estimating the value of the small tools he had to make to model the intricate machinery and the value of the material of which the locomotive is made, the cost of the whole thing was about \$400.

An ordinary five-cent doll would look like a giant in the cab, and a clove would seem like a big piece of timber if placed alongside of the small steel across that which keeps together the various sections of machinery. The height of the cab is only five inches and a half from the floor, and it is 7 inches long on the top. It is 4 inches wide. A baby's thimble would loom up in imagination to the proportions of a kerosene barrel if it was put side by

side with the polished oil cups. These are 3-16ths of an inch wide each and about a quarter of an inch deep. A gallon of oil would not be exhausted by them in a century and a half. The engine has an inch and a quarter stroke, and is propelled by driving wheels that are three and a half inches in diameter and ten and a half inches in circumference.

Other dimensions in this little wonder furnished by the builder were: Connecting rods, 4 1/4 inches from center to center; boiler 11 inches long; heating room in fire-box, 4 inches; cylinder box 1 1/4 inches long; smoke stack, 3 1/2 inches high; side cab windows, 1 1/2 inch high and 1 inch wide; front cab windows, 3/4 of an inch wide; length of sand slide from sand box, 4 inches; coal room in tender, 2 1/2 inches wide and 7 inches long.

The smoke stack, sand box and dome are gold-mounted. To give a thorough description of this fine piece of mechanism would require a great deal of space in a newspaper to do the subject justice. Suffice it to say that no engine on the Consolidated road has more appointments than this, but of course they are all on a very reduced scale. Mr. Gould has been requested by his friends to place the product of his skill on exhibition on some Chapel street window, so that people can see what a remarkable piece of work he has turned out. He has thus far refused to do so. Probably the first place where it will be seen publicly is at the Exhibition of Mechanical Art in New York that will be held shortly. The engine can attain a speed of nine miles an hour.—*New Haven Union*.

DUST and smoke in factories may now be dealt with by electricity. It was recently asserted at the meeting of the British Association in Montreal, in a paper by Professor Lodge, that a dusty atmosphere would be speedily cleared by the passage of electric sparks. A prominent lead-smelter of Wales, reading a report of this meeting, determined to apply the scheme to purifying the atmosphere of his works, where the fumes or volatilized lead were continually escaping from the flues and poisoning the atmosphere. An experimental shaft was made of barrels with windows cut in them, and the electric spark was transmitted. The experiment is claimed to have been a complete success.—*Mechanics*.

AN extraordinary feat in telephoning was recently accomplished between St. Petersburg and Boulogne, a distance of 2,465 miles. Conversation was kept up notwithstanding a rather high induction. The Russian engineers hope to succeed in conversing by telephone over a distance of 4,665 miles.

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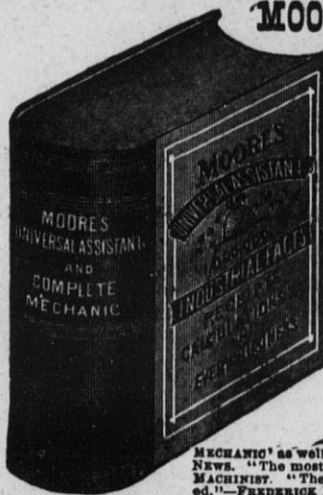
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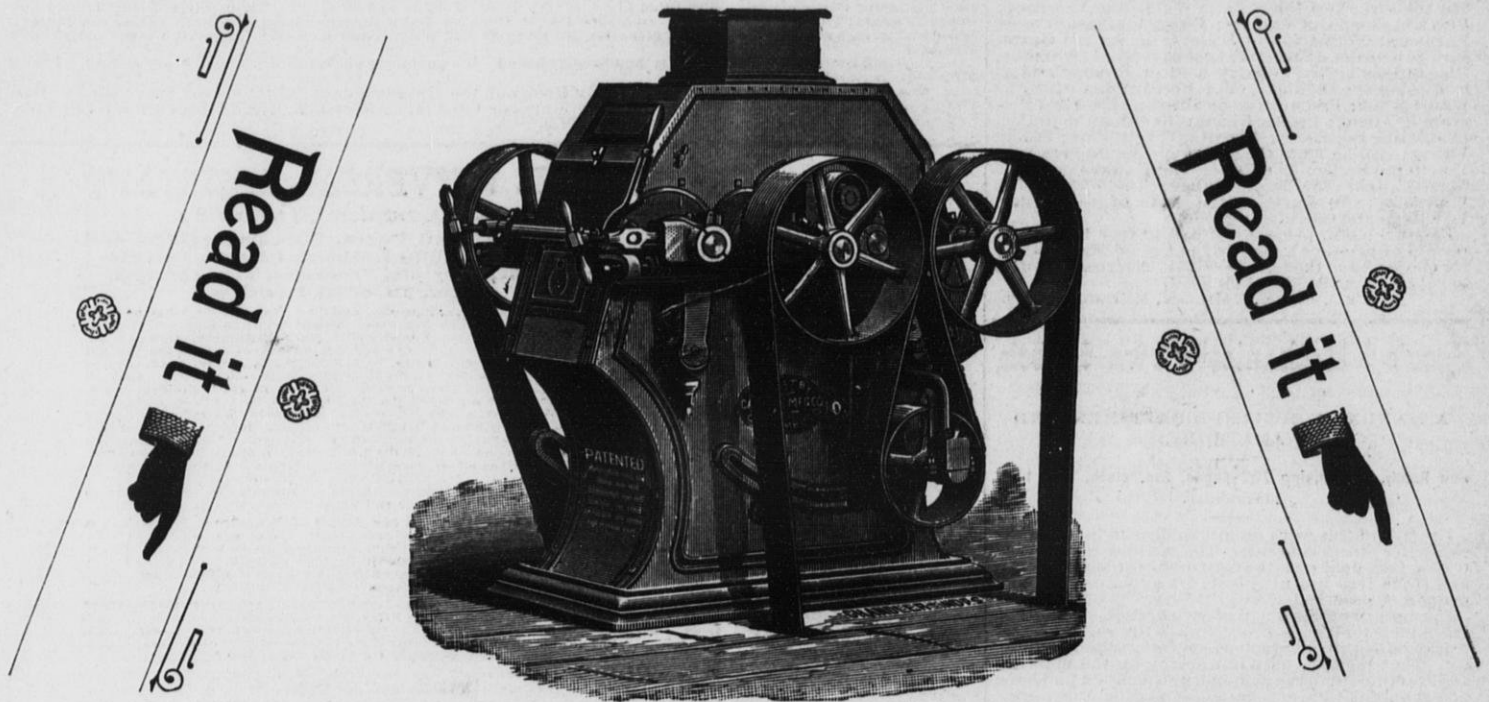
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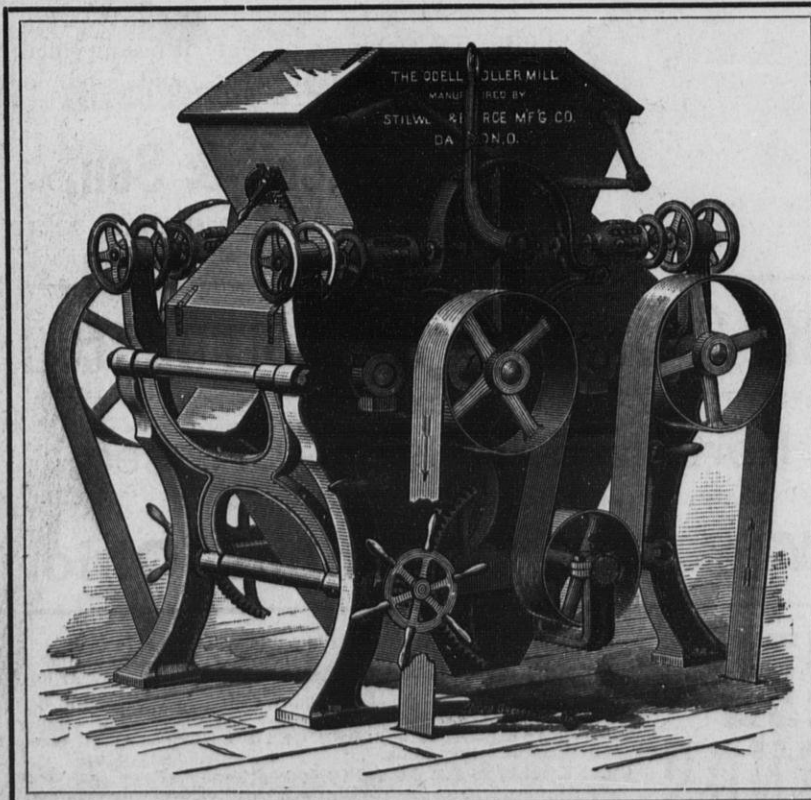
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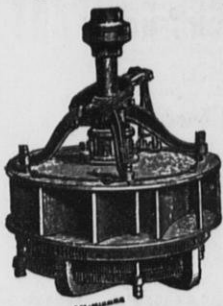
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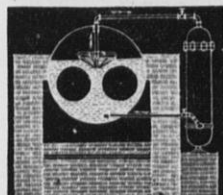
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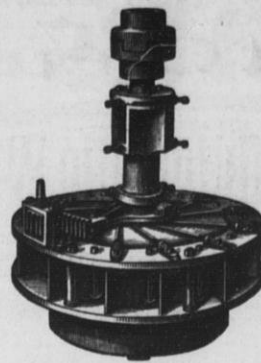
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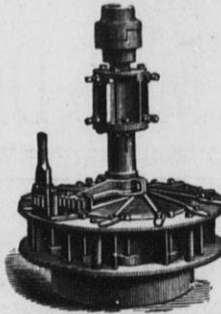
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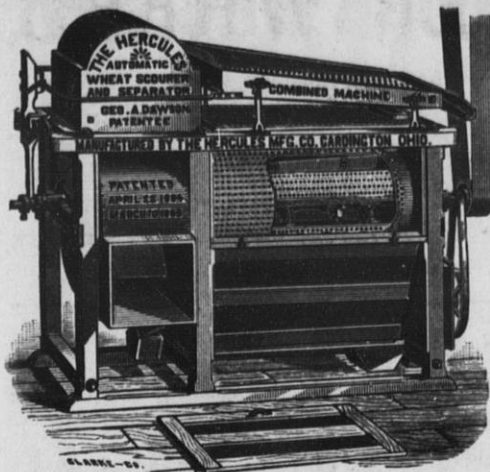
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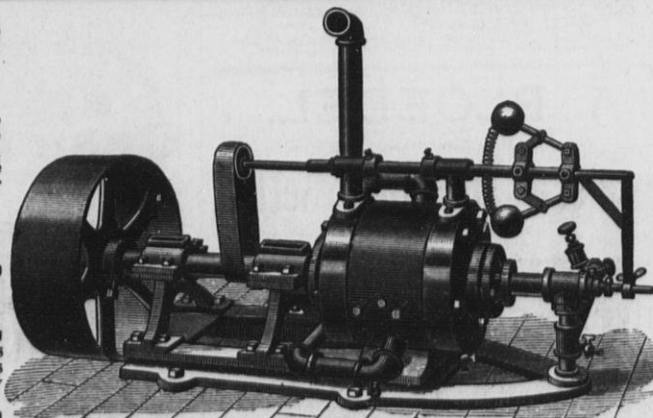
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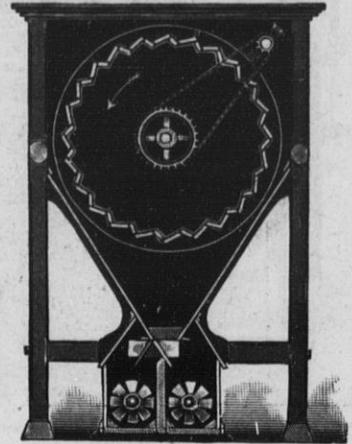
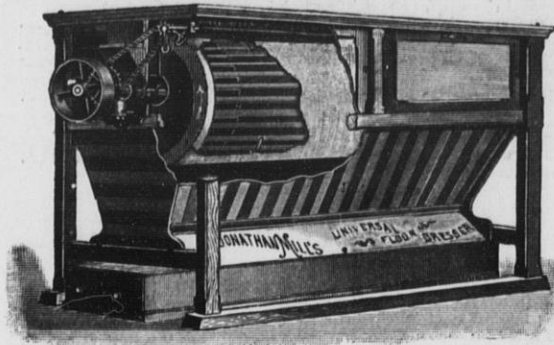
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# The United States Miller



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MILWAUKEE, MARCH, 1886.

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## MILLSTONES.\*

### FACING, HANGING AND RUNNING.

BY BRYAN CORCORAN, OF 31 MARK LANE, LONDON,  
E. C., ENGLAND.

[The following article was read by its author, Mr. Corcoran, before the meeting of the British and Irish Millers' Association, and here appears, as amended by the author.]

GENTLEMEN—Mr. Alderman Hadley honored me with a request to read a paper, which I have now much pleasure in doing. After some consideration I came to the conclusion that the most important study of a miller is the true face and working of a millstone, and I think the subject is of increasing importance. Mill-stones are not displaced from their high position by roller mills.

The millstone can fairly afford to allow the roller mill to assist in some departments, but when the roller mill threatens the very existence of the millstone, it is time to step forward and challenge its arrogant pretensions.

"Demetrius, the silversmith, who made silver shrines for Diana," said to the craftsmen at Ephesus, whom he called together with the workmen of like occupation, "Sirs, ye know that by this craft we have our wealth."

In like manner I come before you as an advocate for the millstone, as a millstone maker of the third generation, my grandfather having started the business nearly 100 years ago. Here, thanks to the establishment of the National Association of British and Irish Millers, we have an impartial tribunal where we can each and all plead our cause, and in our technical papers, *The Miller* and the *Corn Trade Journal*, we can make our voices heard.

Many millstones in use are not suitable for the present new system. There are also a great many millstones hung in such a way that they are incapable of high-class work, and, nevertheless, all these have been doing the work of the country, proving that with superior workmanship, and greater care in details they are capable of doing far superior work. I meet some who do not believe in these niceties, others who do not understand them, and many who do not realize their importance, so I have endeavored to treat each item so that any ordinary workman can understand it, risking repetition of some facts

\*NOTE.—The editor of the UNITED STATES MILLER desires to say that this essay was published in this paper in February, 1881, and attracted great attention from all parts of the country, so much indeed that the entire edition was soon completely exhausted. Since then we have been requested by nearly 600 parties to republish the article. During the past few months many millers who had read the article years ago, but had in the main forgotten it, have requested us to republish it. The millstone building establishment, of which Mr. Corcoran is the head, has been established over a century, and they have probably built and sold more millstones than any other house in the world. We think the above statement is a sufficient explanation of our reason for allowing the same article to appear in our columns twice.

that are not new; and I have rather tried to include all that bears on the subject in a consecutive form, and so avoid the necessity of repeated explanation every time the subject is brought forward. I feel that if I can impart to you my own conviction I shall have raised the ground of argument from, *Are mill-stones better than rollers? to What is the best dress. etc., for millstones, and best conditions, etc., for rollers, to accomplish any result desired by the advanced miller?* In the natural course of events, some other way than that of running the upper stone may come into use. Some persons advise running the lower stone. The want of practical belief in the necessity of carrying out the details has in many cases allowed the roller millers to gain an advantage.

I have avoided bringing forward any other subject in order to give this one more importance, and I hope an opportunity will be given me to read another paper on the large subject of Millstones at some future time.

#### FACING.

The face of a millstone should be a "plane" or level surface. (I leave the "dress" and "swallow" for some other opportunity.) Mr. Babbage, writing some fifty years ago, says: "If two surfaces are worked against each other, whatever may have been their figure at the commencement, there exists a tendency in them both to become portions of spheres. Either of them may become convex and the other concave, with various degrees of curvature. A plane surface is the line of separation between convexity and concavity, and is most difficult to hit; it is easier to make a good circle than a straight line."

The plane may be obtained with machinery, as in turning and planing. In obtaining it



Fig. 1.



Fig. 1A.

by hand with ordinary "stone-staff," however much or little of the surface has to be taken off, I think it is easiest to mark out beds or spaces across the face, just wide enough to allow free working of the stone-staff. Some men say they can do without, but I have never known them to do so, or certainly not without *wasting their labor*.

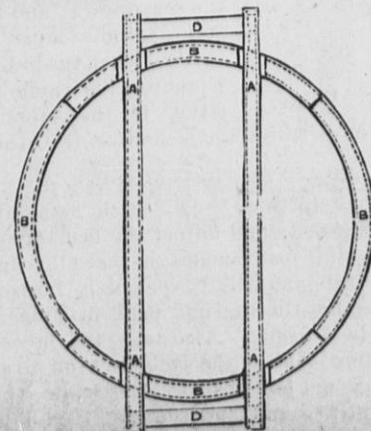
The number of beds I prefer for many good reasons is three, fig. 1, supplemented by three

others as in fig. 1A. These beds indicate *definitely* where the plane or face will be and are themselves part of the finished face. Each bed must be made true from end to end before beginning the next, and each bed must "staff" on all beds that it crosses. My workmen have to follow this plan, and they all prefer it to any other when they once understand it.

In turning and planing, accuracy depends on the machine. Machines standing on the face of the millstone naturally follow the inaccuracies of the surface on which they rest and give bad results. The idea of the lathe may be obtained for hand work by using a trammel to staff a ring or circular bed on the face of the stone, and the idea of a planing machine is obtained with the straight beds, the intervening surface in both cases being levelled with the aid of the staff and mill-bill (mill-pick) for I do not intend to consider the relative advantage of the "diamond," "corundum," or other means.

A circular staff indicates at once the high place, as it cannot mark the low parts, and is certainly almost indispensable to a miller who wishes to keep his stones in floor or out of winding. It can only take a bearing on the part that wants taking down, so that it requires less skillful handling than a straight staff. A miller seeing it used for the first time would be surprised to find how few of the stones in the mill are true enough to stand the test. The late Mr. Potto Brown, of whom I cannot speak too much, took great pains with his millstones, and I find on June 23, 1868, a patent in the name of Potto and Bateman Brown for a circular stone staff, but it is now public property, as the patent was not carried through.

[The following is a plan of the staff shown at the meeting:]



Potto & Bateman Brown's Patent Millstone Staff.

A, A, A, A.—Two parallel straight edges built of mahogany.

B, B, B, B.—Circular staff, built in segments and layers of mahogany.

D, D.—Cross bar handles, by which the staff may be held when in use.

I read the following from the specification: "In place of forming the staff as a single straight edge, so that it gauges the stone only in one straight line across it, we so form the staff as to gauge the stone simultaneously in several lines at the same time, and so arranged that should the stone be low on any side the staff may be sure to take a bearing on the high side only, and be prevented from falling into the hollows to color them. We prefer to construct the staff of two parallel straight edges connected together by a circle somewhat smaller in diameter than the stone. When the instrument is in use, color is applied to the straight edge, or it may be to the whole of its face, and the instrument is applied to the stone with one of its straight edges on either side of the centre or eye. These edges (if they alone be colored, as we prefer) communicate the color to the high parts on which they chance to bear; but should it so happen that the highest parts are not beneath the edges, then the ring sustains them out of contact with the face of the stone. The form of the instrument may be to some extent varied, but it will be observed that whereas the staff heretofore employed is a straight edge, taking its bearing along one side only, our improved staff is in principle an extended skeleton surface, which, however it may be applied, takes its bearing on the high parts of the stone only. This skeleton surface or frame is very portable and convenient in use; it is kept true without difficulty, and is easily coated with color, advantages which a complete surface would not have, and the absence of which renders a complete surface inapplicable."

LEVELLING BEDSTONE AND ADJUSTING SPINDLE.

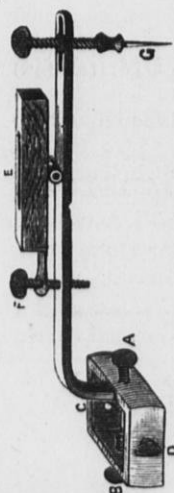


Fig. 2.—Jack-Stick with Spirit Level.

The face of both runner and bedstone being perfect planes, the "stone spindle" has to be set vertically or perfectly upright, and one of the easiest ways to accomplish this is to use a "jackstick with level;" fix it firmly with the screws A B C D on the stone spindle just below the cockhead or "cockade," adjust the level by the set screw F, and the stone spindle must be vertical when the bubble E, retains the same position in the tube in whatever direction the jack-stick is turned.

TO LEVEL THE BEDSTONE.

Without shifting the jack-stick, fix a quill, G, in the end, and adjust the bedstone so that the quill just touches the face all round, and the bedstone will be perfectly horizontal. See that the step and neck fit properly and are held firmly. Also take the precaution before taking the jack-stick off to see that it has not got loose on the spindle, turn it carefully round and see that the bubble

still retains its stationary position, while the quill just touches the face of the bedstone over which it passes.

HANGING AND BALANCING RUNNER.

The "centre bar" should be fixed as centrally as possible (by measuring from the circumference of the stone), or when suspended on the spindle the stone will be heavier on one side than another.

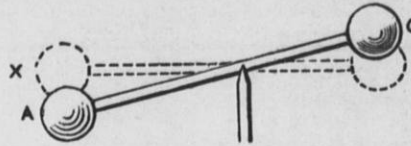


Fig. 3.—Diagram.

The balls, A C, being of same weight, A will hang lower than C.

The stone should be suspended at a point somewhat above its centre of gravity, as it is easily balanced by adding weights to the back of the stone, but if the centre bar is fixed so that the point of suspension is below the centre of gravity, the weights for balancing need to be heavier, and below the face where there is no place for them, and the stone cannot be balanced.

An ordinary scale beam (one, for instance, about 4 ft. long, such as is generally used for weighing sacks of flour) has its knife edge at

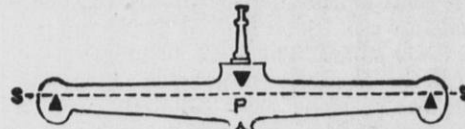


Fig. 4.—Ordinary Scale Beam.

the (pivot) fulcrum, P, about 1-16th of an inch above the line of the "knife edges" S, S (on which the scales hang); if they were on the same level the beam would oscillate too much and make the operation of weighing too slow and tedious for commercial purposes, and if the fulcrum, P, were below the line, S, S, the beam would not oscillate, for either end would remain down without recovering itself.

The stone should oscillate freely on the cockade.

Boxes are provided in the back of the runner for holding lead to adjust the balance of the stone, so that the face is horizontal while it is standing still, but it is also necessary and even more important to obtain as well a

RUNNING BALANCE.

Standing balance is an adjustment for gravitation; running balance is an adjustment for centrifugal action, caused by rotary motion.

Bodies fall by gravitation; bodies fly from the centre of motion by centrifugal



Fig. 5.—Diagram Illustrating the Running Balance—force, and it is only by adjustment of these two antagonistic forces that the face of a millstone can be maintained in a true horizontal position while running.

It is well known that a ball attached to a string when swung round will rise till the string is nearly level. When an ordinary governor revolves, the balls endeavor to fly from the spindle, but the arms being hinged above, the balls must rise to get away, and the greatest distance they can attain is when they are out straight, in a line level with the point of attachment. The greater the speed the nearer they approach this line, and no speed will cause them to rise above it. A millstone that is well and evenly built and balanced for gravitation (standing balance) will run better for the care that has been expended on it, but that is not sufficient to secure a running balance, for it is practically impossible to make a millstone of perfectly even density or weight.

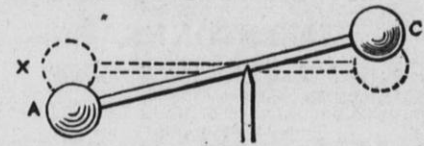


Fig. 3.—Diagram.

When rotated, the ball A will rise and C fall, and at a high speed might be on a line level with the point of suspension and return to the old position as the speed slackened. The same would be the case with balls of unequal weight at equal distance from point of suspension.

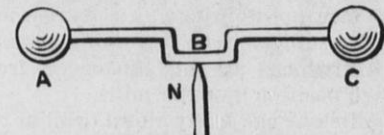


Fig. 6.—Diagram.

Equal balls, equi-distant from but above the point of suspension, when at rest would over-balance, one would be up and the other

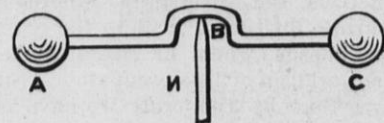


Fig. 7.—Diagram.

down, but both would be level when rotating fast, like a spinning top, as the balls would exert equal power to gain the line level with point of suspension, and wobble and fall again as speed slackened and rotary motion stops.

Equal balls equi-distant from, but below the point of suspension, will retain their level position when at rest or rotating at any speed.

A millstone is built of separate burrs of different densities, and the backing consists of stone chips and cement which is not so heavy as burr.

The heavy or denser burr will fall when standing still, but when running will exert greater force than the light burr towards the point of suspension and cause the light burr to dip, as at Figs. 8 and 8.

Weights may be put in the bottom of the balance boxes that will balance the stone standing, and yet the light burr will dip when running, as at Figs. 8<sub>2</sub> and 8<sub>3</sub>.

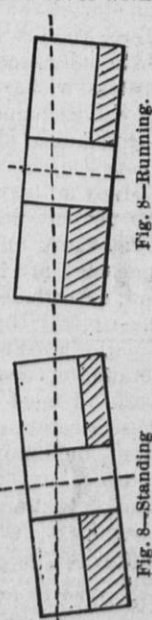
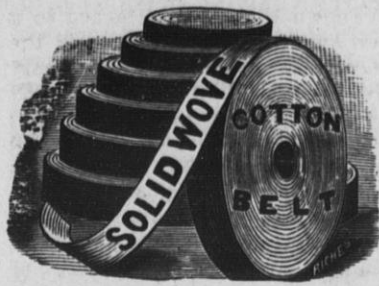


Fig. 8.—Running.

Fig. 8.—Standing



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The same weights may be so raised that they will exert a force downwards to the line of suspension to compensate the force of the large burr upwards, so that the stone will balance standing or running at any speed, as at Figs. 8<sub>1</sub> and 8<sub>2</sub>.

Hence it follows that a stone may balance while standing still and yet not balance while running, and in the same way a stone may balance while running at a certain speed, and not balance when standing still.

Clarke and Dunham's Patent Balance Boxes have iron weights in each, and these iron weights are filled in when necessary with lead, until the standing balance is obtained. The lids of the four boxes are then fixed on, and the weights, which are suspended by a screw, are raised or lowered with a key or socket spanner to adjust for the running balance.

The runner must be raised so as not to touch the bedstone, and made to revolve in the ordinary way.

A quill, or thin flat splinter of wood, dipped in ruddle, inserted between the stones, and the point gradually brought in contact with the face of the runner will mark the face of the stone where it dips, or with care and a little practice, the back of the stone may be marked with a feather, or the fingers dipped in ruddle, on the part corresponding with the part of the face that dips and causes a hissing noise when it touches the quill. The stone must be stopped, and the weights lowered in the box A, where the back of the stone is marked or raised in the opposite box B, by turning the screw with the key to lower or raise the weights. The stone must be again revolved, the side that dips again marked, and this operation repeated until the face of the runner runs so true that no wobble can be appreciated.

The weights cannot shift and the same balance is maintained in good order, and only requires altering with the ordinary wear and tear of the stones.

MACE AND CENTRE BAR.

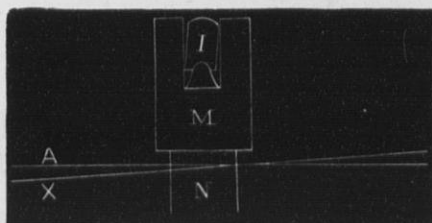


Fig. 9.—Mace and Centre Bar.

The mace should grip the centre bar evenly, both back and front, for should the mace M touch the centre bar I, at the slot at the bottom (be the difference ever so little), it is apt to cant the face of the stone from A to X. Pieces of thin paper in the jaws of the mace will be nipped where the pressure comes when the stone is revolved, and the mace or centre bar can be filed or fitted accordingly. The driving power applied to the center bar, above the point of suspension, allows the stone to hang more freely than when gripped below the point of suspension near the mace,

PIVOT OR "COCKHEAD."

A sharp point (1, Fig. 10) is the most sensitive, but with a heavy weight like a millstone, and which has continually to be taken up and put down again, it is apt to wear or get knocked about, which alters the level of the point of suspension and destroys the balance.

If the point is made rounded (2, Fig. 10) it is subject to the same objection, or if it is flat on the top, the center bar is apt to ride, so that a half circular top (3, Fig. 10) or a perfect globe (4, Fig. 10) being more likely to be made true, appears the best, as the level of the point of suspension is the center of the sphere which is the least likely to be altered or affected by any amount of oscillation or wear.

UNIVERSAL DRIVING IRONS

Require to be carefully made, for if the four trunnions are not exactly on the same

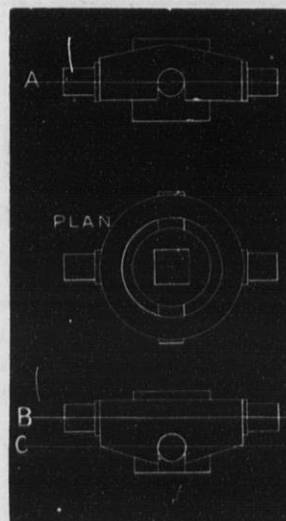


Fig. 11.—Universal Driving Irons.

level, A, it is evident there are two points of suspension or centres of oscillation on two different levels, B, C, and it is very difficult, even if it is possible, to balance a millstone so hung.

These sorts of driving irons also are generally so near the face of the stone, or below the centre of gravity that the stone must wobble or one side drag round on the bedstone until it runs at a considerable speed.

PATENT DRIVING IRONS.

There are many patent driving irons, and some from America are guaranteed to produce a standing or running balance. I have examined a few, but I fail to understand how it is accomplished. By investigating the shape of pivots, levels of the centers of oscillation, fit of the bearings, and position where the power is applied, the weak points may be easily detected, and it should be borne in mind that increased number of bearings means increased chance of inaccuracy.

SPEED.

In England, 110 to 140 revolutions per minute is a fair average for a four foot stone. In France I find it about the same, viz: 490 meters on the circumference.

The dress of the stone must to a great extent be regulated by the speed, quality of the stone, and work desired to be done. The dress that is suitable for 110 revolutions is not likely to suit the quantity of material that would pass through the stones running at 160 revolutions per minute, whether with low, half-round, or high grinding.

RESULTS OF DEFECTS.

If the stone is not pivoted in the center, although it may be balanced so that the face runs in a true horizontal position, or if the stone is not properly balanced, there will be a side strain, causing wear on the side of the neck and toe of spindle and undue wear of the neck and step brasses. If the stone wobbles, or one side drags on the bedstone, the stones wear unevenly, and are apt to strike fire, unless there is sufficient meal between them to protect the surface, like a fender between a steamboat and a landing stage, and some of the flour will be killed and the rest not properly ground, and the meal will be treated as though the faces were not true, causing vibration, waste of power, wear and tear or expenses for repairs, production of less flour, and of an uneven and much lower quality than the wheat is capable of yielding, and requiring finer silks and more dressing and purifying machinery than is necessary; the bran cannot be clean, and some is so finely powdered as to be very difficult for separation.

STIFF DRIVING IRONS.

Keep the stone rigid in the position in which it is set, but it requires care to adjust it each time it is put down. If set exactly horizontal, one side cannot drag on the bedstone, but unless properly balanced it will exert its power to take its own course, which would be a wobble, causing undue wear of bearings, etc., and it cannot well relieve itself should any foreign substance enter with the wheat without lifting the spindle, or the stone if it is loose.

I have heard it stated that a runner hung in the ordinary way is floated, or its weight practically diminished by about 1 cwt. for each bushel of grain ground per hour.

Mr. J. H. Carter, in his paper read before this Association in January last, in speaking of an experiment with stiff irons, says: "We anticipated at least an increase of 10 per cent. of middlings over balanced stones. The result was *nil*, and we attribute it to so much of the weight of the stone being carried by the wheat that the runner, as it were, became unsteady on the irons. It is also more



Fig. 83—Running.

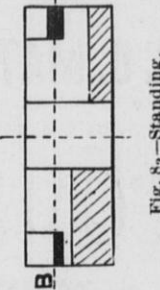


Fig. 82—Standing.

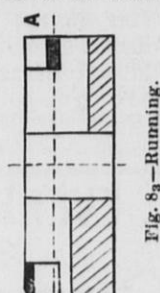


Fig. 83—Running.

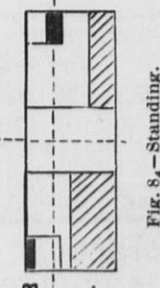


Fig. 84—Standing.



Fig. 10—Pivot or "Cockhead."

troublesome to keep in order than the balanced stones. In shelling oats and ending wheat, from which the idea originated, the operation is a light one, no appreciable pressure of the stone being required.

Under-stone running requires very careful balancing, and if fixed rigidly to the spindle it works like on stiff irons. Unless the upper stone is simply held in position by its own weight there is no relief in the event of any foreign substance entering. The advantages are that the feed drops on a live instead of a dead surface, is at once distributed, cannot collect on any part of the face, and is perhaps capable of doing more work than with the upper stone running. With mills of small size any degree of pressure can be exerted, and a large feed can be passed through, which would lift the upper stone off its bearings were it to depend upon its weight only.

There are also advantages for certain classes of work. For instance, in splitting beans, the object is to open, but not in any way to grind them (or a greater quantity is required to fill the bushel), and the live under-stone drives them out as soon as their size is reduced so that they cannot be nipped between the two faces again.

#### BOTH STONES RUNNING.

If stones run in reverse directions the speed of each need be only (60) half that of one stone running (120), or they can go respectively at different speeds (as 40 to 80) to make the faces pass each other at the same rate; but I know of no advantage of this arrangement to compensate for the trouble of running both stones. If both stones run one way, the practical speed of the faces is only the difference of the speed of one beyond the speed of the other, causing loss of power without corresponding advantage.

#### VERTICAL MILLS.

Millstones working in a vertical position would not, I should think, distribute the feed equally over the surface. One runner with two faces can do double work between two bed or fixed stones, but the two faces of the runner must be exactly parallel.

#### CONCLUSION.

A master miller who personally tests periodically with a circular staff, jackstick and quill, that the stones are true and in running balance, need fear no competition in manufacturing, and a journeyman who can accomplish it need never want a berth.

An upper runner is the easiest to take up and put down, is easy to drive, is the best understood, and least liable to accident; and I believe that an upper stone free to oscillate, with an inclination, or rather a powerful determination to retain its perfect horizontal position against all obstacles while running at any speed, is not to be equaled.

The introduction of the purifier for middlings has so altered the work required of a millstone, from grinding to granulating, that I believe very few millers know to what extent the millstone is capable of doing the work for the present system of milling.

I refrain from saying anything on milling in the presence of so many who understand it, and I trust that I have proved that millstones can be made to run with a perfectly true adjustable parallel space between the faces, and are capable, with suitable dress,

to do the work like rollers, besides that which rollers cannot do.

Mr. Smith, of Stone, Staffordshire, showed me last week a sample of spring American wheat, granulated at one operation through a pair of four-foot stones, in which there was, I should judge, less than 10 per cent. of flour; the semolina and middlings were excellent, the bran not smeared, but in favorable condition for subsequent treatment at the discretion of the miller, and the flour adhering was in a dry, granular state, easily removed as middlings flour. Middlings can be reduced by small millstones, or by the skirt of larger ones, with good results, and I think it will be allowed that flour may be killed by rollers.

S. S. STOUT.

H. G. UNDERWOOD.

## STOUT & UNDERWOOD,

(Formerly Examiners U. S. Patent Office.)

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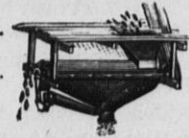
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# UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.

OFFICE, No. 124 GRAND AVENUE, MILWAUKEE.  
SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.

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

[MILWAUKEE, MARCH, 1886.]

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.

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THERE is to be a general meeting of the Millers' National Association, at the Grand Pacific Hotel, in Chicago, Ill., May 12 and 13. All members and those desiring to become members should be on hand.

WE would call particular attention to the organization of the Allied Mutual Fire Insurance Companies, lately organized in this city, for the purpose of protecting millers and manufacturers against loss or damage by fire or lightning. The Companies will be under the charge and management of S. H. Seamans, secretary and treasurer of the Millers National Association, which is a sufficient guarantee that what is done, will be well done. Mr. Seamans needs no introduction from us to the millers of the United States. We congratulate Mr. Seamans upon the favorable auspices under which his Companies enter the field.

A LETTER from an interested correspondent in India writes a glowing report concerning the Indian wheat crop, which, he says, is generally very good. Harvesting is now in progress.

MANY of our readers appear to be getting thoroughly interested in the free trade and protectionist controversy now being carried on through our columns between Mr. John W. Hinton of Milwaukee, and Mr. J. C. Bates of Chicago. Both parties are thoroughly read on the subject, and there is not the slightest personal animosity between them, but in argument they do not hesitate to hit hard. We have received several communications recently on one side or the other, from prominent manufacturing firms. We will try to find space for them next month. In the mean time, gentlemen, read and think.

MR. CLIFFORD F. HALL, editor of the *Modern Miller*, of Moline, Ill., and Miss Jennie Dunn, of the same place, were married on Wednesday, Feb. 3d, at the residence of the bride's mother. After a two-week's sojourn in Michigan, Mr. and Mrs. Hall have returned, and, just as sensible young people ought to do, have settled down to housekeeping. May good luck attend them in their journey through life, say we.

WE call the attention of advertisers to our affidavit on page 144, showing that the circulation of the UNITED STATES MILLER since January, 1880, has at no time been less than 5,000 copies per month. Aside from this affidavit our postoffice receipts, showing number of pounds of U. S. Miller mailed each month, are on file in this office, and are open to the inspection of advertisers. A large number of copies of our March and April editions will go to flour importers in foreign countries.

TWO new insurance companies have been organized in Milwaukee recently, one of which is known as The Milwaukee Mutual Fire Insurance Company, and the other as The Wisconsin Mutual Fire Insurance Co.

WE are informed that R. James Abernathy has finally succumbed to the irresistible desire to "tread old fields anew," inasmuch as he is engaged in issuing the *Southwestern Miller* from Kansas City, Mo. In addition to

this it is faintly rumored that we are to have a milling paper at Jackson, Mich., and another at Duluth, Minn. Well, the more the merrier. Success attend you all, gentlemen.

THE visible supply of grain in the United States and Canada, reported by the N. Y. Produce Exchange, March 8, is as follows, in comparison with the figures given the week previous:

	Bushels.		
Wheat.....	51,277,577	Dec.	872,119
Corn.....	12,969,057	Inc.	1,465,147
Oats.....	2,023,214	Dec.	224,645
Rye.....	613,686	Dec.	56,531
Barley.....	1,255,560	Dec.	128,792

## BLEACHED BARLEY.

THREE men were recently arrested in Milwaukee for selling bleached barley to maltsters and brewers. Barley which has been bleached by the sulphur or any other process is worthless for maltsters' or brewers' use, as it will not germinate. The arrested parties, (who have made considerable money by the swindle,) will be prosecuted vigorously.

THE leading business men of Hastings, Minn., are considering the organization of a wheat-buying syndicate, the object of which will be to make the prices as near as consistently can be with those in the larger markets; also the establishing of prices at which outsiders will be compelled to buy in order to protect their trade. The necessity of such a syndicate is at times sorely felt, as there is occasionally a difference of several cents between elevator prices and prices at the mills. There is also under consideration, in connection with this syndicate, the organization of a board of trade. This, it is hoped by many, will be a reality in the near future, as it will fill a want long felt.

## LATEST MARKET REPORT

from Wm. Klein & Sons, London: "After two months of unprecedented stagnation, the flour trade at last shows unmistakable signs of improvement, and, though prices can not be quoted materially higher, there is more heart in the demand and dealers and bakers are wisely filling up stocks and taking hold of contracts for forward delivery. The improvement is warranted by facts, and the only wonder is that it did not come before. The supply now afloat to this country is nearly 1,000,000 quarters less than at this time last year, our stocks in granary have been largely eaten into since the beginning of last year, and the supplies from all the principal foreign sources, except perhaps India, are likely to be considerably less than usual before next harvest; Russia has no more wheat to spare, Australia and New Zealand are almost out of the field, and the bulls in America intend to corner the bears before many months are passed: the rise has been a long time coming, but the times are ripe for an advance and it cannot be distant. From trustworthy sources, we learn there are 16,000 flour mills now grinding wheat in America, and should the rumors that there is little wheat left in farmers hands, be true, this army of mills will make short work of the visible supply between this and next harvest. The prospects for a speedy and material advance are therefore bright, and buyers will do well to fill up at present low prices, there will be little chance of doing so later on.

LONDON, March 1st, 1886.

## MUTUAL INSURANCE.

THE TWO NEW BUSINESS MEN'S COMPANIES PERFECT THEIR ORGANIZATION—THE OFFICERS ELECTED—PERSONAL SKETCHES—A START UNDER FAVORABLE AUSPICES.

At the office of the Daisy Roller Mills, Chamber of Commerce building, the directors of the recently organized mutual fire insurance companies met March 1st, for the purpose of electing officers and completing organization. There were present at the meeting, Francis Boyd, Fred. Vogel, Jr., Wm. Sanderson, S. H. Seamans, John M. Stowell, and C. E. Lewis, of Milwaukee; E. G. Durant, of Racine, and A. M. Bailey, La Crosse. J. M. Stowell was elected chairman, and S. H. Seamans, secretary. The by-laws, reported by the committee appointed at a previous meeting, were duly considered and adopted. An executive committee who are to have charge of the financial affairs of the companies, consisting of the president, ex-officio, Fred. Vogel, Jr., Wm. Sanderson and E. G. Durant, was elected. The term for which each director should hold office was decided by lot as follows:

For the Wisconsin Mutual—Three years: Francis Boyd, J. A. Kimberly, Fred. Vogel, Jr. Two years—E. G. Durant, Wm. Sanderson, C. E. Lewis. One year—S. H. Seamans, John M. Stowell, A. M. Bailey.

For the Milwaukee Mutual—Three years: Francis Boyd, E. P. Matthews, A. M. Bailey. Two years—E. G. Durant, J. A. Kimberly, Fred. Vogel, Jr. One year—Wm. Sanderson, S. Seamans, John M. Stowell.

The election of officers then took place. The officers of the Wisconsin Mutual Fire Insurance Company are:

President—J. A. Kimberly, Neenah.

Vice-president—Wm. Sanderson, Milwaukee.

Secretary—S. H. Seamans, Milwaukee.

Treasurer—Rudolph Nunnemacher, Milwaukee.

The officers of the Milwaukee Mutual Fire Insurance Company are:

President—Francis Boyd, Milwaukee.

Vice-president—E. G. Durant, Racine.

Secretary—S. H. Seamans, Milwaukee.

Treasurer—Rudolph Nunnemacher, Milwaukee.

The election of these officers completed the organization.

The officers in the new companies are among the most prominent business men in the Northwest. Francis Boyd, the president of the Milwaukee Mutual Insurance Company, is the active member of the old and extensive iron house of Shadbolt, Boyd & Co., of this city. Mr. Boyd is a progressive merchant of the highest integrity and of great executive ability. The organization could not have placed the supervision of its affairs in better or more competent hands. E. G. Durant, the vice president, is a prominent manufacturer of Racine, and is well and favorably known.

J. A. Kimberly, the president of the Wisconsin Mutual Insurance Company, is the head of the Kimberly & Clark Company, of Neenah and Appleton, the largest manufacturers of paper in the United States, if not the world. Mr. Kimberly, like Mr. Boyd, is a young man of the progressive stamp. For many years he has been engaged in milling at Neenah, and since its organization in 1876

he has been a member of the executive committee of the Wisconsin State Millers' Association. Wm. Sanderson, vice president, is a member of the large milling firm of E. Sanderson & Co., of this city, and is the office manager of its extensive affairs. Mr. Sanderson has been one of the prime movers in securing the organization of the two mutual companies.

Rudolph Nunnemacher, who has been made the treasurer of both companies, is the cashier, general manager and controlling owner of the Merchants' Exchange Bank, one of the largest banking institutions in this city.

S. H. Seamans, of S. H. Seamans & Co., of this city, who has been made the secretary and manager of both companies, may be considered one of the old settlers of Milwaukee, having come to this city in 1846. Since 1863 he has had the general management of the Empire Mills, lately destroyed by fire. Since 1877 Mr. Seamans has been a member of the executive committee of the Millers' National Association, and its secretary and treasurer since 1879. In this connection he has made a reputation of national importance. It is, in a great measure, to his efforts and watchfulness in its interest that the milling industry of the country has been saved many millions of dollars from unjust demands for royalties and that its patent litigations have been carried to a successful issue in the Supreme Court of the United States.

It will be the aim of the officers to conduct the business of the companies upon an economical and conservative basis. Neither the directors, presidents, vice presidents nor executive committees receive any salaries.

Policies will be issued for any number of years not exceeding five. It is preferable, however, to issue five year policies, as they can be cancelled by either party at any time, by written notice, and settlement of account. The statute limits them to \$10,000 in each company on any one risk.

Where parties insure in these companies and require more mutual insurance than their line will admit, they can place it in the best companies free of commissions.

## MATTERS ABOUT TARIFF.

[Compiled for the UNITED STATES MILLER].

BY JOHN W. HINTON, OF MILWAUKEE.

Reply to a Minnesota Grain Grower in the *Milling World*:

"I would like to ask you, Mr. Editor, to point out any direct benefit which the protective tariff gives me or any other farmer in this vicinity. Free trade pamphlets are circulated among us farmers by some one, and most of them show, or try to show, that protection is against and not for the farmer. How is it?" Look at wheat for a single instance of direct benefit. You complain that the price at which it sells is too low to make its culture profitable. Do you not know that there is a tariff of 20 cents per bushel on wheat imported into this country, and that, if it were not for that tariff, wheat could be brought from India to New York and laid down in our market at 80 cents per bushel? If we admitted India wheat at 80 cents would you Minnesota wheat growers receive as much for your wheat on your farms as you now receive? Would you not receive about 20 cents less per bushel? Does not the tariff in this case directly add 20 cents to the value of every bushel of wheat you raise and sell? Don't be deceived by free trade pamphlets and free trade orators. They give only one side. They ignore truth and

facts. Protection does protect you farmers just as much as it protects the mechanics of the country. In protecting one it protects all by developing for the common benefit of all. Keep your eyes open.

The richest field in which to glean facts to sustain protective tariff is in the writings of American free traders. Thus, that free trade organ, the *Chicago Herald*, says:

The barbarous cruelty with which English administration in Ireland has kept in poverty a country which *English law robbed of her manufactures* has at last borne political fruit. Unable to find labor in Ireland, hundreds of thousands of her people have crossed into the neighboring islands in search of bread.

A ROLAND FOR AN OLIVER.

Professor W. G. Sumner, of Yale College, and an active member, in high standing, of the English Cobden Club, said recently:

"The best way to live, if you don't want to work, is to get in between two men who do work, and handle their money for them, carry goods from one to the other and levy a tax on them for the interchange of goods. The last way is that of the Protectionist."

The *Philadelphia Press* retorts with the following advice:

"A still easier way, Professor Sumner, is to get between two men who do work and get paid for telling their sons that their fathers are thieves, plunderers and pirates."

Still another way to make money, is to join the English Cobden Club, whose avowal is that they "will never rest while the United States are unsubdued," retain your position as Professor of Political Economy, in an American college, draw a big salary, neglect the duties of that position, while advancing English interests, denouncing American interests, until the college is so run down that people have lost all confidence in that college and in its professor too.

An exchange has the following:

"Believers in American systems and institutions will be gratified to learn that Yale College is no longer a purely British institution, devoted to the teachings of English snobbery in manners and English free trade in commerce. Under the unrestrained free trade crankism of Professor Sumner, Yale was simply an un-American college, and that fact was becoming so widely known that it began to injure the standing of the college in the great manufacturing States from which many of its students are drawn. It has been openly asserted that the only way open to the managers was to dismiss Professor Sumner, but a sort of compromise has been effected in the engagement of Professor Robert Ellis Thompson, of the University of Pennsylvania, to deliver to the students of Yale College a series of lectures on the protective tariff system. This is only a half-way arrangement. If Yale is to be an English institution, the fact should be known to all Americans so that they may understand that in supporting Yale they are supporting an establishment whose graduates are sent out with ideas largely foreign and totally unfit to be held by American citizens."

We will send St. Nicholas Magazine and the U. S. Miller for one year for \$3.60.

"MR. SNAGGS, the next time you go Pittsburg you must get me a temporary ban for Fido," said Mrs. Snaggs yesterday morning.

"A temporary ban!" snorted Snaggs, "what in the name of sense is a temporary ban?"

"I don't know, but I see that the dogs in New York are being put under a temporary ban, and I suppose its the latest style of dog blanket for the winter, you know."—*Pittsburgh Chronicle*.

[Written for the UNITED STATES MILLER.]

**"RELIGIOUS (?) ASPECTS" OF A FRAUDULENT TARIFF.**A REPLY TO JOHN W. HINTON, IN FEBRUARY NUMBER.  
BY J. C. BATES, OF CHICAGO.

Artemus Ward was wont to remark in reference to his Kangaroo, that "he was an amoooin cuss." The same remark may apply to the average "Protectionist" of the present day. He is one who has an axe to grind, and for that reason compels the poor consumer to turn the grindstone for him; and you may be sure will endeavor to keep the consumer nose very close to the stone! Mr. John W. Hinton, in a lecture at Rockford, not long since, in enumerating some of the enjoyments which the people of this country might have while being plundered by his Constitutional-religious method of tariff, said: "A protective [*i. e.* high] tariff stands at the elbow of every laboring man in this country, to help him to better wages, to a more independent position and to a higher development of his faculties. It is a refuge for his weakness and a bulwark for his strength. It is also a fact, that in replying to my communication in the UNITED STATES MILLER, combating his views, he dates his letter "Northwestern Tariff Bureau," implying thereby that he speaks by the book and represents the views of our present masters and owners, the moneyed monopolists, whose organization to prevent a revision of the tariff extends to every nook and corner of the United States. He may or may not derive any pecuniary benefit therefrom. I hope, for his own sake, that he will be able to say that he does not. Possibly the Northwestern Tariff Bureau is an auxiliary of the Industrial League of Philadelphia, of which Mr. Wharton Barker is the backer and mouth-piece. Let any movement be undertaken anywhere in the United States, for the liberation of trade from the fetters which now bind it, and the Industrial League and Mr. Barker are on hand like a picked-up dinner. It is alike significant, Mr. Hinton's apparent connection (I say "apparent," for I do not know that it is actual) with the Tariff Bureau, and his extensive knowledge of Hon. W. D. Kelly, the very kingpin of the high tariff machine, and Mr. Kelly being so thoroughly endorsed by him may be considered a competent witness for me to use, later on, to show why we can have no extended foreign demand for manufactures under our present tariff. Let me preface what I have to say in reply to Mr. Hinton, by a brief review of the tariff question. Granting, for arguments sake and to save controversy, that all of our present tariff was contained in the decalogue, the Declaration of Independence, the Constitution of the United States and the Fifteenth Amendment, let us get directly at the business in hand. Let us take as a starting point the beginning of our civil war. The tariff, from 1846 to 1860, was satisfactory generally. When the Morrill bill, which forshadowed the tariff policy of the Republican party was brought forward in 1861, there was strong opposition to it, especially on the part of New England manufacturers. This tariff advanced the duties considerably. It was in fact a step to attach Pennsylvania, Buchanan's state, to the Republican party. It raised the duty on iron, which tickled the Pennsylvanians. Other duties were, however, still moderate. Civil war began a little later,

caused the piling of duty on duty, which resulted in what we now have. The changes in tariff became a necessary part of our financial system, a temporary expedient to bridge over the exigencies of the war. Paper money was issued and an internal tax system put in operation to raise the needed revenue. Thus this process of increase begun in 1861, was further increased in 1862, and reached its climax in 1864. The urgency of the situation left the solution of government financial questions with those immediately charged therewith. There was no public expression or opportunity for it. It was thus that the theories of extreme ideas went into operation. About everybody who applied to have a duty levied succeeded. The result was a tariff of the most extraordinary character. Duties were then imposed which otherwise would never have been considered for a moment. This tariff of 1864 was in force until 1883, when the tariff act was passed, but the changes in that were so slight that we still have practically the war tariff of 1864, a war measure, now in operation. The other war measures, internal taxes and irredeemable paper money, were swept aside in 1872, and the only feature, aside from our tariff, still remaining in our financial system is the internal taxes upon such things as distilled spirits and tobacco, which very properly have been retained. Ever since 1870, again and again have demands been made of Congress to reduce the tariff and rid it of at least some of its crudities and glaring imperfections. But some "Bureau" or "League" has always been able to "see" somebody about it in advance. When the matter came up in 1867, it was put off "until the next session." In 1872, duties were reduced ten per cent. only to be repealed and put back at the old figure in 1875. As, under the Constitution, the power to deal with all matters of revenue are vested in Congress, it is all important that opponents of the existing piratical methods vote only for congressional candidates pledged to reform; and whenever a U. S. Senator is to be chosen from their state, to see to it that all candidates for the state legislature, representative and senatorial, are also thus pledged.

I am asked by Mr. Hinton to "name some articles on which the duty is so high that it prohibits importation. There is quite a list, but a few might suffice:

1. Ships and other tonnage.
2. Steel rails.
3. Copper.
4. Pig Iron.
5. Blankets.
6. Nickel.
7. Quicksilver.
8. Marble.

Ships are prohibited, *i. e.* an American cannot obtain a United States register for a foreign built vessel. The duty on all the other articles, except marble, is for the purpose of keeping them out. A duty of 75 to 100 per cent. is piled upon marble thus enabling the tariff not only to relentlessly pursue a man through life, but to his grave. Quicksilver is produced only in California, and nickel only in a single mine. The effect of such prohibitory legislation is to rob the public to enrich the few.

The duty on steel rails was fixed at \$28 per ton, or about 100 per cent. on the value at the time. Bessemer steel was a monopoly

in control of some dozen companies, whose enormous profits have reached some 200 per cent. Such profit was made possible only by the prohibitory duty. How did it operate? Just as in every other case of extortion, the manufacturers overreached themselves. Having killed the home trade, and not having any foreign demand, they had to contract their business by discharging their workmen. Copper is another instance of keeping the home market dear in order to sell cheap in the foreign market. The duty is sufficient to keep foreign copper out. The duty on pig iron has the same effect, and the same is true of the duty on blankets. This latter (blankets) however, brings up the matter of wool and woolens. The farcial action of the tariff commission is still fresh in the minds of many manufacturers, claimed to use about four pounds of wool to make one pound of cloth. Wool growers wanted a duty of 11½ or 12 cents duty on the pound. The manufacturer said the duty should be 7½ cents and the duty on a pound of woolen cloth 46 cents. But as their oils were taxed they must be put in as good position as the wool growers, and required a duty of 50 cents on woolen goods. Besides, they wanted assistance from the government of about 25 per cent. and then Internal Revenue and license tax would swell the amount ten per cent. more. They obtained what they demanded! Congress accepted their dictation without qualification. The result, a duty of 60 to 100 per cent. has brought vast burdens upon the people.

Mr. Hinton would give the public to understand that, in spite of all this taxation, clothing is cheaper here than in England, that certain other manufactures are also very much cheaper here than in England or elsewhere. I will simply content myself by inquiring, if this is so, why, in the name of all that is good and progressive, don't our manufacturers ship to England or start out and find a foreign market, or why, if their goods are cheaper than foreign manufacture, do they fear competition in their own markets? The Hon. W. D. Kelly, whom he has so strongly endorsed, shall answer for him. Mr. Kelly says, substantially, that having heard a great deal about our exports of manufactured goods, when convenience afforded opportunity he investigated the causes, only to find that our merchants, instead of further depressing the home market, the best in the world, preferred making their losses abroad. That these goods, except in times of great commercial depressions, rarely went abroad. And that as soon as the peculiar circumstances which gave rise to such exports will change, the home market occupied the exclusive attention of the manufacturers. Such is the testimony of "a recognized authority." And yet the cotton manufacturer will tell you that, except upon their finer fabrics, they are indifferent about protection. The manufacturer of woolens does not hesitate to express his ability to hold his own against the world if he can have free wool. Give him free wool and he will be a bigger customer for domestic wool than ever before.

I referred in my previous article, to the tariff making the farmer, stock raiser and mechanic pay more for their coal, sugar and clothing. Says Mr. Hinton, in reply: "It would be difficult to crowd more loons into the same space," and goes on to tell about

cost of those things in England. The comparison is his, not mine. As to the cost in the United States, is there not a duty on coal, sugar and clothing? Does not the duty add to the cost? Does the gentleman not know that there is a rebate of between two cents and three cents per pound on every pound of sugar exported, and that the British grocer pays our refiner just that much less per pound than the American grocer has to pay for the same sugar, and all because there is a little sugar patch in Louisiana, a very important bob, however, to the high tariff kite, though by reason of occasional frosts, the sugar interests there are, and ever have been, precarious. And just here I would remark that in all this time this war tariff has been in operation this country has paid millions upon millions of dollars to the Spanish West India Islands; their best customers in fact, while in return for this enormous trade our producers and manufacturers have, by failure of this government to care for their interests in foreign countries, been vigorously excluded from those markets. Hence the reason why our farmers, producers, millers and manufacturers generally, should insist that their government shall do for them just what the government of Great Britain does for its producers and manufacturers—negotiate commercial treaties. The most favored nation clause, namely, that our country is entitled to receive all accorded to the most favored nation, exists in all our treaties, and if our government insists upon it the people of this country can have all the advantages accorded to the people of any other nationality. It will be found, however, that high tariff men are as afraid of commercial treaties as his Satanic Majesty is said to be of holy water.

The report of the late consul at Liverpool is fully accounted for by the explanation by Mr. Kelly to which I have already referred. It must be remembered also that certain of our manufacturers are protected by patents in England as well as in the United States. It will be noticed that the ex-consul's quotations for the cheapest mower at a certain agricultural fair he attended was *in francs*, showing plainly that the locality was in high tariff France and not in free trade England as he would have the reader infer. Said Mr. Hinton in his lecture, speaking enthusiastically, "France maintains its high protective tariff, and, while I am speaking, is about passing stringent corn laws. Political economy is studied and tested and not swallowed by Frenchmen."

Surely, then, here must be a haven for the workingman! Here then must be a country, above all others, where a high tariff "stands at the elbow of the workingman to help him, etc," where "it is a refuge for his weakness and a bulwark for his strength!" But what are the facts? I will let that "protection" sheet, the "Milling World" of January 11, 1886, tell just how that tariff works in France. That paper says: "Labor was never more distressed in France than it is to-day. Thousands are entirely out of work and common laborers are glad to get employment at 30 to 40 cents a day, while skilled carpenters and blacksmiths and masons make only from three to four francs, which is 60 to 80 cents a day." So much for "protection" which a high tariff affords to the laboring man in France. Let us turn for a moment

and see how such tariff helps the laboring man in America. Let us glance at the latest phase of labor troubles here, the difficulties in the coke regions.

In January a small army of deputy sheriffs, policemen, with a militia reserve, were engaged in discussing whether a couple of thousand of workingmen should buy their brogans and bacon at company stores, at the old rate of wages, or get 10 per cent. more and buy where they pleased. It was compromised by conceding the ten per cent. demanded, but purchases were still to be made at the company "Pluck me" stores. And then the company stores immediately advanced their prices ten per cent!

Now coke making is an industry which has prospered wonderfully, increasing from four coke works in 1850 to twenty-five in 1870, until now there are two hundred and fifty coke works with nearly twenty thousand ovens. But how has it benefited the laboring man? The inventor of the process, who was a mechanic, is still living a poor man, while the operatives at the works are in penury and want. They drove out American labor by cheap imported labor from Europe. These importations (for the tariff affords no protection to labor) were made for the express purpose of depressing labor.

The rioters were described as "Hungarians," when in fact a large portion were Bulgarians, who, men and women, half naked, worked together for a pittance. Uncontrollable, ignorant and vindictive, imported here to be ruled, they concluded to rule. Hence the riot. Poles succeeded these, and just now the coke regions are importing negroes from Virginia to work their ovens, under the belief that they are more docile and will work cheaply. It so happened during the troubles in the coke regions that fifteen or twenty of the strikers were arrested. Now these "American workingmen" with the tariff at their elbow to help him, were no sooner arrested than they applied to the Austro-Hungarian Consul at Pittsburg for relief and he hastened to their side.

Let me refer to one other protected industry, the manufacture of jute. California having to dispense with Coolie labor sent agents to Europe and imported a large number of young women to operate their jute mills. The duty on foreign manufactures of jute under our tariff is from 35 to 40 per cent. And for whose benefit? Every manufacturer of the article will assert positively that it is for the protection of American labor, and that they cannot compete successfully with foreign manufacturers, except they grind their labor to the prices of the "pauper labor" of Europe.

And yet we are told by the gentleman who dates his correspondence, and presumably at his *place of business*, the "Northwestern Tariff Bureau," that our tariff "stands at the elbow of every laboring man to help him to better wages and a more independent position." Does he desire authoritative information as to why more mowers and agricultural implements are not exported? Mr. Averill, superintendent of the now closed McCormick works here shall answer. Says Mr. Averill: "Work is so light this year. This has been a light year for all kinds of machines. I attribute this dullness to the fact that we have no foreign market for our home product."

The same individual, in his lecture at Rockford, stated, "So-called free trade, which nowhere exists to-day and never has existed anywhere." In his reply, however, to my criticisms, he says: "Ireland has free trade and want that beggars description." Will he kindly explain wherein the tariff of Great Britain operates differently in Ireland than in England and Scotland? But he goes on to say every time the American people have tried free trade or a very low tariff, they have miserably failed and have never been equal to the opportunity." Here then we see "Free trade nowhere exists and never has existed anywhere. "Ireland has free trade!" "America has had free trade!"

It certainly is in order for the gentleman of the "Northwestern Tariff Bureau" to explain, for, from the above, it would seem, that he must be either "strayed or lost."

The free traders of this country are not idiots. There must be a revenue to meet the expenses of government, and they would think that man a crank who would advise differently. This revenue may be raised by a tax on importations of luxuries or by any other practical method. Doubtless the people of this country would be very well satisfied with the tariff which preceded the war. Certainly free traders would not ask for anything more liberal than now prevails in Great Britain, which according to Mr. Hinton, is a tariff country. Her customs tariff however, is levied mainly on such articles as wines, spirits, drugs, tobacco, etc.

It is well known that the lecturer's protection friends in England are laboring against the free importations of American produce. But as it takes more labor to convert flour into bread than wheat into flour, the English bakers will continue to buy the best flour at the cheapest price, it matters not where it is from, and the cheaper they buy the cheaper the English laboring man will get his daily bread. Does the British miller himself ask any protection against his American competitor? On the contrary, he is confident of his ability to compete with anybody without artificial props. They have the wheat of the world from which to select their varieties.

The avowed purpose of Cobden and his associates was to make England the workshop of the world, permitting other countries to furnish her food and raw material without duty, cheapening alike the cost of material to be manufactured and the living expenses of her workmen. She took her free trade in five great installments beginning some forty years ago and ending in 1866, each step demonstrating conclusively the steady advance of her commerce and manufactures.

In the face of these facts, the frequent assertion of high tariff men that freedom is not compatible with improvement and advancement has a strange sound in this America of ours. It is not alone assertion, but assertion that is followed by compulsion. The American farmer is not permitted to sell in the highest markets but compelled to sell in the lowest, the laborer is defrauded, and it is not impossible, if the thing is allowed to go on, to further diminish personal freedom. Let us not forget that we have a tariff of more remarkable character than that which any other nation has at the present time. The countries against which our

tariff has discriminated have discriminated against us in turn and shut us out from their markets.

And where diplomacy has not shut us out our prices being higher have accomplished that result. This is the case right at our own doors in South America. If Chilians, Peruvians, Brazilians and Mexicans have been able to buy to better advantage elsewhere in the past, it ought to be so no longer. If they can buy of us what they want, cheaper than they now buy from the English, French and Germans, they will certainly do so. It is simply a delusion to suppose that these nations have any particular affection with the countries of Europe that they prefer to trade there. They simply prefer to buy in the cheapest markets of the world, and the Spanish-American countries, including the West Indies, have a population nearly equaling that of the United States. Our policy, therefore, has for the past quarter of a century been that of new intercourse. This policy not only destroyed our legitimate foreign trade in manufactures and caused the American flag, which formerly waved wherever shipping whitened foreign seas, but has also killed off commercial enterprise. Any nation to be great must be great also upon the seas. American merchants and seamen once had the lead. The Confederate cruisers did fearful damage to our merchant marine, but it will not compare with the still greater and almost irreparable injury inflicted upon it by that piratical tariff. Mr. Hinton speaks of the tariff as "our American labor king." Yes, and never was king more despotic. I prefer to agree with Solon Chase's saying, "In America, labor is king, or rather should be or shall be king." The people are sovereign. They have decreed, (having submitted to be robbed about as long as they intend to) that the war tariff and all who uphold it must go. *Down then with tariff monopolies! Up with the rights of the people.*

## NEWS.

S. POWERS, Madisonville, Ky., has sold out.  
 JOSHUA GILGER, of Hadley, Pa., has sold his mill.  
 THE mill at Brownstown, Ill., was recently burned.  
 DISSOLVED—Wright, Anderson & Co., of Sheldon, Mo.  
 GEO. J. MENZLER, Lynchburg, O., miller, has sold out.  
 H. ROGERS, miller, Trenton, Tenn., has sold his mill.  
 BURNED—Hamberger & Stafford's mill, at Barnesville, Ga.  
 S. T. & J. H. WARE succeed Danner Bros. at Quitman, Mo.  
 J. M. CONN & CO., Franklin, Ky., have dissolved partnership.  
 FARMERS about Redfield, Dak., began to sow wheat a week ago.  
 HENRY MESTERMEIER, the miller at Pacific, Mo., has sold out.  
 GREEN, GOLD & CO., of Faribault, Minn., have made an assignment.  
 THE mill of I. C. Booher, at Ryerson's Station, Pa., has been burned.  
 THE Valley Milling Co. has been chartered at Irene, Kan. Capital, \$10,000.  
 JOHN ADAMS will soon build a 60 bbl. all roller mill near Willmar, Minn.  
 JAMES BERRY, of the milling firm of Berry & Foote, Adrian, Mich., is dead.  
 ON March 1 there was in store at Duluth, Minn., about 81,000 bbls. of flour.

MESSRS. BLAKER & Co. are building a new roller mill at Pleasanton, Kan.

J. SPENDLER, miller at Woodland, Mich., has been succeeded by Snow Bros.

MARCH 4, Merman's mill at St. Louis was burned. Loss, \$15,000; partially insured.

THE firm of Davenport, Son & Draper, at Freeman, Mo., is now known as J. S. Parish & Son.

THE milling firm of La Turno & Drace, at Armstrong, Mo., is succeeded by W. G. Drace.

THE P. H. Postel Milling Co., at Mascoutah, Ill., has been incorporated, with \$100,000 capital stock.

THE mill of Wm. Evans & Son, Romansville, Pa., has been burnt out. Loss, \$6,000; insurance, \$3,000.

WORK has been commenced upon a mill at Carrington, Kan., by Nelson & Calkins. Capacity not stated.

JOHN B. GRIFFIN, owner of the Erie and Queen City mills, at Buffalo, N. Y., died Feb. 27, aged 58 years.

I. M. LOESER, of the firm of Loeser, Clark & Co., at Cuyahoga Falls, O., has made an individual assignment.

A saw and grist mill at Wymansville, Ind., owned by Tobroke & Aldenhagen, has been burned. No insurance.

THE large mill at Glasgow, Scotland, owned by the Bakers' Union of that place, burned Feb. 6. Loss over \$25,000.

THE Rising Star Mills, of Walla Walla, Wash. Ter., owned by A. McKinnon, have recently been re-fitted to the roller system.

IT is reported from many sources that the Nordyke & Marmon Co., of Indianapolis, are doing a great deal of good business.

Low water in the Delaware river has been the cause of the shutting down of many mills and factories at Camden, N. J.

MILLING business is good at Leavenworth, Kan. Both mills at that place were unable to supply the demand the past year.

THE Phoenix Wire and Iron Works, of Detroit, Mich., inform us they are now promptly filling all orders received by them.

HUBINGER BROS.' mill, at Frankenmuth, Mich., was recently damaged by fire to the extent of about \$8,000. Partially insured.

NEW ULM parties have let a contract to build a 150 bbl. roller mill at Springfield, Minn. The firm will be known as the Springfield Mill Co.

Valier & Spies, Marine, Ill., are putting in one pair of rolls, with patent automatic feed, furnished by the Case Mfg. Co., Columbus, O.

THE Canon City Milling Co., Canon City, Col., are putting in one improved centrifugal reel, furnished by the Case Mfg. Co., Columbus, O.

A. L. Strong & Co., Omaha, Neb., have placed an order with the Case Mfg. Co., Columbus, O., for seven pairs of rolls, purifiers, scalpels, etc.

E. J. SWEET, of Florence has bought the old buhr mill and water power at that place, and will rebuild and remodel it to the roller system.

THE receipts of flour in Montreal for the year 1885 were 800,788 bbls., against 1,152,789 bbls. for the year previous, showing an important decrease of 352,001 bbls.

EVERETT & AUGHENBAUGH, millers, of Waseca, Minn., are being boycotted by the farmers of the vicinity because they would not pay higher prices for wheat.

THE failure of the Thomas Bradford Co. in no way affects the solvency of the old Bradford Mill Co., of Cincinnati, which is an entirely separate and distinct concern.

S. M. Canan, Richwood, O., has placed an order with the Case Mfg. Co., Columbus, O., for one pair of rolls, with patent automatic feed, and one improved centrifugal reel.

Wm. Mitchell & Sons, Detroit, Mich., have placed their order with the Case Mfg. Co., Columbus, O., for all necessary machinery for a roller cornmeal mill on the Case system.

A. H. Fairchild & Son, North Bloomfield, N. Y., have placed an order with the Case Mfg. Co., Columbus, O., for a No. 1 double purifier, to be shipped to B. D. Woodruff, Livonia Station, N. Y.

THE Case Mfg. Co., Columbus, O., have secured the contract of Thomas T. Hoffman, Bloomsbury, N. J.,

for a complete outfit of rolls and other machinery for a full roller mill on the Case system.

LAST Saturday, at the Pettit mill, Minneapolis, Minn., a six foot pulley, weighing 3,400 pounds, flew into numerous fragments, and went crashing through the mill, regardless of consequences. No one injured.

THE Case Mfg. Co., Columbus, O., have secured the contract of Wm. Wallace, Lafayette, Ind., for a complete outfit of rolls, purifiers, centrifugal reels, bolting reels, and all necessary machinery and appliances for a roller mill, on the Case system, to be built at Dale, Ind.

THE firm heretofore known as Shumaker & Porter, Silver Creek, N. Y., manufacturers of the Silver Creek cornmeal refiner and other milling specialties, has been dissolved by mutual consent. Mr. Porter's interest and good will in the business will hereafter be controlled by Mr. John T. Shumaker, brother of the senior member of the late firm. The new concern will go under the firm name of Shumaker Bros. Mfg. Co., and will collect all bills and assume all indebtedness of the late firm of Shumaker & Porter.

A FIRST-CLASS barreling establishment is needed at Duluth, to transfer flour received there from country mills in sacks to barrels for shipment thence to eastern and foreign markets. The sacks could then be returned to the mills, which are mostly in a prairie country, and again filled for shipment by rail to Duluth. A barrel factory is also needed. Both of the above institutions must be provided at an early day, to meet the rapidly increasing demand of millers in northwestern Minnesota and Dakota.

A FIRE broke out in the immense mills of Ferdinand Schumacher, in Akron, O., about 2:10 o'clock on the morning of March 6. The flames were first discovered in the dry-house, a new five-story brick building on South Broadway. The dry-house was filled with the best of wheat, and there were numerous dust-shafts leading from this structure to the "German C" mill, an immense seven-story brick in the rear of the dry-house and fronting on Mill street. Before the fire department had responded to the alarm, the flames swept through these flues, and soon the fire was issuing from the handsome new structure. Although nothing definite can be learned at this time, the loss is estimated at \$1,000,000. Mr. Schumacher carried an insurance of \$150,000.

E. P. ALLIS & CO., of Milwaukee, have broken ground for a wheat elevator, to be used in connection with their new model mill on Washington street. It will be located just east of the mill building. The dimensions are to be 30x40 feet on the ground, with a height of five stories. The estimated capacity of the structure is between 35,000 and 40,000 bushels. A space of sixteen feet between the elevator and the mill will be used for wheat cleaning purposes. Wheat is to be taken into the elevator from cars and bulk wagons. A steam driver is already on the ground and the work of driving piles for a firm foundation is being vigorously prosecuted. The mill is to be devoted exclusively to the manufacture of export flour, and the grinding will be done by thirty-nine Gray roller machines of various sizes, geared so as to attain a high rate of speed. The addition of one story to the mill will accommodate shafting for operating the elevator.

THE Case Mfg. Co., Columbus, O., have an order from Mutchner, Higgins & Co., Indianapolis, Ind., for two cornmeal aspirators and purifiers; an additional order from Roots & Co., Cincinnati, O., for two pair rolls, with patent automatic feed; from the Export Milling Co., Greenville, Ill., for one pair of rolls, with patent automatic feed; from A. L. Strong Co., Omaha, Neb., for one single reel bolting chest, to be placed in the mill of Fry & Gayson, Stanton, Neb.; from D. S. Shellabarger & Co., Decatur, Ill., for two pairs of rolls, with patent automatic feed; are furnishing Rice & McCampbell Bros, Chrisman, Ill., with all the necessary machinery for a roller cornmeal mill on the Case system; from W. T. Pyne, Louisville, Ky., for one pair rolls, with automatic feed rolls, to be placed in the mill of S. H. Matthews, Tunnelton, Ind.; from A. L. Strong Co., Omaha, Neb., for six pairs of rolls, purifiers, scalpels, etc., for the mill they are building for E. B. Welch, Fairmount, Neb.; from Kerfoot Bros., Des Moines, Iowa, for four pairs of rolls, to be shipped to Webster City, Iowa.

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The following paragraph is reproduced from Webster's Practical.

**Book, book, 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.* [BOOKEN (books), 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, -lernd, a.** Versed in books; ignorant of life. — **learn'ing, n.** Learning acquired by reading. — **esp. as opp. to practical knowl-edge.** — **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. — **com-plaint; systematized betting.** — **mark, n.** Something placed in a book by which to find a particular place. — **plate, n.** A label indicating ownership, place 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 street; book-stall; a support to hold books. — **worm, n.** A worm or mite that eats holes in books; one excessively addicted to study.

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# UNITED STATES MILLER.

PUBLISHED MONTHLY.

OFFICE NO. 124 GRAND AVENUE, MILWAUKEE.

Subscription Price .....\$1 per year in advance.  
Foreign Subscription.....\$1.25 per year in advance.

MILWAUKEE, MARCH, 1886.

## 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., March 1, 1886.

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, 1880, less than 5,100 COPIES each, and are frequently in excess of that. 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, 1880, 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.

E. HARRISON CAWKER,  
Publisher.

Sworn to and Subscribed before me at Milwaukee, Wis., this 15th day of March, A. D. 1886.

ISAAC S. CLARK,  
Notary Public.

VERY few of the reports from the winter wheat sections indicate serious damage to the grain. The total of frost-killing thus far is insignificant and most of the grain is in excellent condition.

We will send the U. S. Miller for one year and Ropp's Calculator for \$1.00.

FROM all accounts we judge that the state of trade generally among mill furnishers is not what was almost expected by this time, but, although there are more or less complaints, no one seems to be very keenly disappointed. We trust that in a few months more we may see a very general revival of trade, not only among the mill-furnishers, mill-builders and millers, but in all other lines of trade.

We will send The Milling World (weekly) and the U. S. Miller for one year for \$2.00.

BOYCOTTING is not confined to our own country. February 14, 1882, at London, England, Lord Salisbury addressing a meeting convened in behalf of English woolen industries, said: "Under our present circumstances it is a matter of national interest that purchasers of textile fabrics should as far as possible give preference to goods of British make."

We will send the Deutsch-Amerikanische Mueller and the U. S. Miller for one year for \$1.50.

We beg our readers to excuse the extreme lateness of the issue of our March number. The reason is that the editor has been afflicted, as the Irishman said, with a "mortal sickness." Although not so bad as that, we are thankful to say that we have recovered sufficiently to do a pretty fair day's work, and we trust our readers and correspondents, many of whom have been sadly neglected, will accept our excuse for apparent neglect. In a few days the accumulations of three weeks, we trust, will be worked off.

We will send St. Nicholas Magazine and the U. S. Miller for one year for \$3.60.

THE population of Chicago is thus noted:

Year.	Population.	Average p. c.
1835.....	3,265	.....
1840.....	4,480	6.5
1845.....	12,100	22.0
1850.....	28,300	17.4
1855.....	80,000	23.1
1860.....	109,200	6.4
1865.....	178,500	10.3
1870.....	306,600	11.5
1875.....	401,500	5.5
1880.....	503,300	4.6
1885.....	667,900	5.8

We will send the U. S. Miller and The Milling Engineer for one year for \$2.00.

OUT of a total population of 27,000,000, the farming population of Japan numbers 15,000,000. During the past ten years the improved breeds of horses, cattle and sheep have been introduced with good results. The farmers live principally upon cereals and fruits. Oats, corn, barley, wheat and rye are the chief grains produced, rice of course being the largest.

THE United States appropriate less for agricultural purposes than any other country, Switzerland excepted. France annually appropriated \$20,000,000; Brazil, \$12,000,000; Russia, \$11,000,000; Austria, \$5,500,000; Great Britain, \$795,000; Japan, \$1,000,000; Switzerland, \$142,000; and the United States \$652,000.

We will send the U. S. Miller for one year and Ogilvie's Handy Book for \$1.00.

THE editor of a certain milling paper not long since in conversation said: "There are too d—n many milling papers, and about half of them have got to be sat down on." If the aforesaid editor does sit down on any of them, we will wager a brand new hat that he will be glad to get up mighty quick. So mote it be. If he really thinks there are too many, let him throw up his own first.

Now is your time to send in your subscriptions for milling papers and other periodicals. Read our Club List on another page.

## A Tale of Nine Cities

Is the euphonious title of a little book giving a brief description of the points of interest in the nine principal cities of the great Northwest and Far West, viz: Chicago, Milwaukee, St. Paul, Minneapolis, Council Bluffs, Omaha, Denver, San Francisco and Portland, Oregon. A correct colored map of each city is made a part of this instructive book, which is being distributed by the Chicago, Milwaukee & St. Paul Railway.

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

## STRENGTH OF THE KNIGHTS OF LABOR.

In speaking of the great strike now going on, and extending from St. Louis to the Gulf of Mexico, the St. Louis *Globe-Democrat* says: "It is ascertained from the most reliable sources that District Assembly No. 17, with headquarters in this city, has a membership of from 12,000 to 15,000, and within a radius of 300 miles are about 50,000 Knights of Labor. Altogether in the country there are, counting some newly organized assemblies, about 160 district assemblies, some of which are very strong, numerically considered. Some of the district assemblies in the manufacturing districts of the East count up fully 50,000 members, and of the total membership of the order various estimates are given, ranging from 500,000 to 1,500,000. In close connection with the Knights of Labor in this city is the International Working People's Association, which will give the Knights of Labor their moral support, and, if necessary, material aid. Both organizations are said to be in close communion, and will act in concert in any emergency that may arise. The numerical strength of the International Working People's Association has been greatly underestimated, from the fact that they do not care to let their exact number be known. In the various groups of the order are included something like 10,000 members in this state and Illinois alone. In this city and close vicinity are probably 20,000 men who are members of organizations directly upholding the strikers of District Assembly No. 101.

## GEO. T. SMITH'S RECENT UNPLEASANT EXPERIENCE.

Concerning the arrest of Mr. Geo. T. Smith at Toronto, on Wednesday last, we find the following in the *Detroit Free Press* of the 19th inst.:

"There are few if any men in the state of Michigan more widely known than George T. Smith, of Jackson. In his manufacturing establishments in Michigan and Canada he employs over 700 men, and the product of his workshops is known in all civilized quarters of the globe where wheat is ground into flour. It is not, therefore, greatly to be wondered at if a good deal of excitement is caused when such a prominent man is arrested on the charge of perjury. W. J. Kinmont, of the Union mill, Detroit, was called to Toronto last Wednesday when Mr. Smith was arrested, and returned home on Friday, after the examination before the Toronto police justice had been completed.

"The story of the trouble between Mr. Smith and Benjamin Barter is a rather long one," said Mr. Kinmont to a reporter of the *Free Press*. "Away back in 1871 a Frenchman named La Croix got the idea of a purifier out of a French book and tried to make it work. He failed in this and finally threw it aside. After the work had been abandoned by La Croix, Smith took it up, and by making some improvements, succeeded in making the purifier practicable. He first operated it in Christian's mill in Minneapolis, and after a few months built more machines and set them up in Pillsbury's mill. By this time some of the flour from Christian's mill reached New York. It immediately attracted a great deal of attention. The flour was far superior to that produced by the old methods. Millers at once became interested and flocked to Minneapolis to see how the flour was produced. At first they were not admitted to the mills, but finally they were permitted to see the purifier at work. About this time Barter, who was a millwright in the employ of Bean, Bangs & Co., of Fairbault, Minn., went to Minneapolis, and, in company with Mr. Bean, was shown through the Pillsbury mill, where they saw the machine in operation. Now, it's right here that the perjury case commences. Mr. Smith claims that he showed Barter through the mill, while Barter swears that he did not. All the evidence in the cases that were afterward tried goes to show that Smith did show Barter through. Well, after Barter and Bean had seen the machine working they went to a shop near by and saw some of the machines in course of construction. They then went home, and Barter commenced the manufacture of a machine similar to Smith's, only having two sieves instead of one. By this device he expected to evade Smith's patent. I was engaged in milling in New York state at this time, and started for Minneapolis like the rest to see the new purifier. I was advised to stop off on the way and see Barter's machine, which I did. The machine was only partly completed. Barter admitted that he had seen Smith's machine, but claimed that he was building a better one. He did not claim to be the inventor. He, with Mr. Bean's recommendation, advised me to take him to New York state, where he would engage in the manufacture of purifiers. I then went to Minneapolis and saw Smith's machine. I was much pleased with it. This

was in February. In May following, Barter called at our mill on his way from Washington, where he had been getting out patents, and wanted to supply us, but we preferred to deal with the inventor, and would have nothing to do with him. Shortly after this Smith concluded to sell his machines to the public. He began manufacturing and selling the machines all over the country. They were in great demand, for by their use the value of flour was advanced \$1 per barrel. He had several law suits with Barter, and succeeded at last in beating him in the highest courts in the land."

"Barter then went to Canada, but Smith had patented his machine there also, and about 1875 he had a law suit with Barter and beat him in the highest Canadian courts."

"Later, in another suit, the validity of the Smith patents was affirmed in a decision rendered by the judiciary committee of the Queen's Privy Council in London. It was during this case that the alleged perjury was committed. Smith swore that he had shown Barter through the mill at Minneapolis. Barter claims that this was perjury, that Smith did not show him through the mill. He, however, admits that he was shown through, and that he did not know Smith at the time. The evidence at the time of the trial went to show that Smith was right. Now here's the question: If Smith committed perjury ten years ago, why didn't Barter have him arrested then? He swore yesterday that he hadn't seen Smith since the trial. I know better. He saw Smith and talked with him several times during Smith's case against Goldie & McCulloch, of Gault. I saw them talking together myself. In 1884 or 1885 the Toronto Board of Trade called a convention of Canadian millers to meet at Toronto and see about making terms with Smith. Barter attended and Smith addressed the meeting. Still he swears that he had not seen Smith since the time the alleged perjury was committed. It looks exactly as if Barter wanted to humiliate Smith by having him arrested when he could get no redress. The case was tried yesterday, and the justice said that Barter had no case at all. He would have thrown it out of court but for the importance of the previous case. The fact that Smith only had to give \$200 bail and was not even asked to give bonds for that amount, shows what little importance the Toronto justice attaches to the evidence against him."

In addition to the above we learn that the Smith Co. have for some time had suits pending against W. & J. G. Greey, of Toronto, for infringement, in which a vast amount of evidence has been taken both in Canada and Europe, and the cases nearly prepared for submittal. The unsatisfactory nature of the defendant's testimony led them to make overtures to Mr. Smith early last week for a settlement out of court, and it was at their solicitation that he went to Toronto to confer with them on this subject. Immediately on his arrival he was arrested as above mentioned. An offer was made him by the interested parties after his arrest to not only "arrange" that matter, but also settle the infringement suits, which was promptly rejected.

We will send the U. S. Miller and American Miller for one year for \$1.50.

## WATER IN BREAD.

Translated from the Austro-Hungarian *Mueller*.

A local police court in Wurtemberg, aiming at the prohibition of the sale of bread not perfectly baked and containing too much water, recently addressed the royal chamber of trade and commerce asking what methods should be employed to test the amount of water contained in bread, and the probable cost of employing those methods. The answer received from the authorities was published by Herr Alett in Wurtemberg, and we present it herewith to our readers. After stating that not even a quantitative analysis would decide the exact amount of water contained in bread, that the proportion might be obtained by drying out the bread, whereby the loss of weight would measure the water lost, and that, for a decision as to the goodness of the bread, the determination of the amount of water in the crumb when separated from the crust would be valuable, the following things were designated as necessary:

1. A scale capable of weighing 200 grams and of accurately weighing one-tenth of a gram. Such scales may be obtained of the gaugers.
2. A drying room or air-bath, 25 centimeters deep, built of copper, which may be obtained of mechanics for about 30 marks.
3. A thermometer which registers over 100 degrees Celsius, costing two and a half marks.
4. A gas lamp for heating the air-bath, costing with the necessary gas connections four marks, and an iron chimney costing 30 pennies. From these figures it appears that the entire necessary apparatus will cost about 37 marks.

The determination of the proportion of water is accomplished in this way: Out of the center of the loaf of bread a piece is cut in a vertical direction, and this is divided into equal parts. A fourth part of these, from which the crust has been separated and the crumb of which is weighed, is devoted to the water-test. The crumbs to be dried should weigh at least 50 grams, and it is better to take 100 grams. The weighed bits of bread are placed in the air-bath on a floor raised about five centimeters from the floor of the bath, with a paper underneath, and the thermometer is so suspended in the chamber that its bulb is suspended among the crumbs of bread. If the bulb of the thermometer were placed higher than the crumbs, the instrument would show a lower temperature than that surrounding the crumbs. Then the lamp is lighted and placed under the bath, and the flame is so regulated that the thermometer rises slowly and after a few hours registers only 100 degrees Celsius. A little practice will enable the investigator to so regulate the flame that the temperature shall remain between 100 and 110 degrees Celsius, in order to perfectly vaporize the water in the bread. When it appears that the water has been expelled, the bread should be taken from the box and weighed after cooling. Then it should be again placed in the box and subjected for a half hour to a temperature of 100 to 110 degrees, and this operation should be repeated so long as diminution of weight is perceptible. The loss of weight answers to the water contained in the bread and may be easily reckoned in per cent.—*Dominion Milling News*.

**THE WHEAT PLANT AND ITS FLOWERS.**

In an article in the *Contemporary Review* on western wheat crops, Dr. Paley discusses the causes why we only get some 12 or 15 bushels for every one we sow, instead of from 150 to 300 bushels, as is theoretically possible. Incidentally he refers to another matter of importance relating to the fertilization of the wheat plant, saying there is a popular idea about the wheat plant which is entirely erroneous. It is thought that if high winds prevail while the wheat is in flower, the anthers, which are then seen dangling from the ears, will be blown off, and the grain will not set through the loss of the pollen. Year after year we see this statement made in agricultural journals and corn reports, and so sensitive is the corn market that even the price of wheat may be affected by adverse reports on this head. But the fact is, these anthers, when protruded, have already performed the office of impregnation, which takes place within the closed glumes. The "flowers" seen hanging down are exhausted anthers, and wholly useless. If a storm were to blow every one of them away, there would not be a grain less in the crop.

Mr. Darwin's discovery, that Nature for the most part effects cross-fertilization, either by the wind or by the agency of insects, may, perhaps, like other new theories, be pressed somewhat too far. There are two facts which go far to prove that wheat (and the same is probably true of many others of the *Gramineæ* is really self-impregnated. One fact is, that the ovary—*i. e.*, the young seed—is enclosed in a double sheath (the chaff of the ripe seed), which is tightly closed except for a moment when the expanded anther is protruded; and the other fact is, that in favorable seasons all the grains in one ear are fertilized and matured. Now, if the pollen reached them only from a dust cloud so to call it, and was air-dispersed, like that from Scotch firs and yew-trees, neither of these facts could take place. Subtle as pollen dust is, and very small as is the quantity necessary for fertilization, it could only find its way into a few of the closed glumes, and there would always be a great preponderance of barren ears.

The following interesting experiment seems conclusive. I have often tried it, and always with exactly the same result:

"Gather half a dozen green wheat ears from a plant which is just beginning to flower, and keep them for an hour or two in a warm room in a glass of water. You may then watch the anthers in succession in the very act of being protruded through the tips of the glumes, which open just a little to let the thread-like filament hang out, and then immediately close up tightly. To actually see this gaping of the glooms, you must keep a very close and minute observation. Then cut off from the ear one of the green seed-cases, which appear next about to flower. Remove the ovary with its three stamens and feathery double pistil, and lay these organs on a piece of glass. Breathe on them gently, and you will see the anthers burst with a kind of spasmodic motion, scattering the pollen partly on the pistil, to which, as a magnifying glass will show, it adheres in minute globules, partly on the glass. But when the spurting takes place only within the glumes, the pollen must be confined to the cavity which contains the pistil and its

numerous stigmas, unless, which is possible, some few grains escape when the empty anther is protruded.

Immediately after the bursting of the anthers the filament becomes restless and begins to move. Contrary to the usual nature of this organ in plants, it is elastic, and you may watch it increasing to the length of about half an inch, carrying with it, as it creeps on the grass, the now empty and useless anthers.

The point of the observation is to prove that the filament does not expand till after the discharge of the pollen, and, therefore, that the anthers when exposed to sight, or when we say "wheat is in flower," are expended. They may be pulled off by hand as they appear, and yet all the grains in the ear will be just as perfect. Consequently, the fear of high winds "blowing off the bloom" is wholly baseless.

This exceptional elasticity of the filament is a wonderful fact. Its purpose is to make room within the narrow seed-case, for the enlarged grain by ejecting the used-up organs of the inflorescence. Occasionally, in a ripe wheat-ear, you will find they have not been got rid of, but lie shrivelled and crushed up within the glumes.

Years ago, when I was making careful observations into the phenomena of corn-growing, I used to watch in a cornfield, on a sunny day, the momentary process of the opening of the glumes for the extrusion of the anthers. I compared it to the opening and shutting of an oyster shell. My readers, however, must be warned that very close watching and very sharp sight are necessary for actually seeing the operation, which is slight, and almost momentary.

Though botanists will, perhaps, insist that it is a heresy in science to regard the wheat plant as "cleistogam," or fertilized solely within its own enclosure, I must maintain that all my observations have led to that conclusion. And if windy weather is in some way injurious to wheat, in the flowering stage, and causes it to yield in the threshing less than was expected, the reason must be this: that wind and cold and wet, very commonly accompany each other in an English summer, whereas warmth and a quiet atmosphere during the month of June are favorable to the development of the pollen tubes.

**NEW PUBLICATIONS.**

**THE GLASSE OF TIME, in the First and Second Age.** Divinely handled by Thomas Peyton, of Lincolnes Inn, Gent. Seen and allowed. London: Printed by Bernard Alsop for Lawrence Chapman, and are to be sold at his shop over against Staple Inn, 1623. Now re-printed in a neat volume, Long Primer type, bound in fine cloth, gilt top, beveled boards. Price, 50 cents. John B. Alden, New York, publisher.

**OGILVIE'S POPULAR READING.**—We have just received a copy of Number Twenty-seven of Ogilvie's Popular Reading—price only 30 cents—containing nine stories—all complete. J. S. Ogilvie & Co., publishers, 31 Rose St., New York.

**CENTURY AND ST. NICHOLAS.**—Mrs. Frances H. Burnett, the novelist, has written a serial story for *St. Nicholas*, called "Little Lord Fauntleroy," the hero of which is a boy-character who is as new as he is delightful. The story was begun in the present volume of *St. Nicholas* and will run through the year. Mrs. Burnett is at work on a new novel for *The Century*.

A HANDSOME catalogue has just been issued by the Case Manufacturing Co., of Columbus, O. Millers should send for a copy.

**READ CAREFULLY, FOR IT IS OF GREAT INTEREST TO ALL MILLERS THAT ARE GRINDING GRAIN FOR FARMERS.**—The undersigned has been to considerable expense and careful study to get up an Exchange Table for the use of millers who are doing custom or exchange business; a great number of so-called tables have been put on the market, and we have failed up to this time to see one that is of any practical use. We have thus been stimulated in getting up one that is of practical use, as it tells you at one glance how much flour as well as feed to give for any amount of wheat (from five pounds up to any number of bushels). No matter what the grade of wheat is, it shows at once how much flour and feed (toll deducted) the farmer is entitled to. A boy that can read, can exchange any grist as well as an experienced miller, and the proprietor is always sure of his allowance of toll and the farmer is satisfied every time. We are practical millers and have used this table in our mill to the entire satisfaction of all concerned. Our neighbor millers have all got one in daily use and are well pleased, as it saves time and perplexing figures. It is printed with nice, plain type, and is only 9x10 inches in size, can be framed and hung up, and will last a life time.

Will be mailed to any address in U. S. and Canada on receipt of one dollar, and if parties are not entirely satisfied, the money will be returned. Yours Respectfully,

POTTER & HUNTINGTON,

Props. Barton Roller Mills,

Barton, Washington Co., Wis.

We wish to call the attention of our readers to the above circular. We have examined the table and believe it to be the most practicable table ever gotten up. Every miller should send for one. EDITOR.

**A BARGAIN!**

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# American Flour Mill and Mill Furnishers' Directory

— FOR 1886, —

Is NOW READY FOR DELIVERY. In compiling this book it has been our aim to give the correct address of all firms or persons owning flouring mills in the United States and Dominion of Canada; to state wherever we have succeeded in obtaining reliable information, whether steam or water power is used; to give the capacity of mills in barrels of flour per day of 24 hours; to state whether millstones or rollers or both are used; to state whether cornmeal, buckwheat flour, rye flour or oat meal are made as a specialty, and finally to indicate by a sign whether the party opposite whose name it is placed is rated to be worth \$10,000 or more. We have also added a list of LEADING MILLWRIGHTS in almost every state and territory, and a list of the PRINCIPAL FLOUR BROKERS, FLOUR EXPORTERS AND IMPORTERS in various parts of the United States, Canada and Europe. MILLERS will find this a very valuable feature, worth many times the cost of the book to them. The SPECIAL points of information in this Directory are in most cases obtained from DIRECT CORRESPONDENCE. The Directory is published in pocket-book form, size of page about 4½ inches by 7¼, those for pocket use by commercial travelers being printed on French folio paper, thin, light and strong, and those for office use on elegant book paper. All copies are strongly and handsomely bound. In ordering, specify which kind you desire. PRICE, single copy, \$10.00; three copies, \$25.00. No deviation can or will be made from these prices.

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## E. HARRISON CAWKER,

PUBLISHER,

124 Grand Avenue,

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**MACHINE BAKERIES IN AUSTRALIA.**

The following extract from the *South Australian Advertiser* is interesting:

**MACHINE BAKERY IN AUSTRALIA.**—Messrs. W. Menz & Co., the well-known bread and biscuit bakers, of Wakefield street, Adelaide, have just imported one of Pfeider's dough-mixing machines, and are consequently enabled to place the bread before their customers without being kneaded by hand, as has heretofore been the general practice. Messrs. Menz's premises occupy fully half an acre, and are most roomy and spacious. There are four ovens, each 12 by 15 feet, and every accommodation is provided for cooling the bread and packing it in the delivery carts. The firm, in addition to turning out a very large quantity of bread, manufacture biscuits of all kinds. One of Vicker's large biscuit-cutting and stamping machines, is used, and the biscuits are thoroughly dried in a large drying-room situated over the oven. The motive power of the machinery is supplied by a 12-h. p. gas engine. The new kneading machine is found to be most useful in mixing and kneading dough required for the biscuits.

A Scotch correspondent forwards the following abstract from the Sydney (New South Wales) *Evening News*, for which we give space with pleasure. We learn that the greatest difficulty the Australian bakers encounter in business is to obtain sound yeast. There the town bakers have always relied on local brewers; and while it is admitted that science has improved Australian beer it is not so with the yeast, which, it is asserted, is becoming more and more worthless for bread fermentation. Various causes are assigned for this which need not be described. Colonial bakers should throw brewery yeast aside and make their own; either a patent—so called—of malt and hops, or a flour barm from red winter flour, similar to Scotch "Parisian Barm." For a hot climate we would prefer a yeast from pure malt and hops only.

"For several years bread-making by steam machinery has made great progress. The bread and pastry of nearly all the large bakers and pastry-cooks in London is made entirely by machinery. It is a matter of regret that these improvements have not been more widely adopted in this country. Up to a week or two ago there were only two steam bakeries in this colony, and they are in Sydney. About a fortnight since Mr. J. G. Purves, a well-known master baker of Sydney, started a new steam bakery at his establishment in St. John's Road, Glebe. The plant includes one of Thomson's celebrated mixing and kneading machines, a Baker's patent sifting machine, and a Baker's patent potato pulper and refrigerator. These machines are all connected with one another by shafts and pulleys, and are driven by steam which is generated by an Otto gas engine of 3½ horse-power. These machines may all be worked simultaneously or separately. Each of them effect a wonderful improvement in the quality and cleanliness of the bread, and at the same time effects an enormous saving of labor. By means of the sifter the flour is freed from all foreign particles, even to the fluff which wears off the inside of the sack in the course of handling, the thoroughness of the process being shown by the fact that it eliminates from every sack of flour two and three handfuls of fine fluffy tow, which would otherwise

have passed into the kneading trough, and thence into the customer's stomach. From the sifter, which is fixed above the kneading trough, the flour can be delivered directly into this latter and the rate of delivery regulated as required. The kneading apparatus is a half cylinder, composed of galvanized iron ends and wrought iron plates, and is adjusted with a differential motion and reversing and double action. Inside the cylinder are two sets of broad flat iron prongs, set on to axles which revolve in the manner above described. The advantages of this arrangement are manifest. The hand, clean or unclean, never touches the flour until it has been made into dough, ready to be placed in the oven in the form of loaves. In addition to this the dough is better worked up than under the hand process, making the texture firmer, and thereby producing a lighter and more blocked loaf. As regards the potato pulper and refrigerator, this is a very ingenious contrivance for making the ferment used by bakers. It consists of a cylinder, inside of which is placed a fine sieve, close to the surface of which are revolving prongs and pressers, which smash up the potatoes into a fine pulp and squeeze it through the sieve, leaving behind all the skins and refuse, of which too much found their way into the bread under the old system. In warm weather the pulp can be forced through a refrigerator, whereby its rapid fermentation is induced, and much valuable time saved. Thus economy, quality and cleanliness are secured. The whole of the arrangements are thorough and complete. Attached to the two ovens are a couple of Baker's patent pyrometers, by which the heat of the ovens is ascertained and regulated, and thereby sodden or burned bread avoided. The bakehouse itself is light, airy and well ventilated, and its coolness and cleanliness have been largely enhanced by the laying down of a tile floor. The store-rooms are large, well-stocked with the best qualities of flours from all the colonies, conveniently situated and well arranged. In fact the whole plant constitutes a model bakery, embodying as it does, every modern scientific improvement. A considerable capital has been expended by Mr. Purves in importing this machinery direct from London, and in erecting new buildings to contain it. There is every evidence of intelligent enterprise, and there can hardly be a doubt that its success will prove that bread-making by steam machinery, in a proper *locale*, is much more profitable and more congenial to the progressive spirit of the age than the crude processes of earlier days."

**BREAD-MAKING BY STEAM.**—At the bakery premises of Mr. J. G. Purves, Forest Lodge, an ingenious and recently-invented system of bread-making by steam power was commenced yesterday afternoon. The proprietor, at a cost of considerably over \$500, lately imported one of Thomson's differential motion reversing and double-action dough-mixing and kneading machines. So elaborate a title explains the intention of the patent amply. Of its actual working and effect suffice it to say that, in the presence of about a dozen master bakers and visitors from Sydney and elsewhere, after the gas apparatus by which the machinery is worked had been set going, everything worked without a hitch. In from six to seven minutes, a "dough" was made—noiselessly, and free

from dirt or dust—which, under the old system, would have necessitated two men's hard work for forty minutes. A patent sifter and potato-pulper form part of the plant—both very ingeniously and economically contrived. By means of the former, in particular, the flour undergoes a system of absolute purification, so much so that from a "cake" of the finest refined brands nearly half a hatful of a substance resembling engineers' waste—the wear and tear of sacking, &c.—was collected, which, under ordinary circumstances, must have passed into the trough undiscernable to the naked eye.—*Sydney Herald*.

We will send Harper's Weekly and the U. S. Miller for one year for \$4.10.

**THE TEACHING OF MILLING.**

The Pennsylvania State Agricultural College, like others of a similar nature, provides a carefully conducted system of agricultural experiments, and a practical course of instruction on machine making. If the manufacture of flour could be brought into the curriculum, it would form as interesting and useful a line of investigation as any that could be undertaken. There are more new ideas being brought forth in flour milling just now than in any other line of industry. Take the experiments of Homer Baldwin for the direct purification of flour, and this one idea constitutes not only a plan different from that now in practice, but may possibly be the starting point of radical changes in existing methods. An institution having no other object but the improvement of machinery and practice, and with no interest in the selling of such machinery or its products, ought at least to be of interest equal to any whose aim it is to benefit industries of no greater consequence than flour milling; very elaborate experiments are being constantly made under State assistance to test the feeding value of mill products, yet no consideration is paid to the production of such products other than the growing of the grain and its final consumption, its preparation for food uses not being considered. Some of the colleges, like Cornell, which give a practical course of study in the useful arts, and which have at the same time ample means for any purpose of investigation, might take up the subject of flour milling with advantage to all concerned.—*Millers' Review*.

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## OUR COMMERCE WITH ENGLAND.

After all, this country is not doing nearly as badly in her commercial relations with other parts of the world as some free traders would have us think. A statement furnished the Department of State, by one of the Government officials abroad, shows that, in spite of the fact that Great Britain is especially a manufacturing country, whose avowed object is to supply the world, she only manages to get out of the United States for her productions about one-third as much as the United States gets from her in a like manner. The imports into the United Kingdom from the United States in 1884 amounted to \$431,392,705, a decrease of \$64,802,095. The imports to the United States for the same period amounted to \$168,692,665, a decrease of \$16,969,865. While the difference in the diminution of trade between the countries was \$41,832,230 in favor of that Kingdom, the balance of trade was \$267,700,000 in favor of the United States. The principal falling off in the English exports in question occurred in wrought and unwrought metals, cottons, earthen and china ware, machinery, wearing apparel, skins and furs, chemicals and dye stuffs, hardware and cutlery, cement and animals. The principal increase was in silk manufactures, telegraph apparatus, wool, paper and rags. The principal falling off in the English imports from the United States was \$45,572,900 in corn, grain and flour. The chief increase was in sugar, copper and hops. The fact is of encouraging significance that the United States maintained the large percentage of former years in the aggregate exports of grain, flour and cotton. It is believed from present indications that the record of the current year will be in all respects an improvement on 1884.

## THE CALIFORNIA FLOUR TRADE.

The following statement relative to the flour trade we find in the *San Francisco Alta*: The total demand for California flour, both for export and home consumption, is about 1,500,000 barrels a year. The milling capacity of the State has increased so largely since 1882 that the increased capacity alone would more than supply the total demand. The total daily capacity of the mills of the State is 20,000 barrels, which would give an annual product for three hundred days in the year of 6,000,000 barrels, or four times the amount for which we have any legitimate demand. The actual capacity of the mills, however, is reduced by mills running only part time, and by other causes, about 50 per cent., so that the real product is only about 3,000,000 barrels 50 per cent. of which is in excess of the demand, both home and foreign.

## RECENT 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 for 50 cents:

ISSUE OF FEBRUARY 2, 1886—No. 335,155—Device for tightening bolting cloth, G. T. Smith, Jackson, Mich.; No. 335,257—Feed mechanism for roller, grinding mills, etc., P. Van Gelder, England; No. 335,220—Wheat cleaning and polishing machine, E. Fritsch, Leipsic, Germany; No. 335,391—Grinding mill, G. K. Smith, Chicago, Ill.; No. 335,418—Millstone bush, D. A. Beelows, Mulberry, Ga.; No. 335,454—Flour bolt, N. W. Holt, Jackson, Mich.; No. 335,543—Flour bolt, G. T. Smith, Jackson, Mich.

ISSUE OF FEBRUARY 9, 1886—No. 335,902—Cockle separating machine, C. D. Edwards, Albert Lea, Minn.; No. 335,573—Pulverizing machine, W. M. Fuller, New York, and J. J. Hayes, Brooklyn, N. Y.; No. 335,574—Pulverizing machine, W. M. Fuller, New York, and J. J. Hayes, Brooklyn, N. Y.; No. 335,642—Flour bolt, G. T. Smith, Jackson, Mich.; No. 35,688—Oat hulling machine, J. E. Penner and Dan Brunson, Kansas City, Mo.; No. 335,949—Grain measuring apparatus and sack holder, R. C. Livingston, Spring Valley, Minn.

ISSUE OF FEBRUARY 16, 1886—No. 336,246—Grain separator, A. Lent, Sleepy Eye, Minn.; No. 336,402—Mechanism for extracting steel and iron from grain, F. E. Fisher, Detroit, Mich.; No. 336,533—Millstone dress, H. E. and C. W. Sylverster, Marengo, Ill.

ISSUE OF FEBRUARY 23, 1886—No. 336,567—Fan for grain separators, J. Hawk, Canton, Ohio; No. 336,655—Cockle separator, C. A. McCollum and M. Forder, Dassell, Minn.; No. 336,755—Grain elevator, M. Q. Seeley, Fremont, Neb.

## JIM AS AN ENGINEER.

Jim's a good-natured happy-go-lucky; he's served his time in the machine shop, knows all about blacksmithing, and as for a stationary engine, why bless your soul, he's designed more than you ever saw. His uncle was a big stockholder in the company, and Jim was sent up to make himself generally useful, and show the country bumpkins a thing or two.

When he came all the places were full, so Jim swept up the shop and did some helping. To be sure, he left some chips under the lathes and the bench was not very clean; but you know, Jim was an engineer and machinist, and not a roustabout.

At last business picked up, and Jim was set to work running the engine nights. Then he was in his glory. First he thought the globe valve on the feed-pipe ought to be shut. Of course he forgot to open it when he started the pump. Well now you just ought to have seen that packing come out, and the water squirt over the engine and machinery. Jim caught a good mouthful and then left, and never stopped till he was out-doors. It rather scared him, but in a night or two he was ready to try another dodge.

The pump didn't leak, but Jim thought it needed packing, or anyhow that gland must be screwed up, and up it went; and the first thing he knew the plunger stopped, stuck tighter than a drum. Well, the engine went on serenely, and the set screw that was to have held the crank cut a nice little groove around the shaft.

Now that valve motion is all out of kilter, and needs resetting. So one night while the men were at lunch, off comes the steam-chest cover, and the valve is reset. Engine starts a little lame, but Jim knows she will soon get over that. But pretty soon there is a rattle, the engine limps worse and worse, and then with a final rattle she stops. Investigation showed a nut off the valve stem. It had dropped into a steam port, been blown out into the exhaust and up the smoke-stack, till it struck the elbow, when it dropped back upon the vertical boiler, where it was found next day.

Then Jim thought that perhaps it was not the valve after all. The pound must be in the eccentric straps, and I'll just tighten 'em up. Well, now, almost before he could put that monkey-wrench down on the bench there was a loud snap, and a broken eccentric rod went whirling around with the shaft. This time the eccentric and strap were both cut and the rod broken. Jim smokes away,

and says the engine is no good. Manager thinks about the same of Jim's engineering qualifications, and gives him a job where he won't have quite so good a chance to raise Cain, but Jim was still alive, and didn't fail to let us know it.—*Power*.

## NONSENSE.

JEEMS knocks a cup off the mantel, shivering it into a thousand fragments. His mistress, hearing the noise, rushes in and stands a moment stupefied by the result of her servant's awkwardness. "Oh," she cries with tears in her eyes, "my beautiful old Severes!" "O," exclaims Jeems, in a joyous tone, a seraphic smile spreading all over his face, "I was so frightened at first. I thought it was something new."—*Paris Figaro*.

SNOOKS was a hard case, but he took a turn about and joined the church, expecting great spiritual regeneration from the act. Next day he was perambulating his shop in a deep study and soliloquizing *sotto voce*, yet so loud as to be overheard by his workmen: "I hain't experienced any conversion. I don't see any difference, I don't feel any change, and— it, I don't believe there is any."

AN Irishman caught a bee after it had stung him, and, examining it carefully, he said: "Ye dirty little blaggard, yez been sittin' round till yez worn the seat out of yer breeches, and bedad oi've found yer knife shticken through yer hip-pocket, ye little haythen!

RANSOM CHEESE.—Uncle Billy Stokes, a colored individual from one of the back counties in Mississippi, where old-fashioned wagons with wooden axles are still in use, and where the primitive "tar-bucket" is part of their "running gear," was in Canton, Miss., a few days ago, standing in front of Matt. Hiller's store watching the unloading from drays of newly arrived goods. One dray contained, besides several barrels of groceries, a number of boxes of cheese and a dozen or two boxes of patent axle grease. Uncle Billy's eye rested upon the latter, and he inquired:

"Mars. Hiller, what yer ax for one of dem little cheeses?"

"Only 50 cents, Billy, do you want one?" was Mr. Hiller's reply.

"Wal, yes, boss; but ef I buy de cheese will yer fro in de crackers?"

"Of course, I will," said Mr. Hiller, as he handed Uncle Billy a box of the axle grease and then passed behind his counter and took a handful of crackers from a box and gave them to the old man.

Uncle Billy then went to the back door of the store, and seating himself on an empty dry goods box, proceeded to enjoy his lunch. He had been there about five minutes when Mr. Hiller concluded he would see what progress he was making; so, going to the door, he saw the old man, with his barlow knife in hand, spreading the grease on a cracker, while his jaws were vigorously working and his mouth and chin covered with crumbs and grease.

"Well, Uncle Billy," said Mr. Hiller, "how do you like your lunch?"

The old man rested his knife on his right knee, and drawing a heavy sigh, replied:

"Boss, dem ar crackers are pow'ful good; but lor, boss, dis am the ransomest cheese, 'fo' de Lord, I ever tasted."

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**RICE CULTURE AND MILLING IN INDIA.**

Under the former head, "Rice Culture," very little requires to be said in the columns of an English milling journal. Rice mills may be noticed under (1), thrashing machines; (2), paddy mills; (3), flouring mills.

In India rice forms the staple food of the inhabitants. In large towns the consumption of wheat flour is on the increase, and hence wheat milling; but rice is still the dietary of the people. The small percentage of gluten which it contains is, however, against it, and from long cultivation on the same ground without the proper application of manure, the percentage of gluten is greatly decreased below what may be considered the normal standard. It was otherwise in the United States of America, where, by careful attention to the requirements of this crop, raised on virgin soils, Carolina rice realized at one time in the English market, "nearly three times the price of Indian rice," according to the *Agricultural Gazette* of India. Such exposures by the Indian press naturally drew attention to the necessity of improvement in rice culture, and of late years the quality of the rice, including the percentage of gluten and the yield per acre, have both been improved. And although this improved practice is yet the exception, there is hopeful evidence that it will ultimately become the rule.

One of the greatest drawbacks to rapid progress in India is official mismanagement at the Government experimental farms.—Were intelligent native agriculturalists appointed to the management—and no difficulty would be experienced in the selection of such—their successful practice would be viewed in a different light by the small farmers, and hence followed with greater confidence.

In the museum at Calcutta some 1,400 varieties of the rice plant are exhibited, but it will be unnecessary to wade through such. The practical question is to select the best for diversity of soil and climate, and to improve these by cultivation and manuring. The whole may be divided into two classes,—1, water rice (*Oryza sativa*), and, 2, mountain or dry land rice (*O. mutica*). Several varieties of the latter are grown in India, but the berry is small and the yield per acre less than the former.

No reliable statistics of the acres under rice is given. Simmonds, in his "Tropical Agricultures," quotes Bengal and Madras Presidencies at about 40,000,000 acres, and Burmah, now added to the Empire of India, at 2,000,000 acres; but this is leaving out of account Bombay and some of the native states, etc., so that 50,000,000 acres are probably nearer the mark.

The yield per acre is variously stated, and may be quoted at from 800 lbs. to 2,000 lbs. But as from 3,000 lbs. to 4,000 lbs. have been grown per acre, the question naturally arises of a much higher general maximum per acre. This applies to water rice only; no statistics of the yield of dry land rice is given per acre.

In harvesting rice the crop is generally cut with a tool of the sickle kind, and bound in sheaves. There is, however, nothing to hinder this crop being harvested by a sheaf-binder, save the poverty and, it may be, the prejudices of the Hindoo farmers. And as the latter are giving way to the progress of things the question naturally arises, Can an Indian contractor harvest the crop with a sheaf-binder at less money than the small

farmer can do by manual labor? The answer to this hinges upon certain conditions, viz., 1, Can rice sheaf-binders be made suitable for two Indian bullocks? 2, What breadth will the machine cut? 3, At what pace will the bullocks move in the broiling sun of India? 4, Would it be practicable to introduce mules in preference to bullocks for all kinds of farm work?

At one time the money value of farm work was as low in Britain as in India at the present day, yet the balance at the years' end was against the farmer—as compared with the present day; and this without doubt is the position of the Indian farmer. "Time," says Franklin, "is money," and with a sheaf-binder hauled by two mules, as in the United States of America, an Indian contractor could harvest a crop of rice at a fraction of the time it takes the Indian farmer to do it. In Eastern Europe, Turkey and Egypt this is done by bullocks in harvesting wheat crops, so that the day is looming in the distance when rice, wheat and other crops will be harvested in the same way in India.

Thrashing is generally done on the thrashing floor, as in patriarchal times, the rice being trodden out by the feet of bullocks in the same way as wheat. In Egypt a thrashing instrument on wheels is hauled over the rice on the thrashing floor, as described by the prophet Isaiah, the Roman writer Varro, and more recently, 1772, by Niebuhr, with illustration. But Messrs. Clayton and Shuttleworth, of Lincoln, are now sending out thrashing machines to India for thrashing rice similar to the wheat thrashing and straw bruising machines of the same firm, of which an illustrated description was given in the *Millers' Gazette*, Nov. 2, 1885, pp. 541-2, the only difference being that a different construction of drum is used for rice. It follows that by means of an additional drum the same thrashing machine may be used for thrashing wheat and rice, a wheat drum being used for thrashing wheat and a rice drum for thrashing rice, the bearings being common to both drums. The economy of this arrangement will appear manifest, as thrashing machine contractors can easily, with the necessary tackle, lift out the one drum and replace it by the other. Clayton and Shuttleworth's thrashing machines are sent out to India, not only adapted for thrashing rice and wheat, but all the other crops grown, now generally thrashed by the feet of bullocks, or some other primitive way. When Andrew Meikle invented the thrashing machine it was calculated that the gain to this country was over £2,000,000 annually. Such being the British gain at the close of last century, what must our Indian Empire gain, considering the immense area under crop, and the fact that two, and sometimes three, crops are harvested from the same land in one season? At present, in some cases, the Indian farmer has his crop thrashed by contract, his wheat and rice being trodden out by the bullocks of the contractor, or he may agree to give his own bullocks. It would be interesting to know the time and money spent in thrashing the whole of the rice crop of India, including the cleaning and dressing the paddy for home use and market. To multiply the fifty million acres by 2,000 lbs., the amount of produce per acre, gives one hundred billion pounds, and this again by the expense of time and

money in harvesting, thrashing and dressing, may not inaptly be said to baffle calculation. But were the work done by sheaf-binders and thrashing machines as it is done in harvesting and thrashing the wheat crops of the Far West, where on some large farms upwards of 100 sheaf-binders, hauled by mules, enter the harvest field, followed by a sufficient number of thrashers to do the thrashing, what a saving would be effected! Between the "go-ahead" spirit of our Transatlantic cousins and the farmers of India there is hardly any comparison, but, great as the difference is, it is annually diminishing in magnitude, so that the future may see it reduced to equality.

The number of paddy mills in India is greatly on the increase.—*The Millers' Gazette*, (London). W. B.

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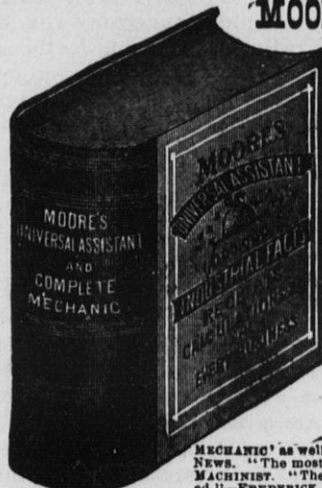
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### A Few Words About Cawker's Flour Mill Directory for 1886

A FLOUR MILL DIRECTORY.—Cawker's American Flour Mill Directory for 1886 contains in convenient form much which renders it very desirable to the trade. The book is compiled by Mr. E. Harrison Cawker, editor of the UNITED STATES MILLER, of Milwaukee.—*Bradstreets*, Feb. 20, 1886.

WE are at a loss to know why Mr. Cawker delayed so long in sending us a copy of his new directory of flour mills of the United States, which has just been received. Now that we have it, we are able to say that it is apparently a valuable and carefully prepared volume, and also to allude to a matter which those unfamiliar with the trade may not understand. The footings of the various states and territories and the Canadian provinces included in the book show there are 18,169 mills, a loss of 6,823 since the publication of the directory of 1884. This, however, by no means indicates that there has been any such decrease in the number of mills. It only indicates that Mr. Cawker has taken considerable more care in the preparation of the present volume than in his previous one, and has excluded from it a large number of feed mills, saw mills, cotton gins, etc., which appeared in his issue of 1884. The number of mills in the country has, we believe, decreased but slightly, and we are quite positive that their capacity on Jan. 1, 1886, was considerably in excess of the daily capacity Jan. 1, 1884. Our own lists show an increase in number in nearly every northwestern state and territory, and an increase in capacity of from ten to fifty per cent.—the latter being the case in Dakota.—*Northwestern Miller*, Feb. 12, 1886.

THE correction of errors in last year's flour mill directory, by which some six thousand mills were at one fell blow rendered invisible, is inspiring such paragraphs as this in the daily press:

Six thousand country mills have quit the milling business, and most of these are of the "merchant" kind, operating to fill the city orders. This would not indicate a very brisk state of affairs in the milling trade.

We pointed out last week that Cawker's directory of 1884 was grossly inaccurate, and it would have been better if the publisher had frankly acknowledged this, instead of causing to be telegraphed all over the country the statement that there had been a decrease of twenty-five per cent. in the number of mills in two years. People who know anything about it, know this to be impossible, while the ignorant write and print silly paragraphs like the one above quoted. The only interest millers feel in the matter is in the fact that the false statement is not likely to cause a grand rush for investment in milling property.—*Northwestern Miller*, Feb. 19, 1886.

WE are sorry to see our Minneapolis contemporary emphasizing the erroneous report sent out by an irresponsible scribbler at Milwaukee, to the effect that Cawker's Flour Mill Directory for 1886, shows a decrease of some 6,000 mills in this country, from the number given last year. In charging that this directory is "grossly inaccurate," our contemporary is, in our opinion, very unjust. The fact is, that Mr. CAWKER is not in error

in what he has undertaken to set forth, which has been simply to give only the flour mills which are actually at work, excluding all the saw mills and cotton gins, and remains of mills which have been burned or destroyed. It is undoubtedly the most accurate and useful directory that MR. CAWKER has yet compiled. An objection to those which have preceded it, was that they contained a great many names of men who never owned a dollar's worth of milling property and who did not represent property. The old directories might have been of use to our contemporary, as well as other milling journals, in procuring subscriptions from operative millers, but to the manufacturers and those who have to do with the real owners of milling property, they were not nearly so valuable as the present edition will prove to be.—*Modern Miller*, March, 1886.

CAWKER'S AMERICAN FLOUR MILL AND MILL FURNISHERS' DIRECTORY FOR 1886, is somewhat reduced in size, but for the sake of the reduction nothing has been sacrificed. A list of millers and of leading millwrights in every state and territory are given, and a list as well of the principal flour brokers, flour exporters and importers in various parts of the United States, Canada and Europe. The number of addresses contained in the directory is given at 20,000. Milwaukee: E. Harrison Cawker. Price \$10.—*Leffel's Mechanical News*, March 15.

"CAWKER'S FLOUR MILL DIRECTORY FOR 1886" is out. It shows a total of 18,289 mills in America, a net decrease (according to Cawker) of 6,812 mills, as compared with 1884. The book is a handy compilation for persons who desire to mail circulars, etc., to millers, but as statistical work it is clearly unreliable. The inference from the enumeration of mills in the States and Canada, is that there has been an actual decrease in the number of establishments of 6,842 in two years. That may be according to Cawker, but it is evidently not according to truth. So far as Indiana is concerned there has been no loss of 226 mills, as Cawker says, in two years' time, nor has there been in the aggregate, in this State, any perceptible loss in the milling capacity, and not the difference of a score of mill in the aggregate, if our State Gazetteer and our own lists can be relied upon. What is true of Indiana may be assumed more readily of the newer and more rapidly growing States, which, according to this remarkable statistician, have all, except Dakota, lost anywhere from 3 to 300 mills—Texas, for instance, where mill building is most lively, being set down as 289 mills short of 1884. But it is useless to recall here more of the glaring inaccuracies of this work. The names it contains may be as reliable as any list, and in that respect the compilation is valuable to any one who has use for a list, but in that respect only can we recommend it. Price, \$10. Address E. Harrison Cawker, Milwaukee, Wis.—*The Millstone*, February, '86.

[The editor of *The Millstone* evidently wrote the above notice before he read our explanation for the decrease of number of addresses. The paragraph above from the *Modern Miller* explains the matter very well. Our object was to prepare a directory satisfactory to the trade by which they would be pretty sure to get their circulars and other correspondence just where they wanted it to go.—CAWKER.]

WE are in receipt of a copy of "Cawker's Flour Mill Directory," for 1886, which is in many respects materially improved over former editions. It is not only printed in small-

er and more convenient form, but greater care has been exercised to exclude from the list everything except mills in actual business, and these are again so marked that in using the list the relative importance and character of the mills can, in the majority of cases, be easily determined. The work can be obtained by writing to E. Harrison Cawker, Milwaukee, Wisconsin.—*Milling Engineer*, Feb. 1886.

THERE is no subject concerning which the average reporter for a daily paper cannot succeed in eliciting a great amount of misinformation, apparently without half trying. Generally the intelligent portion of the reading public is able to discriminate closely enough to avoid being seriously misled, but occasionally a statement is made, and backed up by seemingly correct figures, that is calculated to deceive all except those who are actually posted. As an instance, the *Evening Wisconsin*, of this city, got hold of a copy of the new edition of Cawker's Flour Mill Directory, and comparing it with an old back number, made the astonishing discovery that there were some 6000 less flouring mills in 1886 than in 1884. This statement was telegraphed widely over the country, and is calculated to foster an erroneous impression as to the real extent of the milling interests of America as compared with previous years. The fact is, that while there has probably been some small decrease, owing to the closing up or failure of a few of the smaller and more unimportant mills, the number of new mills built would nearly, or quite, offset the number of mills burned and not rebuilt, and the only reason for the decrease in the number of mills in the new list is solely owing to the greater care exercised in making up the list to exclude all but mills that are actually entitled to the name. The one-horse saw mills and cotton gins with a feed run attachment have been dropped from the list, although they still exist, and are of as little account in the milling line now as they have been heretofore.—*Milling Engineer*, Milwaukee, Feb. 1886.

CAWKER'S American Flour Mill and Mill Furnishers' Directory for 1886 is now ready for delivery. It contains 20,000 addresses. It contains, in addition to the matter indicated by its title, a list of the principal flour brokers and exporters in this country and importers in Europe. The directory is published in pocket-book form, those for the use of commercial travelers on thin paper, and those for office use on book paper. The book is strongly bound. The price is \$10. Copies may be obtained by addressing E. Harrison Cawker, Milwaukee, Wisconsin.—*American Elevator and Grain Trade*, Chicago, Feb. 15.

WE have received a copy of "Cawker's American Flour Mill Directory for 1886," published by E. Harrison Cawker, of the UNITED STATES MILLER. The book is of handy form, containing 140 pages, well printed and well bound, and contains about 20,000 addresses of flour millers in the United States, besides details as to the kind of power used, and whether on the stone or roller system; besides which the financial rating of a large number is given. To those interested this book will be very valuable, and the price (40s) is, considering all things, cheap. We shall be glad to supply anyone

wanting the book.—*The Millers' Gazette*, London, England, Feb. 22, 1886.

THAT invaluable publication, "Cawker's American Flour Mill Furnishers' Directory for 1886," has just been issued. This volume is indispensable to the trade. Mr. Cawker has spared no pains or expense in gathering the information contained in its pages. The enormity of the labor of compilation may be judged from the fact that the book contains 20,000 addresses. It aims to give the correct address of every firm or person owning or operating flour mills in the United States and the Dominion of Canada, the kind of power used in each mill, the kind of grinding machinery in each, the specialty of each, and the financial rating of every mill owner. Besides all these things it contains a full list of the leading millwrights of nearly every state and territory and the principal flour brokers, flour exporters of the United States, Canada and Europe. To millers these lists alone are worth many times the cost of the book. Mr. Cawker has obtained the special points of information from direct correspondence, and this fact lends additional value to the work. The directory is published in pocket-book form, and those designed for pocket use by commercial travelers are printed on thin, light, strong French folio paper. Office editions are on elegant book paper. All the editions are strongly and durably bound. The price per copy is \$10 and the book may be obtained by addressing the publisher, E. Harrison Cawker, Milwaukee, Wis., or the publisher of this journal.—*The Milling World*, Buffalo, N. Y., Feb. 8, 1886.

MESSERS. WELLS, FINCH & Co., prominent produce commission merchants in New York, in a recent letter to us, in referring to Directory, say: "It is the best thing we have seen in its line."

WE have received Cawker's American Flour Mill and Mill Furnishers' Directory for 1886, which, as many of our readers are no doubt aware, is a register of the names and postoffice addresses of the owners of flour mills in the United States of America and the Dominion of Canada. This handbook is compiled under the superintendence of Mr. E. Harrison Cawker, editor of the UNITED STATES MILLER, Milwaukee, Wisconsin, U. S. A., and is calculated to be a valuable assistant to milling engineers and those who deal in any kind of mill furniture. The price (ten dollars in the States or two guineas in this country) may seem high, but then it must be borne in mind that this little directory contains solid information to all who have any commercial dealings with the milling craft, and what is worth having is worth paying for. For the rest, the material part of this work is beyond all criticism. To produce a really handy handbook, unobtrusive in the pocket and not burdensome to the fingers, space has been judiciously economized by the free use of signs and abbreviations, and by printing on a very fine yet strong paper. The printing, moreover, is excellent, and, somewhat unnecessarily perhaps, perennial wear is guaranteed by a pocket-book-like cover of real crocodile hide. We had omitted to say that the list of American and Canadian millers is supplemented by the names of the millwrights and flour brokers of the same region, as well as by a directory of European flour importers. The

last page shows the total number of flour mills now at work in the United States to be 16,950, while the estimate of 1,339 exhausts the number of Canadian mills.—From *The Miller*, London, England.

#### THE GRAIN HOPPER SCALE SYSTEM.

Mr. Richards, of Chicago, the inventor of the above-named system, is about to introduce it at Cincinnati, and other points where large quantities of grain are received by rail. This system has been used by the Lake Shore & Michigan Southern R. R. in Chicago for two years, and pleases grain shippers and receivers very much.

In describing the system the *Cincinnati Price Current* says:

Car loads of grain are brought alongside the scale house, and are quickly emptied by a system of steam shovels, into a pit, when the grain is carried by elevators to a hopper bin, when the entire car load is weighed at one time—the practice being to have two clerks make a record, to avoid possible error. The grain is then returned to the same or another car, by gravity, and quickly.

This system facilitates business by giving reliable and prompt weights, and it is proposed that it shall be done at no increase of cost over the present method, one dollar a car.

Our grain trade has suffered materially as a result of the track weighing system, causing delays and losses in weight from various causes, uncertainties to shippers as to what they may realize, etc. When the shipper can have assurance that he can be served with strictly correct weights of his grain, he can operate with confidence. When our market can give this guarantee, it will strengthen its attractions and claims for consignments.

#### THE DEFENDANTS WIN.

Judge Hawes recently gave an opinion for the defendants in the case of the Albion Milling Company, of Michigan, against Blake, Shaw & Co. and Dike Brothers & Minkler, warehousemen. The suit was a replevin to recover \$825 for several hundred barrels of flour, which the milling company, at the request of two swindlers at No. 257 Lake street, calling themselves Warren F. Johnston & Co., shipped in 1883 to them. There is a bona-fide firm of commission men at No. 167 Washington street, named W. F. Johnston & Co., and when the order from the swindlers was received the milling company looked in Bradstreet's and found that W. F. Johnston & Co., at No. 167 Washington street, were reputable men, and the company supposed it was shipping the flour to them. The swindlers received and sold it to a commission man, who deposited the flour with the Garden City Warehouse Company. As innocent purchasers for value, Blake, Shaw & Co. bought the receipts and received the flour, which they sold. The suit was dismissed as to Blake, Shaw & Co., because they were innocent purchasers, and as to Dike Brothers & Minkler, of the Garden City Warehouse Company, because there was no reason to believe that the swindlers on Lake street, who subsequently fled, used any device or artifice to represent themselves as the Washington street firm. They ordered the flour simply on the chance that the company would send it. The latter could not now claim that it thought it was dealing with W.

F. Johnston & Co., of Washington street. The judge thought it very stupid of the company to look in Bradstreet's for Warren F. Johnston & Co. of No. 237 Lake street, and finding W. F. Johnston & Co., of No. 167 Washington street, to suppose they were one and the same firm. The case would present an entirely different aspect had the swindlers forged W. F. Johnston & Co.'s name.

#### WHEAT AS HIGH IN CHICAGO AS IN LIVERPOOL.

The low price at which East India wheat can be sold in England is among the nightmares that afflict speculators. The case was recently stated in a very forcible manner by Horatio Seymour, Jr., a civil engineer of national reputation, formerly a resident and state engineer of New York. He now resides in Michigan. He put the question as follows: "This India wheat can be laid down in the London and Liverpool markets at 75 cents a bushel. It can be brought to New York by way of the Suez canal for 80 cents, and but for our protective duty of 20 cents per bushel it could be laid down there at that price. Our farmers should note these facts and take steps to protect themselves. As matters now stand they can not expect better prices than they now receive, unless a bad harvest, a famine in India, or a desolating war should intervene to put them up."

A statement of the facts even more concise than that of Mr. Seymour may be made To-day, June wheat is worth 86 cents in Chicago, 96 cents in New York city and 102 cents in Liverpool. Liverpool appears to have lost control of the price of wheat in Chicago. With diminishing exports, the Western wheat elevators bursting with their contents, and the India scare, wheat remains at a tolerably fair price in Chicago—not very high, nor too high, but not very low, and not as low as it has often been when wheat fleets dotted the ocean between New York and Liverpool, and gold to purchase American wheat was shipped by the cargo from London to New York. It is evident that something beside a foreign demand is keeping wheat at its present price. A few months ago it was sold at 70 cents a bushel, with a possibility that it might drop below that figure. From that point it began steadily to rise, and in November last reached as high as 96½ cents a bushel. It has not since fallen back to within 12 or 15 cents of the level from which it started. During all this period there has been no shipping market for wheat, no foreign demand to increase the price, and shipments from Chicago to Liverpool could not be made at a profit. From these facts it is evident that the vicissitudes of the Chicago wheat market are no longer regulated by those of the Liverpool market.

What mysterious influence it is that keeps the wheat market higher relatively in Chicago than it is in Liverpool, speculators and experts in economic science may discover if they can. It is evident that something beside speculative manipulation, the influence of corners and the effect of long or short sales is supporting prices—not at a high elevation, but on a level above points of low depression, and at a figure at which the farmer can raise wheat and get it to market at a profit.—*Chicago Evening Journal*, March 11, 1886.

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## ITEMS OF INTEREST.

BRIGADIER GENERAL OLIVER O. HOWARD is in his 57th year. He is the senior officer of his grade.

DR. LANSDELL, the English missionary, in a single recent year distributed no less than 56,000 bibles among the exiles in Siberia.

GENERAL TOOMBS' estate in Georgia has been assessed at \$60,000.

MAJOR GENERAL JOHN POPE will be 62 years of age on the 16th inst. He will then be retired.

FITZ JOHN PORTER is 64 years of age.

THE American Catholics are to establish a university at Washington.

THE Hancock memorial fund at present amounts to \$39,000.

LAGARTIJO, the chief espada, or bull-fighter of Madrid, is employed there during the summer season for \$6,000, and he made another \$10,000 in the provinces during the winter. He claims to have killed 345 bulls without being personally injured.

JOEL CHANDLER HARRIS, the Uncle Remus of the Atlanta *Constitution*, will soon wed Miss Caroline Muggs, a wealthy young lady of North Carolina, who is also a niece of Stonewall Jackson.

MME. ALBANI customarily wears only two pieces of jewelry. One is a splendid diamond and emerald bracelet inscribed: "From Victoria, R. I. 1885." The other is a costly gypsy ring given to her by her old and valued friend, Lord Dudley.

IN New York City during the past year, 75,042 persons were arrested, 53,683 were held for trial or summarily convicted, and of this number 36,432 were males and 17,251 were females.

A PENNSYLVANIA geologist declares that the oil fields of that State have passed their meridian, and that the supply of natural gas is limited.

LIEUTENANT GENERAL PHILIP H. SHERIDAN is 55 years of age. With the exception of General Miles, he is the youngest general officer in the regular army.

NOW COMES the Minneapolis *Tribune* with an account of the cure of an inordinate appetite for tobacco in all its forms through a toboggan accident.

KING HUMBERT, of Italy, in an economic mood, has given instructions to his court enjoining it from drinking the high-priced wines.

FLOUR MILLING IN THE SOUTH.—The general progress of industrial pursuits during the past year in the South, is well illustrated in the advancement made in milling and the improved condition of milling interests all through the South. While all staple industries have shared in the propitious changes of the year, the great development of capacity in flour making shows that the onward movement is yet progressive and the steady increase in the demand for food products from a growing permanent population points to the continued prosperity of all industrial pursuits. During the year nearly 150 mills have been erected in the Southern states, not including grist mills. A list published by a Southern manufacturing exchange summarizes the year's work as follows: Arkansas and Mississippi have erected 1 mill each;

Alabama, 2; South Carolina, 3; West Virginia, 7; Maryland, 9; North Carolina, 10; Georgia, 17; Texas, 18; Virginia, 20; Tennessee, 24; Kentucky, 31.—*N. Y. Tribune*.

SIZE OF STONES IN MASONRY.—In many edifices, both ancient and modern, it has been observed that the stones used were too thin—i. e., that they had not sufficient thickness in proportion to their length, and that in consequence they broke under the weight. These accidents arose from the stones not resting equally throughout the whole surface of their beds, either because these surfaces were not exactly dressed or leveled, or because some unequal settlement took place which deranged the lower stones. The greater the thickness given to stones relative to their length, the greater is the power of resisting this effect, which it is often very difficult to foresee or prevent. For works which have very great weights to carry, such as walls and points of support, cubes are the strongest, but they have less stability and do not form sufficient bond; those in which the length is much greater than the height have more bond but less strength to carry the weight. According to the experiments made on stone, the length may be fixed at from twice to thrice their height, and their width from once to twice, supposing the stone of moderate hardness. When stones are very hard, more than a foot thick and wrought on all sides, their length may be from four to five times their height, and their width from two to three times. Larger dimensions increase the expense without adding to the utility.

ETRUSCAN ARCHITECTURE AT ROME.—The theatres and amphitheatres are the only civil buildings of which there are any remains in Etruria that offer any idea as to what they were like. The form of the amphitheater as adopted by the Romans, is essentially Etruscan. There are the remains of many works of utility, drainage works, bridges and city walls, monuments of their science and skill that, Ferguson says, "their successors never surpassed." They do not seem to have had any temples or palaces worthy of attention; in fact, the only interest Etruscan art possesses is that it is an introduction to the Roman. From the city gates, aqueducts and bridges, we know that the Etruscans used the radiating arch at a very early date. They were constructed with deep vousoirs or arch-stones, with elegant mouldings

During the first two and a half centuries Rome was an Etruscan city, wholly under Etruscan influence. During this period, we read of palaces and temples and of works of immense magnitude being built for the embellishment of the city. After expelling her kings, Rome existed as a republic for five centuries without doing anything that we know of to advance either art or science.—*W. L. B. Jenney*.

BRITTLE STEAM BOILERS.—Peter Carmichael recently read a paper upon steam boilers before the Scotch Institution of Engineers, in the course of which he mentioned that it had been found that "all qualities of iron get hard and brittle after the boilers have been at work more than a dozen years, more especially where exposed to the action of the fire; and that in the furnaces, even Lowmoor iron becomes as brittle as common iron in that time, and great care has to be taken in mak-

ing repairs to prevent the plates from cracking. For this reason 16 to 17 years is long enough for a boiler to be in use, at a pressure of 40 to 45 pounds. If used longer, the pressure ought to be lowered." Two boilers which had been in use 19 years, and which required repairs, were found by Mr. Carmichael so brittle that the rivet heads on the outside flew off when the inside heads were struck, showing that the rivets had deteriorated as much as the plates.

AT the funeral of the late King of Spain an imposing and curious scene occurred, which, it seems, is a custom peculiar to that country. When the procession reached the monastery connected with the Escorial Palace, the Duke de Sexto, the Royal Chamberlain, knocked, and requested admittance for Alfonso. When inside the gates, the Duke unlocked the coffin and called three times in Alfonso's ear. Then according to the ritual, he said: "There is no reply. It is true, the king is dead!" He then relocked the coffin, and broke his wand of office.

IN New York City, the telephone companies have united and raised the rate from \$5 to \$12.50 per month. The board of trade transportation committee have requested the Senate to take up the question, and have compiled a table showing the charges per month in various cities, which is as follows:

New York.....	\$12.50
Chicago.....	8.00 to \$10
Philadelphia.....	10.00
Boston.....	6.00 to 12
Baltimore.....	4.00 to 7
San Francisco.....	5.00
Buffalo.....	4.00 to 10
Albany and Troy.....	4.00 to 5
Rochester.....	4.00 to 12
Syracuse.....	4.00
New Haven.....	2.50 to 6
Providence.....	3.50 to 5

Kansas City charges \$6.00 per month within one mile of the central office, and an increase over this amount for distances more than one mile.—*K. C. Commercial*.

COUNTERFEIT MONEY.—There are some spurious manufactured coins which gain a ready circulation. These are a genuine \$5 coin, containing \$3.65 worth of Etruscan pureness, and an iron dollar heavily plated with silver, which has the true ring, and is but slightly defective in weight. These are not turned out in any great quantities and are evidently handled by some close corporation, which has not yet been ferreted out. These coins can be detected only by experts, and consequently are the most dangerous ever turned out. Fortunately there are comparatively few of them in circulation, and the people have not been mulcted to any great extent. But Treasury note counterfeiting, which created such a panic some years ago, has virtually ceased. There is one man at the present time who is a genuine artist and capable of attempting the feat, and that man is Tom Ballard, and he's safe enough in the penitentiary.—*Albany Express*.

AN idea of the vigorous growth of the iron industry on the Pacific Slope, is presented by a glance at the catalogue of the Pacific Rolling Mill Company, of San Francisco. On our farthest Western limits, in less than two decades, has grown up an establishment rivaling in the variety of its products the most extensive iron and steel works of the Eastern States. From it a railroad may obtain

nearly all its iron and steel supplies, from rails and car axles to the smallest bolts and spikes. The structural iron and steel for the largest buildings can be furnished on short notice; and the iron and steel for all the implements of agriculture are also provided from the same works.

**THE WHEATEN LOAF.**—Good wheat bread and butter is the staff of civilized life. Take away wheat bread and butter from our families for a few generations, and who is prepared to say that civilization would not glide easily to a state of barbarism? There is sound philosophy in this suggestion, because there is no other kind of human food that is so admirably adapted to the development of the human frame, including a noble brain, as good wheat bread. Civilization has seemed to keep pace with the production of wheat, and refined society, the world over, has seemed to exist coeval with the wheaten loaf.

LABOR was never in this country so united and its cohesion so perfect. But it will be the great misfortune to the laborer when he can persuade himself and the world that capital and labor are antagonistic. Capital must be prosperous if labor is. When men refuse to invest their capital because of this antagonism there will come evil days for the laborer. It will be a realization of killing the goose to get the golden egg. Let every wrong be righted, but don't in turn let labor turn the oppressor and stab itself.—*Inter-ocean.*

CLOTH is being made at Norristown, Pa., from wool imported from Gladstone's Scotch farm. The cloth is to be sent to the Prime Minister of England.

TAKE the product of the Connellsville coke region last year, load it on cars hitched together in a continuous train, start the train running twelve miles an hour, to run uninterruptedly day and night; stand beside the track and watch the silver-gray snake crawl by, each hour counting for eighteen thousand tons of coke, and toward morning of the ninth day, when the forward end of the train is jolting down the sunset side of the Rocky Mountains, the rear cars will still be within the clutch of the Pennsylvania police. Stretch the train straight across the continent, and the headlight of the locomotive will be flashing out through the Golden Gate while the red lamps at the other end are glimmering in New Jersey bogs.

AMONG millers and grain producers, as well as among consumers, there is just now less interest manifested in new milling machinery and new processes of flour making than in the actions of the bulls and bears who make a foot-ball of the grain markets. Tailings, scalping, screenings, returns, reductions, breaks, purifyings, high grinding, low grinding, stones, rollers, centrifugals and dust collectors are thrown into the shade by the superior importance of puts and calls, options and straddles, longs and shorts, poundings and boostings, milkings and forcings, to which the grain markets are subjected by the speculators.—*Exchange.*

BOARDS of Trade are spoken of as "On 'Change," because those frequenting them always go on changing one thing for another, from day to day and from hour to hour, until they burst up, and they are "a little off."

A GREAT number of British seamen engaged in a demonstration in London, recently, expressing their disapproval of the neglect shown by the Government in taking no steps to relieve trade depression. They declared that British labor was being sacrificed in the interests of foreign labor, and that free trade was killing the industries of the British Empire. British seamen appear to have quite an adequate idea of the effects of free trade on the people of any country by which it is adopted.

**EVERY BOY SHOULD HAVE A TRADE.**—In this country every boy, rich or poor, is the better off for a trade. The lad favored by fortune does not require mechanical knowledge to earn his living, of course; but an industrial training may develop in him a genius for invention that would benefit the whole race; and a trade in the hands of a poor boy is a sure means of gaining a living. If all classes are to be reached, therefore, it is hard to see how this can be done without an industrial training department in each school.—*Exchange.*

NOT less than \$800,000,000 is invested in mining enterprises as productive capital in the the United States, and over 400,000 people are furnished employment, and the mineral product of the Union, for the year 1884, had a value of \$413,104,620.

IN the last issue of this journal the fact was noted that Marshall & Co., of Leeds, England, the largest flax spinners in the world, had definitely announced their intention of transferring their immense plant to the United States. Significant as this announcement is, it finds a counterpart in the publication of a dispatch from London, under date of the 9th inst., that the great steel manufacturer, Marshall, of Sheffield, is about to remove his entire works to this country. The steel works owned by Mr. Marshall, at Sheffield, employ three thousand men. It is said some scores of the most skilled men working at the works will be brought over, and the full complement of men will be made up from among skilled workmen found in this country. The *Textile Manufacturer*, a strong free-trade journal, published at Manchester, in commenting on these transfers, remarks: "When we reflect that such important concerns do not take such steps as this without due consideration and straining every nerve to avoid them, it begins to be seen how a change in the economical arrangements of one country may affect the well-being of hundreds of hard-working operatives in other parts."—*Manufacturer.*

THE immense Krupp works at Essen, are rigorously closed against visitors; the outside world has therefore been unable to learn much of the renowned establishment where the most terrific engines of warfare are made for Germany and her friends. At last a determined Yankee has penetrated into this mysterious realm of the modern Vulcan, with full privileges of confiding his discoveries to the rest of mankind, and the result is a deeply interesting article in the March HARPER'S, called "An Iron City beside the Ruhr," by Moncure D. Conway, with an abundance of illustrations.

In describing at length such an attractive field for the first time, it is not strange that Mr. Conway reveals some startling facts and

conveys much rare information. The curious processes of steel-working are graphically depicted. It seems that the Krupp guns, which have elevated Germany to the highest military rank, and by whose reputation alone the Essen works are generally known, engage but a small part of Herr Krupp's attention. Two-thirds of the work is devoted to the arts of peace. His establishment is said to constitute the largest business in the world, dependent on a single individual. We can appreciate this partly when told that it covers over 500 acres, employs more than 20,000 hands, includes colonies of 4000 laborers' houses, with churches, schools, stores and hospitals; that Herr Krupp owns, among other possessions, 547 iron mines, 4 sea steamers, about 500 steam-engines, and 50 miles of railway; that he produces daily 2½ miles of rails, 1500 bomb-shells, and untold quantity of other things. The colossal hammers, the belching furnaces, the frightful abysses of molten steel, and the astounding weapons of war and of peace here manufactured, give the reader an impression that this is a kingdom where the work of Titans is done by pygmies, and where Dante's awful imaginings are excelled by actual realities.

#### DUTY ON CORN.

The following resolution on this subject was adopted at the last annual meeting of the Monmouthshire Chamber of Agriculture: "That, in the opinion of this meeting, it is matter of the highest importance that the cultivation of wheat and other cereals should be extended in this country, and that the laying down of so much land to grass is a national calamity, inasmuch as by so doing produce is diminished and labor thrown out of employment. That an import duty of 5 shillings per qr. on corn would have the effect of steadying the price of wheat, checking the decline of corn-growing, without materially adding to the price of bread, and would be beneficial to the community at large. That such duty should be imposed on foreign corn, but that an effort should be made to draw the colonies nearer to the mother country by arranging for perfect freedom of trade in them."

The York Chamber of Agriculture, at a meeting held at York recently, considered a resolution in favor of imposing a duty on imported corn, sugar, and manufactured goods, exclusive of the colonies. The chairman (Mr. Newton) referred to the depressed condition of agriculture, and said the only protection which we could obtain was to produce goods cheaper than we do now, and as cheap as those produced by other countries. Protection would be no safeguard against our present sufferings, and therefore he hoped the Central Chamber would not endorse any resolution of the kind. The motion, on being submitted to the Chamber, was lost, and an amendment carried deprecating any resort to a protective system. The Central Chamber was urged to pass a resolution in favor of the appointment of a Minister of Commerce.—*Miller's Gazette*, (London).

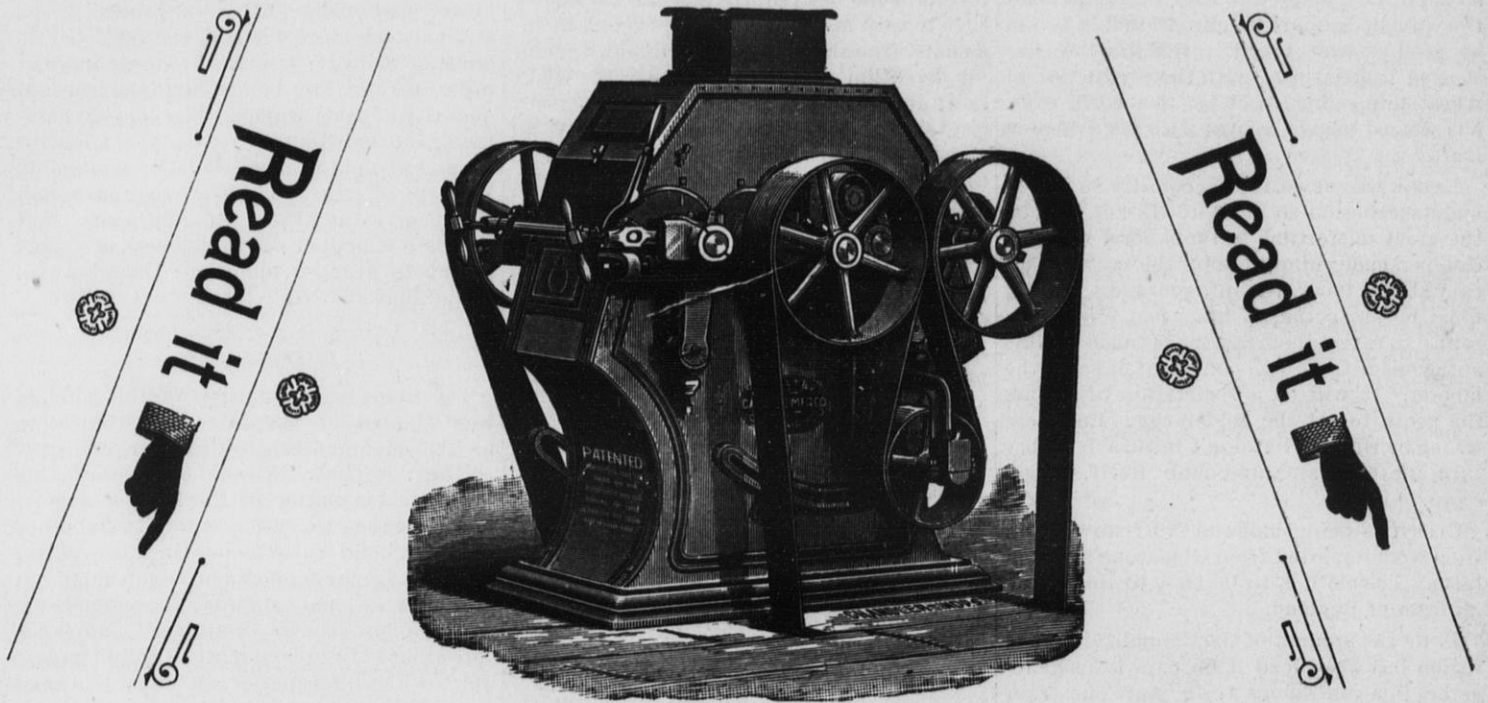
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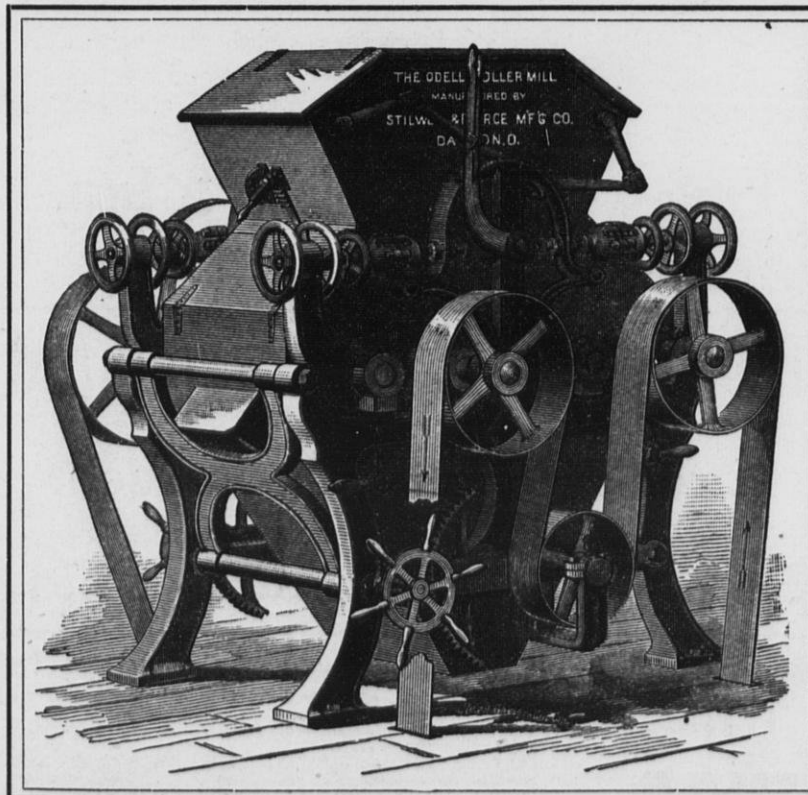
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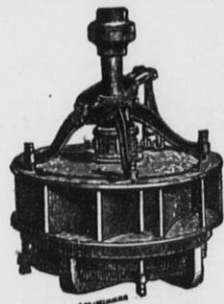
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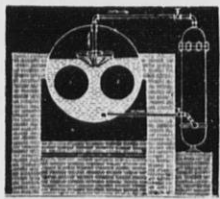
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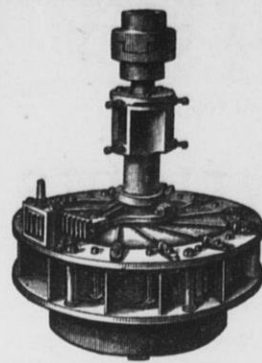
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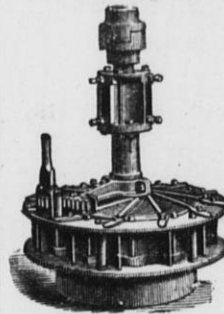
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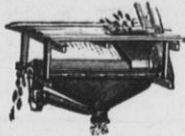
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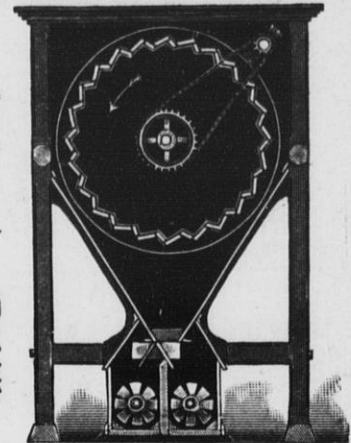
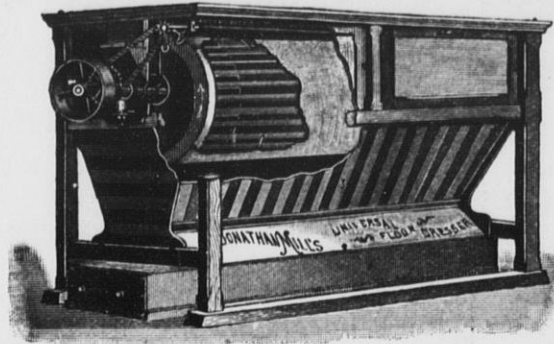
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GLEANINGS FROM THE MILLING JOURNALS.

How many millers stop to think that the reason they do not succeed in their undertakings is because they do not become familiar with their work and their machinery? Not infrequently the miller treats a new machine in the same manner as many a house-keeper treats a new brand of flour. If the latter makes a failure in the use of the new article, the flour is condemned without further comment. Usually a miller does not stay long enough with a machine to understand it thoroughly. Not sufficient time is given, nor attention paid, to gain an insight. When one passes from the light into the dark, large and small objects may be before him, but he is at first unable to discern any. Gradually he can vaguely distinguish something, then he recognizes the larger objects, and after a little more familiarity with his surroundings, he discovers the smaller objects, too. In a measure this is the process of becoming acquainted with new machinery. The small, seemingly insignificant things, are generally the hardest to discover. When a machine becomes disabled, a great defect is easily approached. It is the little, intricate hidden irregularities that try one's adhesiveness and baffle one's hopes to almost desperation. One's watchword should be: Never tire out. If the operative sticks to it, and does not cease to hunt, he possesses the elements of victory. The miller laughs at the uninitiated, because he says, on taking a bird's-eye view of the mill, that he could never understand such a complex system of manipulation. The former knows that the latter could become just as intelligent in regard to the mill as he is, if he would make the necessary exertion and devote the required time. It is familiarity which makes mysteries vanish.—*Milling Engineer for March.*

REGARDING roll diameters. Much doubt exists, . . . but my experience has been in favor of rolls not exceeding 220 to 250 millimeters (8.66 to 9.84 in). The limit of smallness is at a point where the angle of contact is not acute enough to enable the rolls to seize upon all the material with certainty. I regard the use of large rolls on wheat as uselessly expensive. Only in case it is desired to secure long treatment of grain in its passage, or great differential speed, are the rolls of large diameter effective. The corrugation is the important point. If the grooves are too coarse, or the furrows very deep, all claims as to diameter and differential speed will lose force in face of the fact that the berries, sticking deep in the furrows, cannot be touched, whether the

diameter is small or great.—F. VAN DEN WYNGAERT in *Die Muehle.*

A "TIRL" IN THE SHETLAND ISLES.—A Dumfermline tourist who visited Shetland last year, says the *Miller*, of London, Eng., has given a graphic description in one of the local papers of what he saw in the course of his tour. One of the things which came under his notice was one of the primitive grinding mills called the "tirl" mills of Shetland. He had seen numbers of these in a half-ruinous condition in the more northern parts of the main land, indicating that they were being superseded by some superior system. These "tirl" mills are very low erections, generally built in the side of a brea, down which a stream from some hidden hill loch finds its way. By a simple sluicing apparatus the stream is turned when wanted to run under the floor of the mill in a steep, sloping artificial channel. In this channel is placed an upright circular-shaped piece of wood, having an iron spindle in the center. The lower end of the spindle is fixed in the channel, while the upper end finds its way through the floor of the mill and is attached by a cross-piece to the upper millstone. The circular-shaped piece of wood is fitted with six projecting boards, against which the water strikes as it rushes down its prepared course, and so sets the upper stone in motion. Through an opening in the center of this stone the corn is fed in by hand, and the meal, as it is ground, percolates from between the stones, and falls on a clean clay or boarded portion of the floor, from whence it is gathered. The stones are about 30 inches in diameter and from three to five inches thick. Grinding mills of a more modern type are now, however, established in several districts among the islands, and gradually the "tirl" is being replaced by the superior article. Still the "tirl" and even the quera, driven by hand, are found in use in various parts of both Shetland and Orkney.

LESSONS FROM THE EXPERIENCE OF THE NEW ENGLAND MILL MUTUALS.

The net amount of insurance carried by the nineteen mill mutual insurance companies of New England during 1885 was \$391,910,168. The net premium receipts were \$3,482,820. The losses incurred were but \$521,163. Dividends made upon premiums paid the previous year, after deducting losses and expenses, were \$2,428,800. The expenses and taxes last year were \$256,665. Upon each \$100 insured for twelve months the average premium was 88 cents; the loss was 13.3 cents, expenses and taxes were 10.8 cents; and the proportion of the premium assigned to payment of losses

was 15.1 cents. These figures not being at all rhetorical may be very dry to those not noticing their significance; but to all underwriters who give them due attention they are full of important meaning and eloquent with instruction. This becomes the more obvious from the percentages to be deduced from the particulars as above given. The losses incurred during 1885 were but 15.10 per cent. of the premiums; the taxes were 1.72 per cent.; and the net expenses were but little over one-third of 1 per cent., being 0.35 per cent. The total expenditures were but 17.17 per cent. of the premium receipts; and of the entire premium income, that reserved at risk of future business was 82.83 per cent. These are very remarkable results. This experience of losses, so small in proportion to the premiums which it is deemed prudent to require, has supervened to companies of a particular class, conducted according to a specific and prescribed method. The method hardly needs to be stated. All the insurance world knows that the means relied upon for accomplishing results that are indeed so wonderful, is careful and continuous inspection, and insistence upon specified conditions of safety and appliances for overcoming fires in their very beginning. There is no secret in the matter. If there were, other companies might desire to obtain it at even as great a price as the Roman officer who conversed with Paul had paid for the freedom of Roman citizenship. But the system in use by the mill mutuals is open and proclaimed. Any organization is at full liberty to practise it. There appears no reason why stock companies generally may not use the same methods and reduce losses in like proportions. Extended fields of operation and diversity of risks may indeed present difficulties to the rigid application of these principles; but surely these obstacles may be in a large measure overcome by resolute purpose. The value of thorough and continuous inspection in preventing fire-losses, may be considered as demonstrated. It may be regarded as proved for all companies alike, and all may avail themselves of the teaching. The lesson is made still more plain and forcible by the noteworthy circumstance that there is no wide difference in the percentage of losses to premiums throughout these nineteen companies. The variations that appear are not large. The methods used work well in every case, and explain how it is that, out of the premiums received in 1884 nearly two and a half millions of dollars could be returned to members in 1885. This must for all companies be the true way of making fire underwriting productive of profit, and consequently, satisfactory dividends.—*Insurance Critic (N. Y.) for March*

**BELTS AND PULLEYS.**

By courtesy of the publishers\* we are able to reproduce illustrations from "Cromwell's Belts and Pulleys," of a variety of arrangements for transmission of power by belts.

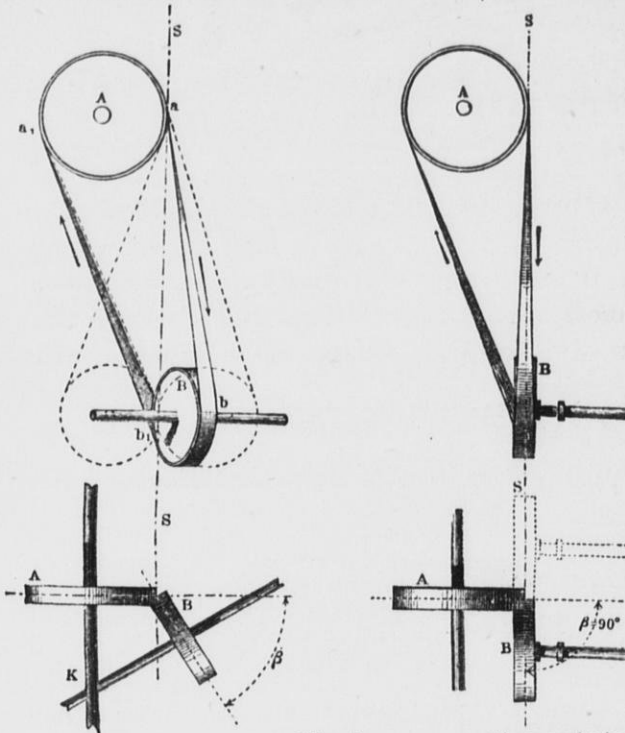


Fig. 1.

Fig. 1 shows an arrangement of belts without guides for cases in which the axes cross

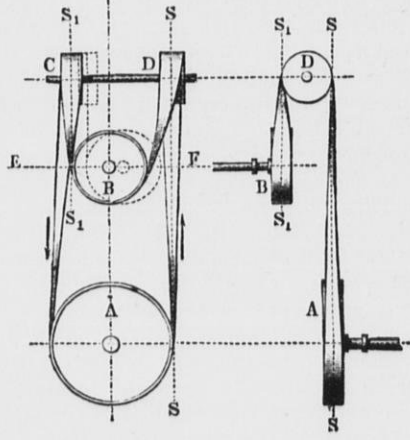


Fig. 2.

without being in the same plane. In this case care must be exercised to place the pulleys

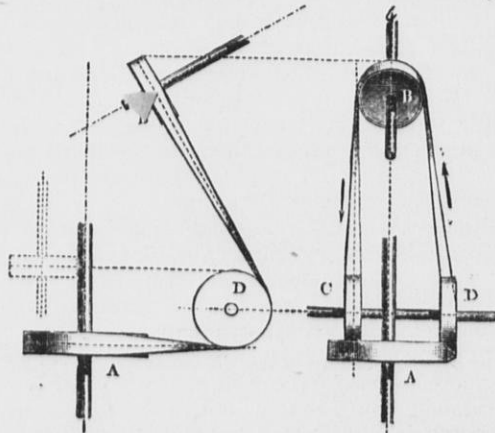


Fig. 3.

in such a manner that the line of intersec-

tion of their middle planes shall be tangent to the circles contained in these planes at the points in which the belt leaves the pulleys.

Fig. 2 shows a plan of transmission with pulley guides for pulleys with parallel axes.

In order that the belt may run properly upon the pulleys and pulley guides, the point in which the belt leaves each pulley must be the point of tangency between the pulley and the line of intersection of its middle plane with that of the following pulley.

Fig. 3 represents a transmission by belt for two pulleys, the axes of which intersect each other.

Fig. 4 represents a disposition for transmission by half-crossed belt with pulley guide. In this disposition, and in all others, the direction of rotation must be indicated in the figure. This mode of transmission is very convenient when we wish to drive a series of vertical arbors from one horizontal shaft.

When the pulleys of transmission cannot be so placed that the line of intersection of their middle planes is a common tangent to the circles in the planes, it becomes necessary to make use of two pulley-guides.

Fig. 5 represents an arrangement which may be adopted in such cases.

Fig. 6 represents a special application for the case in which the line of intersection *SS* of the middle planes passes through the centre of the middle circle of one of the pulleys of transmission; in this figure, the axis of the pulley *B* is supposed to be situated in a plane parallel to the pulley *A*. After having obtained the line of intersection *SS*, we choose upon it two arbitrary points, *c* and *c*, through which we draw, to the middle circles of the pulleys of transmission, the tangent lines *c, a, c b, c, a, and c, b*. The planes, *c, a, b, and c, a, b*, which are thus determined, are those of the two pulley-guides, which should be placed respectively in contact with the above-named tangent lines. With this disposition, rotation may take place equally well in either direction.

If the distance *AC* is great compared with the width of the belt, the pulley guides, instead of being the one above the other, may be placed upon the same axis. When on ac-

count of lack of space, it is impossible to make use of one of the dispositions which we have described above, we ought to seek, at least, to place the axis of the pulley-guides in the middle plane of one of the principal

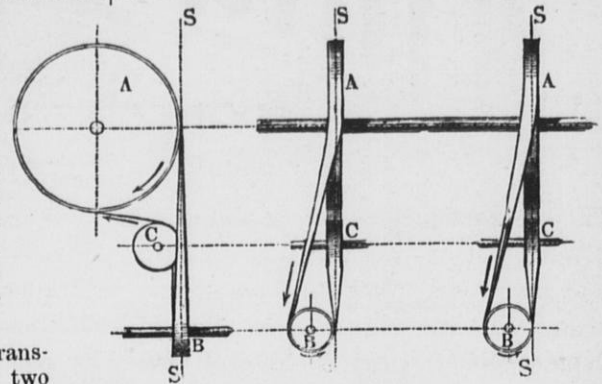


Fig. 4.

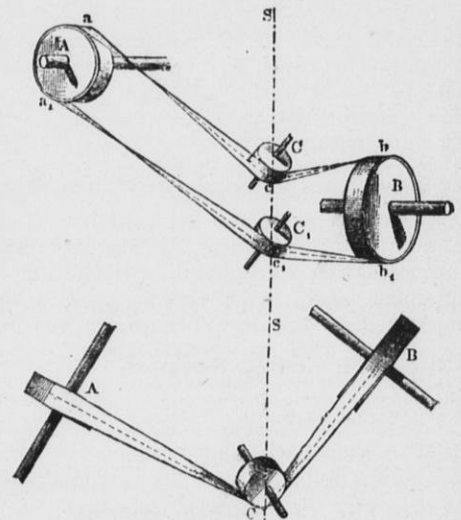


Fig. 5.

pulleys, and the pulley-guides themselves parallel to each other, as, for example, in Fig. 7.

By making the belt pass over a fourth pulley, we may obtain an arrangement by which we may drive two pulleys, *B* and *C*, by means of a single driving pulley, *A*.

Fig. 8 represents a disposition of this kind much used in spinning mills. The arbors, *B* and *C*, are in different stories of the building, and each bears two pulleys, one fixed and the other loose.

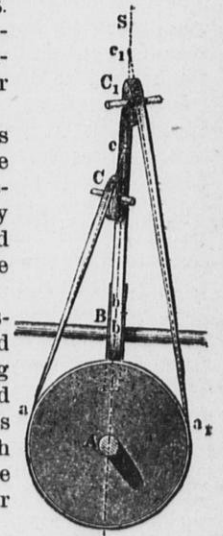


Fig. 6.

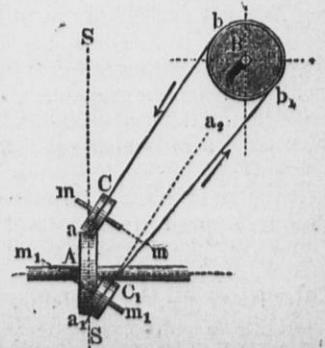


Fig. 7.

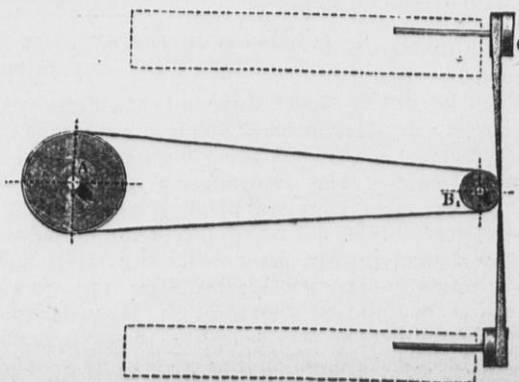


Fig. 8.

\*John Wiley & Sons, New York, N. Y., publishers of and dealers in all kinds of mechanical and scientific books.

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RELIGIOUS ASPECTS OF THE AMERICAN PROTECTIVE TARIFF.

SECOND REPLY TO J. C. BATES, OF CHICAGO, BY JOHN W. HINTON, OF MILWAUKEE.

Editor of the United States Miller:—

NORTHWESTERN TARIFF BUREAU, }  
MILWAUKEE, MARCH 31, 1886. }

I was hopeful that the discussion of the tariff question between Mr. Bates and myself, would be conducted as gentlemen should deal with one another, and that my opponent would abstain from all personalities. His reply in the March number of the UNITED STATES MILLER dispels the hope. While casting no censure, I am compelled to class his communication with those styled by Carlyle, "A wash and vapidity, fit only for the gutter."

Perhaps Mr. B. is more to be pitied than blamed, as associations exert good or bad influence according to their qualities. Animals are at times detected by the sounds they emit, occasionally by their obnoxious effluvia. They cannot help it. As Esmond says: "The leopard follows her nature as the lamb does, and acts after leopard law; she can neither help her beauty, nor her courage, nor her cruelty, nor a single spot on her shining coat, nor the conquering spirit which impels her, nor the shot which brings her down."

The baser instincts of our nature now and then dominate the moral as well as the mental qualities of minds. If Mr. B. chooses the gutter, I shall leave him to his choice of routes, confining myself to an exposure of his sophistries and a refutation of his erroneous statements. At nearly the end of a column, devoted to gross and irrelevant personalities having no bearing whatever upon the issue between us, he says: "The tariff from 1846 to 1860 was generally satisfactory."

More positive proof of a persons ignorance of what he is writing about could not be produced, for during those years depression after depression followed, culminating in a panic (1857) that spread desolation and distress over the land; while during those years we mined in California over a billion dollars in gold almost all of which was sent to England, &c., to pay for foreign goods while our own labor was idle and so impoverishing the United States that we could not borrow money at twelve per cent.

The panic of 1857 was truly terrible in its effects on American labor. In Pittsburg in 1856 skilled mechanics worked for 50 cents a day cleaning the streets; many existed on charity. In Milwaukee good mechanics were unable to earn 40 cents a day. Depression everywhere existed in this country. To refute Mr. Bates' fallacious assertions, I briefly quote from an "address to the people of the United States:—"

\* \* \*  
"In 1846, and in March, 1857, the duties, imposed by the Act of 1842, were again reduced to nearly the free trade standard."  
\* \* \*

The large importations consequent on these invitations to British manufacturers, was followed in the fall of 1857 by the financial convulsion of that year, during which all the banks of all the states suspended specie payments, and the Bank of England, for the want of remittances from the United States, was compelled to suspend Sir Robert Peel's bill, limiting the amount of paper to £14,000,000, now £15,000,000, as the amount which may be issued by the Bank of England

upon security of the public debt. As our duties were lowered, our importations, aided by the action of British manufacturers, increased from \$100,162,087 under protective tariff in 1824 annually increasing up to \$360,800,141 in 1857.

Great complaint of the British manufacturers was made in England for their imprudence in 1857 in sending, as they did, such an enormous amount of their goods to the United States, in excess of what could be paid for. It was to this imprudence that the disasters in Britain were due. The depression of the manufacturing interests of this country was so great that President Buchanan in his message to Congress in 1857 mentions it.

By the lowered and *ad valorem* rates of 1846, under which so much fraud has always been practiced, the result that the free traders desired was brought about. In 1849 and 1850 upwards of 200,000 tons of railroad iron was dumped into this country from England at about \$40 a ton, closing up our mills and ruining the iron business generally. During the years from 1850 to 1854 inclusive, England sold to this country 800,000 tons of railroad iron making us pay \$75 a ton or \$35 a ton more than she had charged for rails until she had succeeded in closing our mills, &c. Had protective tariff continued the railroad iron could have been furnished by American mills, from American material, and by American labor, at \$50 a ton, and by employing our own labor, we should have saved the \$60,000,000 which went into the pockets of the British capitalists, excepting that portion of it which was paid to influence American legislation through American free traders. The money that should have kept our mills running was sent to England to run English mills while American mills were closed, or, as Mr. A. S. Hewitt put it before his own workmen in New Jersey, after he had failed to get a contract: "I offered to make the rails at the very lowest at which they could be made at the present rate of wages. An English agent came there and underbid me and got the contract. Thus for the want of a protective tariff is the money sent to England, to employ English workmen, that ought to have come here to employ you."

Mr. Hewitt was then a protectionist, and remained so for a number of years, later on saying of protective tariff and its benefits: "These duties have conferred one great benefit. In the late era of depression (referring to that of 1873, &c.), they have prevented this country from being the sink into which the surplus iron of other countries would be flung. Had the duties been low enough, iron importations would have destroyed our business and closed our establishments."

In May, 1879, O. W. Potter, Esq., President of the North Chicago Rolling Mill Co., addressing a body of iron manufacturers at Pittsburg said:

"English capital and free trade can shut up every iron and steel establishment west of the Alleghenies in three years, and every one east of them in five years; and it will not be five years before we will be face to face with this issue."

Now what does Mr. Symes, an Englishman and formerly a free trader say, after witnessing the effects of English free trade in other countries:

"In any quarter of the globe where a competition shows itself as likely to interfere with her monopoly, immediately the capital of her manufacturers is massed in that particular quarter, and goods are exported in large quantities and sold at such prices that outside competition is effectually counted

out. English manufacturers have been known to export goods to a distant market and sell them under cost for years, with a view to getting the market into their own hands again."

The lowered tariff of 1846 and 1857, gave Mr. Bates' British allies ample opportunity to play the game of glutting and stifling. Hence there is a measure of truth in Mr. B.'s assertion "that the tariff from 1846 to 1860 was satisfactory generally," but *only* to British and American free traders.

As soon as the evils of those low tariff years could be corrected it was done. Immediately after the rebellion broke out—and it was fought for free trade with England by the South—the Morrill tariff was passed, with such beneficial results as to startle the world, for never before had any nation, while engaged in one of the bloodiest wars of modern times, laid the foundations for future greatness and marvelous wealth. True we piled up an enormous debt, but at the same time created the means whereby we could discharge that debt, and which we have been doing faster than was ever before done by any nation, as testified by John Bright and other Englishmen of note, even by Gladstone, who says "we are passing England with a bound." The results of our wise tariff legislation were tersely stated by Senator Frye at the banquet of the Boston merchants a short time ago. I commend the perusal to Mr. Bates. Senator Frye said:

"The history of this Republic for the last quarter of a century has been a marvelous illustration of the beneficence of the principles of the legislation which created the tariff. Why, sir, we took 4,000,000 of our people out of our producing classes in that quarter of a century, made them consumers and destroyers, and the waste must be counted by billions of dollars, the loss of life by hundreds of thousands of men; and yet every year of that quarter of a century we increased in population a million. More than England, France, Germany, Austria and Italy combined, increased in population in the same length of time. We grew in wealth from \$16,000,000,000 to \$43,000,000,000, or as the apostle of free trade has said \$52,000,000,000. Again we increased in products of the farm from \$1,500,000,000 to \$3,500,000,000, again, in products of the manufactories from \$1,800,000,000 to \$6,000,000,000. Is it not well that people should bear burdens like these?"

But as free traders like Mr. Bates may question the truth of American authority, I will quote a foreign author, Alexander McEwan, who, writing to Lord Beaconsfield, December 1, 1879, nearly eighteen years after the enactment of the Morrill tariff of 1861, said:

"The United States have grown from 20,000,000 of population in 1845 to 50,000,000 at the present day; their exports from \$100,000,000 to \$775,000,000 per annum. Their home trade, carefully protected, estimated now at more than \$5,000,000,000, exceeds our whole home and foreign trade put together. As far as their relations to us are concerned, they are sending us this year over \$500,000,000 of commodities, and taking from us about \$100,000,000, and while we take from America principally food and cotton, the commodities she takes from us are such as she can produce herself, or do, without in case of need. In war she would be independent of us, but in our requirements we are absolutely dependent upon her."

In 1879, Thomas Bayley Potter, President of the English Cobden Club, made a tour through this country, established agencies of the Cobden Club in New York and Chicago; implored the New York Chamber of Commerce to intercede with Congress for the

lowering of our tariff. Returning to England in his speech at Rochdale, said :

"It was like new life to me to visit America, and to see in her boundless resources of the soil, in the development of education, in the sober industry of her people, and in her devotion to peace a security for the progress of mankind. I seemed to regain faith in the future of humanity, and confidence that the English race would continue to lead the van in progress."

At the same meeting, Mr. John Bright, made a speech, highly eulogistic of the United States and the condition of its people, which called out a letter from a British workman published in the New York *Evening Post*, the organ of the Cobden Club, where he said :

"The wonderful speech of Mr. John Bright, at Rochdale; wonderful because it was so filled with a description of your own wonderful country—caused many of us to determine that America must be our home at the earliest possible moment. Many also, with myself, would be glad if that moment could only be the present one; that is impossible."

John Bright said at Birmingham, England, to workingmen, every person, who had emigrated to the United States from England, was better off than they could have been had they remained in England.

In reply to Mr. Bates' statement: "The avowed purpose of Cobden and his associates was to make England the workshop of the world, permitting other countries to furnish her food and raw material without duty, cheapening alike the cost of material to be manufactured and the living expenses of her workmen. She took her free trade in five great installments beginning some forty years ago and ending in 1866, each step demonstrating conclusively the steady advance of her commerce and manufactures."

Not a single prophecy ever made by Mr. Cobden has been fulfilled. England's declension commenced with the alleged repeal of the Corn Laws. From every ninth person in England, being a pauper, to every seventh, until in a recent letter of Sir Edward Sullivan says "every fifth person in England toes the line of pauperism." Today England has and has had for years, the highest tariff in the world. I have already given the number of her custom houses, custom officers, revenue cutters, &c. As to England's free trade there is not an intelligent free trader that at this late day makes such a foolish assertion.

As to wool, &c., Mr. Bates says: "The manufacturer of woollens does not hesitate to express his ability to hold his own against the world if he can have free wool. Give him free wool and he will be a bigger customer for domestic wool than ever before."

Well, the tariff on wool, and woollens, and woolen garments, was lowered in 1883. Result, wool went down, foreign wool imported in immense quantities and less domestic wool used. In 1883, under the old tariff, \$902,000 of women's cloaks imported, in 1884, about \$5,000,000 imported. In Chicago from 500 to 600 cloakmakers thrown out of employment; in New York city nearly 2000. Sunset Cox, democratic free trader, hounded by the idle cloakmakers, introduces a bill to restore the tariff of 1867. Mr. Bates had better try, try again.

As to clothing of common qualities, I quote from my reply to Joseph Medill, September 25, 1883.

"As to clothing for mechanics, Mr. Medill's statement is entirely incorrect. Had he enquired of Marshall Field, or Mr. Farwell of Chicago, or Mr. Clafin, New York, the heaviest dealers in goods for clothing in the world, he could have learned that nowhere in the world can a mechanic or working man clothe himself so cheaply and so well as he does in this country. Hundreds of mechanics come over from Windsor in Canada, to Detroit, for the sole purpose of buying American ready-made clothing, because it is not only cheaper but much better. The *New York Herald* recently showed up the facts that New York was the cheapest place in the world for a mechanic to clothe himself in. The *American Protectionist* of April 23th, 1882, reprinted the article. The manager of Willoughby & Hill's clothing house in this city, told me to-day, how, when they had a branch store in Buffalo, the Canadians used to come over and buy suits of clothes, and put their old ones over them and return; and ask at the Golden Eagle, in this city and you'll find the same is true."

It is useless to quote truths to some persons

"Destroy his webs of sophistry in vain,  
The creature's at his dirty work again."

If Mr. Bates would read the papers he would see that every labor organization in the country is opposed to lowering the tariff, without a single exception, and that no one in this country has ever been so effectually sat down upon, as has Mr. Morrison, the chairman of the Ways and Means Committee, by numberless workingmen. I quote but one who addressed the Committee :

"Gentlemen—I am not a speech-maker, I make iron. I have no education. I was born in England. At eight years of age I was put to work in the iron mills of my native town; I was paid one shilling (25 cents) a day. After a few years I began to earn five shillings (\$1.25) a day, at which I might have labored for the rest of my life. I heard that labor was protected in the United States. I came here 15 years ago. I now earn \$5 a day. I have nine children and every one of them going to school. That is the reason that I am in favor of protecting American labor—that means the industries which give American labor its employment."

(That man probably read the Inter-Ocean.) Other instances could be given. My countryman and myself may be foolish, but we are both believers in the truth of what the Inter-Ocean said, and which has so irritated Mr. Bates:

"A protective tariff stands at the elbow of every laboring man in this country to help him to better wages, to a more independent condition, and to a higher development of his faculties. It is the refuge for his weakness and the bulwark of his strength."—*Inter-Ocean*, Dec. 15, '80.

Relative to foreign labor as "contracted for &c." I am bitterly opposed to it, and have over and over again said so. But Mr. Bates, like Mr. Morrison, used the assertion for clap-trap. The same reply made by a laboring man to Mr. Morrison, will apply to Mr. Bates. Mr. Morrison asked:

"Have not your employers imported cheap foreign labor to compete with you?" But he wished he had not put the question when the man promptly answered: "Yes, in some cases; but you propose to give employment to all the cheap foreign laborers in their own countries by making it impossible for us to compete with them in this country."

Mr. Bates' slur about Ireland's trade, &c., is perhaps best replied to by quoting the *Chicago Herald* of a recent date, a free-trade organ:

"The barbarous cruelty with which English administration in Ireland has kept in poverty a country which *English law robbed of her manufactures* has at last borne political fruit. Unable to find labor in Ireland, hun-

dreds of thousands of her people have crossed into the neighboring islands in search of bread."

Even the *Chicago Times* says a nation is better off when its raw material is worked up by its own people, &c., &c., which is denied to the Irishmen in Ireland.

"Does the British miller himself ask any protection against his American competitor?" asks Mr. Bates. I reply yes, sir. An earnest effort is, at this time, and for some time past, being made to tax American flour to protect British millers. Mr. Bates should read the papers more thoroughly. This tariff question requires study, reflection and something more than wild assertions, in reckless and flippant phrases. I commend to Mr. Bates Pope's verse, slightly varied:

"A little learning is a dangerous thing,  
Drink deep or taste not of the tariff spring,  
Here shallow draughts intoxicate the brain,  
But drinking largely sobers us again."

Thanking you, Mr. Editor, for the extreme courtesy you have extended to me in the large amount of space already occupied, I will close by quoting from the *Milling World* of Buffalo, of March 29th, which in criticizing Mr. Bates' assertion that "We have a tariff of more remarkable character than that which any other nation has at the present time."

On this the *Milling World* cuttingly comments and passes Mr. Bates through the rollers as Artemas Ward would say, thusly:

"We know it is 'remarkable' because it makes our laborers able to demand a reduction of 20 per cent. in hours of labor, and an increase of from 10 to 20 per cent. in salary from their employers, while in free trade England laborers are starving and rioting for work at any rate of wages."

Therein are the religious aspects of the American protective tariff.

THE centrifugal reel is coming into use in many mills as a universal bolting machine. The idea has friends enough and it is now strong enough to stand for itself and certify as to its own character. I would not antagonize the centrifugal reel idea, or its use as a universal bolting device on account of its past history, because I think I understand that such reels are being used under entirely different conditions to-day from what they were in the past, and while I would not reject any machine because some one else rejected it, on the other hand I would not accept without questioning and without thought a machine or a system, because a certain respectable number of people accepted it. There is a reason for everything. If the complete centrifugal reel idea is a good one, there are reasons for it, and it can not suffer if it be thoughtfully considered. For this reason it will be in order in the next few weeks to take a small centrifugal reel mill, go through it from beginning to end, consider the principles involved and see if it is desirable to use a centrifugal reel for all purposes of bolting.—*Corr. Northwestern Miller*.

DR. COWAN'S "Science of a New Life" should be read by every man twenty-one year, of age. It is a scientific work in plain language that any one can understand, and is not an advertisement for any physician or medicine, and must not be confounded with another work bearing a similar name, published by a Buffalo medical institution. See descriptive advertisement on another page.

# UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

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MILWAUKEE, APRIL, 1886.

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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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ACCORDING to the *Insurance Monitor*, an authority in insurance matters, 46 skating rinks were destroyed by fire in the fourteen months ending with February, 1886.

THE broom corn combination has "busted." The combination thought they saw a big speculation in broom corn, but it seems that they made a mistake in their calculation.

A WISCONSIN man has just been acquitted of arson in a justice court, because there is no law on the statute books of the State which prohibits a man from burning his own house.

ABOUT 300 flouring mills in the United States and Canada were destroyed by fire during 1885, and many others suffered more or less damage. The probable total loss to the owners is not far from \$3,000,000.

THE Wisconsin State Miller's Association will meet at the Plankinton House, Milwaukee, at 2 P. M., April 13, for the election of officers and the general consideration of matter of importance which will be brought before it. All members, and those desiring to become members, will serve their interests by being present.

THE Chinese Consul in New York, on being interviewed recently, subsequent to the Chinese outrages on the Pacific slope, said: "There is a commerce of \$80,000,000 a year between the United States and China in danger, and if Chinamen are forced by the people of this country to leave the United States, Americans cannot expect to remain undisturbed in China.

THERE is difficulty in storing soft corn in large lots, as it easily moulds and becomes injurious to stock, and sometimes even poisonous. It is believed that many cases of sickness in cattle and hogs are due to feeding rotten or mouldy corn. A good grain drier should constitute part of the machinery of every grain warehouse, so that damp grain could be properly dried before storing. J. C. Bates, of Chicago, makes an excellent machine for drying grain.

WE are gratified to be able to say just as we are going to press, that all differences between the firm of Edw. P. Allis & Co., of Milwaukee, and their employes, have been amicably settled. The men generally will work for the same pay as heretofore, and ten hours per day. Common laborers will receive an advance of ten cents per day, and some other slight changes will be made. About 1,600 men are employed by the firm.

THE MILLER, London, has a strong article in its March number, urging the establishment of National Granaries, so that in case of war or short crops the world over, there would be a sufficient supply of breadstuffs to feed the people at reasonable prices. The British farmers have become greatly discouraged by the low price of wheat, and many of them have ceased to raise it. Thousands who have heretofore maintained that free trade was proper are now strongly advocating a tariff on wheat and flour, to encourage the British farmers and millers.

The *Miller* further argues that as there is such great distress among the laboring classes,

leading to rioting even, for lack of work, that now is the time to build the granaries, which would employ the labor of many thousands of men.

"STRIKING" and "BOYCOTTING" have become familiar terms in this country of late. Milwaukee has caught this mental disorder and quite a number of workmen are now "out on a strike." It was rumored that E. P. Allis & Co.'s employes were to go out April 12, but they have not done so yet. Their demand is for eight hours work with same pay they have been heretofore receiving for ten hours. Mr. Allis says that he cannot accept the terms asked, and if the employes persist in their demands, he will close the works. Employes in flour mill building establishments could not have selected a more inauspicious time to ask for increased wages, than the present.

ONE of the largest confederate mills in this country will be started up in New York city in April. It is nearly completed. In a letter from the proprietors, Messrs. Herrick, Kirk & Co., No. 81 New st., New York, bearing date March 29, they say:

"We are erecting here on the water-front, one of the largest and most complete confederate flour mills in the world—capacity 4,800 bbls. per day of 24 hours. It will be ready to turn over in less than ten days, and we expect to keep it humming after it starts. We shall be able to make a place for an immense quantity of flour besides, as we are fixing to trade with the buying world that trades at this port."

Western millers will do well to correspond with this firm.

## PERSONAL.

THE UNITED STATES MILLER has been favored with calls during the month just past from the following gentlemen connected with the milling industry.

S. H. SEAMANS, Esq., Secretary of the M. N. A., Milwaukee.

B. S. EWING, representative of Chatfield & Woods, Cincinnati, Ohio.

B. S. POTTER, Esq., of the milling firm of Potter & Huntington, Barton, Wis.

GEO. HECKEL, Editor of the *Street Railway Gazette*, of Chicago, made us a pleasant call, recently.

C. M. Gilbert, General Manager of the Richmond Mfg. Co., of Lockport, N. Y., with headquarters at Minneapolis, made us a pleasant call, recently.

## MASS CONVENTION OF THE MILLERS' NATIONAL ASSOCIATION.

Editor *United States Miller*:—By order of the executive committee, a mass meeting of all members of the Millers' National Association is called for Wednesday and Thursday, May 12 and 13, at the Grand Pacific hotel, Chicago; the meeting to be called to order at 10 o'clock each morning. The object of this meeting will be to have a general re-union of all members of the association, election of officers receiving of reports from committees and a general interchange of ideas among the members as to the present state of trade and association affairs. A series of interest-

ing papers upon various subjects pertaining to the milling trade will be read by persons well versed in the topics under discussion. The following persons have been invited to write upon the subjects mentioned:

The Export Flour Trade.....	C. H. Seybt
Bolting Silk.....	A. B. Kellogg
Repurifying Flour.....	Homer Baldwin
Centrifugals and Centrifugal Bolting.....	Geo. T. Smith
Milling Economics.....	C. M. Palmer
Round Reels and Flour Dressing.....	Jonathan Mills
Corn Meal Milling.....	David H. Ranck
Mutual Mill Insurance.....	Edw. Atkinson
New Milling Appliances.....	Albert Hoppin
Flour Brands.....	Alex. H. Smith
Oatmeal Milling.....	F. Schumacher

Among other important matters that will come up before the association will be the claims of R. L. Downton, who has begun suit in St. Louis and elsewhere for infringement of his patents on milling processes. At this meeting the reports of the attorneys now engaged in examining into the validity and value of these patents will be received, and it will be finally determined whether the association will fight them or compromise on the terms proposed by Mr. Downton's attorneys.

After the adjournment of the convention all members will be invited to participate in an

#### EXCURSION TO JACKSON MICH.,

For which the Geo. T. Smith Middlings Purifier Co. has with characteristic liberality tendered the free use of a train of sleeping cars for all the attendants of the convention. The train will leave the depot of the Michigan Central railroad about 9 o'clock on the evening of the 13th, after the adjournment of the convention, and will arrive at Jackson about 5 o'clock next morning, where the sleeping cars will remain, so as to allow the excursionists undisturbed sleep until breakfast time. During the entire day the Geo. T. Smith M. P. Co. expect us to be their guests, and will endeavor to make it both pleasant and profitable to us. Jackson contains the celebrated Purifier works, the Eldred mill, constructed on the new centrifugal system, paper mills, flouring mills, state penitentiary and other institutions of interest; while the city itself is well worth a visit. It contains many beautiful residences, public building, and the population is intelligent, stirring and hospitable. The train returning to Chicago will leave Jackson about 10 o'clock Friday evening, and arrive at Chicago Saturday morning at 7 o'clock, in time for all the morning trains going south, north or west.

It is sincerely hoped that every member of the association who can do so will be present at this meeting. The business to be considered and the programme provided for the entertainment of the members is of interest and importance to all, and if the association must again begin legal warfare, it is desired that every member whose interest are likely to be affected should be present, and aid in deciding upon the best course of procedure.

Secretary's office, Milwaukee Wis.,  
April 3, 1886.

S. H. SEAMANS, Sec'y.

The immense quantity of peanuts grown in Africa, South America, and in our own Southern States, afford not only a pleasant article of food, but a very large source of oil production. The seed contains from 45 to 50 per

cent. of a nearly colorless, bland, fixed oil, not unlike olive oil, and used for similar purposes; it is a non-drying oil, which changes but little by exposure to the air, and remains fluid even at several degrees colder than 32 degrees Fah. A very great quantity of soap is manufactured from this kind of oil; indeed, some of the finest toilet soaps imported from France, are of this material.

A FRIEND of Tom Scott, the noted president of the Pennsylvania railroad, told me last night," says the Washington correspondent of the *Cleveland Leader*, "how Scott's choosing of railroading as a profession turned upon the flipping of a penny. He said: Tom Scott told me the story himself. He was the toll collector on the Pennsylvania canal at Columbia when the railroad authorities, hearing that he was a bright young man, offered him the position of station agent at Altoona. Scott was very popular, and when he told his friends they urged him to refuse it and stay on the canal. He resisted their importunities, but finally taking a big red copper in his fingers said: 'Boys, I will let the fates decide. Heads is Altoona, and tails is Columbia.' He then threw the copper into the air with a twist which sent it into a dozen somersaults, but it fell and the head was uppermost. The boys then said that one trial was not enough. It must be the best two out of three. Scott consented to this and threw twice more. His next throw was heads, and so the railroad won. Had the copper fallen on the other side who can tell what his future might have been?"

#### BIG WHEAT FARMS.

This is really the spring of the year so far as Southern California is concerned, and the small grains are nearly all sown. Everything is done on a grand scale in California—farming included—and as for big farms many of the ranchmen here can discount the Dakota fellows ten to one. Mr. Dalrymple, who cultivates 30,000 acres of wheat every year in Dakota, on the line of the Northern Pacific Railroad, is considered quite a farmer; but there were 60,000 acres of wheat grown on one ranch last year, in the county of Los Angeles. The plowing, seeding and threshing are done on the broad gauge, and the whole business is done with an eye to saving men's help and putting the labor upon horses and machinery. A gang plow, turning six or eight narrow furrows, drawn by six or eight horses, turns the ground over, and in front of the plow is the seeding box containing the seed. The grain is sown ahead of the plows by the horse power, and covered to the depth of three or four inches. The ground is seldom harrowed after the plow. The wheat comes up mostly between the furrows, and looks very much as if it had been put in with a drill. It looks like a slovenly way of doing it to a northern man, but these men have found out by experience what is the best method for them. And when a man comes to harvest 60,000 acres of wheat, he does not hire men to cradle it as our fathers used to do, neither does he invoke the aid of that marvel of human skill and ingenuity, the reaper and binder—all the old and more modern processes are of no account. He takes a header and thresher combined, hitches twenty strong horses, four abreast, to the wonderful machine, and cuts and threshes his wheat at one and the same

time. The grain is dead ripe, of course, and stands uninjured in the field for a long time, there being neither rain nor wind to molest it. All the help that is needed is what is sufficient to handle the grain and take care of the teams. The straw is burned upon the ground so as to be got out of the way before the next seeding time. Barley often sows itself and produces two or three crops after one plowing and sowing. On these big wheat ranches there is no rotation of crops as in the older states, but it is wheat after wheat year in and year out. When the ground begins to fail to produce good crops it is given a rest, but no fertilizers are used except as the cattle, sheep and horses are allowed to run upon it. Extremes meet, and in cold Dakota and in semi-tropical California the methods of wheat-growing are very much alike. Dakota has the advantage, however, as far as the quality of the grain is concerned.—Correspondence *Evening Wisconsin* (Milwaukee), March 20.

We will send the U. S. Miller for one year and Ogilvie's Handy Book for \$1.00.

#### THE JUMPING FRENCHMAN.

A writer in the *Calais Times*, Maine, thus alludes to one of Maine's peculiar products: One of the greatest curiosities in the state of Maine is the "Jumping Frenchman," whom many people believe to be a myth. The jumping Frenchman is a sad reality, and he is a very familiar character in the lumbering districts of Maine. He is affected by a peculiar disease of the nerves, which robs him entirely of self-control, and leaves him completely at the mercy of practical jokers. He will start at any sudden noise or exclamation, and will obey any sudden command.

Once, on the Penobscot River, one of these peculiar persons was standing on a raft when a fellow standing near shouted "jump!" He did jump and was drowned. At another time, in a railway train, the conductor came along to punch a jumping Frenchman's ticket. "Hit him!" cried a joker, and the conductor was knocked flat by the nervous Frenchman. At another time one of the peculiar people went to a small post-office in Maine for a letter. Just as he was about to ask for his mail somebody cried out: "Grab him by the throat!" and the jumper reached through the window and seized the aged postmaster's windwipe with a vise-like grip and held on until he was pulled away. Another jumper, in a woods camp, was standing by a red-hot furnace when somebody shouted: "Grab the stove!" and grab it he did, leaving the skin of each hand on the red-hot pipe.

The jumpers are dangerous people to have around, as they will throw anything within reach at a man when so ordered, and some lumbermen will not employ them under any consideration. I remember that once, in a small hotel in the Aroostook, one of these people took an axe to a man on being commanded to "brain him," and that on the same night a lot of Boston drummers made one of them hop about so much by shouting "jump!" that he was glad to crawl out into the barn and go to sleep in the hay mow. Most of the jumpers inherit their misfortune, but some of them are made nervous by being held and tickled into spasms when children. A jumping Frenchman is a sad sight, but a great curiosity.

## RIGHTS AND WRONGS OF THE LABOR WAR.

It is important to understand clearly just where the fundamental error arises in the dispute between organized labor and capital. The right of employes to combine cannot be for a moment questioned. It may be a question whether in so doing they consult their best interests; but the right of a man to employ his own labor in his own way is as fundamental as any other right to freedom, provided its exercise does not interfere with the free use of the same right by others; and that right is not the less real if it is exercised to the direct injury of him who owns it. If, therefore, the whole mass of men in any branch of trade agree to surrender their individuality, their judgment, their will and their conscience to an organization which acts through commissioned leaders, their right to do this must be conceded upon all grounds of law and natural liberty. It follows from this that whoever employs men who have thus delegated their individual rights of contract to the agents of a mass must be expected to treat with the agents of those men. To this extent, the claim of members of unions to be represented through their leaders and of their leaders to represent the members, individually or in mass, must be conceded.

But the right is equally positive on the part of the employer to select whom he pleases to do his work. If he prefers to employ men who are not bound by the acts of an organization, but who prefer to exercise their rights in an individual capacity, in that case natural justice, natural liberty and the laws of society confer upon him the right to exercise that choice; and the same guarantees confer the right to freedom of action upon the operative who chooses to act in his individual capacity.

When, therefore, labor organizations resort to threat, force or boycott for preventing the employer availing himself of free or unorganized labor, or to deter the employer from contracting with the employe in his individual capacity—in that case the union denies to others the freedom it demands for its own members, it interferes with the free exercise of natural rights which lie at the foundation of society, it becomes to all intents and purposes a gross tyranny alike over labor and capital. The unions may disown this attitude; but it is not the less its logical result; attempts to enforce their decrees very commonly end in violence as a last resort; and in fact enforcement by force is the silent threat on which they are coming more and more to depend and without which they are often powerless. The fact now stares us in the face that the whole railroad system of the country is threatened with suspension if the demands of the Knights of Labor upon one railroad system are not complied with; and that system is prevented from running its trains by the violent interference of these same Knights.

We are unwilling to believe that any large portion of the employes of this country will, upon mature reflection, continue to support these essentially unjust and revolutionary features of their system. They have too much respect for that individual liberty which is their birthright to become willingly parties to a tyranny which is subversive of society and must, if unchecked, involve all classes in ruin and suffering. After the consciousness of power arising from a rapid development of their organization will come a sense of responsibility and of desire to protect themselves from the consequences of their own excesses,

and they may then be hoped to discover the limits within which combination may be used to their own advantage and that of all other classes. For the time being, however, there is little promise of prudence in their action, and the only hope that such imprudences as may be committed will contribute toward a speedier and sounder settlement of this most vital question.—*N. Y. Com. Bulletin, March 25.*

## WHAT THE PRESS SAYS ABOUT

## Cawker's Flour Mill Directory for 1886.

"The American Flour Mill and Mill Furnishers' Directory" is a new work just published by E. Harrison Cawker, editor of the UNITED STATES MILLER, Milwaukee, Wisconsin. It is of inestimable value and should be in the hands of every person or firm engaged in the manufacture or sale of millstones, bolting cloths, roller mill machinery, water wheels, millwrights, and all engaged in the supply of articles appertaining to the milling trade of any kind whatsoever. It gives the names and post office addresses of 16,950 millers in the several states of the Union and 1,396 in Canada. Of the former 2,396 are in Pennsylvania. It also designates the larger millers who have a capital of \$10,000 and upwards invested in their business, whether the stone system or roller process, steam or water propelling power, in alphabetical order of states and post office in each state or province. Also a list of flour brokers and millwrights in the same order, showing the reader at a glance who they are and where to be found. The price of the book is \$10 per copy, and as a reference guide is worth double the amount to persons or firms engaged in the trade of millers' supplies.—*Harrisburg, Pa., Independent, March 19, 1886.*

CAWKER'S Flour Mill Directory for 1886 has been received at this office. In addition to a list of millers in the United States and Canada, it gives the names and addresses of millwrights throughout the country. This book will doubtless meet with the same ready demand found for former editions.—*The Millers' Review, Philadelphia, for March.*

WE predicted in a recent issue of this journal that Col. Cawker's American Flour Mill and Mill Furnishers' Directory for 1886 would be equal, if not superior to any former directory issued by him. We have just received a copy, which is complete in every particular, and just the book for any person wishing to do business with the milling industries.—*Millers' Gazette, Toronto, Canada, for March 1886.*

E. HARRISON CAWKER, publisher of the UNITED STATES MILLER, Milwaukee, Wis., has printed in very available shape a list of the flour mills in the United States and Canada, entitled "Cawker's American Flour Mill and Mill Furnisher's Directory." This work is put out in a very neat and substantial form, and contains the name and post office address of flour mill owners in the United States and Canada, as its name implies. In addition to this, Mr. Cawker has farther enlarged the scope of the book by giving some idea of the capital invested in each mill, its system of milling, power and daily capacity. The list is therefore complete, and is the very best directory of the kind ever offered to the trade. It sells for

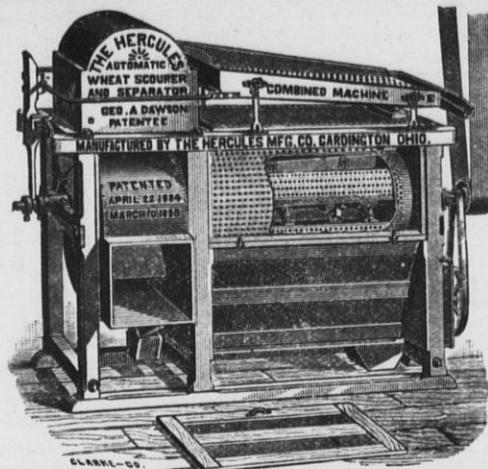
\$10 per copy, and as far as compilation, typography and neat and substantial binding is concerned, it is far ahead of all previous attempts in this line. Manufacturers desiring to reach the flour mill trade with circulars, etc., will find this directory a very valuable auxiliary.—*The Northwestern Miller, Minneapolis, March 19, 1886.*

THE labor of collecting accurate information for presenting a directory of the flour milling industry of the United States and Canada is not a small one. Previous efforts in this way by E. Harrison Cawker, editor of the United States Miller, Milwaukee, have been supplemented this year by a new volume, giving in detail by states the milling firms of the country—a valuable work for parties who have need for such lists. The total number of flour mills in the United States is shown to be 16,950, and in Canada 1,389, making a total of 18,289. The book also furnishes lists of millwrights and flour brokers. To a large extent it is shown whether steam or water power is used, and the capacity of mills in barrels of flour in 24 hours, and other features of interest. The directory is published in pocket-book form, those for pocket use by commercial travelers being printed on French folio paper, thin, light and strong, and those for office use on elegant book paper, strongly and handsomely bound. Price per copy, \$10. Copies can be obtained by addressing the publisher, E. Harrison Cawker, Milwaukee, Wis., or the publisher of this paper.—*Cincinnati Price Current, March 11.*

## A TELEGRAPH DECISION OF INTEREST TO MILLERS AND OTHERS.

It begins to look as though somebody besides the Western Union Telegraph Co. and the Bell Telephone Co. have some rights in this country. For years every decision where in the interests of the people and the monopolies were in conflict was invariably recorded in favor of the corporations. But a new era seems to have dawned, in which monopoly is destined to take a back seat. The recent decision of the Indiana Supreme Court, relative to the rights of the people to resist overcharges for telephone service, is a case in point, and the verdict of a jury in the United States Court at Detroit is another. Briefly stated the latter is as follows: J. Jenks & Co., the owners of a steam flouring mill at Sand Beach, have agents at Portland, Me. On December 20, 1884, their agents telegraphed to them that a contract to supply 1,000 barrels of flour at \$4.25 per barrel had been closed that day. Through some mistake on the part of the telegraph company the dispatch was not delivered, and the firm remained in ignorance of their agent's contract until January 6, 1885. In the meantime the price of wheat had advanced, and the firm had to fill the order at a loss. If the message had been promptly received, the firm could have bought the wheat and made the flour at a profit of \$617. Suit was brought for that amount, the company contesting it on the ground that the dispatch was not a repeated message, and that hence, under the printed rules on every blank, they were not responsible for any mistakes or delays that might occur in transmitting it. The jury heard the evidence and promptly brought in a verdict for the plaintiffs for the amount claimed.—*The Manufacturer.*

# Do You Want Clean Wheat?



## THE Hercules Automatic Wheat Scourer AND Separator

Warranted to improve the **COLOR** and **VALUE** of flour in any mill. Anti-Frictional, Light Running and the only **AUTOMATIC WHEAT SCOURER** ever invented. Adjusts itself while in motion to the volume of wheat fed to it and requires no attention but oiling. Awarded **GOLD MEDAL** and highest honors at the late **WORLD'S FAIR, NEW ORLEANS**. Machines sent on 60 days trial and satisfaction guaranteed or no pay. Write for Circulars, Testimonials and Samples of Cleaned Wheat and Scourings.

THE HERCULES MFG. CO., Cardington, Ohio.

### IT HAS INCREASED OUR TRADE.

THE HERCULES MANUFACTURING CO., Cardington, Ohio.

Gentlemen:—We like the "Hercules" machine very much indeed. It has increased our trade, and we will buy another for our other mill in the Spring. It certainly is the best Scourer we know of.  
Yours Respectfully,  
SCHREURS BROS.

SCHREURS BROS.,  
PROPRIETORS OF YOUNG AMERICA ROLLER MILLS,  
Muscatine, Iowa, December 9th, 1885.

[Mention this Paper when you write.]

S. S. STOUT. H. G. UNDERWOOD.

## STOUT & UNDERWOOD,

(Formerly Examiners U. S. Patent Office.)

SOLICITORS OF

# PATENTS

66 Wisconsin Street,

MILWAUKEE, WIS.

TELEPHONE No. 502.

## Green Bay, Winona & St. Paul

RAILROAD

IS THE **SHORTEST ROUTE** FROM  
**GREEN BAY**

and all points in

**EASTERN \* WISCONSIN**

—TO—

- NEW LONDON,
- STEVENS POINT,
- GRAND RAPIDS,
- WAUSAU,
- MERRILL,
- WINONA,
- LA CROSSE,
- CHIPPEWA FALLS,
- STILLWATER,
- HUDSON,
- EAU CLAIRE.

### \*ST. PAUL, MINNEAPOLIS,\*

and all points in

MINNESOTA, DAKOTA,

and all points on the

NORTHERN PACIFIC RAILROAD and ST. PAUL,  
MINNEAPOLIS & MANITOBA RAILROAD.

Passengers from all points on the CHICAGO &  
NORTHWESTERN R'Y, south of Green Bay and  
Fort Howard, connect with the

## G. B., W. & St. P. R. R.

—AT—

FORT HOWARD JUNCTION.

They will find it

### THE SHORT LINE

to all the above points.

### THE PASSENGER EQUIPMENT

of this Road embraces all the modern improvements  
and conveniences that tend to make traveling by  
rail safe and comfortable.

Be sure your tickets read via the

Green Bay, Winona & St. Paul Railroad.

S. W. CHAMPION, GAVIN CAMPBELL,

General Pass. Agent.

General Manager.

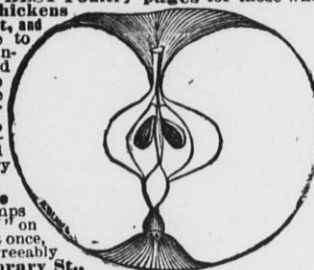
GREEN BAY, WIS.

# TRIAL OFFER

ten trial subscribers become permanent readers, and use their influence to send more names. Experience having taught us this, we feel certain that it will pay us to make a **LIBERAL OFFER** to induce every one to try the paper. **3 MONTHS ON 10c.** To every reader of this who will send us 10 cts. in stamps or silver, we will send "THE FARM AND GARDEN" on trial for three months. Please accept this trial offer at once, if only to satisfy curiosity, and you will certainly be agreeably disappointed. **FARM AND GARDEN, 1001 Library St., Philadelphia, Pa.**

## THE FARM AND GARDEN

Is a handsomely-printed monthly paper, with ORIGINAL ILLUSTRATIONS, and is a homelike, sensible, and ACCURATE rural journal. INTERESTING CORRESPONDENCE and valuable information from every State in the Union, but no nonsense or stolen ideas. It is an authority on FRUITS and VEGETABLES. Contains the BEST Poultry pages for those who raise chickens for profit, and is sure to surprise, interest, and please you. Nine of every



# 61 POPULAR BALLADS ONLY 20 CTS.

I'm Just Going Down to the Gate, Handful of Earth, Wait 'till the Clouds Roll By, I'll Meet Her When the Sun Goes Down, A Knot of Blue and Gray, Mary's Gone With a Coon, Sweet Violets, Bridget Donaghue, Little Wife, Nellie, Bold McIntires, Only a Pansy Blossom, Nobody Knows What a Racket Was There, Where Is My Wandering Boy To-night? Paddy Duffy's Cart, Widow Nolan's Goat, Warrior Bold, We Sat by the River, You and I, You Will Miss Me When I'm Gone, Old, and Only in the Way, Oh, Dem Golden Slippers, Only to See Her Face Again, I've Only Been Down to the Club, Nelly Gray, You Get More Like Your Dad Every Day, My Pretty Red Rose, I'll Remember You Love, in My Prayers, Rosy's Sunday Out, When You've Got But Fifty Cents, Old Folks at Home, I'll Take You Home Again, Kathleen, Old-Fashioned Homestead, Pallet of Straw, Cradle's Empty, Baby's Gone, Never Take the Horseshoe from the Door, Blue Alsatian Mountains, Leaf of Ivy from my Angel Mother's Grave, Mary of the Wild Moor, Peek-a-Boo, Joe Hardy, Home Again, We Never Speak as we Pass By, Farmer's Boy, Lullaby, Boys, Keep Away from the Girls, Baby Mine, Grandmother's Old Arm Chair, High Water Pants, Over the Garden Wall, A Flower from my Angel Mother's Grave, I Left Ireland and Mother Because We Were Poor, Give an Honest Irish Lad a Chance, Not Before Pa, Spanish Cavalier, Mountain Song, In the Gloaming, Love of the Shamrock, Barney McCoy, Butcher Boy, Poor, But a Gentleman Still, Sweet Evelina, Forgive and Forget, All the Troubles You Have Met. This book is printed on paper same size as sheet music. Order a copy now. Address **AMERICAN PUBLISHING CO., 17 North Tenth St., Philadelphia, Penn'a.**

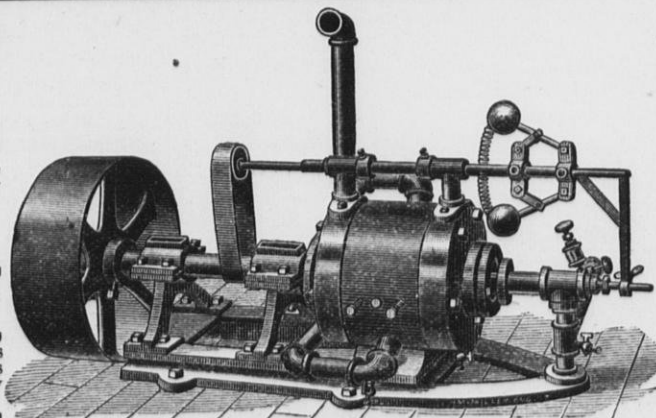
## Did you hear us?

We told you over a year ago that our Engine was "on the market to stay." We now tell you it is the best Engine in the world, and is gaining favor every day and everywhere.

Highest Economy,  
Closest Regulation,  
Fines Automatic Cut-off,  
Most Durable,

THE BEST in all respects and for all uses, and on prices we can double discount any engine maker in the U. S. Yes, it's a rotary, and we can prove all we claim.

If you want to know more about it send for Circulars and References.



**WADE & WARDELL,**  
Cadillac, Wexford Co., Michigan.

[Please mention this paper.]

## THE PHILOSOPHICAL TRAMP.

My clothing's ragged you declare?

Well, then it can't be spoiled.

My wardrobe is of linen bare?

My linen can't be soiled.

No credit have I, you believe?

That fact I don't forget;

But then, my friend, as you'll perceive

I cannot run in debt.

No dinner have I had to-day?

Well, no. Again you're right;

But I'll have no dyspepsia,

Or horrid dreams to-night.

No place to sleep? Well, I'm content

I've often walked the street;

But then you know I pay no rent

And have no bills to meet.

'Twill kill me soon to live this way?

Well, why should I repine?

You, too, will die, your frame decay,

And turn to dust like mine.

Should we in dust together dwell,

Though now you're dressed so fine,

A century hence no one could tell

Which were your bones, which mine.

The thought brings solace oft to me,

Though suffer here I must;

There shall be true equality

When we are in the dust.

[Boston Courier.]

## NEWS.

DEAD.—V. Beal, miller, at Cobden, Ill.

DEAD.—J. Hoffman, miller at Elba, Minn.

E. Howe, miller of Waldoboro, Me., is dead.

BURNED.—J. W. Engel's mill at Industry, Pa.

DISSOLVED.—H. L. Willard & Co., Sterling, Ks.

SOLD OUT.—Guy Kimball, of Pt. Huron, Mich.

SOLD OUT.—W. J. Crawford, of Leesburg, Ind.

ASSIGNED.—Jas. Moore & Son, Davenport, Neb.

S. O. Westbrook, of Beebe, Ark., has sold his mill.

BURNED.—Geo. K. Witney's mill at Wrightsville, Wis.

SOLD OUT.—L. Clark & Co., millers at Westerville, Ohio.

DISSOLVED.—Lutz & Handley, millers at Lewisburg, W. Va.

CHANGED.—Moore & Floyd, Kennett, Mo., to Floyd & Shelton.

BURNED.—S. J. Stephenson & Bro's. mill and gin at Troupe, Tex.

BURNED.—The mill owned by H. B. C. Gentry, at Verbena, Va.

W. N. Eddy's mill at Winchester, Va., was damaged by fire. Insured.

BURNED.—W. A. Davis' grist mill at Bullock, Ga. Loss about \$3,500.

BURNED.—Isaac Bookers' flour mill at Cameron, W. Va. Loss \$6,000.

Hale Bros. of Lyons, Mich., are shipping considerable flour to Georgia.

C. Anderson, of Lanesboro, Minn., has gone out of the milling business.

BURNED.—Daniel Paule's grist mill in East Carmoilet, near St. Louis.

SOLD OUT.—W. C. Henderson, of Port Colbourne, Ont., has sold his mill.

J. H. Matthews, of J. H. Matthews & Son, millers at Fairfield, Ia., is dead.

The milling firm of McDaniel & Wright, Franklin, Ind., dissolved recently.

SOLD OUT.—Mill at Freeport, Mo., by Davenport & Sons, to J. S. Parish & Co.

P. G. Hoag is making extensive repairs and changes to his mill at Otsego, Mich.

The corn-mill owned by Swift & Ould, at Perrymans, Md., has just been completed.

Carson & Lewis, Weatherford, Tex., will soon have a 125 bbl. flour mill in operation.

DEAD.—J. H. Matthews, of the milling firm of J. H. Matthews & Son, Fairfield, Ia.

BURNED.—Smith & Sons' saw and grist mill near Bright Star, Ark. No insurance.

Rhodes & Dean, the Kalamazoo engine builders, are getting out six engines for boats.

BURNED.—D. Cooper & Co's flour mill at Rochester, Ind., partly burned recently. Insured.

Le Bar & Cornwell's mills (75 bbl. capacity) at Cadillac, Mich., are running full time.

Lewis Carman has sold his grist mill at Millbrook, Mich., to Otis Smith, late of Pennsylvania.

Stinnett, Rucker & Co., will start up their new 200 bbl. roller mill at Sherman, Tex., April 1.

BURNED.—Toboke & Aldenhagen's mill at Waymansville, Ind. Loss \$10,000. No insurance.

Theodore Mittendorf has gone into partnership with Otto F. Lutt, miller at Clay Centre, Ks.

The Albany Flouring Mill Co., at Albany, Tex. has purchased \$14,000 worth of flour mill machinery.

Moore and Dutcher will change their flouring mill at Saugatuck, Mich., from stone to roller process.

S. Bigler, of Painesville, O., (miller) has taken in a partner and the firm is now known as S. Bigler & Co.

BURNED.—At Bowmanville, Ont., March 22, William Stephens' flour and grist mill was destroyed by fire.

A roller flour mill will be built and a grindstone quarry opened the coming summer at Port Austin, Mich.

BURNED.—March 18th, John Kerstetter's mill at Potts Grove, Pa., was totally destroyed. No insurance.

Hannah, Lay & Co., 200 bbl. roller mill at Traverse City, Mich., has made and sold 18,000 bbls. of flour during the past 90 days.

The Mill Creek roller mill with a daily capacity of 125 bbls. flour and 40 bush. of corn has just been started at Mill Creek, Tenn.

About noon of March 26th the North Buffalo flour mills of Buffalo, N. Y., were destroyed by fire. Loss \$40,000. Insurance \$25,000.

Owing to the failure of the First National Bank, at Wahpeton, Dak. the Wahpeton Mill and Elev. Co's property has been levied upon.

S. H. Cockrell & Co., Dallas, Tex., have let the contract for a 250 bbl. roller mill. This will increase their capacity to 500 bbls. per day.

Revised estimates show Ferdinand Schumaker's loss by the burning of his mills at Akron, O., to be about \$500,000, with insurance of \$109,000.

Hugh McIntyre has purchased a half interest in the Morden, Mass. flour mill. The firm will hereafter be under the style of Ritchie & McIntyre.

J. F. Seiberling, of Akron, O., a wealthy miller, manufacturer and real estate owner, has been boycotted by the Trades and Labor Assembly of that place.

A large section of the dam of the Plymouth roller mills, owned by E. P. Bacon & Co., of Milwaukee, was swept away by a recent flood. Substantial repairs are being made.

BURNED.—At Hannibal Centre, N. Y., March 25, the flouring and saw mill of Charles Rogers & Son. The loss is from \$7,000 to \$8,000; no insurance. It is supposed that the sawdust took fire and smoldered until during the night.

Lenham & Co., who own eight elevators in Dakota on the line of the Northern Pacific R. R., made an assignment March 19. The amount of liabilities is supposed to be considerable as the firm have been doing a large business.

Gilbert & Jones, of Jameston, N. Y., proprietors of the Crown Roller mill have dissolved partnership, Charles H. Jones having purchased the interest of Albert Gilbert, Jr. The mill will receive many improvements and its capacity will be increased.

An attempt was made to burn the Eagle mills in Kansas City, April 7. The mills had been shut down for two weeks and as soon as the machinery was started fire broke out in three places on the second floor. It was found that the conveyors had been packed with cotton, saturated with turpentine and matches tied on the paddles, so that they would strike upon pieces of sandpaper placed at the proper distance to ignite them and start the fire. It must have been the work of some one familiar with the building and machinery and it was most fortunate that the fire was extinguished with little or no loss.

There are 27 potato starch factories in Aroostock, county, Me., and vicinity, costling from \$400 to \$10,000 each, with a working capacity of from 20,000 to 80,000 bushels of potatoes. The amount of starch made in the State last year was 9,548 tons from 2,340,000 bushels of potatoes.

According to the annual report of the Detroit, Mich., Board of Trade, the mills of that city manufactured during the year 1885, 255,000 bbls. of flour, consuming 1,145,040 bus. wheat. Receipts of flour for the year were 140,198 bbls. Shipments 157,899 bbls. Wheat receipts 8,731,495 and shipments 6,170,385 bush.

A grain buyer who has purchased at Portage la Prairie, Manitoba, during the fall and winter, estimates that about 300,000 bushels of wheat have been marketed from the Portage plains. He says that if a few loads of smutty wheat were taken out, the balance would average No 1 hard. There was no frozen grain to speak of.

The George T. Smith Purifier Company, of Jackson, use about 4,000,000 feet of whitewood lumber in the course of a year, or about 500 car loads. A short time ago they entered into negotiations with parties in the south for 3,000,000 feet of extra quality whitewood, but the purchase was not consummated because of prohibitive freight rates.

The mill of Taylor Bros., at Pontiac, Ill., was burned March 15. It is a complete loss; also several barns and dwellings surrounding it. The origin of the fire is unknown, but its progress was very rapid. Most of the employes had to jump from the windows, some from the third floor. No one was severely injured. Loss between \$50,000 and \$60,000; partially insured.

The Imbs flour-mill at Belleville, Ill., is shut down for repairs, and will remain closed for about two weeks. It has run steadily since July 1 last, but only twelve hours a day, as the wheat could not be secured to run full time. Some of the reports as to the growing crops of that section are slightly discouraging, but no more so than usual.

There is a long strip of country along the A. T. & S. Fe R. R. in Kansas, that is an open field for millers. Between Topeka and Newton are burr mills of antique pattern, with one exception, and several of the towns range from 800 to 6,000 inhabitants.

Meier, Mich., has raised a bonus of \$2,000 for a flour mill.

The mill at Hartford, Kas., will be remodeled in the Spring.

A large roller mill will be built at Chadron, Neb., in the Spring.

Ketcham Bros., Mt Pleasant, Ill., are putting in the roller process at a cost of \$15,000.

H. H. Speare, of Chattahoochee, Fla., is preparing to build a steam mill at River Junction in that State.

S. M. Kefauver, operating a mill at Middletown, Ind., has been burned out. Loss \$9,500; partly insured.

J. E. Palmer's grist mill, at Wilton, Me., has been damaged by fire to the extent of \$7,000; small insurance.

DISSOLVED.—Seely & Mersman, millers, Troy, Ill., Seely continues.

DEAD.—J. Hoffman, Elba, Minn.

BURNED.—Newhart & Son's hominy mills at Terre Haute, Ind. Loss \$20,000. Insured.

BURNED.—The 100 bbl. mill of Stinnett, Rucker & Co., at Sherman, Tex. Insured.

Piper, Gibbs & Co. have sold their waterpower on Rock River, at Piperville, Wis., to the Ixonia Water League and they will remove the dam at once. This will reclaim hundreds of acres of land and improve the water power at Watertown. The Piperville dam was first built in 1844.

The Duluth Dock Company has been formed at Duluth, Minn., for the purpose of building a \$100,000 dock in that city. Work will begin at once, and it will probably be finished early in the season.

The largest linseed oil mill in the United States, in Toledo, O., was recently destroyed by fire, resulting from the explosion of a tank of naphtha, containing about 100 barrels used in the new process of refining linseed oil. The explosion caused a tremendous report throwing burning oil in all directions, demolishing the building and setting fire to adjacent buildings. Four men were injured but no one killed.

The Farmer Roller Mill Co. recently shipped eight sets of farmer rolls to F. Roberts, Smithfield, Mo.; ten sets to Wm. McDevitt, Seneca, Mo.; two sets to Bennett & Reese, West Plains, Mo.; seven sets to Adams W. Sandt, Easton, Pa.; single set to Seria Lumber Co., Chico, Cal.; and double sets to Moore Bros. Cincinnati, Ark., and A. C. Vorhis, Brockton, N. Y. The Company is furnishing two dynamos, capable of running 300 incandescent and ten arc lights, to Petoskey parties and is turning out a dynamo for F. W. Scott, of Hillsdale, which he will use in generating light for his grist mill, office and residence. The Vibrate and Luminoid Co., of Boston, has ordered a dynamo to test its new lamp.

James Jenks & Co., owners of a flour mill at Sand Beach, want \$2,000 damages from the Western Union Telegraph Company. Their agent sent them a telegram about a lot of 1,000 barrels of flour, contracted for \$4.25 per barrel; the telegram was not delivered until several days, and in the meantime wheat had risen in price, and instead of making \$1,000 profit as they claim, they would have done had the message been delivered at the proper time, they filled the contract at a loss. Hence this suit.

The Vallier & Spies Milling Co. at Marine, Ills., has been incorporated with capital stock of \$30,000.

BURNED.—The mill of Israel & Benj. Markely at Bennington, Kas. Loss \$20,000. Partly insured.

The mill furnishing firm of Latimer & Co., Philadelphia, Pa. are succeeded by Latimer & Perrine.

The organization of the F. Schumacher Milling Co., at Akron, O., progresses favorably. The Akron Milling Co. have signed the articles of agreement, turning in their mills at a valuation of \$370,000. F. Schumacher takes \$670,000 of the stock and the balance of \$460,000 is to be raised by subscription. Of this latter amount \$160,000 has already been subscribed, and from present outlook the balance will, in a short time, be taken. Under this state of affairs there is no doubt that Akron in the course of a year or so will have one of the largest milling plants in the world.

The Memphis Mill Co., of Memphis, Tenn., has been organized and incorporated, by L. H. Lanier, G. A. Dazey and W. T. Cartwright. The mill is now being built.

S. T. Comans, of the firm of S. T. & R. Comans, millers, at Fox Lake, Wis., dropped dead of heart disease, March 25th. The deceased was 70 years of age.

A. J. Childress, T. M. Kill and E. J. Lockhead, have organized and incorporated The Terrell Milling Co., at Terrell, Tex. Capital \$30,000.

A new 200 bbl. roller mill is to be built at Waco, Tex., by Wm. Cameron and others, which, including a large elevator, will cost about \$100,000.

Advices received at Washington, D. C., from the winter-wheat growing districts show that, even with favorable weather, the crop will reach only an average. About 30 per cent. of the acreage was sown late, from fear of the Hessian fly, and this portion has suffered some from the weather. The greatest falling off in acreage is in the states of Illinois, Kansas and Missouri. On the Pacific slope the outlook is more encouraging.

A mill is to be built at Renick, Mo., by The Renick Milling Co., incorporated. Capital \$50,000.

#### HOPEWELL TURBINE WATER WHEEL.

Mr. A. J. Hopewell (whose advertisement will be seen in another column), is the inventor and proprietor of that esteemed water wheel known as "The Hopewell Turbine." He was born in Powells Fort Valley, one of the larger recesses of the Massanutten range of Mountains, near Edinburg, Va., in the year 1842.

His parents were comparatively poor, and though at a very early age he manifested decided and remarkable talent for the various branches of mechanics, embracing hydraulics and hydrostatics and pneumatics, his circumstances in life prevented him from developing it as early as he would have desired. He literally earned his bread by the sweat of his brow in order that he might assist his parents to procure the necessaries of life, and was almost constantly engaged at severe manual labor until he reached manhood. When he was about 20 years of age, he went into the business of watch and clock making

in which he showed great skill and fine workmanship, and it was not until he was 30 years of age that he was in a position which enabled him to direct his entire attention to his favorite pursuit, which culminated in the invention of the Hopewell turbine water wheel. He had his wheel subjected to various practical tests, and also with the use of a dynamometer, etc., until he was satisfied as to its superiority, and in 1879, he applied for and shortly after obtained letters patent, conscious of the merits of his invention, and that it could be made a source of profit. Without the aid of influential friends and with very limited means he confidently went to work to introduce his wheel. Naturally under such adverse circumstances, he met with the greatest trials and difficulties, but was not to be discouraged and now having met with even greater success than he ever hoped for, he is reaping the rich reward justly due to his confidence and energy. Mr. Hopewell at first had his wheel manufactured at Woodstock, near his home, but the demand for them soon became so great that the works at this place could not supply the demand and he then associated himself with E. G. Smyser, of York, Pa., one of the oldest and largest manufacturers of turbine wheels in the United States. At the time Mr. Hopewell entered into this arrangement with the above firm it had for years been engaged in manufacturing several of the most popular turbine wheels, but realizing at once the merits of his wheel discontinued the manufacture of other wheels.

#### WHAT REPORTS.

"The foreign news about wheat," says the Chicago Tribune, "contains a considerable amount of encouragement for those who believe our market is not going entirely to the dogs. The low prices offered in Europe appears to have very badly discouraged the seeding of wheat in British India. The area sown there to wheat this year is estimated by some to be about 1,800,000 acres less than that of the last crop. This gives room for anticipating a reduction in the yield to the extent of 17,000,000 bushels, though it is not certain that the quantity to be exported from that country will show so much of decadence. This is a matter which depends to a very great extent upon the prices that are offered for the property by English purchasers. It is also reported that the Russian ports, now opening with the termination of winter, are far from being loaded down with wheat. Advices came here April 3 to the effect that ships find it difficult to obtain wheat cargoes at those ports, and the inference is that Russia has very much less wheat to spare this season than she had a year ago. With this comes the news that during the last three months the stocks of breadstuffs have decreased about 30 per cent in Liverpool and 50 per cent. in London. As they were large at the opening of the year, those ports which are the principal ones of the United Kingdom, cannot be scant of supplies now, but they have less reason for depression, as the decrease has been accomplished in the face of large deliveries by home farmers for several weeks past. The taking of 400,000 bushels of our wheat yesterday for April shipment towards Europe is a significant fact in this connection. It shows that our market is on a better basis, as compared with foreign ones, than it has been at any time during the winter till a few days ago. It is possible to export our wheat without loss, though there are intimations that it is accomplished by the aid of a moderate re-

bate from the elevator charges for storage here. Perhaps a considerable rise in our price would be fatal to a continuance of the movement, and if so it would be much to be deplored. It is far better that prices be kept down while an appreciable percentage of our yet large visible supply is moved out of the country. That would then leave a chance for realizing more of the moderate quantities of wheat which still remain in the hands of our farmers—estimated a month ago by the Washington statistician to be only 30.1 per cent of the last crop, which it will be remembered, was a small one. If this estimate be accepted as approximately correct it must be concluded that a part of our own consumption between now and next harvest will have to be supplied from the stocks that are near enough to market to be visible. As the stocks of flour are not included in the aggregate of nearly 50,000,000 bushels that forms the officially stated visible supply, there need be no fear of starvation as a consequence of letting some of our wheat go abroad to feed the people who want it worse than we do."

#### NONSENSE.

"I knew a boy at school," said John Smith the other day, "named 'With Much Tribulation We Get to Heaven Jones.' We used call him 'Tribby,' I would rather be called Powhattan."

ELMIRA TEACHER—Who discovered America?

Johnnie—Christopher Columbus.

E. T.—That is right. Now how did he come to do it?

J.—He come by water.

"SHINE 'em uppa?" said an Italian boot-black to Pat, just landed.

"Phat's the charge?" asked Pat.

"Five cents."

"Begorra," said Pat, as he seated himself in the chair, "it's a foine country, Ameriky, where a poor Irishman can get his boots blacked by a gintleman wid goold rings in his ears."—New York Sun.

GOOD BECAUSE HE HAD TO BE.—"Robert, what did you say to the bad boy this morning when he taunted you for going to Sabbath-school?"

"Didn't say nothin'. I just went right on without sayin' a word back."

"That was right, my son, and I am glad to see you had manliness enough not to notice him."

"Yes, but you ken bet if he hadn't bin biger'n me I'd thumped blazes out'n him."

PRAYER AND POLITENESS.—The small boy who teaches theology to the historian was very bad indeed at the table the other day, so naughty in fact, that his sister said to him seriously: "You seem to get worse every day. Are you ever going to be any better?"

"To-morrow," asserted the small boy with engaging certainty; "I'm going to pray to God to-night when I go to bed to please make me good, and then I'll get up early in the morning and be good all day."

"You'd better pray now and begin right off. God can hear you now just as well as at bedtime."

"Oh, maybe he can hear me now, but I ain't going to pray now. 'Tain't polite to God to pray except at bedtime!"



# UNITED STATES MILLER.

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MILWAUKEE, APRIL, 1886.

## 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., March 1, 1886,

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, 1880, less than 5,100 COPIES each, and are frequently in excess of that. 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, }  
 MILWAUKEE COUNTY, } ss.  
 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, 1880, 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.

E. HARRISON CAWKER,  
 Publisher.

Sworn to and Subscribed before me at Milwaukee, Wis., this 15th day of March A. D. 1886.

ISAAC S. CLARK,  
 Notary Public.

DR. THOMAS E. HEENAN, of Minnesota, the recently appointed United States Consul to Odessa, Russia, is now on his way to his post of duty.

THE N. Y. Commercial Bulletin says that the state of New York to-day has only 59 fire insurance companies, as compared with 105 in 1871, and meanwhile has chartered and lost 26 companies, organized and capitalized since January, 1871. This tells the whole story, as regards contradicting the absurd popular notion that fire underwriting is a profitable business *per se*.

Now is your time to send in your subscriptions for milling papers and other periodicals. Read our Club List on another page.

AND now the nimble speculator in options will "go in" more extensively than ever. Margin dealings were for a long time considered illegal, and so decided in state courts, but by a recent decision of the Supreme Court of the United States, in Higgins & Gilbert vs. McCrea, for margins due in transactions in mess pork and lard, the validity of speculative contracts was established. Popular before it was legalized, the option system is not likely to be put under the ban, now that it has been sanctioned by the highest court of the land.

## THE TENTH YEAR FINISHED.

In May, 1876, the first number of the UNITED STATES MILLER, made its appearance, consequently this April number completes the first decade of its existence. We have in these ten years labored diligently to serve the interests of our patrons, both subscribers and advertisers, and we hope in the future to be able to render them still better service. We thank all who have aided us by their support in the past and hope for its continuance. With our May number a new volume commences, and we urge subscribers and advertisers to send us their orders before May 1.

We will send the U. S. Miller for one year and Ogilvie's Handy Book for \$1.00.

THE broom corn combination has "busted." The combination thought they saw a big speculation in broom corn, but it seems that they made a mistake in their calculation.

## THE DOWNTON PATENT INFRINGEMENT CASE.

The executive committee of the Millers' National Association met in Chicago, April 3, to consider the important matter of the Downton patent, and also to arrange a suitable programme for the National Convention which will be held at the Grand Pacific Hotel, May 12 and 13. The committee were met by Mr. Downton and his attorneys, Messrs. Parkinson & Parkinson, of Cincinnati, O. A proposition was made for settlement with all members of the association in good standing (dues paid), and are straight on the association books when the proposition is accepted. This proposition is being held under advisement by the committee and a report will be made to the general convention May 12.

The Cleveland Milling Company, of Cleveland, O., have already compromised with the

patentee. The Anchor Milling Company, of St. Louis, Mo., has been sued, and as they are not members of the association, and having been sued, cannot under the rules become members, they will either have to defend themselves or settle on the best terms they can make.

Members of the committee do not hesitate to say that so far as they have investigated up to the present time, the case has an ugly look for millers. After a final report is made May 12, the members of the association will decide which is advisable to do—settle or fight. If the association can settle so as to protect all of its members cheaper than they can contest Downton's claims, they will probably do so. This threatened danger to the millers will doubtless cause a very large attendance at the meeting May 12. We earnestly advise millers not to rest in fancied security until the blow is struck, but to unite with the thoughtful mill owners of the National Association, who have already served the interests of the entire milling industry of this country so faithfully and so well. This infringement must not be confounded with Downton's so-called "germ patent." This includes not only process, but mechanical devices and manufacturers of infringing machinery, and users of such machinery are alike liable in case the patent is sustained.

## A REMARKABLE HISTORY.

Guizot is the Macaulay of the History of France. His narrative is full of emotion like a quick stream; his characters rise before us as in the flesh; they are men and women, not historic lay figures. It is as charming as any romance. It is a work to read and re-read. The new edition just published is worthy of the work. Though reduced in price from \$36.00 to \$6.00 the 427 illustrations are all there, superb in quality; the type is large; the binding is thoroughly excellent and tasteful. Every word of the publisher's description in the advertisement elsewhere is worth reading—the work ought to be owned in every home. We have made an arrangement with the publisher by which we are able to offer this work, Guizot's History of France, 8 vols., large 12mo., 427 fine illustrations, as described in the publisher's advertisement elsewhere, regular price \$6 00, in combination with THE UNITED STATES MILLER on the following remarkably attractive terms, namely:

For \$6.25, we will send one copy of this paper one year, and deliver a set of Guizot's History of France, as described, at our office or express office in Milwaukee, without further charge.

For \$11.50, we will send two copies of this paper one year, and deliver two sets of the work described, at our office or express office in Milwaukee, without further charge.

For \$16.00, we will send three copies of this paper one year, and deliver three copies of the work described, at our office or express office in Milwaukee, without further charge.

Our arrangements with the publisher enable us to make these exceedingly liberal offers for 30 days only—the time expires May 20, 1886. A prompt call at our office to examine the work is worth your while—that will cost nothing; a few hours' or a few moments' talk with your neighbors will enable you to secure it on easy terms.

## ITEMS FROM BEYOND THE SEAS.

THE roller mill erected last year at the Cape of Good Hope, Africa, by an English firm, has met with such success that its capacity is to be greatly increased.

MESSRS. Meek Bros., of Omaru, New Zealand, have ordered the construction of a large roller mill at that place.

A MILLING exhibition will be opened at Milan, Italy, April, 1887, and close in June.

IRISH MILLING.—Mr. B. J. Williams, the well-known baker of Edenderry, Ireland, writes us in reference to "bolting cloths," that the first was worked in Ireland by the "Neale" family about the year 1800, at Coolrain Mill, Queen's County; and the first silk dressing machine was erected by Mr. Alfred Houghton, of Ardreich Mills, Athy; and among the foremost millers were and are Messrs. Ebenezer Shackleton & Sons, of Moone Mills, Athy. They were also among the first in Ireland to put up roller mill machinery, and our correspondent adds that Mr. Shackleton's (sen.) maxim was, "get rid of a bad grain of wheat, even if it takes nineteen good ones along with it."—*The Miller*, London.

THERE is considerable talk among British millers, bakers and manufacturers of milling machinery, of holding another milling exhibition in 1887.

SAPPORO, Japan, now boasts of another American roller mill, built by the Jno. T. Noye Manufacturing Co., of Buffalo, N. Y. The mill has a capacity of about 75 barrels per day.

ON the first of March a bill was presented in the French Chamber of Deputies to abolish the assize of bread, as decreed by the law of 1791. This law allowed the mayors of towns and communes to arbitrarily fix the price at which bread should be sold, regardless of cost of flour to the bakers. It is needless to say that such a law, especially at election times, proved a lever of great power for a corrupt candidate for office. Only as far back as 1884 a mayor seeking re-election, was not ashamed to say to the voters of his district, "To vote for me is to vote for cheap bread; to vote for my opponent is to vote for dear bread." No time should be lost in repealing such a law.

PROSPECTS look bad for the Panama canal. Finding it impossible to raise more money in France, Engineer De Lesseps has succeeded in inducing a number of capitalists from other countries to go with him and examine the work already done, with the expectation that they will interest themselves financially in the project. There have been expended on the canal already \$153,000,000. The most difficult part of the work is yet to be done. It looks now as if the enterprise was bound to be a failure, and that the millions expended are hopelessly sunk in the mud of the Isthmus of Panama.

THE Swedish Parliament have rejected a proposal to put an import tax on grain.

THE French Government has decided to furnish its navy with bread and biscuit made from French grain only.

NINE hundred and forty-five grain laden steamers sailed from Odessa, South Russia, for various European ports during the year 1885.

AN International Bakers' Exposition is to be held next summer in Amsterdam, Holland.

RUSSIAN MILLING.—It is said the Russian mills have heretofore worked principally for home consumption and taken one-third of the grain in toll. The recent establishment of a large number of better mills is already affecting the trade and improving its methods. South and Central Russia have some large and well-equipped steam mills, yearly increasing, that extensively use machinery from Austria. The great centres of traffic like Odessa, Sebastopol, Moscow, and many others, have very good new mills; but the highest Hungarian grades, Nos. 0 to 5, are not made, the main manufacture being for the macaroni trade of South Russia and Italy, that requires highest grades of wheat. The average yearly output, from 1857 to 1880, was 62,700,000 lbs. A large part of the breaks and bran is exported to North Germany. Of Russia's total exports of flour, 112,500 barrels, the largest amount was sent to Sweden and Norway, Turkey and England; smaller amounts went to Austria, the Netherlands, Prussia, France, Italy and various other countries.—*Northern Miller*, Glasgow

## THE TELEPHONE WAR BEGUN.

On the 23d day of March, Dist.-Att'y Kumlér, of Cincinnati, filed in the United States Court in Columbus, O., the government papers to test the validity of the Bell telephone patents, the defendants named in the petition being the American Bell Telephone Company, a corporation under the laws of Massachusetts; the Central Union Company, under the laws of Illinois; the Erie Telephone and Telegraph Company, under the laws of Massachusetts; the Central District Printing Telegraph Company, under the laws of Pennsylvania; the Cleveland Telephone Company, the City and Suburban Telegraph Company, the Union Telephone Company and the Buckeye Telephone Company, under the laws of Ohio, and Alexander Graham Bell. The attorneys for the government named in the petition are Solicitor-General Goode, Dist.-Att'y Kumlér, Allen G. Thurman, Grosvenor P. Lowry, Hunton & Chandler and Chase Whitman of special counsel. Process was issued directing appearance by May 1, and requiring that the answer be filed on or before June 1. The petition with accompanying exhibits makes about seventy-five pages of pamphlet printed matter. The points were made public in the press some days ago from a copy obtained surreptitiously. One of the attorneys states that the abstract contains the substance of all the allegations made. Taylor & Taylor have been retained as local counsel by the defendants. It is understood that the first question to be considered in connection with the case will be that of jurisdiction.

## DUTIES ON WHEAT AND FLOUR.

During the present session of the Dominion Parliament, the millers of Eastern Canada have been agitating in favor of a change in the tariff respecting wheat and flour. What the millers ask from the Government is, that the duties on wheat and flour be equalized. The millers claim that the present duty of fifteen cents per bushel on wheat and fifty cents per barrel on flour is a discrimination against them, inasmuch as it favors the

importation of flour from the United States, against the importation of wheat for local grinding purposes. The millers find that they cannot manufacture the best brands of flour from Eastern Canadian wheat, and consequently they have been obliged to import hard wheat, heretofore principally from Minnesota. It is therefore but natural that the millers should desire a reduction in the duty on wheat, to enable them to import the hard wheat of the Northwestern States, and at the same time shut out flour, manufactured from such wheat. However, there are other ways of looking at this question, in which Manitoba and the Canadian Northwest is interested. When Canada found it necessary on account of the high import duties imposed by the United States on imports from this country, to adopt a protective tariff, that tariff was so arranged as to distribute its benefits, or burdens, as evenly as possible to all parts of the Dominion. On account of the geographical position of Manitoba, which compelled her to import largely from the United States, and from the fact that her exports have up to the last year been very small in comparison with her imports, it has been manifest to all that the protective tariff weighed far more heavily upon this province than on any other part of the Dominion, while in return little or no benefit was received from it. Now, however, we have commenced to export agricultural products to a considerable extent, and wheat being the principal crop, stands at the head of the list of exports. We are in a position from henceforth to supply Eastern Canadian millers with all the hard wheat which they may require, and our farmers have a right to demand that such requirements be supplied from the granaries of this province, in return for the tax which they pay on agricultural implements and manufactured goods generally, for the benefit of Eastern manufacturers. Even were the people of Eastern Canada compelled to purchase the greater portion of their wheat at an extra cost of a few cents per bushel from Manitoba, the balance would still be against this province. But it does not follow that any extra price will have to be paid by the imposition of duties on wheat, for where such a large surplus is produced, prices must be ruled by foreign importing markets. Eastern millers will be able to purchase their supply of hard wheat in Manitoba just as cheaply as if no duties were imposed on importations from the United States, while at the same time they will be helping to provide a market for a portion of the surplus product of the country.—*The Commercial*, Winnipeg, Man.

ANECDOTE OF PHIL. ARMOUR.—Philip D. Armour is a very generous man. A clergyman in whom he had confidence one day asked him for \$30 to relieve a poor woman whose new-born baby was lying naked in her one room, where there was neither fire nor food. The money was at once handed to the parson, who afterwards returned it with a note saying that he had "discovered that the woman was of ill repute and the child the result of sin." Mr. Armour at once sent word to Mrs. Armour, who gave the starving mother and child ample assistance, while her husband, stamping with rage, shouted to his clerk: "If that d—d scoundrel comes in here again throw him out!"

**WATER, WATER EVERYWHERE.**

Maud Muller's brother Ben one day  
Grew dry as dust while raking hay.

Down on the ground his rake he threw  
And said, "By jingo, I wish I knew."

He walked "four mild" that afternoon  
And paused before a closed saloon.

And then, as no one noticed him,  
With stealthy tread he entered in.

He said, with sundry dreadful winks,  
"I see you sell but 'temperance drinks.'"

"Yes," said the man behind the bar,  
Sayed Ben, "A little cold wa-tar."

And then, to make it tart and thin,  
He squeezed a little lemon in.

An then, to make it rather sweet,  
He stirred some sugar in the treat.

And then, to make it strong and tough,  
He poured in whiskey, quantum suff.

He tossed it down, he said with glee,  
"Cold water is the drink for me."

—Robert J. Burdette.

**MILLING NOTES—PRACTICAL AND THEORETICAL.**

BY GEORGE MILLER.

In my last notes I asserted that the chemical characteristics of wheat are widely various both in quality and quantity of the insoluble albuminoids they possess. But I suppose I must refrain from using these jaw-breaking terms, or I may bring the classical thunder of my worthy friend the technical baker down upon me; nor must I use the very comprehensive etimologies of an old prizeman, to wit, nutritious nitrogen, virtuous gliadine, or the unique zymome, as this might lead my critics to imagine that I am fishing for the next money prize and gold metal of the National Association of British and Irish Millers. No; I would rather adhere to the appellation familiar to all of us, viz., gluten, then all will know that I mean the strength-giving element to our flour. We will consider the granule as an integer. It is not necessary for our purpose to dive deeper into the mysteries of its chemical composition. If we are cognizant of the land which gave it birth, which in general we are, we can, from physical inspection, form a good idea of its virtue without a dissection of its analytical parts. Our object is to preserve it whole, healthy, and strong, so that it may be able to perform the future functions our bakers have in store for it. I think if a miller requires a miniature bushel, a coffee mill, a wash bowl, and apothecaries weights, scales, etc. (as recommended by "An Old Prizeman,") to know the value of a sample of wheat, he is a novice in judgment of the article, and a very unfit subject to send into the market to buy. It is too late to judge wheat after it has been bought. We could not go back to the vender and tell him that the wheat did not stand the weight expected per bushel measure; or that upon microscopic examination the skin was found to be thicker than calculated upon, and that upon washing we found that it did not possess the quantity of gluten anticipated, therefore a corresponding abatement from the price must be allowed. This would make us look very small in the eyes of practical men, who, no doubt, would conclude that it was the puny twaddle of a mere milling theorist. It would be like the ancient justice of a Scottish border town (if I may use a metaphor), where,

it is said, the judges hanged the criminals first and heard the evidence of condemnation after.

But to revert to my context. I was saying that the life giving element in our wheat, which we call gluten, varies in strength. With all deference to the scientific researches of chemical experts, I maintain that moisture in the wheat is deleterious to the resulting flour, inasmuch, as it vastly shortens the expanding properties of the gluten, especially so in wheats which have never been seasoned into milling condition, which has been the case with all native wheats for a good many years. I greatly admired the plain comprehensible and logical definition of the frolics and delinquencies of the weak granules in the process of fermentation by a "Fellow of the Royal Microscopical Society," in the *Millers' Gazette* of the 1st inst. To my mind it was a lucid explanation of the manner in which gluten in wheat is impaired through moisture. The wheat being permeated with the water, the water granule is swelled a long way up the ladder of expansion before it comes into the hands of the miller, and the golden color, so characteristic of good gluten has either never been matured in it, or it has, through water absorbed, been previously commuted into the bluetints of water. This is strikingly borne out by a contrast between bread made from most of our native milled patents and that made from patents imported from abroad. Both may be equal, and invariably are equal in purity of complexion, but the latter is grounded on the tincture of gold, while the former is grounded on the tincture of silver. Hence the absorbing and expanding properties of the flour have been curtailed in the wheat, and their lustre irretrievably impaired through moisture received there. Truly characteristic of the weak flour, the granules of which Mr. Thoms avers "rushes through the stages of softening, peptonizing carbon dioxide fermentation into that of the lactic or acid fermentation, before the strong, tenacious granules of hard dry wheat get well started in the race." How many demonstrations of this have we seen in the bakehouse? How often have we seen the azotising agent bursting through the weak and inelastic bubbles of our sponges, making its escape therefrom without performing the intestine motions we intended them to do? How often have we seen the most careful nursing and scientific coaxing in the dough stages frustrated when our batch comes in contact with the high temperature of the oven? How often have we seen a promising bulky batch of bread drop down in the oven like a bird in the air, upon receiving the contents of the sportsman's fowling piece? Is it irrational to assume that all this is not more consistent with impaired elementary constituents, than with a deficiency in the quantity of them? I adhere to the former theory, and heartily concur in the opinion of Mr. Thoms that it is wrong to mill any wheats in combination before they are assimilated into one uniform condition, far less to mill those representative wheats from the Red River Valley in the Far West or those hard Indians from the arid plains of Jubblepore or Delhi, with humid English; and if a blend be absolutely necessary to produce the most serviceable loaf of bread (an assertion which is open to grave doubt), let it be done by the baker; he alone

is capable to blend to mutual advantage. It may be thought that I am wandering far away from my subject, but before I am done, it will be seen that all this is pertinent to the matter of yield.

To all practical men it would be apparent that the flour of the analysis I gave in my last paper, had been made from wheat possessing a very large percentage of gluten. Estimating from the quantity in the flour, we cannot assume that it contained less than 18 per cent. of it, a quantity to be found only in a few representative varieties, and grown upon virtuously favored spots of the earth's surface. So far as I am aware, only the hard Fife and Mediterranean, when grown on the virgin soils of Minnesota, Dakota and Ohio, in the United States of America, and one or two varieties of Hungarian, grown on the fertile plains of the River Theiss in Central Europe, possess a quantity anything approaching to this; yet some of our masters tell us, that we ought to make quite as good flour from a promiscuous mixture of the wheats of various countries, as any miller in Minneapolis or Buda Pesth can make, and when we can't do it, of course that is our fault, not that of the wheat. Nothing can be more absurd. They may just as well tell us that we ought to make a flour equal to Pillsbury's best or Washburn's Iron Duke out of a mixture of rice and locust beans. To further illustrate this, the wheats of our earth vary in this life-giving element from 7 to 20 per cent. and the richest that reaches our shores possess not more than 14 per cent. Consequently, those wheats which British and Irish millers have to work upon range from 7 to this number, while those that the millers of Minneapolis and Buda Pesth have to work upon, are ranging from 14 to 20 per cent. But some of our irrational physiologists tell us that this has nothing to do with the quality of our flour. It effects the percentages of grades only. There is a percentage of patent equal to any patent in the world in all wheats they say, and it is our duty, as millers, to separate this from the more inferior components of the endosperm. They allow that we cannot make the same quantity of patents as Pillsbury or Washburn, because they are not inherent in our wheat, but we ought to get a quantity in compatibility with the relative gluten our wheat contains, inferior to none. Most unphilosophical reasoning, which our next notes will show.—*Miller's Gazette*, London, March 1.

AUSTRIAN capitalists have erected a very large roller flouring mill at Teheran, Persia, and they are making excellent flour, which comes in strong competition with Russian flour.

STRUCK A BONANZA.—Smith—Brown, I'm glad to see you looking so well and prosperous. Big change since I saw you three months ago. Have you struck a bonanza?

Brown—Yes. You know I am one of the heirs of the Hyde estate in England, worth over three hundred millions of dollars.

Smith [excitedly]—Certainly. You don't mean to tell me that the thing is settled?

Brown—Yes, so far as I am concerned. I've dropped all claims and am now giving close attention to business. I should say I had struck a bonanza.



### POWER OF A STATE TO FIX TELEPHONE RENTALS.

The Supreme Court of Indiana has unanimously decided that the act passed by the last legislature regulating the rentals of telephones in the State, and reducing the charge for services from \$5 to \$3 a month, is constitutional. *State vs. Hackett*, decided on the 20th inst. The court holds also that extra charges above \$3 a month made by telephone companies for alleged services are illegal. The view taken by the court is that the telephone has become a common carrier in the sense in which the telegraph is a common carrier; that all the instruments and appliances used by a telephone company in the prosecution of its business are, consequently, in legal contemplation, devoted to public use; and that it is now a well-settled legal proposition that property thus devoted to a public use becomes a legitimate subject of legislative regulation and control. This State regulation and control of property devoted to a public use, according to the court, is not the taking of property for a public purpose within the meaning of section 66, article 1, of the constitution of the State, nor is such regulation and control an interference with the guaranteed rights of the citizen in private property. The Court holds that the obvious deduction from what has been said, as well as from the authorities cited, is that the power of a state legislature to prescribe the maximum charges which a telephone company may make for services rendered, facilities afforded or articles of property furnished for use in its business is complete. Regarding the right of the company to charge separately for the various articles used in the telephone service, claiming that the rental fixed by law did not apply to all of them, the court says: In a general sense the name "telephone" applies to any instrument which transmits sound beyond the limits of audibility, but, since the recent discovery, the name is technically and primarily restricted to an instrument or device which transmits sound by means of electricity and wires similar to telegraphic wires. \* \* \* In view of the condition of things shown to have existed on April 12, 1885, we feel constrained to hold that the word "telephone," as used in the act of that date, was intended to designate an apparatus composed of all the usual and necessary instruments for the convenient and ready transmission and reception of telephone messages, and not to a single instrument only.—*Bradstreets*.

### INDUSTRIAL DEPRESSIONS.

The first annual report of the Bureau of Labor has been submitted in manuscript by Commissioner Carroll D. Wright to the Secretary of the Interior and will be printed immediately. The report will cover about five hundred pages, containing facts, figures, and deductions concerning industrial depressions of a novel and interesting character.

Under the head, "The Industrial Depressions in the United States," Mr. Wright says:—

A million of men out of employment means a loss to the consumptive power of the country of at least \$1,000,000 per day, or a crippling of the trade of the country of over \$300,000,000 per year. The earnings of the people involved in the classes named above would

not be far from \$600 each per annum, representing total earnings of \$7,990,716,000. The wage earnings of the million that should be employed are crippled to the extent of over \$300,000,000 per annum, a sum sufficient to cause a reaction in business and a general curtailment of expense, from which result apprehension and timidity among all classes. It is curious to observe, however, that, while the severity of the depression causes a crippling to the extent of several hundred million dollars per year of the consuming power of the people, the volume of business transacted is not crippled comparatively to any such extent.

It is shown that just previous to the financial panics of 1857, 1873 and 1882 there was an immense increase in the mileage of railroads constructed in the United States. The results of this, in throwing men out of employment, have great bearing in producing depressions, through the crippling of consumptive powers.

The Commissioner continues as follows:—

#### BENEFITS OF MOTIVE POWER.

"The mechanical industries of the United States are carried on by steam and water power representing, in round numbers, 3,400,000 horse power, each horse power equalling the muscular labor of six men; that is to say, if men were employed to furnish the power to carry on the industries of this country it would require 21,000,000, and 21,000,000 men represent a population, according to the ratio of the census of 1880, of 105,000,000. The industries are now carried on by 4,000,000 persons, in round numbers, representing a population of 20,000,000 only. To do the work then accomplished by power and power machinery in our mechanical industries and upon our railroads would require men representing a population of 172,500,000 in addition to the present population of the country of 55,000,000, or a total population, with hand processes and with horse power, of 227,500,000, which population would be obliged to subsist on present means. In an economic view the cost to the country would be enormous. The present cost of operating the railroads of the country with steam power is, in round numbers, \$502,000,000 per annum, but to carry on the same amount of work with men and horses would cost the country \$11,308,500,000. These illustrations, of course, show the extreme straits to which a country would be brought if it undertook to perform its work in the old way. It is true that in those countries where machinery has been developed to the highest, the greatest number of work people are engaged, and that in those countries where machinery has been developed to little or no purpose, poverty reigns, ignorance is the prevailing condition, and civilization, consequently, far in the rear.

First train robber—"Is this the train we are waiting for?"

Second train robber—"No; this one only carries a couple of millions of gold to the San Francisco mint. It is the next train?"

First train robber—"What's on the next train?"

Second train robber—"A sleeping car porter with a whole week's earnings in his pocket."—*Philadelphia Call*.

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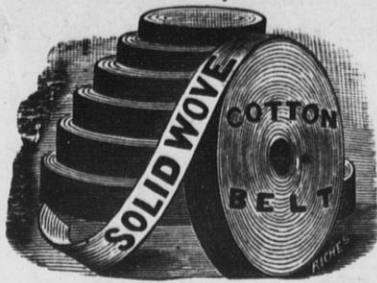
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**RED-DOG STOCK.**

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**SOME USEFUL CIRCULARS.**—The Boston Fire Underwriters' Union have issued several circulars recently which are full of suggestiveness to property-owners. One of these gives rules for the proper construction of window-shutters, another for the proper construction of fire-doors, so as to meet the requirements of the underwriters. Another important circular gives a brief standard schedule of what is needed to construct a slow-burning building. We print this last mentioned circular in full for the benefit of the many whom it may concern:

**"SLOWLY COMBUSTIBLE BUILDINGS.**—Mills, factories, stores, warehouses, and other buildings used for similar purposes, constructed in accordance with the following instructions, will be slowly combustible, and will receive the lowest ratings from the Boston Fire Underwriters' Union, viz.:

**Walls.**—To be of brick; of such thickness as the intended occupancy and buildings laws of the city may require; and not to exceed 60 feet in height from the sidewalk. The inner surface to be left plain, or plastered direct on the brickwork.

**Cornices to be of brick.**

**Roof.**—To be flat and of "mill construction" (i. e. made of heavy timbers and planking, without plastering or sheathing), and covered with gravel or metal. [No wooden Mansard or French roofs allowed, as they are regarded as "lumber yards up out of reach of water," furnishing so much additional material for

the fire to feed on, as well as greatly increasing the risk of fire from adjoining property.]

**Girders and Columns.**—To be made out of the best Southern pine timber. Iron girders and columns not allowed.

**Floors.**—To be made of "mill construction," consisting of heavy Southern pine timbers from five to ten feet apart, according to the burden they are expected to carry; covered with three-inch tongued and grooved plank; then two layers of asbestos or other heavy floor paper (in stores and warehouses an inch of lime mortar can be used instead); and then an inch flooring above. These floor timbers and floors to be left exposed beneath, without plastering of sheathing.

**Elevators and Stairways.**—To be placed in brick well-holes extending at least two feet above the roof and crowned with a skylight having an iron frame and thin glass protected with a wire screen. All openings on the various floors to be protected with standard tin clad fire doors.

**Well-Holes for Light.**—Not allowed in this class of buildings.

**Shutters.**—To be placed on all windows and other openings at the rear and sides of the building, when exposed by other property, or by another section of the same property cut off by division brick walls. To be of standard construction, and the fastenings so arranged that they can be opened from the outside.

**Blind Attics.**—And other concealed places that cannot be readily reached by firemen not allowed.

**Boilers.**—For heating, or power, to be placed in separate buildings, or fire-proof rooms, and provided with regular boiler chimneys.

BOSTON, March 16, 1886.

**RECENT 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 for 50 cents:

Issue of March 2, 1886. No. 336,905—Grain drier, C. Ehlermann, St. Louis, Mo.; No. 336,916—Elevator bucket, H. B. Haigh, Brooklyn, N. Y.; No. 336,979—Grinding mill, J. B. Allfree, Cumberland, Md.; No. 337,051—Cockle and grain separator, J. B. Dishmaker, Carlton, Wis.; No. 337,160—Machine for pearling wheat and other grain, J. J. Hubbel, Benzonia, Mich.; No. 337,207—Middlings purifier, C. N. Smith, Dayton, O.; No. 337,234—Grain separator and cleaner, J. P. Bond, Warsaw, Ind.;—No. 337,284—Grain hulling and scouring machine, F. B. Rolle, Saxony, Germany.

Issue of March 9, 1886. No. 337,370—Middlings purifier, E. T. Butler, Philadelphia, Penn.; No. 337,388—Apparatus for transferring grain, etc., A. B. Fernald and D. T. Lawson, Jersey City, N. J.; No. 10,696—(reissue) Centrifugal reel, E. R. Draver, Stillwater, Minn.

Issue of March 16, 1886. No. 337,859, Grain register, L. Nottingham, Norfolk, Va.; No. 337,906—Automatic grain weighing apparatus, J. Wherry, Jr., Putnam, Ill.; No. 338,138—Apparatus for conveying parcels and grain by atmospheric pressure, C. E. Buell, Springfield, Mass.; No. 338,221—Grinding mill, W. R. Eynon, Cleveland, O.; No. 338,236—Grain cleaner, C. Tupper, Ridgeland, Ill.

Issue of March 23, 1886. No. 338,630—Cleaner for bolting reel cloths, G. S. Burnap, Marietta, Ga.; No. 338,638—Grain weighing and delivering apparatus, H. Hodges, Keota, Ia.; No. 338,639—Dust collector, N. W. Holt, Jackson, Mich.; No. 338,465—Centrifugal reel, H. E. Beerling, Jackson, Mich.; No. 138,416—Grinding mill, L. B. Joy, Bath, N. Y.; No. 338,673—Grain drier, M. L. Mowrer, Newark, N. J.

Issue of March 30, 1886. No. 338,765—Dust collector, P. M. Neilson, Minneapolis, Minn.; No. 338,858—Flour bolting reel, W. C. Meyer, Vallejo, Cal.; No. 339,002—Grain weighing apparatus, F. C. M. Meyer, Prussia; No. 339,017—Magnetic separator, G. Scheffer, Germany; No. 339,023—Feeding device for middlings purifiers, G. F. Sheppard, and C. A. Smith Jackson, Mich.; No. 339,025—Claps for bolting cloths, G. T. Smith, Jackson, Mich.; No. 339,026—Flour bolt, G. T. Smith, Jackson, Mich.; No. 339,027—Clasp for attaching bolt cloths, G. T. Smith, Jackson, Mich.; No. 339,028—Seeding mechanism for middlings purifiers, C. A. Smith, Jackson, Mich.; No. 339,029—Feeding device for middlings purifier.

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Net Surplus, - - - - - 303,683 78

Total Assets, Jan. 1, 1886, - \$1,974,749 75

Surplus to Policy-holders, - \$1,303,683 78

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**WE WILL GIVE CORRESPONDINGLY LOW RATES ON ANY OTHER PUBLICATION THE SUBSCRIBER MAY DESIRE.**

ADDRESS,

**E. HARRISON CAWKER,**

*Publisher United States Miller, No. 124 Grand Ave., Milwaukee, Wis.*

N. B.—In writing for advertising rates, please state amount of space desired and length of time advertisement is to run.

43-Mill For Sale or For Rent Ads., \$1.00 per insertion. Situation Wanted Ads., 50 cents per insertion.

[OVER.]



## TIM, THE WHARF-RAT.\*

(Written for The St. Jacobs Oil Family Calendar, 1885, by F. H. Gassaway, "Derrick Dodd," of the San Francisco, California, "Evening Post.")  
[Copied in the U. S. MILLER by permission of owners of copyright.]

You see, gents, my pal Tim an me  
Wos a'takin' a quiet swim,  
When a cop comes a'sneakin' along ther wharf,  
An he nabs poor little Tim.

You bet it wos rough on us partners that,  
Fur while Tim in ther cooler stayed,  
His corner'd be tuk by s'mother boy  
As ud cabbage his reg'lar trade.

So Tim went a'snivelein' up ther street,  
With me snivelein' on behind,  
When a big man outer resterrink cum,  
As I guess ud been drinkin' wine;

An he axes, "Whot's this here crim'nal done?  
So ther cop says, "Yer see its agin'  
Ther law fur ter swim on ther city front,  
So I'm runnin' this Wharf-Rat in."

An ther big man laughs as he looks at Tim,  
An he sez, "How much is ther fine?—  
Five dollars!—They charge ther same for a bath  
They does fur a bottle er wine.

"Wall, I guess I'll pay it," and then he winks  
At me an ther cop kinder queer;  
"But mind yer, Rat, this is only a loan,—  
You must pay it back in a year."

An he laughs agin' when Tim braced up  
An looks him square in ther eye,  
An sez, with his fist a'clined this way,—  
"Ef I don't, sir, I hope ter die!"

Well, most on a year had gone; one day  
Me an Tim wos stealin' a dip  
By ther ferry wharf, when ther boat kem in  
An run too hard 'gin ther slip;

An a little gal, that a big man held  
A settin' upon ther rail,  
Wos knocked clean over ther steamer's side  
In ther shake uv a sheeps tail.

We seed 'twere ther same rich man, an knowed  
Ther babby belonged ter him;  
So Tim dived arter it like a duck,—  
Fur I tell yer he saveyed ter swim.

Ther passengers yelled, ther bells they banged,  
Till ther boat backed off from ther;  
Then we seed my pal cotched onter a pile,  
A grippin' ther gal's long hair.

So they hauled 'em both out onter ther dock;  
The gal she wos safe an sound,  
But Tim had been hit by ther iron wheel,—  
His side wos jest one big wound.

Ther daddy he kissed his kid, then kneeled  
Where Tim lay so white and sick:  
"God bless yer!" he sez, "my little man,—  
Someone fetch a doctor, quick!"

"No use," sez Tim: "I'm agoin', sir,  
I can't pay yer now, yer see,"  
And he takes from his neck a little bag,—  
"I'm four bits short," sez he.

"Don't yer savey ther boy what wos tooked up,  
What yer lent ther money that day?  
I'd most got it all made up, but now—  
But now I never kin pay."

"Don't talk uv that," sez ther father chap,  
His big tears a'runnin' free:  
"You've saved my babby's life, and she's,  
Wuth all ther world ter me!"

"Is she wuth four bits?" sez Tim, so weak;  
"Oh! yes," sez ther man,—"Give him air!"  
"Then," sez Tim, just like he wos goin' ter sleep,  
"Then, mister, you and me's square."

An that wos ther last word Timmie sez,  
An all them big men tall  
Tuk off ther hats as my pal let go,—  
Yes they did,—plug hats and all!

An a gospel sharp as wos in ther crowd,  
He knelt right down by Tim.  
An he told uv a Bible feller, as sed  
Fur dead kids ter cum ter him.

I tell yer its hard ter lose ther pal  
Yer've fit fur, starved with, an love;  
But I'm bettin' as them as is square down here  
Is square up there above!

1883. The Charles A. Vogeler Co.]

## ITEMS OF INTRST.

**BLUE PRINTS.**—Dissolve amonia-citrate of iron, 37½ ounces in two quarts of water; dissolve 25 ounces of red prussiate of potash in 2 quarts water; mix; keep from the light. Brush upon ordinary paper in a dark room, and let dry. Put the tracing over this as a negative; when the color is olive green with metallic reflections, take the frame into the dark room, open, and wash the print in cold rain water until the lines are pure white upon a blue ground; then dry between blotting papers.

**BOYCOTTING AN OLD DEVICE.**—Professor Arthur T. Hadley writes: "The importance of boycotting is new and the name is new, but the practice itself, even on a large scale, is no new thing. The antislavery men were systematically boycotted by the slaveholders. The British tea traders were most actively boycotted by our fore-fathers just before the outbreak of the revolutionary war. The Jews have been boycotted in various parts of the world, off and on, for nearly two thousands years. Every community where there is any such thing as public opinion, from a nation down to a boy's school, has possessed the power of boycotting and has occasionally used it. What is it that has within five years transformed an old and commonplace practice in to an industrial weapon of enormous power and almost unlimited terrors?"

**KEEPING BOILERS FREE FROM SCALE.**—Mr. Rummel, of Cleveland, writes to the *Iron Trade Review* on a subject which may interest many readers:

"During the fall and winter of '82 I was employed by the firm of Layman & Son, barrel manufacturers, of Defiance, Ohio, to run a portable engine of 35 horse power. The engine was situated in the woods about nine miles from Defiance, and supplied the power for sawing oak barrel staves. I had no boiler compound with me, but remembered being told by an old and experienced engineer at one time, that he had taken oak logs and fastened them to the tubes of the boiler he used, so they were in constant contact with the water. He said they kept his boiler perfectly clean.

"I dammed up a small creek to form a sufficient body of water, cut down some oaks and threw them into it. As soon as we had commenced sawing I used to throw all the oak sawdust into the water also, and dug a narrow trench from it to a big barrel I sunk into the ground at a short distance from it. From the barrel I pumped direct to the boiler and continued using this kind of water the whole six months I was there.

"The water was very muddy all the time, as teams were always disturbing the small streams which supplied the reservoir or pond. Yet at the end of the time mentioned, on blowing out the boiler I found it as bright and clean as when perfectly new."

"Query: Can not sawdust be used to advantage generally?"

**A STARCH FACTORY WANTED.**—If there is any new manufacturing institution that would prove a great success in Winnipeg it is a factory for the manufacture of starch from potatoes. Already the production of these in Manitoba is much beyond the local demand, and the severe winters we have precludes the idea of shipping to eastern mar-

kets as damage by frost would surely ensue. The storing here through winter is a matter of too much care and trouble for the majority of farmers, so that a factory supplied with ample storage could lay in an unlimited stock in the fall at low figures. The raw material can be had cheaper here than anywhere else in the Dominion, and capital and mechanical skill should supply the maining elements of success.—*The Commercial* (Winnipeg).

## SPECIAL BUSINESS NOTICES

## BOLTING CLOTH!

*Don't order your Cloth until you have conferred with us; it will pay you both in point of quality and price. We are prepared with special facilities for this work. Write us before you order. Address, CASE MANUF'G CO. Office and Factory: Fifth St., North of Waughten, Columbus, Ohio.*

Every miller and manufacturer having an A 1 risk, should apply for insurance in the Allied Mutual Fire Insurance Companies, of which S. H. Seamans, Milwaukee, Wis., is secretary.

## FOR SALE

## A Bargain in Mill Property.

The O. PUHLMAN ROLLER FLOUR MILL, with capacity of about 100 barrels per day, together with feed run, situated in the village of Plymouth, Wisconsin, and finely located at a railroad centre for merchant trade, with a good surrounding country for feed and exchange work. Reliable water power most of the time, with large engine and boiler attached to the mill for use in case of low water. Has done a successful business, and will be sold very cheap, to satisfy encumbrances. Address for particulars,

**E. P. BACON & CO.,**  
MILWAUKEE, WIS.

## Attention!

## CUSTOM and EXCHANGE MILLERS.

We have made arrangements with Potter & Huntington, whereby we can furnish one of their EXCHANGE TABLE and UNITED STATES MILLER for one year, for \$1.50; the price of the Exchange Table alone is \$1.00. This is probably the best Table ever prepared for Millers doing an Exchange or Custom Business. The range is from 25 to 36 lbs. of flour to each 60 lbs. of wheat, and corresponding amount of bran and middlings. (Toll and waste in milling deducted.) There are twelve Tables each of a different grade of wheat, and each Table a different amount of flour and feed and can be used for any amount of wheat, from two lbs. up to any No. of bushels. There is no guess work about it, but all from actual experience. By it the Miller is always sure of his allowance of Toll. Hundreds of them are being sent to all parts of the United States and Canada. Send us One Dollar and Fifty Cents and we will send the Table and credit you for one year's subscription to the UNITED STATES MILLER. Address, UNITED STATES MILLER, 124 Grand Avenue, Milwaukee, Wis.

# ◇ NOW READY FOR DELIVERY ◇

Every Mill Furnisher, Flour Broker, Transportation Company, Insurance Company, Flour Importer, Merchant Miller or anyone desiring to reach the Flouring Industry, should order at once.

## CAWKER'S

# American Flour Mill and Mill Furnishers' Directory

FOR 1886,

Is NOW READY FOR DELIVERY. In compiling this book it has been our aim to give the correct address of all firms or persons owning flouring mills in the United States and Dominion of Canada; to state wherever we have succeeded in obtaining reliable information, whether steam or water power is used; to give the capacity of mills in barrels of flour per day of 24 hours; to state whether millstones or rollers or both are used; to state whether cornmeal, buckwheat flour, rye flour or oat meal are made as a specialty, and finally to indicate by a sign whether the party opposite whose name it is placed is rated to be worth \$10,000 or more. We have also added a list of LEADING MILLWRIGHTS in almost every state and territory, and a list of the PRINCIPAL FLOUR BROKERS, FLOUR EXPORTERS AND IMPORTERS in various parts of the United States, Canada and Europe. MILLERS will find this a very valuable feature, worth many times the cost of the book to them. The SPECIAL points of information in this Directory are in most cases obtained from DIRECT CORRESPONDENCE. The Directory is published in pocket-book form, size of page about 4½ inches by 7¼, those for pocket use by commercial travelers being printed on French folio paper, thin, light and strong, and those for office use on elegant book paper. All copies are strongly and handsomely bound. In ordering, specify which kind you desire. PRICE, single copy, \$10.00; three copies, \$25.00. No deviation can or will be made from these prices.

Flour Dealers, Millers, Mill-furnishers, Insurance Companies, Transportation Companies, etc., and their traveling agents will find this a most valuable book to have for constant reference. We will send this Directory by mail, post-paid, to any address in the World on receipt of price. Order now while the work is new, and secure immediate benefit therefrom. Address all communications, and make all Checks, P. O. Orders, etc., payable to

## E. HARRISON CAWKER,

Publisher, UNITED STATES MILLER,  
CAWKER'S FLOUR MILL DIRECTORY, Etc., Etc.

124 Grand Avenue,

MILWAUKEE, WIS.

(OVER.)

If You Want to Extend Your Business among the Mill Owners of America,

• WHY DON'T YOU ADVERTISE IN •

# THE UNITED STATES MILLER?

ESTABLISHED 1876.

A paper that reaches over 5,000 persons and firms interested in the milling business, every month. Here is the proof. Read it.

## Affidavit Concerning Circulation.

STATE OF WISCONSIN, }  
MILWAUKEE COUNTY, } ss.

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, 1880, been less than FIVE THOUSAND (5000) 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.

E. HARRISON CAWKER, Publisher.

Sworn to and Subscribed before me at Milwaukee, Wis., this 15th day of March, A. D. 1886.

ISAAC S. CLARK, Notary Public.

## WHERE THE U. S. MILLER GOES.

THE UNITED STATES MILLER for April, May and June, 1886, aside from our regular subscription list will be sent to nearly all the flour mill owners in Arizona, California, Colorado, Dakota, Georgia, Idaho, Illinois, Indiana, Indian Ter., Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Jersey, Maryland, New York, Ohio, Oregon, Texas, Utah, Washington Ter., Wisconsin, Manitoba, Virginia and West Virginia. We will insert advertisements to run until ordered discontinued at the following rates: For each insertion, One page, \$35.00; One-half page, \$20.00; One-fourth page, \$11.00; One-eight page, \$6.00; smaller ads \$1.50 per inch each insertion. We have made great efforts to increase our regular subscription list, and have met with gratifying success. Subscription price, \$1.00 per year. Try us, and we will serve you to the best of our ability. Awaiting your consideration and orders, we have the honor to be,

Yours very truly,

UNITED STATES MILLER, MILWAUKEE, WIS.

Get your Orders in early. We go to Press on 1st of each month.

Mill Builders, Mill Furnishers, Flour Brokers, Insurance Companies, Ocean, Lake and Rail Transportation Companies, Millers seeking trade with Eastern and European Flour Dealers, Millwrights, Mill Supply dealers and in short all desiring to reach the trade should not fail to order their advertisement inserted.

For advertising rates, address

## E. HARRISON CAWKER,

Publisher "UNITED STATES MILLER," MILWAUKEE, WIS.

## • Private • Telegraphic • Cipher •

COMPILED EXPRESSLY FOR THE USE OF

Millers, Flour and Grain Brokers, for Private Telegraphic Correspondence, either for Land or Cable Lines.

THIS CODE has been approved and is used by many of the best firms in this country and in Europe. It contains Flour Tables, Bran Tables, Middlings Tables, Flour Grades and Brands, Time of Shipment, Dates, Names of Places, American Currency, Sterling Quotations, Table on Limits, etc., Drawing Credits, etc., Selling, Buying, Orders and Offers, Consignments and Shipments on Joint Account, Miscellaneous, Market Upwards, Market Downwards, Insurance, Shipping and Freight, Shipping by Regular Lines of Steamers, Finance, Bankers' Names, Standing of Firms, Telegraphing, Advices, Commission, Stocks and Crops, Weather, Samples and Quality, Equivalent of Sacks in Barrel Quantities, Commission Tables, Interest Tables, Equivalent Flour Prices in Currency, Sterling, Francs, Guilders, and Marks, Comparative Tables, Sack and Barrel Flour, Ocean Freight Rates (Comparative Table), Sailings from Seaboard (Table), Key to Sailings from Seaboard Table, Foreign Weights and Measures, etc.

We respectfully refer to the following well-known firms: S. H. Seamans (Empire Mills), Sec'y of the Millers' National Association; E. Sanderson & Co. (Phoenix Mills), Milwaukee, Wis.; Daisy Roller Mills, Milwaukee, Wis.; Nunnemacher & Co. (Star Mills), Milwaukee, Wis.; Roots & Co., (Millers), Cincinnati, O.; C. H. Seybt, (Miller), Highland, Ill.; Kosmack & Co., (Flour Brokers), Glasgow, Scotland; J. F. Imbs & Co., (Millers), St. Louis, Mo.; E. Schraudenbach, Okauchee Roller Mills, Wis.; Winona Mill Co., Winona, Minn.; Herrick, Kirk & Co., New York; and many others. Name of firm ordering copies printed on title page with cable address, etc., free of charge, making it to all intents and purposes your own Private Cable Code. State number of copies desired when writing. Prices furnished on application. Address,

THE RIVERSIDE PRINTING CO., 124 GRAND AVENUE, MILWAUKEE, WIS.

## MAXIMS FOR BUSINESS MEN,

Bishop Middleton's business maxims are:

1. Maintain dignity, without the appearance of pride.
2. Persevere against discouragement.
3. Keep your temper.
4. Be punctual and methodical in business, and never procrastinate.
5. Preserve self-possession, and do not be talked out of conviction.
6. Never be in an unfitting hurry.
7. Rise early, and be an economist of time.
8. Practice strict temperance.
9. Manner is something with everybody, and everything with some.
10. Be guarded in discourse, attentive, and slow to speak.
11. Never acquiesce in immoral or pernicious opinions.
12. Be not forward to assign reasons to those who have no right to ask.
13. Think nothing in conduct unimportant or indifferent.
14. Live within your income; be saving; avoid as much as possible either borrowing or lending.
15. In all your transactions remember the final account with your Maker.

When I dig a man out of trouble, the hole he leaves behind him is the grave where I bury my own trouble.

A good deed is never lost. He who sows courtesy reaps friendship, and he who plants kindness gathers love.

There is no disgrace in being poor. The thing is to keep quiet and not let your neighbors know anything about it.

## PUBLICATIONS RECEIVED.

The April issue of THE LIBRARY MAGAZINE, containing its usual variety of current literature of the highest order, announces that with its next issue radical changes will take place. It will thereafter be published weekly instead of monthly. Without increase in price it will give an increased amount of valuable literature, and great gain in freshness and timeliness will be possible. A specimen copy will be sent free to any applicant. JOHN B. ALDEN, Publisher, 393 Pearl St., New York City. P. O. Box 1227.

THE WANDERER is the name of a new journal, published in Milwaukee, issued by the Passenger Department of the Wisconsin Central Railroad Company. It is ably conducted and contains much choice literary matter, which is enlivened by handsome illustrations. The subscription price is \$1.00 per year.

The April WIDE AWAKE opens seasonably with an ideal Easter picture, "On Easter Day," a very lovely drawing by W. L. Taylor; this is followed by a charming springtime poem, "Willy's Garden," by Kate Putnam Osgood, Lucy Larcom also has a notable poem, "A Ballad of the Hemlock-tree," with a fine full-page drawing together with text illustrations. There are some excellent illustrated stories: "Taz a Taz," by F. L. Stealy, "The Button Boy," by A. M. Griffin, "The Boy Soldiers of Cherry Valley," by Caro Lloyd, and "Diccon, the Foot-boy," by E. S. Brooks, besides "Police Panama" and "What a Frog Lived Through." The instructive papers in the number are admirable and of great variety; Mrs. Sherwood in "Royal Girls" writes of "Carmen Sylva," the Queen of Roumania, Mrs. Fremont of Madame Recamier and her faithfulness to early friends, C. F. Holder, of "Feathered Giants," Miss Harris of Alice and Phoebe Cary in her series, "Pleasant Authors," Mrs. Treat of "Cave Spiders," Julian Arnold of "An Arab Dinner Party," G. E. Vincent of "Juvenal, the Satirist," E. B. Gurton of "How to make an Aquarium," Susan Power of "What to do in Emergencies," while Mr. Adams goes on with his "Search-Questions in English Literature." There are also three fine serial stories in progress. \$3.00 a year. D. Lothrop & Co., Publishers, Boston.

THE NORTHERN MILLER & BAKER, published at Glasgow, Scotland, is a new candidate for the favor of the milling public. It is a handsome paper and is evidently edited by a man well posted in the trade. We believe it will prove a success.

We have received copies of a new English milling paper, entitled: "THE ROLLER MILLER," published at Brodheath, near Manchester, England. The early numbers speak well for its future prosperity.

HARPER'S MAGAZINE. Three new serials enrich the April HARPER'S. The authors are Charles Dudley Warner, R. D. Blackmore, and Dinah Maria Craik. Mr. Warner's series of papers, entitled "Their Pilgrimage," is a story of American society at our principal summer resorts. Mrs. Craik's novel, "King Arthur: not a love Story," is a tale of mother's love, and is to be published in three long parts, each occupying over twenty-five pages of the Magazine. R. D. Blackmore's novel deals with rural English life during the exciting times of Lord Nelson, the great admiral.

THE WISCONSIN CENSUS REPORT came to hand recently. It is quite a bulky volume and is full of valuable statistics on almost every matter in the State. It is the best work of the kind yet issued by the State.

ANNUAL REPORT OF DETROIT BOARD OF TRADE for 1885, received, for which we return thanks to Mr. Geo. M. Lane, Secretary. This report is the best in general and statistical matter, arrangements of subject and tables and typography that has ever been issued by the Detroit Board of Trade.

THE WESTERN INSURANCE REVIEW. Published by H. L. Aldrich, at No. 210 N. Third street, St. Louis, Mo., is an able exponent of the insurance business. It contains a large amount of useful information on insurance matters, and is handsomely printed. Subscription price \$3.00 per year.

We acknowledge with pleasure the receipt of *The Insurance Critic*, and old and widely known insurance journal, published by Mr. Geo. W. Corliss, 45 William street, New York. The subscription price is \$3.25 per year. The paper in every way deserves the patronages of those interested in insurance matters. Our readers will find an extract from it worth reading in this paper on "Mill Mutual Companies."

THE DAILY COMMERCIAL BULLETIN, published at 32 Broadway, New York, is one of the very best commercial papers in the world and should be patronized by live business men. It was established in 1865, and the subscription is \$12.00 per year.

THE FOREIGN GAZETTE, published by F. R. Sprague, Tribune Building, New York, is a new paper 'devoted to international and financial topics.' It is half English and half Spanish, and we judge therefore will have its principal circulation among English and Spanish speaking people. The first number is in every way highly creditable to the publishers. The subscription price is \$3.00 per year.

THE INSURANCE MONITOR is a valuable Journal to all interested in insurance matters. It is a large paper, handsomely printed and ably edited. It is published in New York City, and the subscription price is \$3.00 per year.

THE AMERICAN ENGINEER, weekly, published by M. Cowles & Jno. W. Weston, at 125 Washington st., Chicago, Ill., is the leading engineering journal of the West. Every skilled mechanic should subscribe for it. Subscription price \$4.00 per year.

THE NINTH ANNUAL REPORT OF THE BOARD OF TRADE of San Francisco, Cal. has just been received from the Secretary, Mr. Henry L. Smith. The report is very complete and is well arranged.

WHAT is said to be the largest barn in the world is situated at Papillion, Neb., covers five acres, cost \$125,000 and shelters 3,750 head of cattle. It is the intention of the owner to enlarge its capacity so as to protect 8,000. The immense structure is used for the fattening of cattle after they have been three or four years on the ranges. The great barn has a complete system of water works, and is thoroughly washed twice every day. The cattle are fed upon cooked meal—one man feeds the whole herd. All he has to do is to turn a large faucet and let the feed run to them.

## HOW TO ORDER PERFORATED METAL.

The Robt. Atchison Perforated Metal Co., of Chicago, offer the following rules for the guidance of millers in ordering sieves for grain cleaning machines:

1st. State number of plates or sheets, and kind of metal wanted.

2d. State thickness by Brown & Sharpe's Standard American gauge, or in decimals of an inch. Thickness must be proportioned to size of holes.

3d. Length of plates or sheets in inches. (Note.—By length we understand the measure given to be the way the grain or seeds pass over the plates.)

4th. The width of plates or sheets in inches.

5th. The sizes of holes, and if slot, oval or oblong; state which way of the sheet you wish perforations to run.

6th. The width of margins or blanks wanted, if any, and where placed, which must be proportioned to size of holes.

7th. Send a diagram of the plates and sample of size of holes, if possible. If holes are slotted, oval or oblong, and if there are margins or blanks wanted, it is very essential that a diagram be sent to avoid mistakes and delays.

8th. If you wish the perforations set on the square, give the distance between center of holes each way.

9th. If ordering the metal for a smutter jacket, or any kind of roling screen, instead of giving just the diameter, give the circumference as you wish it and indicate how much blank you wish left for laps or for rivetting bands.

10th. If ordering for any particular kind of grain or seeds do not leave size of holes to the judgment of manufacturer, but write for samples, stating purpose for which you wish the goods.

11th. The goods are not carried in stock but made to order. Anticipate your wants by placing orders before your sieve wears out and machine stops, and much annoyance will be avoided.

COULDN'T STOP THAT BOY.—Romeyn, a Montclair (N. J.) boy aged 5, converses with his friend of equally mature years, as follows:

Romeyn—"My pa is going to get me a goat."

Fairchild—"I've got twenty goats."

R.—"Where are they?"

F.—"O, they're down in New York, in pa's office."

R.—"Why don't they bring them here?"

F.—"They're sick."

A pause. Finally Romeyn speaks: "I saw Anthony's Nose last summer."

F.—"I saw Anthony himself."

R.—"Anthony's Nose is a rock, and it broke off and fell into the water."

F.—"I saw it fall."

Romeyn's mother, an interested listener, at this point, deemed it expedient to interpose with a moral lesson. "Why, Fairchild," said she, "did you never hear of Ananias and Sapphira?"

F.—"I knew them both."

R.'s mother—"You know, Fairchild, they were struck dead for telling lies."

F.—"Yes, I saw them struck."

R.'s mother—Fairchild, do you know where they went? [Very impressively]—They went to Hell."

F.—"I know it, I saw them go.—New York Herald.

## PLEASANT PARAGRAPHS.

**HIS LIP SLIPPED.**—Mrs. Hamilton Herr's little girl, Cookoo, went to Delmonico's dancing class, and one day little Freddy Smith kissed her.

"Oh, Cookoo, I'm ashamed to think you should let a little boy kiss you!" said her mother.

"Well, mamma, I couldn't help it," said Cookoo.

"You couldn't help it?" exclaimed her mother.

"No, mamma. You see Freddy and I were dancing to a polka. Freddy had to stand up close to me, and all at once his lip slipped and the kiss happened.—*Hartford Times.*

**SOMETHING LACKING.**—The owner of one of the largest cotton-seed oil mills in the south was in New York the other day, and in the course of a business conversation the remark was made:

"Colonel, now that cottonseed oil is used in lard, butter, olive oil, paints and so on, you owners of mills ought to be happy."

"There is only one thing lacking," replied the colonel, as he heaved a sigh. "We want something to adulterate cottonseed oil.—*Wall Street News.*

**"TO GREEN TO BURN."**—A number of traveling men were sitting about the Palmer house rotunda the other night swapping chestnuts when a local light presenting the following: A Chicago drummer sold his last bill of goods, died and went to the infernal regions. There he was shown about the place by Lucifer himself. He was shown the pits of molten lead for New York drummers, and the sulphur caves designed for the torture of Minneapolis drummers, and the lakes of fire awaiting his own clan. Then he was taken to a room of great heat, where a number of drummers were suspended by the neck. "This," said Lucifer, "is the drying room." "The drying room?" asked the drummer. "Yes," responded the other, "these are St. Louis drummers. They are too green to burn at first, so we hang them up to dry."—*Chicago News.*

**CEMETERY NEWS.**—Fritz Hiener is the professional grave digger of a Texas town. He did not always pay his taxes promptly, and one day while he was hard at work digging a grave, and had got down about five feet into the bowels of the planet, he perceived a dark shadow between himself and the sun. Looking up he perceived a deputy sheriff.

"Vat's the madder now?"

"I've got a notice to serve on you for not paying your taxes."

"Mine Gott!" exclaimed the unfortunate man, protruding his head from the hole in the ground, "a man has no peace even when he vas in dot grave. Vat a goontry! vat a peebles!"

Gentleman of Wealth (to member of United Order Hod Carriers out on strike)—Pat, you ought to be at work instead of loafing around the street, and your family half starved at home.

Pat—Shtarved, is it? An' sure it's meself that's trisurer av the ordher.

A shrewd mill man from Maine, being asked if the Knights of Labor affected his business unfavorably, replied: "Oh, no, not at all. When they wanted to start a lodge in

our town I joined it with all my overseers, and we are running it in a satisfactory manner for all hands."

**First Socialist**—Remember the meeting to-night, Joseph. Important questions to be discussed. Assassination of Bismarck, blowing up the Washington Monument, kidnapping Victoria.—

**Second Socialist**—I have so many duties, Heinrich, I cannot attend. I am—

"We are also going to decide whether or not we shall have beer at our meetings in future."

"What! Have our rights been questioned? Are our liberties invaded? Heinrich, when Justice calls I am at my post. I will be there."—*Philadelphia Call.*

Frank Brower, a favorite negro minstrel of olden time walked into the bar-room of the Metropolitan one morning, dusty and unkempt from a long journey, and asked for a glass of brandy. The barkeeper handed out the brandy, and then, suspicious of Frank's appearance, said, "Just pay for that before you drink it, will you?" Frank, who was as well known in New York as any man about town, looked up, astonished, and stammered, "W-w what?" "Just pay for that brandy before you drink it," repeated the bartender. "W-w-why," said Frank, leaning confidentially across the counter, "is it so im-m-m-mediately f-fatal in its effect?"

He—"Speaking of their marriage, I think they both made a very good match." She—"How can you say so? Why, she's brimstone personified and he's a perfect stick.—precisely the essentials to a good match."

A little boy about four years of age was saying his prayers at his mother's knee, and when he had finished the Lord's prayer, she said: "Now, Willie, ask God to make you a good boy." The child raised his eyes to his mother's for a few moments, as if in deep thought, and then replied: "It's no use, mamma. He won't do it. I have asked him lots o' times."

The young lady sent her intended husband her photograph, which pleased him very well. They met a day or two after, when the following conversation took place:—"It is very like you, dear. It so much resembles the real that I have kissed it over and over again." "And did it kiss you back again, William?" "Oh, no, dear." "Then it is not at all like me."

**E PLURIBUS UNUM.**—The young man lingered near the managing editor's desk, waiting for an appointment on the regular staff.

"But you drink?" said the manager, wishing to let the candidate down easy.

"Yes," replied the young man, "so did Alexander the Great."

"And you are a dude?" glancing at the youth's dandified dress.

"So was Disraeli."

"And you are a liar?"

"So was Napoleon Bonaparte."

"And you are head and ears in debt?"

"Like Alexander Dumas."

"And you are a glutton?"

"So was Peter the Great."

"And you swear occasionally?"

"So did George Washington."

"Are you liable to get drunk?"

"Like Daniel Webster."

"You are not a college man?"

"Neither was Lincoln."

"And then you write a wretchedly illegible hand?"

"Like Horace Greeley."

"You can't make a speech?"

"Like Grant."

"Well," said the manager, plunging at a heap of manuscript, anyhow, we don't want you; you won't do. Good morning."

The young man turned away exceeding sorrowful. "It's no sort of use," he said, "a fellow combines in his own brain and person the traits of all the great men from Alexander to Grant, and can't even get a place on a newspaper. This world is growing too fast for genius."

**A DRUMMER'S LIVELY TRADE IN KANSAS.**—"Travelin'?" queried the elderly passenger who must talk or die, as he leaned over and looked into the face of a young drummer.

"Guess I am," replied the young man.

"Sellin' goods?"

"Yes."

"Where do you travel from?"

"Chicago."

"Business purty good?"

"First rate; never better. I've just had one of the best trips of my experience. Took in orders like an ice cream saloon in August. Collections are good, too, and there seems to be plenty of money in the section of country I've been in. Everybody appears to be prosperous. It's fun to sell goods in a country like that."

"And where have you been travelin'?"

"Kansas."

"Kansas, eh? I thought so. That shows 'em. That's just what I've been telling all the folks down to our place. Prohibition means prosperity. When a community shuts up the saloons an' stops buyin' an' drinkin' liquor it gits along all right. It's whisky that makes the hard times. When people give up their guzzling they have plenty of money to buy boots and shoes, and clothing and groceries, and the necessities of life. By the way, do you travel for a grocery?"

"No, sir."

"For a boot and shoe house, mebbe?"

"No."

"Like as not for a clothing concern?"

"No'p."

"What then?"

"A distillery."

**BELONGED TO THE MATINEE.**—My little girl is very fond of going to church. She is nearing the thoughtful age of six, and she asks me a good number of questions about things in general, and among others about church-going. She found out not long since that people "belonged" to churches, some to this one and some to that, and her idea seemed to be that people picked out their churches principally on account of the fine organs, or the architectural beauties of the interior. At present I think the church that had the handsomest stained-glass windows, or the best-toned organ would secure that little girl's membership. She said to me the other day:

"Papa, do we belong to a church?"

"I don't think we do—yet."

"Oh," she answered, "I know. We belong to the matinee, don't we papa?"—*Detroit Free Press.*

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**booked (bookt), v. t.** 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.* Case with shelves for holding books. (*Bind.*) A book-cover.—*cover, 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, -l'rd, 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.

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 WHEAT, CORN, OAT, RYE.  
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**FLOUR, BRAN, GRAIN AND HAY.**

We have excellent facilities for handling the above articles—not only in Atlanta  
 (our headquarters), but all over the Southwest. Having travelling representatives,  
 we intend selling Flour, Bran, Grain and Hay in large quantities, to responsible  
 houses, at full market prices.

Our manager formerly represented the Wing Milling Co., of St. Louis, for whom  
 he sold an average of 8,000 bbls. of Flour per month. Will be glad to have parties make  
 us prices f. o. b. cars, or delivered at nearest point on Ohio or Mississippi River.

Use either the "Robinson" or "Underwood" Cypher in telegraphing.

GIVE US A TRIAL! If there is any virtue in energy, care and fair dealing, we  
 will succeed in doing a large business in a manner

**SATISFACTORY TO ALL CONCERNED.**

For any information regarding our manner of transacting business, we refer, by  
 permission, to Gate City National Bank, Moore, Sims & Co., Akers & Bros., Joseph  
 Smith, and the business men of Atlanta generally.

THE TOLLESON COMMISSION CO., Atlanta, Ga.

**HARVEY & OUTERBRIDGE,**

Rooms 305, 307 and 309, New York Produce Exchange Building,

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EXPORTERS AND SHIPPERS

— OF —

**FLOUR.**

Make Purchases of all Grades of Flour direct from mills, and act  
 as transfer and financial agents for consignments to our  
 constituents in foreign markets.

Information furnished of foreign markets, and correspondence  
 promptly replied to.

GEORGE HOPPIE.

LEWIS D. HOPPIE.

**HOPPIE BROS.,**

BROKERS

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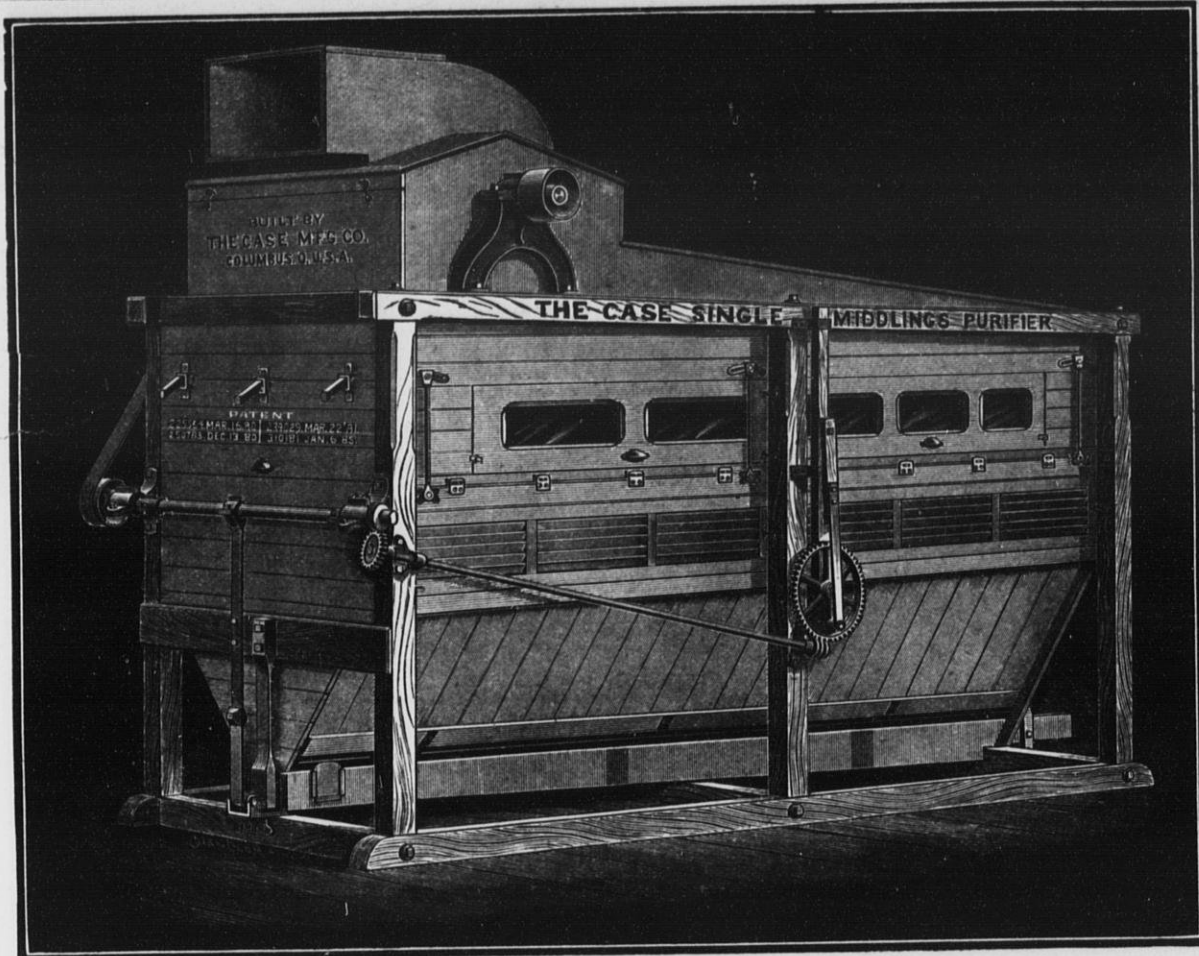
**SPECIALTIES: FLOUR, GRAIN, HAY AND LUMBER.**

We make liberal advances on consignments in solid car lots. Use the "Robin-  
 son" or "Underwood" Cypher Codes in wiring us. We refer, without permission,  
 to Atlanta National Bank, Merchants' Bank of Atlanta, Tanner, Currier & Heath,  
 H. A. Fuller & Son, Frazier & Morgan, and the Flour and Grain Trade of Atlanta,  
 generally.

OFFICE, NO. 4 KIMBALL HOUSE, WALL ST.,

Lock Box 175. ATLANTA, GA.





## OUR "SPECIAL" PURIFIER,

RECENTLY IMPROVED AND PERFECTED.

**T**HIS machine has some new and very valuable features, and we think we can justly say it is the **PRINCE PURIFIER OF THE WORLD.** It has an enclosed case or sides. It has the lightest Shaker made. It has no conveyors to wear the middlings. It has a complete aspirator at the tail. It has a double shaking spout for a cut-off. It has our perfect Automatic Feed. It has our unequalled Cloth Cleaner. It has brass eccentrics three inches long. It has the most perfect control of the blast. It is guaranteed to run five years without any attention except to oil the bearings, and is beyond any question the most perfect, practical, and complete machine made in the world. We will back this statement up by placing it on trial beside any other Purifier made, and if it does not prove all we claim, it may be removed. We know just what we are talking about, and will enter into public tests, and pay all expenses of same, if others can be induced to do so.

Our Purifiers have no "pockets" to fill up and interfere with the working of the dust collector. They have no subdivided compartments to catch dust and allow it to slide back on the riddle. They have no brush to wear out the cloth, and drop barrels of good middlings each day into the tailings and low grade stock, a waste which costs the millers of this country *hundreds of thousands of dollars annually, but they don't observe it.* They have no roller feed to choke off, or feed half the time only half the width of riddle, thus tailing off rich material and permitting the middlings to be poorly purified. Hundreds of thousands of dollars are lost each year by the millers through *imperfect feed.*

We have none of these imperfections which can be found on the so-called "Standard Purifier," and remember we have not made a statement in this circular about Purifiers but what is **GOSPEL TRUTH.**

During the past year we have settled all disputes with the Consolidated Middlings Purifier Company, so that the Purifiers now made by us are licensed under all patents, about one hundred in number, owned by that Company; besides being protected by our own patents, which embody several most valuable and important features, owned and controlled exclusively by ourselves.

## OUR IMPROVED ROLLS

are gaining friends wherever they go. They are the most durable and easily handled of any Roll on the market. They are finely finished in the light of the mechanical arts. Many millers have asked us, "Were not these machines made expressly for some Exposition?" and no wonder, for each one is a model of elegance. Our **PATENT AUTOMATIC FEED** should never be lost sight of when you are buying a Roll or Purifier. It always runs like clock-work, and even better, for it never stops when it should run, neither does it go too FAST or too SLOW. IT GOES JUST RIGHT.

A full supply of Bolting Cloths, Belting, Pulleys, Cups, etc., always on hand. Write us for estimates on Flour Mills or our "SPECIAL" Corn Meal System.

— ADDRESS —

# THE CASE MFG. CO.

COLUMBUS, OHIO.