## The United States miller. Vol. 14 1882/1883

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Publuthod by
Harkison
diwner. Vol. I4, No. I.\}
MILW AUKEE, NOVEMBER, 1882.
\{Terms: : si.00 a Year tin Advanco

The inherent and intrinsic merit of any article of manufacture, or any system of procedure, is alone demonstrated by the results secured by protracted employment thereof. Success is always a sure indication of merit in any article offered for adoption, and we risk nothing when we claim that the

## S'TEVEN'S NON-CU'TNING

## CORRUGATED ROLLER MILL

Is to-day without a successful rival in popularity with the milling fraternity. Adapted for both spring and winter wheat, and for all the operations of reduction and flouring, and with a record of success in these operations unapproached by any similar device, no miller, contemplating a change in his equipment, should fail to familiarize himself with the features which have given these mills their popularity.

## THE JNO. T. NOYE MANUFACTURING CO_,

## ODIFLIS ROLTTR <br> MII工. <br> 3. It is the only Roller Mill in which

 An Suxilised SumemWe invite particular attention to the following

## POINTS OF SUPERIORITY,

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

1. It is driven entirely with belts, which are so arranged as to be equivalent to giving each of the four rolls a separate driving belt from the power-shaft, thus obtaining a positive differential motion, which can not be had with short belts.
2. It is the only Roller Mill in market which can be instantly stopped without throwing off the driving belt, or that has adequate tightener devices for taking up the stretch of the driving-belts.
 one movement of a hand-lever spreads the rolls apart and shuts off the feed at the same time The reverse movement of this lever brings the rolls back again exactly into working position and at the same time turns on the feed.
3. 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 ten-sion-spring.
4. 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 TEE BEST AnNomig,

## THE LARGEST MILL FURNISHING ESTABLISHIMENT IIN THE WORLD.

REMIANTGE WUOREXE, EDW.P.ALLIS \& CO. Prop's.


MILWAUKEE, WIS., U. S. A.

## SOLE MANUFACTURERS OF

Gray's Patent Noiseless Belt
ROLLER MILLS NILAIIIIYS PIIIT PMRRLIII ROLLS. Unexcelled for reducing Middlings to Flour.
Far ahead of Smooth Iron or Scratch Rolls and entirely superceding the Mill Stones for this purpose.

## Read the F"ollovving Tetters.

Messrs. E. P. Allis \& Co., Milwaukee, Wis. Terre Haute, Ind., Aug. 22nd, 1882 Gentlemen :-We are very muke, Wis. ain Rolls yore our mill last fall, we our Mill. The two double set sent us soon after starting up Middlings.

We find the Flour from the Porcelain Rolls much more evenly granulated and much sharper and cleaner than that we got from the stores evenly granulated and fine Middlings are much better, being almost entirely free from the second or as specky Yours Truly,
[Mention this Paper when you write to us.]

Messrs E. P. Auls Co Kings County Flour Mills, Brookłyn, N. Y., Aug. 15th, 1882
Gentlemen:-You ask how I like the Porcelain Rolls as compared with Mill Stones I have been using Yhe original Porcelain Gear Machines for five years and became convinced I am now operating your Improved Machine of increased size
working without noise with Gray's Patent Belt Drive. The Flour it wrod nice adjustments, grainy and strong and its capacity two or three times more than the old Gear Machine with costly stone dressing gives no trouble, consumes less power than Mill Stones, dis is unequaled by any Machine, Iron or stone, at least this is my piesiduums and tailing practical experience. Yours truly, JOHN HARVEY, Head Miller Kings Co. Mills, Brooklyn, E. D.

# REYNOLDS <br> - CORLISS ENGINES 

Over Three Hundred of these Engines in use.


These Engines are especial ly adapted for use in Flouring Mills-being unsurpassed in Simplicity, Durability and ECONOMY OF FUEL, and far ahead of any other

Automatic Cut-off Engines.

Send for catalogues of Roller Mills, Flour Mill Machinery, Saw Mill Machinery, Reynolds' Corliss Engines, etc., etc., address

Edw. P. Allis \& Co.. milwaukee, wis.

The following is a partial list of Flouring Mill owners who are using the Reynolds' Corliss Engines.



Hartilithed diwner.\{ Vol. I4, No. I.\}

UNPLEASANT HINTS.
Englishmen warned to look out for us.
"Hard $T$ imess" predicted for t the United States.
The Pall Mall Gazette, (London,) an English journal of large circulation, and of much influence, predicts an unfavorable condition of American business affiirs in the near future.
Although we do not agree with the writer, we believe that the perusal of his lines by Americans will do no harm to them. It will at least show Americans what a large porte as follows: "We can see nothing in the present position of the Union which differs essentially from that of 1870 or 1872 . Tie 'population is doubtless larger, but then so are the operations of the rail-roid-builders, of the capital consumers in all
directions. Thereis much more money sunk in directions. There is much more money sunk in land, in mines, in manufactures, in stocks and eleven yearrs ago, quite as much more in proportion as the population is greater. And most of its new capital is borrowed capital-English and other-so that the mortgaging of American material resources proceeds apace in many directions besides railway building, and after a fashion which goes far to prove that
Batchelor's pleasant sketch of United States savings to be a mere illusion of the brain Every year the obligations of the Union to
foreign creditors deepen, and when every allowance is made for the wonderful development of the country and its magnificent resources, the fear must be expressed that this progress by way of universal mortgage, must end in a tolerably general bankruptey. Mr. Batchelor is full of confidence in the agricultural resources of America. They are in-
calculable; and yet experience teaches us that calculable; and yet experience teaches us that even they also are precarious. No kind of
prosperity can possibly be more so. Such a prosperity can possibly be more so. Such a
conjunction as a splendid harvest in Europe and a bad one in America is not impossible. This very season we have such crops in the greater part of Europe as must reduce if not destroy the greater par hoping to draw from the American farmer is
Although enjoying
ited stesition, the On the contrary they are every year subjected to keener competition as ocean transport cheapens and improves, and they must submit always to the chances of the seasonschances which hit them with all the greater severity, that they have no trade worth mentioning, except a trade in the raw produce of the soil. A country, in short, which depends on its harvests for its prosperity, as the American Union does, must submit to greater ups and downs than countries whose business is miscellhneous and spread over wider markets. For the last few years the States have enioyed a quite exceptional measure of prosperity because Europe has been smitten with misfortunes. But could anything be more ridiculous than to count on a steady continuance of that prosperity? Why throw the teachings of experience to the winds in the case of the American Union, of all places in the world? If on all hands we find a country busy laying out immense sums of capital-chiefly borrowed abroad-on the assumption that it is to enjoy forever an adventitious prosperity due in a great measure to the misfortunes of one or two of its neighbors, what is the reasonable and natural inference to draw? That it is best to help that country to be as extravagant as possible by lending it all the money we can, or that we should button up our pockets, saying: "Fulfill your sanguine predictions first; there will be plenty of opport:nity to lend when you have proved that you can pay? There should not be much hesitation upon . People nalk and write now-a-days as if, because we talk and write now-a-days as if, because
want more food than we can grow at the best, want more food than we can grow at the best,
America must get richer and richer in supply-
ing our wants. This harvest year may, per-
haps, before it is over, put other notions into their heads. American meat exporters have, we suspect, other idens now. We cannot, present is not an excellent time to buy United States railroad securities, whether old or new. The new however, are most to be avoided, because th
applied."

The following is the programme of the First
Austrian Milling and Baking College at Simmering near Vienna
This establishment is intended to give to millers, bakers, (also confectioners) auche hensive theoretical and proughly understand
so as to enable them to thoroun all milling and baking processes Theoretical knowledge has a double advantage. It does not only guard against mistakes, but it also
incites greater warmth and greater love for incites greater warmth and greater love for
the profession by freeing a handicraft of its fetters and by imparting to the student an in sight in the relations of cause and effect. It ough knowledge of milling and baking, its chemical and mechanical processes, also a practical knowledge of the numerous different tools, machines and apparatus, and a correc judy. Such special technical education will be of the greatest ndvantage to the students, because they are thereby enabled to pursu their profession, not only in accord with the
growing demands of our times, and with growing demands of our times, and with
greater devotion and pleasure, but also with greater certainty of success.
The establishment is connected with firstclass roller mills, brown and white bread bakeries, and with a milling machinery manufactory, in order to promote practical eduadvantage of both practical and theoretical information at the same time. For only there, where science and practice go hand in hand, is
it possible to receive a really useful education. The course is divided into a technical and practical part, and in arranging the lectures it has been the main object to provide specially during the future practice of the student.
Therefore, on the basis of long experience,
he following programme has been fixed
The culture, varieties, diseases, qualities, deterioration and value of those cereals which are used in milling
Inorganic and organic chemistry, explained by lectures and experiments. Practical les sons in analyzing cereals with regard to their constituents; also the constituents of flour and other baking materials with regard to th quality, deterioration and adulteration.
The theory and practical management of the microscope; its use for the examination of grain, flour, etc., and for othernveryand prac
Millstone materials and the theory and Millstone materials of millstone dressing.
Mechanics, with regard to milling and baking machinery. Hydraulics; stream regulation and mill dam*; hydraulic and steam motors. Roller milling; high and low grinding milling; the theory of the construction of mill stones and roller mills; Budapest, Austrian and other milling methods.
The water, its composition and its effect on dough materials; milk and butter, their composition, preservation, examination \&c,
Mechanical and chemical means for raising the dough. The yeast, its physiology, prepa ation, preservation, \&c.; the leaven.
The theory of projection; sketching; drawing of machine details, machines, mills an bakeries.
Commercial lectures, including commercia correspondence; commerce; bills of exchange transport; book-keeping for mills and bakeries. Utilization of the by-products of mills and bakeries for feeding purposes; yeasts; and for


ER, 1882.

The different lectures will be explained by flly impress the lectures on the student's nind, they will be luriefly noted down and will be weekly repeated; also written lessons and The labons will serve to fix their sucstance, very atudent will be assisted in the independent investigation of grain, flour, \&c., to compare his results with those of his fellowstudents the percentages of the constituents of the diferent materials.
Practical instruction in the roller mills and bakeries which are connected with the estabishment
The students can frequently inspect the dif erent stages of milling and baking operations in first-class mills and bakeries. They can
xamine and see at work different kinds of milling and baking machinery as well with regar oo their construction as to their capacity and ulate them by assisting in the attendance on hese machines
In the milling machinery manufactory the students can observe the construction and ical instruction is further assisted by various experiments in such a manner that improve ments proposed by millers and bakers or by students, are put to work and tried in order The results so obtained will be properly invesigated and commented upon by qualified uthorities in the milling and baking press. of the establishment about the excursions to mportant mills, bread manufactories, bake ies etc., which will incite practical opinions about different technical arrangements. apply personally or by letter to the director Those admitted are millers, bakers and confectioners, without regard to their age; clerks, who wish to qualify themselves as commercial managers of mills and bakeries. Younger have acquired a sufficient preparatory education. After the students have entered, they are in every way subject to the rules of the establishments. Respectable lodgings and proper board are provided in common hall.
The winter term begins 1st November and ends 1st March; the summer term lasts from 1st May to 1st September. The lectures men tioned in the above programme are whodo no return to their former establishments, the directors will endeavor to find situations in some of the principal mills and bakeries of Austro-Hungary, Germany, Holland, Belgium Sweden; Russia and America, w
Further information will be forwarded by the director of the First Austrian Milling and Baking School, in Simmering, near Vienna.

## BELTED GRIST MILL

The following plan of applying a turbin wheel to drive a grist mill of one, two, o three, or more run of stone hat can be adopte when only one wheel is used. The plan of setting is one that has been largely used. The water-wheel is 14 inches diameter under a head of 18 feet, driving a two-run grist mill, one run for wheat and the other to drive one run at a time. Power is belted from the pulleys on water-wheel shaf directly to the pulleys on the burrs, and motion is given to the burrs by tightening should be built a platform to hold the belts when the tightener pulleys are slackened. When this plan is adopted in mills formerly When this plan is adopted upright may be run by belting from pulley upright may be run by beling from pulley

counter-shaft, carrying a pinion-gearing into upright in a direction opposite to the burrs. t is preferable to do away with cog-gear altogether and belt directly to the main upight ${ }^{\circ}$ using either an open or crossed belt. This plan of setting can be varied in the dails to suit any flour mill and wheels of any diameter, and is undoubtedly the best plan that can be devised, and the great superiority of the belt arrangement will of the cog-gear, with its accompanying noise and jar.
The penstock is placed vertically instead of inclined. The frames are all made of $6 \times 6$ timber, except the bottom ones, which should e $8 \times 8$, and where the gate-box is bolted hould have two pieces fit ostrengthen the hole cut for the gate-box The sides should be of three inch stuff, nicely planed, grooved and fitted with tongues. This upright spout rests on the planking for the foundation for wheel, and is suitably secured at the top to forebay. This penstock nay also be made by using upright posts manner, well known to all millwrights. The a well kown and ping, hand-wheel is placed in front of the burrs.

## CLOTH TRACINGS.

correspondent of the Moniteur Industrie efers to the difficulties encountered in traing upon cloth or calico, especially the diffi-
culties of making it take the ink. In the first ulties of making it the first place the tracing should be made in a become
room, or the cloth will expand and flabby. The excess of glaze may be removed by rubbing the surface with a chamois leather, on which a little powered chalk has been strewn; but this practice possesses the disadvantage of thickening the ink, besides, it might be added, of making scratches whe detract ox-gall, which makes the ink "take," has also the disadvantage of frequently making it "run," while it also changes the tint of the colors. The following is the process re commended. Ox-gall is filtered through a filter paper arranged over a funnel, boiled and strained through fine linen, which arrests the scum and other impurities. It is then placed again on the fire, and powdered chalk is added. When the effervescence ceases the mixture is again filtered, affording a bright colorless liquid if the operation has been carefully performed. A drop or two must be mixed with the Indian ink; and it also bas the property of effacing lead-pencil Whe the lead-pencil heliographed, raw sienna is also added to the ink, as this color unites with it the most intimately of any, besides, intercepting the greatest amount of light.

## tramming a millstone.

There are some millers so thoroughly skilled as to be able to tell by the "feel" and appearance of the meal when the runner re quires to be trammed; but as there are comparatively few who can do this, the following nethod may be employed to ascertain whether the spindle, and consequently the unner, is out of tram: Take off the runner and fix a horizontal arm to the spindle head, with a pin or quill projecting down from it ust far enough to mark on the bedstone; hen, when the spindle is turned, the pin will show whether it is out of tram, and if so, in which direction it varies from the perpendicular. To put it in tram the followers in the bush may be adjusted, or the step-box nioved; or if an improved mill-bush or adjustable step-box is used, the tramming is done by simply turning one or two screws.
TaE Slide-valve engine, manufactured by the Atlas Engine Co., of Indianapolis, Ind., at Little Rock, Ark.



## THE UNITED STATES MILLER.

United States $\mathrm{M}_{\text {iller }}$ BLISHED MONTHLY Subscription Price...
Foreign Subscription

91
si.50 per y year in in advance.
in advance.

## MILWAUKEE, NOVEMBER, 1882.

The Northwestern Miller of Minneapolis reIt showed the result of much labor and good taste.
Messis. $\overline{\text { Howes, Babcock \& Ewell, of Silver }}$ Creek, N. Y., have lately been receiving very
extensive orders from British millers for their Eureka Flour Packers. This firm has a branch house at 16, Mark Lane, London.
The John T. Noye Manufacturing Co. have recently put in machinery for recorrugating
and regrinding rolls, and ave now prepared to and regrinding rolls, and are now prepared to
execute all orders for such work on their own premises, and with great promptness.
The John T. Noye Manufacturing Co. have just purchased the extensive premises, shops
and ground of The Francis Axe Co., of Buffalo, v. Y., and will immediately occupy them in conjunction with their old and commodious quarters on Washington St., in that city
The American Elecator and Grain Trade is the name of a new journal, published by
Mitchell Bros. Co., Chicago, Ill., in the interest of elevator owners and grain dealers generally. It is a handsome and abser for by every paper, and should be subscribed for by every
grain man in the country. The subscription price is $\$ 1.00$ per year.
Frank Andree's Excelisior Flour Dressing Machine has been on exhibition at the Mil. waukee Industrial Exposition during the past
few weeks, and has attracted considerable few weeks, and has attracted considerable
attention from visiting millers. One of the best mills in Milwaukee will introduce it at
once. Millers should not fail to write to F . Andree \& Co., 330 E. Division st., Chicago, Ill. for full particu
Dreamivg millers, and their sisters, cousins etc., may be interested in the following quo-
tation made from a dream-book published in the eighteenth century: "If you dream of going into a flouring mill, where you see
plenty of grain and flour, it is a good omen, as it shadows forth thrift and abundance. To dream that you buy flour is a bad omen, and friend." Our milling friends will be careful how they dream.

## boston elevators.

There are four elevators in Boston, the largest being the Boston \& Albany Elevator at the Grand Junction wharves, East Boston.
This building is 400 feet long, 75 feet wide and 125 feet high, and has a capacity of
$1,000,000$ bushels. The machinery is $1,000,000$ bushels. The machinery is driven
by a magnificient engine of 600 horse power and twelve cars can be drawn in at the same time, the unloading requires from eight to of the grain to the top of the building, weigh ing it and dropping it into the bin. As each med of the rapidity that is needed to handle 6,000 bushels in this short space of time. Thi 5,000 to 8,000 bushels, and it can dispose of 360 cars per day, if the sales are sufficiently prompt to take it away. The Shawmut ele-
vator has a capacity of fifty cars, the Mystic wharf 100, and the Chandler-street elevator also owned by the Boston \& Albany corpc ration, has a capacity of 500,000 bushels, the
latter building being used exclusively for the local business, but all of these are not sufficient to accomodate the grain trade of the port. The cars are drawn into the East Boston ele vator by its own power, thus avoiding the
smoke and dust from a locomotive. Just before the door of each car is a hopper, and connected with it is the elevator proper, which
carries the grain to the top of the building. There are twelve of these elevators, which are simple rubber or leather belts, running in wooden groves over pulleys, and connected of the grain having been determined, two men enter it, and with enormous steam shovels convey the grain into hoppers, from whence it is taken by 10 the receiver, in the top of the building. This re-
ceiver is in reality a huge scale, and is connected with the room below by iron rods, so that the weight of each car is indicated as soon as it is unloaded. The weight of the grain and the number of the car is then placed in a book by the milling engineer, and is
ceiver, to which the grain is sent, is not the storing bin, but it is carried from there to a
bin below the receiver, where it is kept until bin below the receiver, where it is kept until is a curiously constructed hopper having fifteen outlets, any one of which can be opened singly by turning a dial in the office below. After the grain is weighed, the bin for its re ception is designated, the dial is moved to the number representing that bin, a rope con-
nected with the bottom of the receiver is pulled and the grain is emptied into the hopper. Every outlet, however, is closed except the one leading to the designated bin, and the grain is soon stored with that of similar grade. This is done until the bin is full, when a check, showing the number of pounds or bushels and also the quality and grade, is hung upon the facsimile of the bins in the counting room. When it is wished to ship the grain, the merchants owning that in one sin agree, at a meeting of the Exhange,
send it on a certain steamer, the books showing how much each man is entitled to. The steamer is brought to the dock, and if she is to carry different grades her hold is divided gether to load it into the vessel, and for this purpose hoppers, similar to the ones near the cars, are placed under the storing bins, and from them the grain passes again into the receiver The weight is again noted, whenever the
ceiver is full, after which another aperture in the receiver is opened leading into an iron spout which conducts the grain out of the
building and into the steamer's hold. At the Grand Junction elevator there are six of the spouts, which can all be operated at the dme time, and 150,000 bushels also three spouts on the other side of the ele vator from the steamers' dock, so that schoon ers and other sailing vessels can be loading at the same time. In this elevator there are
many new inventions to facilitate the handling of the grain, so that very little ma nual labor is required.-American Elevator and
Grain Trade, (Chicago.)
what robert grimshaw c. E. of philadel phia, knows about "milling needs

From his paper read before the Pennsylvania Millers The building must be large enough to afford om for storage and for additional machinery cear, dry, light, and stiff enough to stand the motion of the machinery, and the filling of
the garners, without sagging, and throwing the burrs out of tram, and the shafts out of line, and causing the gears to crowd. It pays to have a building so stiff that the journals and gears will not bind and heat. It does not the garners empty and fill.

Explosions may interest you. The best sime to be interested in them is before they occur. The dust catcher will lessen their
liability to occur, and ought to meet with favor in the insurance companies eyes. I suggestion, (made in the interests of the underwriters, ) to keep the atmosphere of the mill artificially damp. There is trouble enough now with curbs, spouts, conveyor If a mixture of dust and dry air will explode carry the dust away and adopt preventive measures to prevent ignition in the spouts hat carry it.
Let me advise you to do your own insuring that is, to form mutual companies, with rigid inspection; not dictating to any one what he shall or shall not do, but simply reporting and recommending what is best to do, and discriminating in the rates in favor of those who eep their risks the lowest.
The power should be amply sufficient with a margin for increased machinery; the motion absolutely regular, and the cost per horse power low. One thing to guard against
is friction. Not the rubbing of a $\$ 10,000$ policy against a $\$ 5,000$ mill; but the every day fric tion which uses up power and wears out machinery of all kinds. My tests show that fully one-fourth, and often one-third, of the purely preventable. In a corn mill in New York I found that it took over 10 H . P. to turn the engine and shafting, with no machinery or load. By simply changing the lubrican of the engine alone (cylinder, guides, and main bearings.) I reduced this to about 8 H. P; that
is fully 20 per cent. I could have dropped it nother 10 per cent. by following out th bearings all the way up. If your mill is using more than 40 actual horse power per hundred barrels per 24 hours, that is, more than say 10 horse for every barrel of flour per hour
in a fair sized mill, it is using too much; and the probabilities are that all over that is
wasted in friction. Where a water-wheel is used, it and the race, rack, gate and flume should be kept clear, in line and in repair. In the choice nf a wheel, suit your conditions. Some need a wheel that will be sparing of water; others one that will do good work at part gate; some have light brush to contend against, and others muststand heavy knocks from heavy drift-wood. There is no one wheel that best answers all requirements. Buy of a reputable builder that type of wheel which is most needed at your own mill, and good performance.
Whatever power you have, let it be regular and to accomplish this a governor is necessary. When I say a governor I mean one capable of handling your engine no matter how the boiler pressure and the load vary In most cases a good water wheel governor will be found to increase the regularity of
motion and hence the coolness of grinding motion and hence the coolness of grinding
and evenness of bolting. Do not forget that as and evenness of bolting. Do not forget that a. our trees are being cut down, the rain fall is
lessening and the water power with it; and that auxiliary engines to help the waterwheel along are commencing to
If your water power seem insufficient, and you find that you are using, to make 100 barrels in 24 hours, more than $1,650,000$ foot
pounds of water per minute, you are wasting water. That is $165,000 \mathrm{Ht}$, of water a minute
under 10 feet head, or its equivalent, should
make 100 barrels per day. Ciphered up in
cubic feet of $62 \neq \mathrm{t}$, each, it means that the cubic feet of $62 \frac{1}{2} \mathrm{th}$. each, it means that the following number of cubic feet of water under
10 Ht . head are all that are necessary, with good waterwheels, to do the work set opposite them, (yield

## 

## oportionately less.

To show how little water is really required to give a horse power, and how little is needed to make a barrel of flour, I append a table required to yield different amounts of power under 10,20 and 40 feet head.

reckoning the useful effect of the wheel to be 80 per cent., of that due to the weight and fall. If you use more than 40 Hb of coal, per barrel of flour, you are burning up money that you had better save. Some mills use 90 , and some get along with 25 to 30 . Most mills use too much. I could name a mill turning out 60 barrels per 24 hours, that had its coal consumption reduced from 35 tons of coal, worth $\$ 37.50$, per week; or about $\$ 2000$ per 'year.
If a steam engine is used, and over 25 horse power is needed, it will pay in the decreased
team consumption and in the increased re gularity of motion, to have an automatic cut off. A steady line of steam is economical and helps the engine along; and shaking grates and damper regulators aid in keeping the steam always just at the blowing-off point. The tranout flouring mill. Hy the weakest signed gears are absorbing power, grinding hemselves away, or belts are used which are either flapping and slipping or strained
o as to shorten their life and use up power exissive friction. If it take more than ny square feet of double leather belting per minute to make each barrel of flour per hour, transmission; because fifty square feet of good double leather belt properly run on the right kind of pulleys will yield one H. P.; and 40 bushels will easily make 100 barrels in 24 hours. Keep your leather belts well oiled with castor
drive steadily
The longer your bearings of shafts and jouraals generally, the easier they will run, so ong as they are kept in line. If there ib rumbling, rattling and roaring among you gear wheels, and the burrs and reels run fit cully, rest assured that you will not have as ool grinding and as clean bolting, as though he wheels ran quietly and steadily; and that ower is being wasted and gearing destroyed by undue friction. To remedy it, either new nd well-made gears, or a back-lash spring, of both, will be found the correct thing. Keep our eye on wire-rope transmission for long distances; especially where your mill is on 2 the full fall of the water without losing the ad
vantage of being on the general wagon road level and out of the reach of floods. It also offers a good way of hiring steam power to help you through a dry season; or of renting out powor when you have too much.
It is the fashion for those who ought to know on which side their bread is buttered, to wax funny because some of the milling papers sing whistle and repeat the prime necessity of thoroughly cleaning the wheat before grinding. It may be monotonous, but it is a frozen fact, all the same ; and there is more philosophy in common sense cleaning at the start than in all the re-bolting and double-purifying from here to Halifax.
Noah must have been monotonous as a weather prophet, (he certainly was uncomfortable as a navigator, with all that menagerie aboard,) but there was solid truth in his prophecy, for all some irreverent neighbors may have asked him to give them a rest, once a while. Well, they got the rest!
Rest satisfied that, no matter what system or wheat breaks or what process you use, no and rew many what kind of purifiers with full you may have, unless you start out weight wheat thoroughly and properly號, you cannot expect good results. An of bolting cure. A scourer that does not break the bran is worth more than a bolt o purifier that will take out the bran specks.
It is easier to get cockle and garlic out of
I find the percentage of purely unnatura Irt in a bushel of wheat to vary from $\frac{1}{2}$ to los., and even 8 per hundred. That wide ange must mean something. Discourage an remove dirt cheaper than you can, and should be made to do it.
Be careful in buying wheat. Remembering that if 60 pounds of wheat is worth 60 cents, 56 pounds wheat is not worth 56 cents per measured bushel. The Canadian millers
have recently taken sensible action They pay 1, 2 and 3 cents per bushel extra for wheat running 61,62 and 63 pounds a bushel, and down to 32 cents per bushel disTh where the wheat runs ouly 50 pounds. There are some grain cleaners in the maret that would make first-class bark mills. Yet they claim to lay the berry gently on its side on a velvet pillow and fan out-only fan out, mind you-all the skin dirt and most from the crease. Be cautious in throwing way any machine until it has been given thorough trial with careful usage adapted to the conditions. Do not condemn burrs be cause they will not flour middlings, unless you have dressed them for middlings-flouring and iven them that accurate tram, balance and wich they need for such work "Pr

I believe that the present system of scouring and cleaning will some day not far off perhaps, give way to process which will entirely remove the bran clean and little broen, leaving the kernel clean and and unin ured and ready for immediate grinding at one operation into a straight grade, which shall owe its slightly golden c.llor and its richness and fattening properties to the germ The bran will be fit for packing purposes nothing more. The office of the reel will be our grading, not speck removing; and the purifier will go out as it came. More diffiult things than wheat hulling have been done for instance cotton ginning; or, to com Meantime you ding-middlings purifying.
Meantime you are milling in the present progressive, competitive, crowd-you-to-the wall sort of present; and have of course to use now the machines and processes of to-day till with one eye open ahead for the new ones coming in all the time.
The great battle of the millstone and the oller wages fierce and fiercer, with doughty partisans on either side, hurling at each other any hard facts and not a few equally hard ies and fancies. It is asking a good deal to all for one to commit himself squarely to belief or statement that either of these two, or their young rival, the iron dise, is the only means by which wheat can be milled. There re too many barrels full of proof to the conrary, on either side.
If the mill is large enough, the wheat should be graded with two sizes before grinding or reaking. Burrs, discs or rolls set for grinding or splitting grains of one size will not work s well on any other size. This is not a fancy heory, but a solid reality. If the grinding and splitting facilities are not sufficient to handle two grades at once, then try to garner burs, dises or rolls especially for this grade. burrs, disce
It will pay.
[To be continued.]

## THE UNITED STATES MILLER.

THE ATLAS-CORLISS ENGINE
We publish, in this number, an engraving of the semi-fixed engine, manufactured by the Atlas Engine Works, Indianapolis, Ind. The engine and boiler are remarkably fine specimens of design and workmanship, and illustrate the most approved practice in an ngine of its class. It is built especially fo aw mill work, where permanent boiler set ings and engine foundations are not desired The engine is carefully designed, is simple in construction, and economical in the use of team, being one of their standard slide-valve engines, which they build in sizes ranging from 20 to 100 horse-power. The cylinder is made of carefully selected iron, the steam marts are large, and as short and direct as ports are the proportions being ample for the possible; the proportions being ample for the highest rate of speed for which it in engine of this kind. The valve is carefully proportioned to and accurately scraped to the valve seat. The bed plate with guides and main bearing are cast in one
piece, forming a strong and heavy casting, piece, forming a strong and heavy casting, working strain to the best possible advantage. The bearings are all very large, and carefully fitted; the piston and valve rods, crank pin and cross-head pin, are all made of steel. All parts of the engine are carefully fitted to standard that duplicate parts can be furnished on short notice, in case of accident or long-continued wear. The boiler is of the standard locomo tive pattern, is safe, durable, and economical in the use of fuel. The fire box has an arched top and is thoroughly stay. ed at the top, bottom and sides by means of staybolts, which are screwed into both plates and riveted. There is a water space ed. There is a water space
all around the fire box, adall around the fire box, ad-
mitting of a free circulamitting of a free circula-
tion, and doing away with the cast front so common in small boilers of this character. The tubes are of the best American manufacture and are carefully expanded to fit the heads. The engine and boiler are both mounted on the same skids, and all the connecskids, and all the connec-
tions are furnished, formtions are furnished, formcompact outfit, requiring no special foundations, and can be moved from one part of the country to another,
sary.

The Company have the very best facilities for man ufacturing these engines, and carry them in stock for immediate delivery. They
are built in two sizes- 20 a
are built in twe sizes-20 and 25 horse-power Full information with terms and price
had on application to the Company

## the economical use of steam power.

While many exhaustive and valuable tests have been made with engine boilers and furnaces to determine the water used per hour per horse power by the engine, or the water evaporated from the boiler per pound coal, yet the economy of a steam plant as generally designed is a problem that can only e solved after each element in the combination is put in operation as a whole. While per pound of coal, or the water used by the engine, is interesting and necessary to a proper knowledge of the economy of a given steam plant, yet with the steam user the dollar is the standard to which he refers.
The coal and water used are very important factors in the expense account of the steam user, but they are not the only factors, and the designing engineer must bear that fact in mind, if he expects success; and because it has been lost sight of, disappointment or failure has been the result, and even with the best designed steam machinery, mismannagenient in its use has reversed-wholly or in part-any expected economy.
It is generally taken for granted that, when a reliable automatic engine is used, good economy is always the result; that would be true so far as the engine is concerned, provided due regard is had to having an engine properly suited to its load, and if that is not properly the -case, a gur of certainty. And in given with any degree of certainty. And in
this connection it may be remarked that this connection it may be remarked that
there are many automatic engines in use
that could be replaced with profit by an engine of the proper size that has not the pretentions to economy generally associated with the name of automatic. That this is true, is not an argument against the automatic engine, but it is an argument against having an engine unsuited to its load. It is not a matter of the difference in the cost of the two engines, but the difference in econo-
my which may amount to many hundreds of my which may am
The prudent business man who, when buying a lathe-planing machine or printing press, will exercise the greatest care to get the best in the market, will, when it is a question of engines, boiler or furnace, not deem it of enough importance to merit his attention, except, perhaps, a preference may be had ex a particular style of engine, and he is surprised when everything is in running order to find the engine-room expenses much larger than was expected, the usual explanation of which is that "we are doing lots of work." The expert may be consulted about this time and, to the confusion of all, prove that the expense is all out of proportion to the work done, and that no parts of the steam plant from grate bar to engine are in harmony with each other. This could, and under the proper management would, have been avoided; but now the next best thing will have to be done, viz: place in harmony, so far as it is possible to do so, the differen elements in the combination, using a grade of fuel suited to the boiler and furnace, cut
ting down the many little expenses that ente
conditions are found not $t$ th exist, the reverse of economy is proven.
One condition which, when it is assumed, is almost always over-estimated, is the amount work done by the engine. Few, except they who have an experience in that direction, from a correct ider of the amount of work represented by the term horse-power. All know that it is 33,000 pounds lifted one oot in one minute, but that is not a unit by which the ordinary observer can form any correct opinion of the work done, and recourse is had to the belting and the appearance of things in general. If an attempt is made to calculate it from the engine, the pressure shown by the gauge is the misleading factor in the calculation.
We have, however, an instrument, the indicator, by which the power of the engine may be ascertained accurately, and the same instrument furnishes, when in proper hands, data from which to judge of the economy of an engine. It points to any defect, if any exists, and to the cause, the engineer must apply the remedy.
The term horse-power as applied to the boiler, is very indefinite, no commercial unit having yet been agreed upon. It is likely, however, that the standard adopted by the experts at the Centennial, to-wit: 30 Hs . of water having a temperature of 212 deg . Fah. evaporated int $\lrcorner$ steam at 70 Hs . pressure per hour, or its equivalent, will be the unit of hour, or its equivalent, will be
measurement most generally used.
It is not safe to assume that all the water
pumped into the boiler is evaporated from
tive waste and they do not produce the results hoped for, but under certain conditions may work serious injury to the boiler.
An incorrectly proportioned boiler or furaace, or incompetent management may render nil all that was expected to be gained by n economical engine, or if the engine is at fult the most correcty designed boiler and fault the most correctly designed boiler and furnace may be made to appear to be work-
ing extravagantly. What then is the result when all the conditions are bad.
It is therefore of the first importance, if economy is to be expected, to have every
part of a steam plant in harmony with every other and to have the management such that the economy will be maintained, for a fortune may be spent unnecessarily in the maintainance of a poorly designed or poor-
managed steam plant.-Industrial World.
flour and grain trade notes.
ThF Miller (London) says: The retaliatory flour duty imposed by the Austro-Hungarian Government, and directed chiefly against Germany, has resulted in a striking diminution in the imports of flour. In June only 18,900 cwts. entered, against 92,000 cwts. in June, 1881.
Spain has just passed through one of the most abnormal seasons, as far as the weather fell for eleven months, and in Andalusia for nine months. This drought naturally totally destroyed the crops; but in the middle of September a veritable deluge took place, inundating the country, and doing in some parts of the country as much damage as the previous drought had effected. Spain
will, this year, therefore, have to import very largely of grain, and flour at high prices, for the government does not seem disposed to suspend the import duties in the face of the opposition offered by the agricultural interests of the ccuntry.Millers' Gazette.
The first flour mill in Minneapolis was built in 1860, and in that year the shipments of flour were 30,000 barrels; in 1873 they were 585,000 barrels, and in 1881, 3,142,974 barrels. The quantity of wheat ground into flour in 1881 was $16,500,000$ bushels, being $2,500,000$ bushels more than the entire re ceipts at Chicago in that year. The foreign export of flour from Minneapoli began in 1878 with 109,183 barrels, and amounted in 1881 to $1,181,324$ barrels.
so largely in the expense account, with the $\mid$ it, for if the boiler and furnace are not in end in view of producing the greatest amount of power with the least expenditure of money.
There are many places where the engine only requires a part, and in some cases a small part, of the steam generated by the boiler; that is particularly true, where steam is used for heating. This then is another outlet for steam, and it is safe to say, that the heating apparatus usually constructed a very prolific source of waste. That this indeed, then proven many times team used for heating purposes was being wasted, and unfortunately such cases are no rare. In fact, in the use of steam for the
many purposes for which it is used, good economy is the exception, not the rule; that this is the case is due to faulty design or to mismanagement or both. It has been many imes proven in a practical manner that, with engine will use twenty-five per cent. less fue ngine will use twenty-five per cent. less fue han another, and that one grade of coal wil give far better results than will another grade,
although burnt under the same boiler and in the same furnace.
An engine, boiler and furnace are not igid machine that can only work within the ines mapped out for it by the designer, bu they will adapt themselves to the existing conditions, be they good, bad or indifferent; and that too without discovering to the attendant whether or not the conditions are good or bad, and to the question of economy, will only yield an answer after the most persistent and painstaking inquiry. Hence it is that when a steam plant may be supposed to be doing its work with a fair degree of economy, by assuming certain conditions, that when
proper proportion or even when they are,
unless a grade of fuel is used suited to them nless a grade of fuel is used suited to them large per cent. of water may be and fre quently is carried out of the boiler with the in some cases, it is dangerous and has led to the "bulging" and cracking of the boiler. It may also be caused by dirty water and in some instances by boiler purger. The quan tity of water thus carried out of the boile can only be detected by the calorimeter.
Then to determine the horse power of boiler we must know the amount of water evaporated per hour. This we can do by the use of the scales and calorimeter and from them we get data which enable us to judge of the economy of the boiler and if
fouad unsatisfactory a remedy may be apfound
plied.
With the furnace the scientific unit is the amount of water caused to be evaporated from the boiler per pound of combustible and the economic working of the furnace depends upon so many conditions-the grate surface, the heating surface of the boiler, the general construction of the furnace and last, but not least, the mode of firing-that it is not safe to assume that the furnace is an economical one unless all the conditions are known and its economical working been proven.
To the furnace may generally be charged large waste; that this is true is proven by the many patented devices for the purpose of saving fuel. These devices generally take the shape of a smoke burner.
It may be true that there is a waste when he furnace is producing smoke, but the waste is not nearly as large as the smoke wurner, men would have the publie believe; indeed with many machines there is a posi-

## The products of the manufact year were valued at $\$ 15,000,000$

Late advices as to the harvest in Scotland indicate that oats will yield one-third above on average, wheat in excess of an average, and barley will show an improvement in quantity, but especially in quality, over the yield in 1881. Notwithstanding the ravage of disease and other drawbacks, beans, turnips and potatoes will do well. The total estima ed value of Scotch root and cereal crops is placed at $\$ 90,000,000$.

NOT THAT KIND OF SHEEP.
A pretty good joke on a Milwaukee miller is now going the rounds.. The Berlin (Wis.) Times tells it as follows

It seems that the widow Coville, of Auroa, had lost some sheep-ewes-about a dozen being missing. Her brother, a gentleman engaged in the milling business in Milwankee, was on the train Monday (Oct. 16,) en route or his home, he having been visiting his sist 1 . He looked at the carload of sheep waich Sted man \& Morris had on that train, and thought the ear-marks on some of them corresponded with those of his sister's lost sheep. He telegraphed to the sheriff at Milwaukee to be on hand and take possession of the sheep at Milwaukee, stating that they were stolen. The widow's son, at Aurora, was also telegraphed to come on and identify the sheep. Thus the sheep were detained from the Chicago market, their destination. The boy failed to identify the sheep-in fact the sheep in the car were wethers, while the lost ones were ewes. Hollis sold his sheep in Milwaukee, demanded $\$ 50$ damages and got it, the miller paid the costs of the legal proceedings, go into the sheep business again very soon"" the sheep business again very soon."

## THE UNITED STATES MILLER.

United States Miller E. HARRISON CAWKER, Editor.
publishedmonthly.

## subscription price.-Per Year, in Advance.


 Wise agreed upon,
For estimates for

\section*{| IEl Enteresed at matter.] |
| :--- |}

MILWAUKEE, OCTOBER, $18 \$ 2$.
We respect fully request our readers when
they write to persons or firms advertisigg in
this paper, to mention that their advertisement
wus sten in the UNITED STATEs MLLER. You
will thereby oblige not only this paper, but the
advertisers.

Flour Mill Directory.
 It shows that there are in the United states. 21,356 flour
mills and in the Domion of Canada 1,488 . The mills in mills and in the Dominion of Canada 1,488. The mills in
the United states are distributed as ofolows
Alabama, 3s8; ; rizona, 17; Arkanass, 23, 8 ?


 Pennsylvania, $2786 ;$ Rhode Island, 47; South Carolina,
205; Tennese, 622 ; Texas, $518 ;$ Utah, 129; Vermont, 231 ; 404; Wisconsin, 780 ; Wyoming, 3; Total, 21,356 .
The directory is printed from new Burgeois type on a book of 200 large pages. The post offices are alphabetically arranged in ench state, territory or province. The
name of the mill, the kind of power used and the capacty of barrels of flour per day of 24 hours are given
whereverer obtaineed which is in thousands of instances, This work is indilispensible to all bus
reach the American Milling Trade.
Price Ten Dollars per copy, on reeeipt of which it will be
sent post paid to any address.
Remit ty registered letter. postofice money order or draf on Chicago or New York
made payable th the order of E. Harison Cawker, pub-
Lishler of THE UNITrD STATES Muluer, Millwaukee Wis.
$W_{E}$ acknowledge with pleasure the receipt of Volume 19, of the Illinois State Agricultura
Reports, from Hon. S. D. Fisher, Secretary.

Holland is said to have 11,000 flour mills, 10,000 of which are driven by wind and 1,000 by water or steam power. Very little fine
flour is used. flour is used.
Mr. Fred. K. Clark, representing the Northwestern Miller called on us Oct. 28th. He
reports business looks of the paper now-a-days, we think his

The Adelaide Milling \& Mercantile Co. a Adelaide, South Australia, has a capital of
$\$ 3.700 .000$. The Company now has four large \$3.70.000. The Company now has four large
mills in operation and are looking to London mills in operation and are looking to Lo
principally for a market for their flour.
Hon. Geo. Bain, of St. Louis, Mo., President
of the Millers' National Association, has just been nominated for Congress by the Republicans of the Ninth District of Missouri. If any republican is ever elected in that demo
cratic district, it is probable that Geo. Bain will be the man.

We have received a copy of The American Newspaper Andual for 1882, published by N. W. Ayer \& Son, of Philadelphia, Pa. Price \$3. It contains a carefully prepared list of all newspapers and periodicals in the United
States and Canada, arranged by states in geographical sections, and towns in alphabetical order. Advertiser
work of reference.

Eight out of the eleven starch factories of the West bave signed terms forming a single stock company, under the title of the National Starch Company. The factories that have not signed are located one each at Madison, Franklin and Elkhart, all in Indiana. Another meeting will be called,
rest will be whipped in.

The flour mills in Denmark have experience a very unprofitable year's business owing to failure of home crops, the high price of imported wheat and rye and to Swedish
tariff regulations which almost prohibited Danish flour from coming into Swedish markets. The dividends of milling corporation nothing. Danish millers now however, look forward to a profitable season.

Messrs. Gibson \& Clark, of Glasgow, ScotMessrs. Gibson en clark, of Glasgow, Scot The weather during the past week has been ather uusettled, a good deal of rain has fallen which has retarded the
crops in the late destricts.

## crops in the late destricts.

Our imports of wheat and flour from abroad have been liberal, but small of other articles; coastwise and per railway the arri-
vals have been limited. The trade has been firm with a fair business doing in wheat and flour. Maize from scarcity has improved 6d. per 280 tbs . Other articles quiet without much change in prices. To-day our Corn Exchange was well attended. Red Winter Wheat was 3d. per boll (240 t) dearer. Flour firm. Barley, Oats, Beans, and Pease stea

Kufeke's report under date Liverpool Oct. 11th 1882 says: The Weather continues season able and farmers are actively engaged with
field work. Farmers' deliveries of native wheat continue on a fair scale and last week price is again reduced and is only 39 s .6 d . per imperial quarter against 46s. 9d. at the same time last year.
flour of all descriptions dood demand for week and a satisfactory business has been done in new American Winter Wheat flours, both on the spot and for shipment. Prices however be quoted any higher.
gher prices, but so far our

## respond.

Wheat exhibited an improving tendency and Red Winter has advanced 2 d per cental in value whilst other descriptions are un-
changed. changed $\qquad$
of the most striking and beautiful wagons in the whole procession during the Oriole celebratis that of the C. A. Gambrill Mfg. d loaded with barrels and bags of flour of and loaded with barrels and bags of flour of sheaves of wheat. This company own three immense mills-one at Ellicott City with a
capacity of 500 barrels per day, and one at capacity of 500 barrels per day, and one at
Orange Grove, on the Baltimore \& Ohio road, which turns out 450 barrels per day-giving them a combined capacity of 1,300 barrels of of flour per day, and which consume daily 6,000 bushels of wheat. This company use wothing but the best Maryland and Nirginia has had a reputation for its fine quality throughout the eastern, southern and middle their Pat may be interesting to know that their Patapsco mills at Ellicott City turned
"This company have this ye
This company have this year introduced the rollersystem into all their mills, and with
the superior winter wheat of the season, are the superior winter wheat of the season, are
placing on the market a brand of flour, the "Patapsco Superlative Patent," that has few equals in this or any other market.
The C. A. Gambrill Mfg. Co., is the oldest, one of the most enterprising and largest concerns of the kind in the middle states, and their productions have always stood high in

## A SPECIAL OFFER.

To all persons in the United States and Canada sending in their subscription to the United States Miller, for one year, accompanied with one dollar in cash, before Decemer 1, 1882, we will forward the following en books, printed in pamphlet shape, from clear type and on good paper
ir Walter Scott;
2. Grima's Fatry Tales por the Y
ollection of fairy stories ever published;
3. David HUNT, a novel, by Mrs, Ann

Reaping the Whel, by Mrs. Ann S. stephens: Hay;
5. Dudley Carleon, a novel, by Miss M. E. Braddon;
6. Essica, or, The Mystery of the Headlands,
6. Essica, or, The Mystery of the Headlands, a novel
Etta W. Pieree;
7. A Golder
Dora Thorne:"

## 8. Valerie's Fate, a novel, by Mrs. Alexander ; 9. Sister Rose, a novel, by Willie Collins ; <br> Sistrer Rose, a novel, by Wilkie Collins ; ANNE, a novel, by Mrs. Henry Wood.

This will furnish you sufficient light reading matter for a whole year and a first-clase matter for a whilling journal.
mill

KANSAS COURT SCENE AND buffalo hunt. In the correspondence column of "Turf, Field and Farm of Oct. 27, we find the following from the pen of

## ing in Milwaukee

our issue of October 13, entitled "Early Justice and Spor in Michigan," reminds me of an incident which happened InSith County, Kansas, in 1871.
some parties in Smith Count
Some parties in Smith County got into a lawsuit about
sattle. smith County then had probably not more than attle. Smith County then had probably not more than 500
inhabitants, most of whom lived in "dug-outs. . The wrier was employed to prosecute the case before a justice of
the peace, who lived with his family in a one-roomed dug-nut," on the North Fork of the Solnmon River. The
ime was summer, and the justice organized bis court be time was summer, and the justice organized his court be-
neath the spreading branches of a giant cottonwood on eath the spreadiug branches or a giant collonwod
the bank of the river; a jury was duly empanneled, the
arymen spread themselves out in a row on the grass, and urymen spread themselves out in a row on the
the trial proceeded in due form and mauner.
 young fellow appeared at the top of the bank and shouted
There's a herd of buffalo comin'. "There's a herd of buffilo comin'. Look out for 'em."
quick as a flash the justice jumped up and exclaimed "Gentlemen this court stands adjourned for one hour for
buffalo hunt." Everybody carried a gun or revolver in buffalo hunt." Everybody carried a gun or revolver in ana, Mr. Editor, in less time than you can read these line chasing party after those buffalo. The chase occupied less
than half an hour and three buffalo were killed. The party ame straggling back to "court " and after discus sing the fffair for half an hour more, business was proceeded with
If this episode should ever meet the eyes of nuy of the old Smith County pioneers they will readily recollect the hunt which at that time, did not seem to be
way.

The northernmost place in the world where rye and oats mature is at Kengis, in the miles to the north of the Polar circle, whereas the northernmost spot where corn is grown is at Muoniovara, ninety-eight miles to north o the Circle.

## technical milling school

In this number we give a synopsis of the course as pursued in one of the Austrian chools for teaching young men to become may be expected of a milling school when established in this country. This question is attracting much attention among many o
the millers of the United States. They are desirous of having their sons learn the theory and practice of milling in as short time as possible without being compelled o spend several of their best years in the mill often under the instruction of practical but often comparatively ignorant millers a school for millers will soon be established England, and candidates for admission to enter. The course of instruction is to be both theoretical and practical, and when a tudent has finished the course prescribed and passed a satisfactory examination h will be furnished a certificate which wi doubtless prove his passport to a profitable engagement. In a few years a candidate fo a position as miller in England, will stand a poor show for obtaining it unless he can
produce his certificate of having passed the equired examination at the Millers' School Such is now the case in Germany and xample in this matter

WHEAT.
The October returns of yield per acre of wheat, estimated from results of thrashing, $500,000,000$ bushels. Troduct slightly exceeding $500,000,000$ bushels. The average yieid 'per an acreage slightly under $37,000,000$. There is a reduction of area in the spring-wheat region, and a large yield in the great winter-whea growing belt of the West. The six principal winter-wheat States will aggregate about 244, $0: 0,000$ bushels, or nearly half the crop of the United States. The spring wheat of the Northwest may make $113,000,000$ bushels. The Pacific coast crop, which has been persistently exaggerated in commercial estimates may possibly reach $45,000,000$ bushels. The Middle States have produced about 40 , 000,000 bushels, and the Southern States slightly in excess of $50,000,000$. Slight modifications may come from further investigation as the results of the harvest are more closely tested; but the total cannot be much changed, and certainly cannot be expected to enlarge the aggregate above, which requires nearly as large a yield per acre as has ever been reported in this country by census or official estimate. The average yield has never fallen quite to 10 bushels, (though very near it last year), and never has quite touched 14 bushels in years of greatest abundance. It was 12.9 in the census year, and the crop of 1880 was estimated at 13.1 .

The yield in New England varies from 14 bushels in Maine to 18.7 in Vermont. It is unusually high in New York, 18.7 bushels; in Pennsylvania not quite so high ${ }_{2} 15.5$ bushels.

Delaware and Maryland secure good yields; but the South, from Virginia to the Mississippi river, though yielding better than usual, ranges 7 to 10 bushels. Arkansas and Texas do better.
Coming to the winter wheat belt of the Ohio Valley, the country north of that river averages nearly 16 bushels. Michigan and Illinois stand highest in this belt. Kentucky and Missouri promise about 14 bushels; Kansas reports the extraordinary yield of 19.5 , a crop of about $34,000,000$ bushels. The yield of California is apparently about 13 bushels, while Oregon and Washington are higher and ore uniform in local areas
The quality of wheat is generally good; high in the Eastern and Middle States, and approximating 100 in the South. In Illinois the average is 99; in Indiana, 97; in Ohio, 96. Some loss of quality resulted in Michigan from heating in the stack, reducing the average to 90. In West Virginia it fails to reach perfection by nine points. Iowa, in the pring wheat belt, makes lowest returns, averaging 87. Further west, and on the Pacific
coast, quality is reported uniformly good.

## SCIENCE IN THE WORKSHOP

The Trade Review says: "When mechanics as a general body become more thorough$y$ impressed with the conviction that the way to advancement, both as to personal position and monetary returns, lies through he mastery of science in the application of principles to their daily work, we may anpart to establish means for acquiring technipart to establish means for acquiring techni-
cal knowledge. We might multiply examples of the benefit of courses of scientific raining. The proper understanding of the hws of expansion and contraction as applied to many castings, and even to the wrought ron and steel industries, would prevent much waste in the foundry and at the forge from he effect of unecual expansion and contracion, and also occasion fewer in qualities in the quality of that supposed treacherous material, steel. It would also prevent many mishaps to boilers, engines and their accessor ies in cold weather. A knowledge among orkmen of the principles of inertia, as af ecting bodies in motion, would frequently prevent a breakdown in starting or stopping
machinery suddenly. For all connected with machinery suddenly. For all connected with
blast furnaces, the value of chemical knowl blast furnaces, the value of chemical knowl edge is apparent, as enabling them to trace a cause of faulty results. There is scarce an acquaintance with geometry will not be of value. In short, the value of science asserts itself every hour in the workshop. The scientific mechanic never falls into ruts either of thought or habit. Working more intelligently than others, he finds more pleasure in his labor. His suggestive faculties are ever t work, and he is ever alive to the possibility nechanical of improvements, from which he may reap a handsome reward. The manafacturers who have risen from the bench without acquaintance with technical science constantly :eel themselves at a disadvantage. As all branches of science hold some relation o each other, the acquisition of any one porion of these will prove of value to the work man, whatever his vocation.

## WHEAT AND WHEAT BRAN

Moleshott says, that the bran contains, esides the husk, also the outer parts of the gluten cell layer (embryous membrane) it must of necessity be richer in albuminous contents and poorer in starch, than the flour. The amount of albuminous contents of wheat flour, for instance, is, on the average, 12.7 per cent., and that of wheat bran 16.3 , a proportion as 1 is to 1.28 . But the average percentage of starch is only 40.2 in bran, against 72.4 in flour. Also the fat, salt, and aromatic constituents are far more numerous in bran han in flour. Wheat bran contains nearly three times as much fat and five times as much salt as wheat flour. The greatest difference exists, of course, in the percentage of cellulose. Wheat flour only contains .332 per cent. against 21.163 in bran. The bran is also somewhat richer in water, having 13.8 per cent. against 12.5 per cent. in the flour.

## LATE ITEMS.

Messss Heistand \& Cowman of Hillsboro, O., are maks
ing numerous improvements, in their mill. \& Co. of Blanchester O ., do the work.
Messses.
Messss. John Alt $\&$ Co. Effingham III., are adding rol:s
and increasing their capacity. ©. B . Slater \& Co. of Blan chester 0 ., have the order.
Messss. Meeker \& Barouck of Yuba, Wis., have ordered one of C. B. Slate,
Slaters' pat. reels,
C. B. Slater \& Co. of Blanchester O., are furuishing J. 8 ,
Emery of Butler, 1 II , one of their triple suetion Grain

# GARDRN CITY <br> Rumetim Wills Sptan 

## Perfection on First Break.

Superior to most, equal to any on Subseuent Reductions.
Every grain of wheat split through the ease, and so thoroughly done that the split kernels can be brashed or scoured.
The Best and Cheapest Reduction Machine and System yet offered.
Substantial, Durable, Noiseless and Light Running, Slow Motion, Large Capacity.

## RESULTS GUARANTEED. <br> <br> TO ROLLER MILLS:

 <br> <br> TO ROLLER MILLS:}We guarantee to improve your Milling by using
our First-Break Machine and System. We Split the wheat, and brush the split kernels, thereby making a greater percentage of high-grade flour
than can be made under ANY OTHER SYSTEM.

## To milleris:

We have fitted up in our factory a room in
wich we have several of our Reduction Mills which we have several of our Reduction Mills running. We cordially invite you to pay us a
visit, bring sample of your wheat, give our Mavisit, bring sample of your wheat,

## GARDEN CITY WHEAP BRISH!

Gathmann's Patent "inclined bristles"

## ONLY DOUBLE BRUSH

Thoroughly Brush Wheat. Guaranteed to IIIPROVE cOLOR of the PIOUR.
It don't break or scratch the grain. Re moves all the dust. Very light running Send for circular and prices.

## Prices Reduced!

 Improved Garden City
## Milililing Prifire!

With Travelling Cloth Cleaners
Our improved Purifier has every device requisite to make it perfect, and every one in use is giving the greatest satisfaction to the users. The Cloth Cleaners are guaranteed to clean the cloth better than is done on any other purifier.
Over 4000 Garden City Purifiers in use, nearly 800 of which are the Improved Machine.
The Best and now the Cheapest. circulars and price list.
We are agents for the
BODMMHE
Bolting Cloth!
Which has long been acknowledged as the best made, and which has lately been further improved, making it now beyond competition. We make it up in the best style at short notice, Send for prices and samples.
Garden City Mill Furnishing Company, CHICAGO, ILL.
grain gambling decision by the supreme COURT OF WISCONSIN.

## No Comfort For Grain Speculators.

 Everingham vs. Meighan.

Appeal from Circuit Court, Milwaukee County.
Jenkins, Elliott \& Winkler for Resp., Lyman Everingham.
Markham \& Noyes for App., Patrick H Meighan.
Orton, J. The defendant engaged in the grain and produce trade at Cresco, in the State of Iowa, in 1876, shipped and consigned o the plaintiff, a commission merchant in the disposed of by him for the defendant, and drafts were drawn upon the plaintiff and paid by him from time to time on account of such shipments, and such shipments continued
between the parties until July 1st, 1878, at which time there was a balance of $\$ 151.80$ on account of such shipments and sales in favor of the plaintiff. A short time after the com-
mencement of this business, the defendant employed the plaintiff to buy and sell grain for him in form for future delivery, at the Chamber of Commerce in the City of Milwaukee, and to account to him for the profits hereof. This business was called by various such as "scalping," "deals," "options," "spec-
lating deals," etc., while the former was called the "regular" business, and they were kept separate on the books and accounts. On the 1st day of July, 1878, the defendant was indebted
to the plaintiff on this "scalping" account in the sum of $\$ 2,109.64$, for losses in the business. A short time before there had been a
disagreement between the parties as to which should bear these losses, the defendant insisting that the plaintiff should bear the whole or
part of them, and the plaintiff insisting that part of them, and the plaintiff insisting that finally arranged, whether by compromise, settlement or concession, need not now be stand at $\$ 848.20$, by deducting from the whole account $\$ 1,261.44$, which sum, with the addition of $\$ 151.80$, the balance of the regular ccount, made $\$ 1,000$ to be thereafter paid. The parties continued their regular business of the shipment and sale of produce until 1879,
with an occasional scalping transaction, and there was then a balance of $\$ 799.02$ with interest, on both accounts against the defendant, charges an accounting and compromise differences on July 1st, 1878, by which this $\$ 1,000$ was agreed to be paid. The defendant in his answer charges that said scalping busiand the plaintiff, by which the plaintiff wa to buy and sell grain for him, without receivg or delivering any such grain, and withou ny intention of either party that any grain intention only to pay or receive the differences between the prices named in the con same might be, and that pursuant to such contracts, no grain was actually received and adjusted, whereby the plaintiff claimed he had lost the said sum of $\$ 2,109.64$ up to July 1, 1878, and that the plaintiff deducted therefrom $\$ 1,261.44$, and that the balance of $\$ 848.30$ was to continue to be kept as an account separate from the account of the regular grain shipments. And the defendan
further charged that all such pretended losses further chaged bling transactions were insse ed by the plaintiff, by his failure and refusal to comply with his instructions in regard to the time and manner of purchasing and sell
ing the grain under said gambling contracts The testimony of the defendant clearly and positively supports his answer, and especially the allegations thereof, relating to the transactions of the parties in the purchase and sale of grain in the city of Milwaukee, and at the Chamber of Commerce, and makes the contracts of the plaintiff for such purchase and sale of grain, gambling contracts, and the employment of the plaintiff by the defendant in the definition and authority of the case of Barnard vs. Backhaus, 52 Wis. 593, and the Barnard vs. Backhaus, 52 W is. 593 , and the
testimony of the plaintiff rather corroborates
this respect.
The transaction out of which these pretended losses arose and in which they were incured, according to the testimony of the defendant, was not only illegal and void, but criminal. The learned circuit judge gave to the jury a very long opinion cencerning this transaction and boldly if not wisely criticized the opinion of this Court in Barnard vs. Backhaus, but I do not understand him to have instruch lishing the illegality of this claim for losses as having been incurred by gambling transactions. The instruction appears to be that, notwithstanding the original claim of $\$ 1,109.64$ for these losses was void for that reason, yet
there having been differences concerning the ame, it was compromised at a less sum, which against the defendant.
The learned judge says in his opinion to the jury: "As I understand the proofs, and I don't think there is any dispute on the subject, Everingham rendered his account to the defendant and the defendant objected to the validity of it, claiming they ought to bear the
came to the conclusion that the question of between them by a compromise, the plaintiff earing a portion of the loss and the defendan derstand, the law makes a good compromise It is the relinquishment of mutual claims, the it is invalid, and their abandonment by the at I understand constitutes a compromise
$\qquad$
$\qquad$

## to say that there was any difference between

osses? There was no evidence whatever th
the validity of the claim was questioned or
considered. It was a gambling claim and both parties were presumed to know it was invalid
The only evidence as to any difference between insisted that the plaintiff ought to bear the whole or at least part of these losses, because iff agreed finally to viz: $\$ 1,261.44$, and the defendant agreed beer the balance or $\$ 848.20$. There was n question made of the real amount of the loss ity. It was a question who should bear them -this and nothing more. This matter is important as bearing upon the right to order a
verdict in the case, and here may be found the reason why it was done; and also important because the low of the Suppose A employs B to bet for him at
aro, or any other game of chance, and loses a large sum of money in the game, which losses of A, and there is a difference of opinion between them as to the validity of the claim, and A finally agrees to pay one-half of it and B agrees to bear the other half of the claim legal? By all authorities and common reason it does not for both parties are equally guilty by entering int) such a gaming conract, ber presumed neither can onf contract or the terms of any agreement or ompromise arising therefrom. In such case, if B had won at the game a large sum of money, most certainly A could not recove result of a compromise of any pretende difference between them as to the validity o such a claim. Where there is no difference between the parties as to the facts which make the claim valid or invalid-legal or ille on the there can be no basis of compromise arties are presumed to know whether the laim in such a case is valid or not. It follow that this part of the opinion of the learned judge, as an instruction to the jury, is errone us, and the point in the brief of the learned counsel of the respondent in relation to the and the authorities cited to sustain it, are in applicable to this case, unless there was a easonable question and uncertainty at the time as to the validity of the claim, which here was not and could not be.
It may be proper to say here, once for all, that we are satisfied as to the correctness of the decision in Barnard vs. Backhaus, as applicable to the facts of that case, and do not believe that it requires any vindication, support or revision. Here the testimony of the defend-
ant makes just such a case. The transaction, according to his testimony, was just as clearly gambling, by betting on the differences of market prices of grain at the Chamber of Commerce, between two fixed dates, as gambling by betting at faro, poker or any other game of chance, or on a horse race, or an election, here can be uncertain and future event, and gent mind, and quite likely there is not in the minds of those who operate in succ "s in the tive deals" and the danger that such "speculaexample of the danger han trant example of gambling, so destructive to the of accepted high standing and influence, consists in its being obscured by appearances of respectability and lawful contracts. It is the duty of the courts to apply the law against
gambling in all cases, impartially, irrespective of the specious and seductive forms of this vice and crime, or of the social standing of those who are guilty, whether they are high or low, rich or poor, or whatever their standing in society, church or state. It is the learned counsel of the respondent a case as cedes in his brief to be outside of the conmaking obligatory claims which result from a compromise of differences between the parties. do not claim that the compromise of an avowed and confessed illegal claim, is sufficient consideration for a promise." This comprocompromise of gains or losses of any other kind of gambling, and to hold it different would tion is not a gambling transaction. The auhorties cited by the learned counsel of the ment on this question, are inapplicable to this doubtful character, and which are not certain

## $y$ illegal or invalid.

wich hold such dealing in on market differences, are gambling transacrons, for the question is at rest in this State

## will not cite any of the numerous and uni-

In authorities which hold that a compro
learly illegal conted and transactions, can
oot purge them and produce a valid claim 262, sets that question also at rest; and it is expected that these decisions will be hereafter ccepted as the law of this State without cavil that they will be so accepted by the bar. Howver, the brief of the appellant, in which authorities on both quesThe testimony of the defendant tended to it y him should not be applied on the scalping should be paid future "speculative deals," so that he could draw fully on future shipments. To this effect plaintiff, "I will help you all I can. I will makeit back for you." This testimony would tend to show that the defendant never promon former "scalping transactions." This question was also taken from the jury by

Finally, it sufficient to say, that the cir e jury, by bring the The judgment is reversed and the cause emanded for a new trial.

## THE ORIGIN OF RYE.

An agricultural teacher, Mr. Leberecht Hanagricultural paper the following interesting data of the history of the European rye : As is well known, the true origin of our native country is absolutely mystic in nearly

In the first place this is the case with our ereals and even with regard to the potatoes which were brought to England by Sir Francis Drake, from Peru; their origin is hardly known, foriuncultivated potatoes have not been not exactly be counted among the unexplored countries.
The Peruvian legend tells that potatoes came to them from far away as a present of heir Sun-God.
Also the origin of maize (zea) is not known. The only uncultivated plant which seems to
have some relation to the maize, is the Mexi-
can teosinte (Euchlarena luxuriani), which
indeed, according to the brilliant investigations of Professor Asherson, is somewhat like tions of Professor Asherson, is somewhat like
maize, although itstill differs in some respects so much, that even the most stubborn Darwinian would have great doubts in th
formation of the teosinte into maize.
But not even the most clever botanist is acquainted with the country where barley,
wheat, oats, and rye can be found in their wheat, oats, and rye can b
original uncultivated form.
The usual botanical hand-books cite, indeed, persistently, Central Asia as the fatherland of every grain, but scientifically not the slight
The grain samples which have been found in the Egyptian royal tombs, in the Assyrian
ruins, and in the habitations of ancient rive ruins, and in the habitations of ancient river
drift men are all species which must have been cultivated for a long time.
There exists, however, some Central-Asian
forms which are some like our cultivated products, especially barley and wheat, but they
are on the other hand only so are on the other hand only so very distantly
related that a direct pedigree does not seem to be admissible, if one does not adopt that famous maxim of comparative philology ac-
cording to which the consonants do not signify much and the vowels nothing at all; with such a maxim everything can be proved:
Of the rye especially no original uncultiva ted form was known which might have been the origin of our present secale cereale, although the uncultivated rye plant must have been
known to "Galenus," who mentions in the descriptions of his travels that there grew in

## Oryza," or as the name was later corrupt- "Briza," reminds one in its sound of the

 ed, "Briza," reminds one in its sound of thename "rice," but the express mention of the black flour caused this sentence of "Galenus"
always to be understood as referring to buckalways to be unders
wheat (fagopyrum).

The proper explanation of this description of the grain by the old traveller, who always
made very exact observations, has only lately been obtained through the endeavors of Professor Pancic of Belgrade, who is
most diligent scientific collectors.

Professor Pancic found, some time ago, in some of the Roumanian valleys, which have
hitherto been inaccessible, a certain uncultivated grass species which he named "secale serbicum," and which is entirely identical
with our present cultivated rye. The only differences are the comparative size of the
grass and rye, and that "secale serbitum" is said to be perennial, whereas "secale cereale", is only annual or biennial. But it is unneces-
sary to tell our readers that size and longer or shorter duration of life of a plant does not original and cultivated state of the same, Until now the species "secale cereale" h quite a separate position in the family of
"secale," on account of the toughness of its stem. The other species, with a somewhat
similar appearance, viz similar appearance, viz. 'secale montenum
guss," of Sicily, "secale dalmaticum" "visiani dalmati," "secale fragile M. B.," from south-
eastern Europe, have a very brittle stem during the time of ripening-a circumstance which renders their use illusory, because the
corn cannot be obtained in a pure state. But "secale serbicum"' has the same tough stem as our cultivated rye, and therefore the harvest of this ripe grain becomes possible. Prob-
ably the rye has only been spread through Europe from Roumania during the time of the migration of nations, and during the perithose slight differences which are at present "apparent between
secale serbicum
This finding
This finding of the uncultivated mother plant in the south of Europe happened quite
unexpectedly, and it is very interesting so far as it demonstrates that not only a part of our leguminous plants are of South-European
origin, as is known, but also that one of the origin, as is known, but also that one of the
most important grain varieties is no longer dependent on the Central-Asian mythical Paradise.-Austro-Hungarian Miller.

## the slow grain movement

Present prices for grain are not satisfactory to farmers, who are generally disposed to delay general prosperity of the country, in which they share, enables them, as a rule to gratify this inclination. As a result, the currency
sent out to move crops, stays out instead of sent out to move crops, stays out instead of
returning to the city banks. This makes money scarce, interest high, speculation inactive and general trade sluggısh, particularly at
the East. There is no guessing how long this the East. There is no guessing how long this
condition of things will last. It will continue until the movement of the crops to mark
sets free the money now in the hands of elethrough the hands of the local merchandise dealers, jobbers and manufacturers to the eastern banks. This will happen when the views of farmers and the market price of
wheat draw nearer together. This in view of wheat draw nearer together. This in view of the large American surplus, and the moderate
foreign demand, is hardly likely to be effected by a rise. It will probably happen when the farmer becomes convinced that prices cannot rise much higher, or when his needs overcome
his hope of profit to be made by waiting Either of these processes will necessarily be slow. The country has been taught for the last three or four years to look for a large and certain European demand for grain, and con
sequent high prices. The lesson will not be easy to unlearn. The change in the condi tions of the foreign trade was obscured las year by the partial crop failure in America,
and the consequent reduction of our surplus. and the consequent reduction of our surplus.
This year a small foreign demand coincides with a large home surplus, and the influence upon prices is powerful and constant. Europe
would like the surplus if offered at an advantageous price, in competition with the Med teranean and Indian product. The limit consumption has never been reached there
and low prices would create an active demand The most wholesome thing that could happen would be a general consent to market grain at prices permitting profitable export. Unless peculation interferes to prevent it, something
like this will probably take place bcfore spring -Northwestern Trade Bulletin.

## the steam engine doomed

## Dr. Siemen <br> is certain that the future

 is doomed. Its fate is first to be confined to driving of large dynamo machines, which will distribute forceat presentsupplied by a myriad of small and wasteful sterm engines, and the to be superseded altogether by the gas engine but they are to unite their forces in order to extirpate the steam engine. The unpardonable sin of the steam engine is waste. Even per horse-power per hour; whereas, says Dr Siemens, when the gas producer has take will not take one pound of coal to develop one horse-power per hour. But before gasbanishes steam it will supersede coal as the agent for the development of steam. A pound of gas gives forth exactly twice the heat of a
pound of coal, and even this may be improved upon. To burn raw coal is to squander our ling figures to prove that the by-products of coal annually used in gas making are worth three millions pounds sterling more than the anything for the value of the gas. Besides the products aready realized, 120,000 tons of sulphur are now wasted every year, which By abolishing the use of raw coal, Dr. Siemens maintains that science, as with some magic ian's wand, will "banish the black pall of and re which hangs over our great cities, and blue skies.
Nor shall we even have to suffer as compensation from the multiplication of enorinto gas at the bottom of the mine converted pect not altogether to be contemplated with out alarm by the workers in fiery seamswanted. Electricity will alses wherever it i wanted. Electricity will also be made largely erviceable for the distribution of power. Even after allowing 50 per cent. for loss in transmission, the gain is still enormous. The ing public places. The gas light will hold its wn as "the poor man's friend," and gas heat ing will become universal. Thus, in the near future, Dr. Siemens unfolds before our eyes no steam, and where coal will no smoke and in the immediate vicinity of the pit. Electric ity will light our streets, gas will cook our dinners, and driving power will be laid on by wire wherever it is wanted. There will be no pollution of rivers, for every waste product will be utilized, and the sulphurous fumes which have converted whole counties into cenes of dark desolation will be employed in making the wilderness to bloss $o m$ as the rose and in restoring fertility to our exhausted oil. In short, science at last will begin to banish all the manifold abominations by which the "black age" of manufactures has defaced the beauty of our land. It is not before time.-Pall Mall Gazette.

ITEMS OF INTEREST.
The greatest pressure in a steam boiler at the bottom. The water adds on
pressure for each 27 inches depth.
An English patent provides for using two ets of driving. wheels on one axle of locomotives, one set being larger than the other. On levels the large wheels run on the rails, but on inclines an extra set of rails are provided upon which the small wheels run while the arge wheels revolve in the air
A locomotive boiler, it is calculated, wil ast until the engine has traveled over 350 000 miles. On some lines, however, the
boilers, under favorable circumstances, parti boilers, under favorable circumstances, parti
cularly when pure water is used, may trave cularly when pure water is used, may travel
400,000 or 500,000 miles before becoming unservicable. Assuming that the life of the engine is determined by the endurance of the boiler, and that, under favorable circumstances, it will last the 500,000 then during that time it is estimated that the fire box will probably require to be renewed at least three times, tires of the wheels five or perhaps six times, the crank axles three or four times, and the tubes from seven to ten times.
In on article by T. Bruce Warren in the Journal of the Society of Arts, the statement
is made that very often the grease which passes into a steam boiler in the feed water does not make its appearance in the scale or mud which is thrown upon the bottom plates. He found out, however, by analysis that the oatabg scum from the boiler did contain notable percentage of the fatty acids. He attributes that none of the gases was detected
in the bottom scale to the decomposition of the falling acids by the ineat to which they vere subjected, and the preservation of the grease at the surface to the fact that it had taken the form of a
light enough to float.
Some idea of the quantity of materials especially metals, which the electric light companies consume, may be obtained from the following statement of the work of putting 5,588 Edison incandescent electric light city. The great Mills building, in New York Edison's patent electric tubes, 628 feet of lead pipe containing taped wires thoroughly insulated, 23,658 feet of zinc tubes, 75,909 feet of wire conductors, and 24,162 feet of wooden he syacles placed betwen the floors, to hol mount of wires used was 3,704 pounds, sides forty-eight vertical main cut-outs and 53 division cut-outs.
Profs. Wellner and Brun, of Austria, have recently patented a new steam engine hich consists of a simple water wheel, most Steam. is adm hot water iter forces the cells of the wheel upward, producing rotation. The steam fills more and ore of the cells on the rising side, and a bove the water. Steam may either be produced directly at the lower part, or conducted to the vessel from elsewhere. The upper tube for outlet of steam may lead either into the open air of into a condenser. The
mechanical work consists in the ascent of the specifically lighter steam in the heavier liquid. The American Machinist says: "Crude petroleum put into steam boilers will loosen and precipitate the scale, but will not remove it outside of the boiler and fire room. These acts do not seem to be fully realized unti he boiler is burned or otherwise injured by excessive heat upon plates with which the in all cases be frequently and carefully washed when using substances for the prevention of scale."
An average days work for a bricklayer is
500 bricks on outside and inside walls; acings and angles and finishing around wood or stone work, not more than half of this number can be laid. To find the number of bricks in a wall, first find the number of quare feet of surface, and then multiply by for a 4 inch wall, by 14 for an eight inch 16 inch wall.
For staining bricks red, melt one ounce of glue in one gallon of water, add a piece of alum the size of an egg, then one-half pound of Venetian red, and one pound of Spanish brown. Try the color on the bricks before
using, and change light or dark with the red using, and change light or dark with the red or brown, using a yellow mineral for buff.
For coloring black, heat asphaltum to
huid state, and moderately heat true surface
of linseed oil and asphalt ; heat the brixe and dip them. Tar and asphalt are also used for the same purpose. It is important that
the bricks be sufficiently hot, and be held in the mixture to absorb the color to the depth of one-sixteenth of an inch.
Iron vs. Steel Bollers.-Steel boilers are going out of favor in France and Belgium in about the proportion in which they are gaining in this country. Expert authorities in France are advising the use of iron throughout, both for present strength and durability, while Belgian engineers favor a similar course. It is argued that builders of boilers, while they will take every pains to secure the highest grade of iron for their uses, will not be careful in the selection of steel, which is, no doubt, partially due to an unfamilarity with the latter substance. The use of a lower grade of steel in place of the highest grade of iron leads to a greater eadiness to crack or scale, as well as to general corrosiveness.-Philadelphia Iron.
Bursting of a Ship by Swelling of cargo. -The Gazette Maritime et Commerciale, in its ews regarding ocean disasters; relates the pollowing curious example of the formidable
power of molecular forces. The Italian ship power of molecular forces. The Italian ship
Francesca, loaded with rice, put into port on Francesca, loaded with rice, put into port on
May 11, at East London, leaking considerably. A large force of men was at once put on board to pump out the water contained in the ship and to unload her; but, in spite of all activity exerted, the bags of rice soaked in water gradually, and swelled up. Two days afterward, on May 13, the ship was violently burst asunder by this swelling of her cargo. -La Nature.
The Railifay Mileage of the United "Pates.-The Railvay Age compiles from "Poor's Manual" the following table, showing the railway mileage of each State on Jan. 1,
1882, with the numercial rank of the several

## States in railway enterprise.



The invention of Mr John Gjers, of Middlesborough, is of interest, aside from its acknowledged value from an economical point cesses by which iron ore can be converted into steel without the use of fuel beyond that required in the blast furnace. Metallurgists of the present generation have reason to look with pride upon the record of progress in this
branch of their great field. To work metal branch of their great field. To work metal
from its crudestshape to the finished product, without ever letting it get cold enough to interfere with further working, is something that not even the most sanguine friends of Besse. mer would have predicted a few decades ago. he ore can now be charged with the fuel intoped from furnace; the molten pig, as it is tapthe Bessemer converter; the ingots cast be put into Mr. Gjers' new "soaking-pits," and bloomed and rolled into finished rails without burning of a single pound of fuel to keep the material hot while it is undergoing these processes. Even the steam for the blowing-engines of the furnace, and for a part of the converting and rolling machinery, can be generated by burning a part of the waste gases
of the blast-furnace. rows of stacks of a puddling-mill, belching forth clouds of smoke; with its melting, puddling, and reheating half a dozen times, and its handling of the intermediate products! With such achievements in the manufacture, and with an army of earnest and intelligent engineers endeavoring to solve, with the aid of science, the practical difficulties which arise in the adaptation of the product to the uses of the constructor, builder and machinist, can it be denied that the "age of iron" is fast. giving way to the "age of steel"-Engineering and Mining Journal.
One of the queer industries of New York is gathering the stale bread from large hotels. and restaurants, and grinding it up into food for poultry and pigs. The Astor House sells its stale bread for $\$ 800$ annually. The conractor has $\$ 100,000$ invested in the business and keeps nine teams at work. We are not posted on the system of reduction employed, whether stones or rolls. Certainly a purifier would be essential.

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Makes it both convenient and easy to keep the Silk always properly stretched．IS POSITIVELY SELF－ADJUSTING AND RELIABLE．
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and Mill Furnishers． THE PAIGE MFG．CO．，Painesville，Ohio． ［Mention this paper when you write us．］

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actical roller mill bullder， Office and Shops 172 and 174 South Market Street， CANTON，OHIO．

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##  <br> Leffel Turbine Water Wheel

Machine Molded Mill Gearing From 1 to 2 of feet diameter, of any desired face or itch molded by our own spg Mixers and General Outfit for Fertilizer Works.

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Thu BEST and MOST WORKMANLIKE form of the Corliss Engine now in the market, sub. The condensing Engine will save from 25 to 35 per cent. of fuel, or add ang firms.
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atiou in the etty of Minneapolis, Minn., alone, and more than sixty in the eity of Milwaukee, Wis. They are also extenaively used in many other sections, both on Winter ana spring
Wheat.


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 as fine Mill Picks as can be made by anybody anywhere
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THE UNITED STATES MILLER.

## lubrication.

## by thos. farmer.

In a steam engine, where many parts are moving, a large amount of friction is produced, which tends to stop those parts, and it would ultimately do it if they were not continually re-supplied with fresh motion obtain-
ed by the burning of fuel. Hence it is aped by the burning of fuel. Hence it is apparent to every one that the engine has no to be done, but also the resistance offered by its own parts. In other words, the amoun of heat manifested in friction is the amount of extra heat that will have to be generated under the boiler, and the extra cost of working will be the cost of the fuel necessary to produce that heat. From the experiments of Morin, we find that the friction of a cast iron shaft upon a dry bell metal bearing amounts to 2 of the transmitted power, while with wrought iron shaft the friction is more than , therefore, if such shath ively, of the total fuel cost would be wasted in overcoming friction. By careful lubrication of the same shafts, the loss may be re duced to .065 in the one case, and .089 in the other. Hence the importance of a good lu-
bricant. One of the next essential points is bricant. One of the next essential points is surface on which it it is required, that just sufficient shall be used, and all waste avoided: otherwise what would have to be spent in buying oil. Pusting aside the common characteristics of o good oil, such as the absence of acidity, either natural or artificial, and the absence of gumminess, one of the most high specific gravity is the best for lubricating purposes. Although this may be true in certain cases, yet from observations and experiments made over a long period, I have that the point upon which we must rely is the viscosity. To test this I have found a French pourette graduated into 100 c. c. to be and filled with the oil to be tested; after allowing all bubbles of the air to separate, it is permitted to run through, and the time it takes to do so is carefully noter. At the close of the experiments it will be found that the viscosities are directly proportional to the time taken; thus, if a seconds, and rapeseed oil forty-five seconds, the viscosity of rapeseed oin is times that of the mineral. The temperature may be either 60 or 90 degrees Fah., but the latter is preferable, as the oil may be subject ed to that temperature when in use. The sis to be applied? If an oil of very high vis cosity, such as castor or rapeseed, were used to lubricate an engine of low horse power
we should in all probability find that instead of reducing the friction to a minimum, would itself become a source of resistance and increase the evil. And conversely, if an oil of very low viscosity were used to lubricate an engine of high horse power, we shall find that the friction would be but slightly, if at all, reduced. Hence, when we come to look at extreme marked connection between viscosity and horse power. A high viscosity is not suitable for a low horse power, and, conversely, a low viscosity is not suitable for a high horse power. And just as the case holds for these extremes, so does it hold for every point beparallel to the horse power. The same rule parallel to the horse power. The same to inholds with respect one perfect lubrication the viscosity must sure perfect labre with the ponderousness. gradually increase whical lubricaFroun this it is clear $t$ puring using cation does not consist in procuring and using the thickest oil possible, but the oil which is best adapted to the nature of the machinery, and scientific mixing likewise consists in compounding oils most clearly adapted for the purpose for which they are to be used. It is rather difficult to say what oils are most suit able for mixing purposes, but it may be sta ted with a tolerable degree of accuracy, tha he best method is to take a basis of Ameri can or Scotch mineral oil, 885 to 903 degrees sp. gr., and add either olive, lard, rapeseed or lard when mixed with mineral in proportions $10,20,25$, and so on up to 75 per cent., ar $10,20,20$, and so value as lubricants of the about equal lighter class of machinery, Rapeseed chinery is of a heavier kind, or where the lubricant has to be used throughout works in which the machines vary much; but in such
a case it will be better to divide them into
classes and use a special oil for each class. Castor oil mixed with mineral in varying proportions may be used in the case of the most ponderous machinery. In mixing castor noticed a remarkable and interesting phe nomenon. On adding about 25 per cent. to
an American neutral oil of a reddish color, I was surprised to find, after the lapse of a few hours, that the oils had separated, and that the castor, originally quite clear, had taken down with it nearly the whole of the coloring matter, leaving the mineral oil a beautiful pale straw-colored liquid. I further found hat the successive additions of fresh castor oil still further removed a coloring matter until both castor and mineral were of the ame tint. Continued experiments showed qual bulk of olive or rapeseed oil, and then equal bulk of olive or rapeseed oil, and then permanent character. In conclusion, I have found that a properly mixed oil is in every ase far preferable for general use to either ingly, and it may be added that no oil is nore suitable as a basis for mixing than min eral, and that cold mixed oils are better than those mixed at a temperature over 100 de grees.
the electric light in mills. complete installation of the electric light means of incandescent lamps, has been accessfully carried out for Messrs. Bowye Priestley of Buckden Mills, Huntingdon, y Messrs. Powis \& Carter, engineers 60, Gracechurch-street, and Millwall Pier, London, to whom the contract was entrusted. This in one of the first mills which has adopted he electric light in the Midland Counties ent for the light is generated by a Siemen's ent for the light is generated by a siemen structed so as to admit of the number of lights in circuit being diminished at will, as may be required. This machine is capable of maintaining from one to sixty lamps, each lamp consisting of a bulb of glass about two earbon filament which is hermetically sealed, and when traversed by the electric current this filament attains a white heat, and emits a soft, perfectly steady and brilliant light without being dazzling: it is slightly whiter than gas, and the most delicate shades of flour can be matched just the same ather artificial means of lighting. All the wres or cables through which the electric current is conveyed are very thickly insulated, and laid in such a manner, and the conductors so constructed, as to prevent all accidents of fires which are so frequently traced to the careles use of matches, oil lamps and detective ga pipes.-Millers' Gazette, (London.)

## REVIVAL OF THE APPRENTICE SYSTEM.

## The Manufacturers' Gazette, (Boston) in

 ecent issue says: We see it stated that a manufacturing firm in this vicinity is to in augurate a plan to secure in a few years proper supply of machinists by a reviva The firm will require fifty-eight hours work and nine hours' study per week. Those unde wenty years of age will be required to work six years, and those over, five years, tomplet their full time will be paid $\$ 400$ out of a re serve fund. As we have said more than once there is urgent need of practically edes. In our textile mills, for instance, how few are the native Americans employed in positions of responsibility-positions where a thorough and intimate knowledge of the details of the business is required. If we wish an oversee for a dupartment, or a color mixer, orwe take such from across the water

Horse-power of Belting.-Wilkinson, in his practical manual on "Steam-Economy, has calculated a number of rules bearing on this subject from which we give the following rule he learned in his youth, namely, "that velocity of 750 feet per minute, per 1 inch of belt width, for single leather belts ; or 500 feet per minute per 1 inch of double belts, will safely transmit 1 horse-power, and secure
excellent economy in belting." To find the horse-power of belts, the velocity and width baing given, divide the actual velocity by the velocity per horse power, as above ( 750 or 500 feet per minute), and multiply by the width of belt in inches, namely, for a 40 -inch double belt, running 2,500 feet per minute

To find the width of belting necessary for a
given horse-power, the velocity and horsepower being known, divide the velocity by the
velocity per inch, obtained as above, and divide the horse-power by the product; name y a belt running 2,500 feet a minute is requird to transmit 200 horse-power. How wide

## $\frac{2,500}{500}-5 ; \frac{200}{5}-40$ inches.

The above rules are confined to main driv ing belts, have no application to shifting belts nd they cover, too, all conditions referrin to angles. It is presumed, also, that unde the most favorable conditions, a much highe duty than these rules give would be obtained
The Page Belting Co., of Concord, N. H gives the following formula on belting:

## 

 curs the followingWidth in inches $-\frac{\text { No. of horse-power } x 7,0 c 0}{\text { Velocity in feet } x \text { contact length in feet. }}$
Rules for Bathing.-The Secretary of the Royal Humane Society has published the following rules for bathers. He is convinced that by the adoption of ordinary precautions many lives would be saved every bathing
"Avoid
void bathing within two hours after a Avoid bathing when
from any other cause.
fter perspiration.
oid bathing altogether
after having been a short time in the water,
causes a sense of chilliness with numbnese $f$ the hands and feet.
Bathe when the body is warm, provided time is lost in getting into the water.
Avoid chilling the body by sitting or stand-
undressed on the banks or in boats after

## having been in the wa

"Avoid remaining too long in the waterlightest feeling of chilliness.

The vigorous and strong may bathe early the morning on an empty stomach. the boug and the hors a the best time for is from two to three hours after breakfast."
Managing Belts.-A mechanic gives the fllowing directions for managing belts. He Saturday evening, turned the inner side of my engine belt outside, let the engine run slowly and washed the belt with warm water and soda, applied with cotton waste. Next I take a piec of sheet metal and scrape the belt well, then wash with clean warm water and dry off. I collect the waste oil from the shafting and apwashing must be done as quickly as possible, so as not to dissolve the glued parts. I let the belt stand on the pulleys till Monday, then give another scraping and turn the belt as be. ore. I keep the pulleys very clean. I have long been surprised at the economy I have bought a new belt for the last ten years. There is an engine near me 14 inches by 36 inches, double the belting and shafting, and my neighbor cannot run with less than 38 pounds of steam when all the belts are on the loose pulleys. Mine will run at full speed with 5 pounds."
Hopprr \& Gallaher's new mill at Brown ton, Minn, started up about two weeks ago,
and is now greatly driven by custom work. They have already found it necessary to en-
large a little, among other machinery adding

FEED MILLS FOR SALE 2-30
inch and 1-24 inch, Alis aco.s Iron
Frame under Runner Feed Mills for sale. Used but a few months.

Used but a few months.
Address, H. P. YALE A CO.,
Milwaukee, wis.

## is now issuing Policies of Insurance on all approved applications received

 so far. The Company has now sufficient members the risks on any one Mill from $\mathbf{\$ 1 . 0 0 0}$ to $\mathbf{\$ 3 . 0 0 0}$All matters relating to Insurance should be addressed to
JOHN SCHUETTE, Sec., Manitowoc, Wis.
[Please mention the United states Miller when your write to us.]

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For 18e2-3.








 .Rnader Grango Aroan," by Frank $R$. stok
 The Creoles of Lowi-iana, by Geo. W. Cable, au--
thor of "Old Creole Days, etc.; A fresh and graphic nar-
rative, richly illustrated. My Adventures in Zuni, by Frank H. Cushing,
government ethuolopis, an adopted member of the Zuni
tribe of Indians. Illustrated Papers on the National Capital, in-
clunding ".The, Capiol,
White House," etc. Missions, of southern California, by "H. H.";
three or oror papers of an exceedingly interesting char-
acter, richly illustrated.

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## STMCHOMAN

ST. NICHOLAS

## Young Folks.

## 


 arent and hast reading oung to
pwing partial list of attractions: A new serial story. by J. T. TRowbridge, formerly edit-
of "Our Young Folks," and author of "The Jack Hazard
ories," etc.
 An account of the fimous yooman, ty MA. ARICE Thomp. "The Story of the Felid of the Cloth-of-Gold."
By E. S. Brooks. To be illustrated with many remark

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 A serial story of the Mississippi floods of 1882 . By E.Elus, formerly Edior of "Golden Days."
 A thrilling story of the Russo-Turkish war. By Archi-
BA DD Forbes, War Correspondent.

## An account of the life of "Tad" 1 Lincoln. By NoAH Brooks, nuthor of "'The Boy Emigrauts."

## 


 should begin with the November Number. The sinceeed-
ing issue, "he Wonderful hristmas Number" will have,
also, a colored froutispiece nad many unusual attractions.


A large flour barrel manufactory is being built at in
dianapolis, in which complete barrels will be made by dianapoils, in which complete barrels will be made by and other machinery are being made by Nordyke \& Marmon Co., of the same city.
Nordyke \& Marmon Co., of Indianapolis, Ind., are work-
ing on machinery for nineteen complete roller mills, ranging on machinery for nineteen complete roller mills, rang-
ing in capacity from 80 to 400 barrels per 24 hours. In addition many mill outfits using millstones are being constructed by them.
W. A \& C. S. Schoteld's roller mill, north of Indianapolis,
Ind. is about reaty Ind., is about ready to start up. The mill has been entirely remodeled with machinery made by the Nordyke \& Mar mon mill works, and now makes a fine show
has one of the tinest mill-dams in the west.
The 200 -barrel hominy mill at Indianapolis, Ind., recently built by Nordyke \& Marmou Co. for C. F. Hall \& Co., has been so overrun with orders since starting up, that immediate arrangements are being made to increase its capacity to 300 barrels under the direction of the original builders.
The Nashville Cooperage Co, are putting a new steam outfit in their works, at Nashville, consisting of a pair of
16-inch engines and three 60 -inch $\times 14$-foot boilers, with tixtures complete, all built at the Atlas Engine works, of Indianapolis.
Messrs. J. F. \& Monroe Seiberling have contracted with
Me Willinm Faist the Mr William Faist, the genial representative of Edward P. Allis \& Co., of Milwaukee, Wis., for the machinery and
engine for their new mills, now in process of construcengine for their new m
tion in the Sixth ward.
Messrs. Allis \& Co. are the largest manufacturers of
milling machinery in the United States and are consemilling machinery in the United States, and are consequenuly able to compete with any firm, and obtain contructs which others could not, particularly as they hold
patents on some of the finest mill machinery as Gray's noiseless roller mill and Weggmann's porcelach as Gray's noiseless roller mill and Weggmann's porcelain
rolls. Their contract with the Seiberling Bros. amounts to some time ago by the same firm for Commins \& Allen's stone mill, which is now considered as about the fivest in the State. The mill will bea large roller one, of 600 barrel capacity, driven by a Reynolds ${ }^{\prime}$-Corliss engine of 300 horse
power, also furnished by Allis \& Co. power, also furuished by Amis \& Co
The new mill, when completed equipped and altogether one of the best mills in the United States, whith in milling now leads the world, and will add greatly to the fame of Akron as an important milling center.-Akron (O.) Daily New.
The Pillsbury A mill recently made 5107 barrels of flour in one day, ( 24 hours)
Hon. M. L. McCormack, mayor of Grand Forks, Dak. and
proprietor of the new roller millat proprietor of the new roller mill at that place, was married
Oct. 3 , at St. Paul, Minn., to Miss Adele ct. 3, at St. Paul, Minn., to Miss Adele A. Lyons.
There are eight oat meal mills in Iowa. They are loca-
ted as follows: Cedar Rapids, Coralville, The ted as follows: Cedar Rapids, Coralville, Davenport, Des Moines, Dubuque, Iowa City, Muscatine and Ottum wa. The to be the largest in the United States.


The new Columbia mill, owned by Zeidler \& ZimmerA new grist mill is being erected by M. W. Merrill, on Club river about a mile and a half from Richmond, Utah It is of frame, and will when flnished, be a first-class mill
in every respect, furnished with the latest improved main every respect, furnished with the latest improved ma-
chinery. It is $20 \times 54$ feet in size, and 27 feet high to the chinery. It is $20 \times 54$ feet in size, and 27 feet high to the
square. It will be in operation by about November 12th. Miss Helen M. Carson, of Louisville, Ky., at 22 married a wealthy miller named Gordon, whose age was about 60 , means; but instead of that he rented one room in a cottage for their occupancy, and restricted her expenditures in othalimony and her partion; wherefores aivorce, tho Articles of incorporation of the WashburnMill Company
were filed in the Register's office at Minneapolis, recentl The general nature of the business is to be the purchase. manufacture and sale of logs and lumber, and all articles that may be manufactured therefrom; the purchase and sale of timber lands and other real estate; and to build,
buy, sell, lease, own and maintain and buy, sell, lease, own and maintain and operate mills, ele-
vators and warehouses, and to carry on a vators and warehouses, and to carry on a general lumber,
grain, flour and feed business. The priucipal place ot business is to be at Minneapolis, and the commencemenf of the corporation January 1,1883 . The capital stock is to be $\$ 500,000$, which is to be paid in when the corporation at no time more than the capital stock. The incerp is tors are William D. Washburn, William D. Hole, Joseph E.
Stevens, jr., Willard G. Hollis, of Mineupolis C. Crane, of Anoka. The directors are the incorporators,
Crens and the shares of capital stock are placed at one thousand shares at 850 each. The annual meetings of the incorpo-
ration are to be held the first Tuesday in Febr ratio
year.
The large flouring mill at Minnesota City, Minn., owned dwelling house near by was only saved by protecting it with wet carpets and blankets. The mill was originally
built as a water-power mill in 1865, and a new part was added in 1877. With the increase of the business steam ding, with additions two and a half and three stories in
height, the whole being $52 \times 82$ in size, with a brick boiler aud engine house $13 \times 40$. Its capacity was from 300 to 350
barrels of flour per dav, the motive power be nolds-Corliss engine of 150-horse power, with water power as auxiliary. It was furnished with the latest approved two years into a complete roller process milh. New ma-
the last chinery has lately been added and the whole mill placed
in readiness tor manufacturing with in readiness tor manufacturing, with favorable auspices
under a new management, on the present crop. On the W. van Dusen \& Co., of Rochester, and has been operated under that lease up to this fall, Mr. Troost having the
superintendency. On the 18th of September last the mill was leased to Messrs. A. G. Mowbray \& Co., of Winona
Mr. Otto Troost retaining the office of superintendent Mr. .roost valued the property at 860,000 , and there was
insurance to the amount of $\$ 22,500$.

## An Immense Success-Read it! Read it!

Over one year in operation, giving same satisfaction as when first started.-Fully Guaranteed.-No Filling up of the Cloth.-No experiment any more. Try it and Satisfy Yourself.-It is the only one which gives Satisfaction.-All the Leading Mills are adopting our Machines.-An Important Problem solved at last; taking care of the dust laden air from Middlings Purifiers and other machines, using air to carry off the dust, has been thoroughly met and conquered in the highest degree by the

## PRINZ DUST COLLTCTOR

After years of study and experiment success has crowned the labor of F. Prinz. He produced a machine, that will give satisfaction in such a manner that no miller would ask for anything better.
Simplicity is a Leading Feature in this Machine.
No Dead Air Chamber.-The dead air chamber, which has been a source of much trouble in other machines by wearing out and allowing the air to get in, thereby injuring the power of the cleaning mechanism on the cloth, which results in the cloth filling up, is entirely overcome in this machine, as it has NO DEAD AIR CHAMBERS.
Less Power is used with this machine than any other as there is no back pressure oll the fan; the motion of the fan has to be reduced whenever this machine is applied.

It does away with the cumbersome

tirely, and the numerous spouts leading to them, which fill up the Mill, leaving no room to get around.
It Retains the Dust in the Mill, thus allowing no waste of stock by being blown outinto the air as is the case with the old-fashioned dust room.

It does away with the liability of dust explosions, as the air coming from the machine is entirely free from dust, which is not the case with the air coming from any other Dust Collector offered to the milling public heretofore.
We the undersigned manufacturers GUARANTEE ENTIRE SATISFACTION in the use of this machine.
Our machine does not infringe on any patent, which we fully guarantee; on the other hand we caution parties against purchasing infringing machines.

## LOW PRICES FOR EXCELLENT MACHINES.

## TPEBTMMOINTATES

MILWAUKEE DUST COLLEOTOR MFG. CO.
Dundas, Minn Aug. 10th, 188 , , $\qquad$ ,
E. T. AROHIBALD \& CO

Sparta, Mich., Oct., 18, 1882.
Milwaukee Dust Collector Mfg. Co,
Gentlemen:-We have given the Dust Collector received from you a fair trial and are highly Gentlemen:-We have given the Dust Collector received from you a fair trial and are highly
plesed with it We belleve it anes us a barrelo f Fiour addy, (24 hours, from three run or
Btones whith will soon pay for it.
YPArs respeetfully,
Milwankee Dust Cullector Mfg. Co. Buffolo, N. Y., Oet 18, 1882. Gnitimenn-Yours of the bithat hand and noted. We shall want more of your machines as
soon as we can get time to put them in, as we regard them a suecess. In fact thoy are the best
maehine of the kind on the market. THORNTON\& CHESTKR
 , Meuts, 11,1889 .

[Please mention the United States Miller when you write to us.]
Milviaukee Dust Colleotor mig. Co.,

# THE CENTRIFUGAL ERA. 



FRANK ANOREE \& COMPANX, 330 ¥ir. DIVIsION sTrRITIT,

The Centrifugal system creates a new epoch in milling machinery, and is rapidly becoming popular and indispensible, gradually snpplanting the old system as it goes marching along,
and so we take pleasure to introduce the Excelsior

## CENTRIFUGAL

Flour Dressing Machine.

(Frank Andree's Patent, Sept. 20th 1882.)

fidst pabilim and diploma at missodil state pair, st. Louis, oct. 5, 1882.




Our Reels excel any other for re-bolting low grades of Flour; handling lumpy and impure material; dusting middlings and Bran; flattening germ stuff; finishing tailings and cut-off $4 ;$ bolting chop from any rollers; separating
Our Reels have a capacity three times greater than the common cylinder; they take up less space; make a cleaner and whiter flour; leave less waste and are less expensive. For information and reference apply to

## IN THE CASE SYSTEM OF GRADUAL REDUCTION.



Single Break Machine, capacity 5 to 60 bushels per hour.


Double Break Machine, capacity 120 bushels per hour.
O-,
COLUMBUS, OHIO.
[Please mention the United States Miller, when you write to us.]

## A NFW DFPARTURG

## AN OPEN LETTER

Office of J. B. Miller a Co., Ashley, O. Ashley, O., Aug. 15, 1882.
We are the Sole and Exclusive Licensees for this Country under the

## MIOFREMMEZ MIAFMIIN PAMEMNME

## Centriugal Flour Dressing Reels

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

NEW CLOTH FIXING AND STRETCHING DEVICE, NEW AND SIMPLIFIED MANNER OF DRIVING.
THE CENTRIFUGAL has more than FOUR TIMES the capacity of the ordinary rel, and will make clear flour and a clean tiuish on stork Ghat camput be treated in the common reel without loss, no matter how much sills it is passed over. IT IS SPECIALLY ADAPTED to hamilliig soft, reqround material, full of light impurities, whether from roolls or stone tiy of the low grade flour at the same time it makes the offic eleaner. from smooth rolls, which no other style of reel can do. IT MAKESA LEAN SEPARATLON on caked and taky meal from sm
IT IS ASTLY SUPPEHIOR to the common reel for dusting midllings.
THEY CAN BE USED TO ADVANTAGE as a complete system of bolting, to the exclasion of the ordinary reel.
Over one Eiundred sold in six weelzs. REFERENCE TOLEADING MILLERS IN THE UNITED STATES.

GEO. T. SMITH MIDDLINGS PURIFIER CO., - Jaokson, Miohigan.

# EDW. P. ALLIS \& CO. MILVAUKEE, WISCONSIN. <br> Hexy <br>  

We shall be Pleased to hear from Millers contemplating an improvement in their Mills, or Building new ones, and can furnish Estimates and Plans of our system of GRADUAL REDUCTION ROLLER MILLING. We have built and Changed over hundreds of Mills, in all parts of the Country, and using all classes of wheat, BOTH HARD AND SOFT, and can furnish references on application. The Largest and Best Mills of this Country are using our System and Roller Machines. Messrs. C. A. Pillsbury \& Co., of Minneapolis, have over 400 PAIRS OF OUR ROLLS AND HAVE RECENTLY PLACED AN ORDER WITH US FOR ABOUT ONE HUNDRED AND TWENTY MORE. We have had a longer and larger experience in Roller Mill Building than any other manuthat we build or change over are ready to start, THEY DO SO AND WITH PERFECT SUC EXpensive to millers, and when the mills additions, stopping or expense. We manufactured and sold during the year 1881 COT SUCCESS, and there is no further changing, of rolls.

We can send competent men to consult with any millers who contemplate an improvement, and whom they can depend upon as being RELIABLE AND THOROUGHLY COMPETENT to advise them as to the number and kind of machines required, best method of placing them and the change required, if any, in the bolting and purifying system. WE DO NOT URGE A GENERAL CLEANING OUT OF ALL OLD MACHINERY unless we clearly see such would be the ONLY COURSE TO PURSUE to make a SATISFACTORY AND RELIABLE MILL. In nearly all instances we can use all the Old Machinery, leaving it in its original position, or with as slight a change as possible. We aim to make the Improvement so that it will be a Profitable one to the Miller, nd at the least expense possible.
Our System is THOROUGH and RELIABLE, and our Roller Machine Perfected by Long Experience, and the Miller takes no chances in using them, as HE DOES with the New Fangled Notions of Drive and Adjustment on many other machines now TRYING TO FOLLOW OUR IMPROVEMENTS and still avoid our Patents, in BOTH of which THEY FAIL. We were the first to advocate the Entire Belt Drive, and were opposed by every other maker, who claimed it was not positive, etc., etc., and now that Drive have suddenly learned that Belts are the Thing. The same may be said of our Spreading Device, Feed Gates, and Adjustable Swing Boxes. Other Makers are now copying these. ALL these Features, including BELT DRIVE with ADJUSTABLE COUNTERSHAFT and TIGHTENER, the SPREADING DEVICE, FEED GATES, Adjustable Swing Boxes and Leveling Devices, Self-Oiling Boxes, etc., are secured to us by several Strong Patents, and we CAUTION MILLERS in regard to these Infringements of Our Patents and Rights, for we shall look to THEM for Redress. The matter is in the hands of our Attorneys, who will soon - VIGOROUS ACTION against the Makers and USERS OF MACHINES infringing Our Patents.

Several machines are already on the market which Broadly Infringe, and we are informed that other makers are now changng their Old Style Machines, and adopting in a large measure Our Improvements. BEWARE OF THEM.
Send for New Illustrated Catalogue, Giving full Information, to IMII, W A UKREF, WIS_
ranch Office 318 Pine Street, Benson Block, SAN FRANCISCO, CAL.
"HOWARD" AUTOMATIC CUT-OFF ENGINE.


Built only by the MURRAY IRON WORKS CO., BURLINGTON, IOWA. guilders of all kinde of meotives and machinkry

## Flour Wanted.

Millers wishing to sell their Flour direct in New England at a small com-first-class reference, please address FLOUR SALESMAN,
 ALESMAN,

## TO WHOM IT MAY CONCERN.

Notice is hereby given, that all differences existing between Mr. A. MECHWART, Director of Ganz's Establishment, owner of the patents on Corrugated (hard-cast) Rollers, dated March 9th, 1876, No. 5527 , and the undersigned have been amicably settled; that we concede his patent to be fully in force and that we will, during the continuance of this patent, waive the right of sale of said Corrugated Rollers throughout Austria-Hungary.
VIENNA, September 20, 1882

## G. Daverío. <br> A. Niessner \& Co.

Referring to the above we wish to announce that all legal proceedings against Messrs. A. NIESSNER \& CO., and Mr. G. DAVERIO, have been suspended.
BUDA-PEST, September 22, 1882.
GANE de CO., Iron Founders and Machinery Mfg. Co.
[Mentlon the United States Miller when you write to us.]

plain cockla machins.

## \section*{COCKLE SEPARATOR MANUFACTURRG COMPANY, MILWAUKEE.} <br> GENERAL MILL FURNTSHERS

 IUPRove COCKLE sEEARATons Richardson's Dusiless Wheat Separators ! Also Sole Manufacturer of BEARDSLEE'S PAT. GRAIN CLEANER.\author{

* We will contract to furnish entire Wheat Cleaning Machinery for mills, and guarantee
} Perforated Zinc at Bottom Figures. the best results.

Send for Illustrated Catalogue.
(ats)
beardslee's wheat cleaner.

WE GUARANTEE GREAT CAPACITY combined with GOOD QUALITY OF WORK. Any common Sieve will separate the cockle from wheat, but to separate it WITHOUT WASTE is the GREATEST FEATURE of our Machine. A WASTEFUL machine is adAILY LOSS OF MONEY in a mill. There is NO MACHINE IN THE MARKET which call stand comparison with ours.
 Cockle Separator Mentlent cannot see that it breaks the wheat or favor, would say that we can cheerfully the 288 th inst., 1 would say that the recommend your Cockle Separator as combined machine I bought of you last lees's wheat cleaners, a scourer and to run it. Yours truly, have tested ours throughly by this tion. Respectfuly yours, time and know whereot we speay. We Wen.
would not think of doing without it, would not think of doing without it,
having tried it once, and can conscien-
P. S.I have been milling now for than rated capacity, and are not using Gentemen:-The Beardslee's Grain


| Ours respectully, |
| :--- | :--- |
| BROWN © WINFREY. | \(\begin{aligned} \& sen anything that <br>

\& cleaning wheat\end{aligned}\)
Perrysville, Ind., Nov. 24, 1881. As an Oat Separator it is No. 1, and apolis. ${ }^{\text {whentl }}$ cleaned as any in MinneCockle Separator Mfg. Co., Milw waukee, for Cockle it cannot be beat. I can take of you has been running about three it without wasting any of the smali weeks. It certainly does all you claim Wheat. In my opinion every mill in the for it, and is the most perfect Separator United States ought to have one, and if
that 1 have any kuowledge of.
I were to build a mill I would have no $\begin{array}{lll}\text { I } \\ \text { Yave any knowledge of. } & \text { I were to build a mill I would have no } \\ \text { Cockle Separator Mffg. Co., Miluwakee. }\end{array}$ Pott's Patent Automatic Feedor The best device tor regulating the ferd on roller mills, purifiers, and other machines requiring a regular feed, spread out the full widh,

## HOWES, BABCOCK \& EWELL,

Istablished 1856. Silver Creek, Chautauqua County, New York, ర. S. A. Mstablished 1856.
manufacturers of the world-renowned eureka grain cleaning machinery and specialties herewith illustrated


The Eureka Separator





Eureka Magnetic Automatic Separator.
 Eureka Brush Finishing Machine
Recognized as the leading one of this
class of machines. Universaly recom-
mended for finishing the process of

俍


Abernethey's New Book. PRACTICAL HINTS

Mi1 Building.
The Latest, Best and Only Exclusively Flour Mill Work in Print. Every Miller, Millwright and Millwrights Apprentice should have a copy.
Thnu Uirfeg gratza Milige for one year and a copy or
UNITED STATES MILLER,


EUREKA MANUFACTURING CO., BECKER BRUS H,

Galt's Combined Smut and Brush Machine. The Only Prationl Cone-Shaped Machines in the Market, and for that Reason the Best.
ADJUSTABLE WHILE IN MOTION.
Nearly 1,000 of these Machines in Use.

 eureka manf'g co., Rock Falis, Ill., U. S. a.



The inherent and intrinsic merit of any article of manufacture, or any system of procedure, is alone demonstrated by the results secured by protracted employment thereof. Success is always a sure indication of merit in any article offered for adoption, and we risk nothing when we claim that the

## S'TEVEN'S NON-CU'TVING

 CORRUGATED ROLLER MILLIs to-day without a successful rival in popularity with the milling fraternity. Adapted for both spring and winter wheat, and for all the operations of reduction and flouring, and with a record of success in these operations unapproached by any similar device, no miller, contemplating a change in his equipment, should fail to familiarize himself with the features which have given these mills their popularity.

## THE JNO. T. NOYE MANUFACTURING CO.,

[Please mention this Paper when you write to us.]
BUFFALO, N. Y., U. S. A.

An Satailited Sume

We invite particular attention to the following

## POINTS OF SUPERIORITY,

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

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

## ODHLL'S ROLITR <br> MIIL.


3. It is the only Roller Mill in which one movement of a hand-lever spreads the rolls apart and shuts off the feed at the same time. The reverse movement of this lever brings the rolls back again exactly into working position and at the same time turns on the feed.
4. It is the only Roller Mill in which the movable roll-bearings may be adjusted to and from the stationary roll-bearings without disturbing the ten-sion-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
Ansomia Rolls!

[^0]
## STLLWELL \& BIEREE MANUFACTURING CO.

THE LARGEST MILL FURNISHING ESTABLISHMENT IN THE WORLD.
REFIIANTEE UVORIES, EDW.P.ALLIS \& CO. Prop's.


MILWAUKEE, WIS., U. S. A.
SOLE MANUFACTURERS OF
Gray's Patent Noiseless Belt
ROLLER MIILS


Unexcelled for reducing Middlings to Flour.
Far ahead of Smooth Iron or Scratch Rolls and entirely superceding the Mill

## Fead the Fiollovving Tetters.

Messrs. E. P. Aldis \& Co., Milwaukee, Wis. Terre Haute, Ind., Aug. 22nd, 1882. lain Rolls you put in our Yill The meach with the whole eight set of Porceour mill last fall, we put in place of two run of stones for after starting up Middlings. We find the Flour from the Porcelain Rolls much more evenly granulated and fine Middlings are much better, being got from the stones, besides the second or as specky.

Yours Truly,
[Mention this Paper when you write to us.]

KIDDER BROS.

Messrs E. P. Allis \& Co Kings County Flour Mills, Brooklyn, N. Y., Aug. 15th, 1882. Gentlemen:-You ask how I like the Porcelain Rolls as compared with Mill Stones. a long time ago that Mill Sitones could not produce as satisfactory results. working without noise with Gray's Patent Belt Drive increased size with nice adjustments, grainy and strong and its capacity two or three times more than it produces is beautifully It runs aplendidly, gives no trouble, consumes less power than Mill Stones, is unequaled by any costing and for reducing Middlings and soft branny residuums and tailings practical experience. Machine, Iron or stone, at least this is my opinion after five years of Yours truly, JOHN HARVEY,

Head Miller Kings Co. Mills, Brooklyn, E. D.

## Rexvows

Over Three Hundred of these Engines in use.


These Engines are especially adapted for use in Flouring Mills-being unsurpassed in Simplicity, Durability and ECONOMY OF FUEL, and far ahead of any other
Automatic Cut-off Engines.

Resend for catalogues of Roller Mills, Flour Mill Machinery, Saw Mill Machinery, Reynolds' Corliss Engines, etc., etc., address

Edw. P. Allis \& Co.. milwaukee, wis.

The following is a partial list of Flouring Mill owners who are using the Reynolds' Corliss Engines.

|  | (bert Wehausen.....................................Two Rivers, Wis. |  |
| :---: | :---: | :---: |
| Latirange Mill Co........................................Red Wing, Minn. | Green \& Gold.............................................F.Faribault, Minn. | Wells \& Nieman... $\qquad$ Nashville, Tenn. |
| Daisy Flour Mills..................................Milwaukee, Wis. | Meridan Mill Co............ ........................Meridan, Minn. | Grundy Centre Milling Co...........................irundy Centre, Iowa. |
| Winona Mill (o..................................................................inona Minn. | Townshend \& Proctor...............................Stillwater. Minn. | B. D. sprague..........................................Rushford, Minn. |
| W. D. Warhburn \& CO..................................................a, Minn. | Sooy \& Brinkman................................................ | The Eisenmeyer Co...................................Little Rock, Ark. |
| rchibald, schurmeier \& smith.....................st. Paul, Minn. | N. J. Sisson....................................................... Mankato, Minn. |  |
| White, Listman \& Co...................................La Crosse, Wis. | Jas. Campbell......................................Mannannah, Minn. |  |
| Milwaukee Milling Co.................................Milwaukee, Wis. | O, J. Coggin...............................................Wauconda, Il1. | Pindell Bros. Co........................................................ioledo, $\mathrm{O}^{\text {O}}$ |
| stillwater Milling © | J. J. wison............................................Algona, Iowa. | Kehlor Milling Co................................................ast St, Louis, Il1. |
| tto Troost................................................... Winona, Minn. |  | Walsh, DeRoo \& Co.................................. Holland, Mich. |
| E. T. Archibald \& Co....................................Dundas, Minn. | Northey Bros...................................Columbus Junction, Iowa. | Goodlander Mill and Elevator Co....................Fort Scott, Ks, |
| McCreary \& Co......... ...........................Sacramento, Cal. | Bryant Mill Co .............................................Bryant, Iowa. | Topeka Mill and Elevator Co. |
| ardner \& Mairs........................................... Hasting, Minn. | David Kepford.................................Grundy Centre, lowa | Strong Bros................................................Topeka, Kan. |
| Schuette \& Bro............................................ Mnitowoc, Wis. | Waterbury \& Wagner................................Janesville Minn. | C. A. Roberts................................................................argo, D. T. |
| J. D, Greene \& Co | W. A. Weatherhead............................South Lyons, Mic | Coman \& Morrison.....................................Fox Lake, W is. |
| F, Goodnow \& Co..........................................Sal |  | J. G. Schaapp.......................................Grand Island, Neb. |
| A. L. Hill....................................... ...Faribault, Minn. | Geo P. Kehr...................................Menomonee Falls, W | Warren Mfg. Co. <br> Akron, Ohio. |
|  | mona Mirl |  |



MILWAUKEE. DECEMBER, 1882.



THE NEW CHICAGO BOARD OF TRADE.
Size of Building, 173 feet 9 inches, by 225 feet, Main Hall, 170 by 144 feet. Height of Tower, 303 feet. Height of Corners, 160 feet. Height of Rear Building, 172 feet.

## THE UNITED STATES MILLER.

United States Miller. PUBLISHED MONTHL

si.50 per year in in advanace.
sit

## MILWAUKEE, DECEMBER, 1882.

A Stock, Grain and Mining Exchange ha been organized at Winnipeg, Manitoba, an
will be in perfect operation in December. $\mathrm{W}_{\mathrm{E}}$ are pleased to acknowledge a pleasa call from P. G. Monroe, Esq., and G. V.
Heckel, Esq., both of Chicago, the Western epresentatives of The Millers' Journal, New York.

The partnership heretofore existing beland, under the firm name of C. B. Slater \& Co., Blanchester, O., was dissolved by mutual consent, Nov. 20, 1882, and is succeeded by The Slater Mill Co., of which C. B. Slat is President and J. B. Starkey, Secreta

Upos the examination of the official docu ments the United STates Miller learns tha ending Oct. 31,1882 , was $100,106,840$ bushels, valued at $\$ 116,741,005$, and of flour $5,465,740$ barrels valued at $\$ 33,416,661$. The total value of exports of breadstuffs of all kinds during against $\$ 192,292,552$ during the correspond ing time in 1881.

The Baltimore Sun in a late leading article on Industrial Schools, says: "Boys may be without such advantages they fall into habit of idleness and dissipation, or betake them selves axcessive numbers to unremune trial schools were those supplied by the old apprentice system, for it trained hands, mind and morals together. If the American me voted by their foreign associates in the shops, they will re-establish the system they killed in their folly

## The real position of the United States in the

 food supply of Europe, for the first time selling on a falling market, attracts general at-tention. Great crops have never been harvested and brought to sale in the United States with a more general feeling of business distrust that exists this fall. Prices of bread was no response in Chicago. Exports from the Atlantic ports fell off, but supplies afloa increased. In other words, while existing prices do not tempt farmers to sell in Chicago,
they satisfy those who sell at Odessa and San Francisco. A country which closed last year with too little to sell, and begins this year with too much; which pays this year $\$ 116,000,000$ to pensioners whose services were in the past, roads whose production is in the future, and which is weaving more cloth and making that anywhere from $\$ 50,000,000$ to $\$ 150,000$, aging, but scarcely leads to the certainty on which prosperity chiefly rest.-Chicago Trib-
mechanical training at girard college.
The Philadelphia Record says that the Board of City Trusts has established in Girard College a mechanical school which is attracting country. It is under the supervision of $T$. Mason Mitchell, formerly an engineer in the United States Navy and founder of the Mechanical School of Handiwork in the
Spring Garden Institute. The workshop has only been in existence since April 12, and the success which has attended the efforts of Mr. Mason to instil in the minds of the boys a practical knowledge of machinery have exfounders. The plant of the workshop consists of one 4 -horse Otto gas engine, neatly ailed around to prevent accidents; a 16 -inch screw-cutting lathe of the most approved pattern, a shaping machine, a vertical drill press, 30 other presses, patent swivel, four vises, and a full and complete outfit of tools for each vise, such as files of various cuts, undred and sixty boys, ranging from eish to eighteen years, are being instructed in the manipulation of these machines and tools, and the work turned out daily will, in many instances, compare favorably with that made instances, compare fav

The system of instruction imparted to the pupils is of a practical character. They are first taught the use of the hammer and
chisel upon rough material fresh from the chisel upon rough material fresh from the
foundry and the forge. They are then famil iarized with the use of the files and other oools of the vise, enabling them to produce perfectly planed surfaces and angles, both right and acute. The young learner is next taught to make hexagon and octagon bolts, with hexagon heads. The nuts and bolts are turned to a given size, and the requisite hread is turned, which calls into requisition both the vise and the power tools. After ob taining a thorough knowledge of the use of
all these tools he is then taught to construct the different parts of steam engines and models of machinery. A one and three gun a few weeks ago, is nearly completed, re also other engines of lesser power.
Mr. Mason, who is heartily devoted to th work entrusted to his care, feels certain that two-thirds of the older lads will, in the course
of four years, be able to go out into the world and demand and obtain positions as full fledged journeymen.
"As soon as a boy enters," said Mr. Mason in an interview, "he is immediately given a hem. Unlike the average apprentice in regular machine shop, he is not required to pend a year or so sweeping up and doing other like druagery, and is thus saved the
time wasted by apprentices. Besides, our oys are lectured to on theoretical mechanic for or five times a month, and are taugh mechanical and free-hand drawing
times a week by Prof. George Becker
"It is impossible to conceive the value o such a school as ours, and the time is not far distant when the Government will be obige our public schools, owing to the diminution in the ranks of skilled labor, the same a Germany, France, England and Russia ar in this country. The only ones in existence in this country. The only ones in existence
are the School of Technology at the Hoboken Institute, the Boston School of Technol ogy, the St. Louis School of Technical Education, the School of Mechanical Handiwork at the Spring Garden Institute, the Mechanial School of the Cornell University at Ith aca, N. Y., the School of Mechanical Work at the University at Wooster, and the Schoo at Swarthmore. Owing to the labor-saving tools invented during past years, few skilled mechanics are turned out of machine shops at the present day. As a general thing, men are kept at one branch, and are not given a part of the trade. They become proficient in the handling of a drill-press, a shaver, a planer or a lathe, as the case may be, but few are allowed
lation of all.

This should not be. Our school in this re spect excels a machine shop, as the boys are taught how to use all these machines. I may seem an enthusiast on the subject, but I be-
lieve it to be a glorious work to be thus engaged instructing the youth of this institution. The decadence of the old apprenticeship system is a vital blow to the industry of ironize this the better it will be for the country for the day is approaching when the need of some system by which men may be made masters of this trade will be sorely felt. Look at the thousands of bright boys attending our public schools! What is to become of them? and if thecome clerks and bookkeepers, deed, to reflect that after attaining manhood hey will develop into botchers. I repeat it that the public schools should have added to them departments of industrial education, where the youth, the future men of the natrades."

## trade with the argentine republic.

A Washington despatch to the Herald says: Gen. Osborne, Minister to the Argentine Republic, who is in the city, expects to return to his post within two or three weeks.
He has given great attention to trade between this country and South America, and his inormation on the subject is broad and exhaustive. He says that the country of the Argentines is to South America what the United States is to North America. He says he people would like to trade with the Uni ed States direct, but the want of a shipping line between, Buenos Ayres and our porta makes it next to impossible. Most of the
goods brought from this country are first goods brought from this country are fir
shipped to England, thence are reloaded an
taken to South America as English products. This used to be tha case with Amorican cotcons. They were taken to England and stamped with a new trade-mark, and palmed off as the manufactures of English mills. This fraud was exposed, however, and now there is a house trading direct in $\Lambda$ merican cotton fabrics by means of sailing vessels chartered for the express purpose of carrying it cargoes. A great amount of Amer ican machinery for agricultural uses is also found in the Argentine markets, and this class of merchandise also comes direct There is a great deal of American meal consumed in that country, but this, with most of our other wares, comes by reshipment from
England. Gen. Osborne says that the English and anch practically monalize the trade of the country, simply because their teamships ply at regular intervals between he ports of South America and Europe, which renders it practically impossible for we have no steamships in the trade. He says hat it is a cause of remark among the na ives that cur steamers do not come there and he has always told them that we wer coming some day, but that our merchants had so vast an amount of territory of their own that they could not reach out for foreign

## millers' national association.

We have just received the following communication from S. H. Seamans, Esq., Sec retary of the Millers' National Association Editor United States Miller, Milwaukee.
Dear Sir: In accordance with a resolu on adopted by the Sub-Executive Commit November National Association at Chicago oovember 20, 1 am directed to call a convenconvene at Cleveland, Ohio, Wednesday Jos

## 31st, 1883.

-ntire executive committee will consist of the Association, president, secretary and execu ive committee of each organized State Asso ation and five prominent members fron called for the purpose of discussing matters pertaining to litigations present and impend ing; affairs of dormant State Associations with view to increasing an interest in, and
adding to their membership; also plans for and deciding upon a place for holding a grand conion in June next, and such other and im meeting. Yours truly,
SH. SEAMANS, Secretary

## a revolution indicator wanted.

The Industrial World, (Chicago,) says: W eard one day recently, a well known enginer express a desire for a revolution indicator o be used in the end of a shaft like the little instrument at present so extensively used for this purpose, but which should be more accu rate in its indications, or rather which should permit the user to make observations tha were substantially correct. His opinion o the present counter is, that in using it in con-
nection with a watch upon which the time must be noted, is fatal to accuracy, since the personal equation of the observer must be taken into account, which in the case of an engineer, or a man vexed with many and va rious cares, is scarcely twice alike. It would follow, then, from this presentation of the case, which is unquestionably correct, that in mak ing observations of the revolutions of a shaf in the ordinary way, the observer will never make it absolutely correct; that two observers
will not make it the same; and that the same observer, ordinarily, will not make it alike (in the extent of the error) two days in succession. A valuable suggestion of this engineer is, that eed a timesent indicator should be combi time correctly for say, two or three minutes the whole so arranged that by applying the end of the spindle to the center in the shaft, just as at present,) after allowing sufficient ime to insure the motion of the two being identical in time, the accounting and time motions can be simultaneously engaged, and automatically and simultaneously disengaged at the expiration of a definite time-perhaps one, two or three minutes, as desired. glance will then show the exact revolutions without the possibility of sensible error. (The as is bage of some such device as this, where advisable to determine the exact revon, of quick-running machinery, is beyond quesing, and it would not be a serious undertak
ing to construct a simple and effective arrangment of the kind-one that would be both nechanically and commercially a success). since the present intention is towards perfec-
tion in all instruments of observation, it
time our tool-makers gave us something by
which to correctly observe the revolution machinery.

## becent milling patents.

November 7, 1882, the following patents
Dust Collector, for flour mills, (2 patents), Wm. H. Fruen, S. Potts and C. J. Elliott, Minnenpolis, Minn.

## Middllin

III.
II. Louis Gathmann, Chicago

Machine for mixing grain of different sizes,
August J. Justi, Charleston S.
August J. Justi, Charleston, S. C.
Middlings Purifier, William Klostermann, Cologne, Minn.
Centrifugal bolt, Jonathan Mills,Chicago, III. Manufacture of flour, Faustin Prinz, St. Paul, Minn.

## The follo ber 14,188

Millstone-dress, Fred. W. Dove, Jonesbor ugh, Tenn
Method of and apparatus for milling, Chnrles L. Gratiot, Chicago, Ill.

Centrifugal four bolt, Jonathan Mills, Holomb \& Heine, Silver Creek, N. Y.
Mill for reducing grain, John Hollingsworth,
N York, N. Y.
Roller-mill, (3 patents), Andreas Mechwart, Budapest, Austria-Hungary.
Dust collector for four mills, John R. Smith,
Middings pu
eapolis, Minn.
The follow 1882:
Middlings purifier, Faustin Prinz, Dundas, Minn.
Finding mill, Pierre Fauzez, Guingamp,
Grain-drying apparatus, Fred. W. Weise-
foreign grain circulars.
kufeke's circular.
Liverpool, November 15, 1882.
The weather has now become more settled and frost has set in. Farmers have so far made little progress with field work, and sow ing has been completed in area only.
Deliveries of native wheat are stilldiminishing, and last week have only amounted to about 177,000 qrs., at the average price of 46-11d., exactly the same as in the preceding eek, against 46-9d. same time last year.
A limited consumptive business continue to be done in flour, with prices for winter wheat well maintained. New Minnesot flours, which now arrive pretty freely, are
neglected, and the quality of the same does not give much satisfaction, as they mostly lack strength. No doubt they will continue to improve as they dry out, being yet rather fresh. Values of the same are, however, 1shilling per sack lower.
Wheat has ruled very firm, and red winters are 1d. to 2d. per cental dearer on the eek; other grades are unchanged.

Gibson \& Cl
Guring the gednesday, Nov. 15, 1882. During the past week the wea.
old, with severe frost and fog.
Our imports of wheat have been small, of ack flour liberal, and of barley large.
The trade during the week has been quiet but firm for breadstuffis; but the demand for feeding stuffs has been large, and prices have been rapidly advancing for barley, pease and maize, and a large business in the two first named articles has been done.
To-day our Corn Exchange
Exchange was well at tended. Red winter wheat met a good con sumptive demand at 3 d . to 6 d . per boll ad vance on the week. Springs firm. Flour steady. Grinding barley in good demand at 3 d . to 6d. Other barley steady. Oats and Beans firm. Pease advanced 9d. on the week. Maize held for 22 s . 6 d . Oatmeal steady.
dUNLOP BROTHERS CIRCULAR.
Glasgow, November 15, 1882.
Trade has been firm, with rather a harden ing tendency, since last report, and a steady business doing at full prices. Arrivals of wheat and flour moderate, barley liberal and maize nil
To-day's market was fairly attended Wheat met a good sale at an advance of 3 d . per boll* for red winter, while other sorts were unchanged. Flour also in request at prices slightly in sellers favor, the demand running chiefly on spot Minnesota straights. Maize continues firm at the extreme limits of last Wednesday, but demand light. Barley, oats and $p$

## READ THE TESTIMONIALS!

## THE "TRIUMPE"

# power conk shmilur 

Is the Cheapest, Best and Most Simple Povrer Corn Sheller in Use ! IEVERY SHELLER WARRANTED. I



Hazleton, Mıo.l., July 12, 1882. The Triumph Power Corn Sheller, which 1 purchased of you about four years ago, gives
entire satisfaction. Shells clean, runs light, and does as good work as when started, and not one ent for repairs, as yet.

M
Paige Manufacturing Co, Painesultuly 12, 1882 Gentlemen: Your Triumph Power Corn Shellers have always given the best of satisfaction wherever I have placed them or saw them in use. They run with little power, and do their work thoroughy and without waste, and
being so simple in construction and well manufactured, there is but slight chance of their getting out of order.

Peoria, Union Co., O., July 12, 1882. Paige Manufacturing Co, Gentlemen : I am pleased to state the Sheller I bought of you in 1879, has given me entire
satisfaction, and the way it handles its grain satisfaction, and the way it handes its grain best thing I could have done when I bought the
Yours Truly, Sheller.

## $\underset{\text { facturing Co.: }}{\text { Morvia, }}$ N. Y., June 30, 1882.

The Paige Manufacturing Co.:
Gentlemen: In reply to yours of 29th inst, will say, that our experience with the "Triisfactory. The last one we ordered is giving isfactory. The last one we ordered is giving
splendid satisfaction, being a very rapid sheller, and at the same time doing its work well. It is certainly the bes

Yours Respectfully
Nolin volla, sec y.
-
Paige Manufacturing ${ }^{\text {abasha, }}$
Gents: We take much pleasure in Gents: We take much pleasure in recom-
mending your "Triumph" Power Corn Sheller to the trade. We have three in use which we have purchased of you during the past six or eight months, and can say most emphatically that we
think them the best Sheller in use. We examined and saw tested seyen or eight different makes and styles of Shellers before buying, and took yours in preference. They shell cleaner on any kind of corn in auy condition, run easier,
and do more perfect work with less attention, than any Sheller we have ever seen work. This is our candid opinion of your Sheller, and it is not a word too much too say for it.
Yours Truly, abasha Elevator
per H.
H. Krick,
Sec

Gentlemen: I Hessey, Mich., July 1, 1882. Triumph Corn Sheller, purchased of you last It is the met my most sanguine expectations. come long distances to avail themselves of the may say that hundreds of acres of corn have been planted more than would have been only for its introduction here. I think it the very get another it would be no object to sell it for ive times its cost.

$$
\begin{array}{ll}
\text { its cost. } & \text { Truly Yours, } \\
\text { A. Roor. }
\end{array}
$$

$$
\begin{aligned}
& \text { Black River F } \\
& \text { Paige Manufacturing Co. }
\end{aligned}
$$

Gentlemen: Yourfa.:
Gentlemen. Your favor of June 29th, to hand either wet or dry, thoroughly. Very Respectfully Yours,
J. G. Heaton.
Manchester, Mich, July 11, 1882
Paige Manufacturing Co., Painesvile, 0 .:
Gentlemen: The Triumph Sheller shells the corn clean, whether it is dry or wet. It is strong
and durable. and durable
$\underset{\text { Royal }}{\text { OAK, }}$ Mich., July 17, 1882. facturing Co.:
Sirs: I have at present one of your Triumph Shellers in mill and am very well pleased with it. I think it is, without doubt, the best Sheller to all who are in want of a Sheller.

Respectfully Yours,
South Montrose, Pa.; July.10, 1882
Paige Munufacturing Co
Gents: I have used your Triumph Corn Sheller and would not know how to run a mill without your sheller, for the neighbors would be tend to shell their corn at home for they draw corn for 10 and 15 miles to have it shelled, and all the corn that $I$ buy is brought for me to shell, and
ever saw.

Yours with respect,
$\underset{\text { Brooklyn, Mifh, June, 21, } 1882 .}{ }$
Paige Manufacturing Co.
Dear Sir: Your Corn Sheller gives perfect the lead of all that I have seen, and I can recommend it to all. It shells as fabt as you can ge the corn to it, and does it splendidly.

Respectfully Yours,
Prop'r.

We are well pleased with the Sheller pur in need of a machine of that kind.
Yours Truly,
L. C. Hopkins.

Asheville, N. C., July 19, 1882, Gentlemen: In ans Co., Paincsille, $O$. : our opinion of the Triumph Corn Sheller, would ing for repairs since we have put it up, (January, 1881). We do not run it to its full capacity only shelling about 40 bushels per hour, but it clean run up to speed that it will do everything claimed
for it. Yours Respectfully,
Girdwood \& ḾcLellan.
Byron Center, Mich., June 24, 1872
Paige Manufa would say that the "Triumph" Gower Corn Sheller is the best we have had anything to do with.

Yours Truly Chelsea, Mich., August
Gents: Some three years ago I got one o the Triumph Power Corn Shellers, and can say that I have ever in preference to any I shelle Hutchinson, of Three 1Livers, and one or two other patents. It doesits work well and does not get out of order; shells fast and clean. Am wel pleased with the machine
ours Respectully,
L. E. SPARKs.
 Gents: We like the Triumph Power Corn Sheller and think it can't be beat. We have not been to any expence with it since it has been put in and it will shell corn clean that is
not fit to grind, it is one of the best Shellers we have ever seen for business. Anyone that does not believe it is a goo 1 machine, let them come here and we will convince them.

Yours Truly,

Milwaukee, Wis., Jnne 8, 1882. Gentlemen: We have sold a number of your but say that it is a good machine, having given satisfaction wherever we placed it. We cheerfully recommend your machine whenever we Yours Truly

Morey Creek, Minn., July 24, 1882. Gents: Yours of June 21st, at hand, and in purchased say that the Triumph Corn Sheller and, knowing what we do, if we were in need of a Sheller, we would puchase no other.

Phelps \& Murphy
North Bristol, OHio, June 26, 1882. Gents: The Corn Sheller I bought of you of ears in 20 minutes and will shell faster if run faster, it shells perfectly clean. Iam well satisYours Truly,
G. F.'SAC
Carthage, Jefr. Co.. N. Y., June 26, 1882. Gents: It gives me pleasure to say that I am
well satisfied with the "Trimph " Sheller I have purchased of you two years ago, it performs all you claim for it.

Respectfully Yonrs,
Gailiboa, New York June 26, 1882.
Sirs: I have one of the Triumph Power Corn Shellers in my Grist Mill, have used it two years with entirely satisfactory results. I think it is Yours Truly,

Sagivaw, Mich., July 1, 1882.
cturing Co., Painesville, O.: Gents: We are very much pleased with the Gents: We are very much pleased with the it an A. 1 machine. Very Truly,
D. H. Jerome \& Co.

Melmore, O., June 30, 1882. Gentlemen: In regard to the "Triumph Corn Shelllr" purchased of you a year and a half ago,
would say we have shelled thousands of bnshels with it and it justly merits the success it has
attained. It has paid for Very Respectfully,

Clinton, Wis. July 1, 1882. Dear Sirs: The "Triumph" Power Sheller, 1 purchased of you a year ago, gives entire satisfaction. I gladly recommend it to anyone wanting a Sheller for mill or elevator.
Respectfully,

THE UNITED STATES MILLER.

United States Miller.
E. HARRISON CAWKER, Editor.
$\qquad$


| Bills for advertising will be sent monthly, unless otherwise agreed upon, <br> For estimates for advertising, address the United States Miller. |
| :---: |
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$\square$
MILWAUKEE, DECEMBER. 1882.
We respect fully request our readers when
they write to persons or firms advertising in this paper, to mention that their advertisement will thereby oblige not only this paper, but the

Flour Mill Directory.
$\square$
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$\qquad$ Millerg' Journal, N. Y., was married Oct. 25 ,
1882, to Miss Clara Baker Done, at Lu
on-the-Hudson.
$\qquad$
$\qquad$
$\qquad$
American corn will be imported and that
good prices will be paid therefor, and that
this together with
cause a liberal outflow of British gold to the
United States.
$\qquad$
$\qquad$
Building, which was engraved especially for
them as soon as the plans were completed,
showing muth
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$\qquad$ man in the city and at the time of his death
$\qquad$ death. He was kind and gentle in dis-
$\qquad$
Av interesting experiment in heliography or signaling by sunshine, was successfully
made in Egypt during the recent campaign Col. Keyser ascended one of the pyramids near Cairo and, by means of a heliographic mirror, reflected a ray of sunlight to Alexandria, 120 miles away. At that great dis- the police found that. The manner in which
$\square$ tance the signals, appearing like pin points
of brightness, were easily ascertained to be a
message from Sir Garnet Wolseley to the
Khedive.
A correspondent of an English paper
wants to know why the flour sacks generally
are not made smaller. He thinks a 280
pound sack is too heavy to be handled con-
veniently. He also advocates the universal
storage of flour in a dry, dark place. In this
ennery our millers furnish flour in sacks of
country
any size required.
The St. Louis Miller says: "St. Louis has
twenty-four flour mills, representing a capital of $\$ 2,067,500$, employing 654 men, whose
earnings aggregate $\$ 448,109$. These mills consume $\$ 11,960,553$ worth of 'grain and pro-
duce $\$ 13,759,628$ worth of flour. This is the
way our milling interest will show up in Chief Nimmo's forthcoming Statistical Re-
port.

| It costs more to carry a bushel of wheat from Budapest, in Austr, ungary, to Hamburg, Germany, than it does from Ch'cago to Hamburg." <br> We have seen the above quotation floating |
| :---: |
|  |  |
|  |  | the rounds of the American press for several

months. As might be imagined it originated
in the brain of some one who delights in making startling assertions without found-
ation in fact. It is however a fact that Eu-
ropean rail transportation is exhorbitant in
$\qquad$ Bains' International Telegraphic Code, just
published by C. W. Palmer, of the Northwestern
Miller, Minneapolis, is in our opinion a model
book of the kind. It embodies the results of book of the kind. It embodies the results of
many years' experience in the flour trade
and it seems to provide for every possible contingency of bargain, sale or freights in
grain and flour dealing. We have the assurance of an exporter of many years' exper-
ience that this code will average a saving of
fifty per cent. on any that he or used in the item of cable tolls, which is a
matter of great importance when dealing on close margins. The book is handsomely
bound in Russia leather in shape suitable for
$\qquad$ Non-inflammability of Redwood.-A san
Francisco paper says that a quality of Cali-
fornia redwood is its ready absorption of waalmost fireproof. The quickness with which fres are extinguished in San Francisco has
often been remarked, and the celerity with
which blazing buildings are often transformed into charred remnants is greatly facilitated
by the entire lack of the resinous element in the redwood lumber. Resin familiarly
known as pitch, is not only highly inflammable, but is insoluble in water, and will burn
while being drenched with the element, with
which it will not which it will not mix. At a recent fire in
San Francisco the advantage of redwood in ent. The moment water struck the side of
the building or roof timbers it not only
quenched the flames but the wood absorbed
water as a sponge would, and it became in-
$\qquad$
int substance for the woodwork inside of flour
mills and for the wooden portions of flour
mill machinery.

| address R. C. Spencer, Milwaukee, Wis. |
| :---: |
| THE C. C. WASHBURN ESTATE. |
| it |
| It has become a common thing in late |


$\square$
now can positively assure himself that his
wishes in regard to his estate will be carried
out. The latest case of importance in this
line affects the estate of the late C. C. Wash-
burn, the great Minneapolis mill owner
burn, the great Minneapolis mill owner.
The particulars so far as known at present
are given in the following dispatch to the
are given in the following dispatch to the
Republican Sentinel, of Milwaukee.
ions were delivered by the Appellate Court
yesterday morning. Among the most im-
portant was that in the case of John C. Col-
lerwood against McCrea and others, which is
classed among the disputes arising out of
Board of Trade transactions. Suit was
brought in the Superior Court of the county
to recover $\$ 505$, losses on a deal of 20,000
bushels of wheat, and $\$ 50$ for commissions,
and a verdict for $\$ 556.25$ obtained. The case
and a verdict for $\$ 556.25$ obtained. The case
was carried to the Appellate Court on the
question whether the trading was to be in
differences or a delivery and receiving of
goods. On the general question the court
says: "We have occasion so frequently to
express our views of the law applicable to
cases of a similar character to the one now
presented as to render it unnecessary to en-
ter upon the discussion of the snbject here,"
After quoting Tenner v. Foote, 4 Brad., 594 :
Webster v. Sturgis, 7 Id., Beveridge v. Hew-
itt, 8 Id., 467, in which it is declared that
transactions where there is to be no delivery
or reception of goods, the difference being
paid in money, come within
against gambling and are void, the court
goes on to say: "From the views expressed
by us we feel no inclination to recede, be-
lieving them to be wise and salutary, and
calculated to conserve not only the best in-
terests of the community at large in tending
to check the prevailing widespread mania
for gambling speculations, butalso to restrain
the members of a great, and doubtless use-
ful as well as necessary, association of bus-
ful as well as necessary, association of bus-
iness men from permitting themselves to be-
come instrumentalities in a course of deal-
ings which the law denounces as contrary to
public policy, illegal, and void; and we think
it may now be considered as settled by the
current of adjudicated cases that contracts
like those above referred to can not be made
like those above referred to can not be made
the basis of any right of action in a civil suit
by or against either party to them." In the
case before it, the Court failed to find any
evidence of an intention of delivery, and re-
versed the judgment of the Court below and
versed the judgment of the Court below and
remanded the case.

## WALTER'S DOUBLE CURRENT MIDDLINGS

 PURIFIER.We illustrate on this page J. T. Walter's Double Current Middlings Purifier, a machine which has met with unprecedented success since its introduction to the trade. Mr. Walter is a practical miller of great experrence and believes he has succeeded in constructing a middlings purifier which will meet the demands of the best millers in the country. Those who have used it are outspoken in their praise of it.
The special points claimed for the machine are its compact form, large capacity, the high character of its work, its freedom from unnecessary complications of parts, and its ingenious device for cleaning the cloth. As
the points claimed constitute the most desir able features in a purifier, a brief description of its method of operation will be perused with interest by the reader.
The middlings are first spouted ints an Automatic Separating Feeder, and spread in a thin sheet by the feed roll. This feed roll has a slide of the usual pattern, but with this difference, that instead of in theold way, with a thumbscrew by hand, it is con-
nected by means of a connecting rod and shaft attached to the slide, to a ball connect ing with the lever which extends through the top of the hoppers. It is easily regulated good point. The heavier particles which may be drawn up are deposited on the outside of the machine, the same as screenings from a smut machine, and may be run back middlings leave the feeder they drop on the head of the first sieve, which is covered with a tine cloth. Here a light draught is used, passing through the sieve and falling on the roof, which slopes in the same direction as sieve. The second sieve is pitched in the opposi
The middlings which are too coarse to pass through the first sieve, drop over the tail and fall on the head of the second sieve. A cur rent of air, independently regulated, passes upward through these tailings as they fall, rewould otherwise go to the second number of cloth. Under the head of the second sieve all the middlings from the first sieve can be caught as they are carried around the second sieve by a curved spout, so that the miller an see at a glance whether the first sieve is doing good work. The second sieve has a coarser cloth than the first, and will therefine middlings have been taken out. This ipve, like the first, has a roof underneath it to catch the middlings which pass through the sieve. It is pitched in the same direcon as the second sieve, or toward the head of the third sieve. The middlings which are too coarse to pass through the meshes of the cloth of the second sieve fall over the tail to the head of the third sieve. Here, as in the ther instance, a current of air passes upthe tail and removes another lot of fuz\% and impurities that would otherwise go to the next number of cloth. The middlings from the first sieve, that is, those that go through the meshes of the cloth, are carried around the second sieve by a curved spout and follow down the same roof with those that pass hrough the cloth of the second sieve and are caught at the head of the third sieve. If any impurities are found here, and if the middlings from the first sieve have been sieve, and to remedy it a little stronger draught should be used. The third and last sieve has coarser cloth than the second, and having nothing but the coarse middlings to handle, a very strong current of air can be used. Instead of this sieve having a roof underit, it has a conveyor the full length, with cut-offs every six inches, so that the whole, a part of, or none of the sieve can be used, it being left with the miller to put it with the first middlings, or only a part of it. The tailings come out on the outside of the machine in plain sight, and the good middlings come out at the end opposite to where the tailings pass out. The seconds pass out under the machine
Over the tail of, and running at right angles with each sieve, are located the air-boxes. They are fastened to the inside frame the same as the sieves. It may be well to state here that the sieves, roofs, air-boxes and conveyors are all fastened to one frame. This may appear to some as a very heavy machine, but it is much lighter than some machines
which use the same number of feet of cloth. The air-boxes discharge at both ends into air chambers on each side of the machine, set ting the heavy dust within, the light fuzz go ing to the dust room. These air chambers are each eight inches wide, and occupy the space between the posts on the main fram of the machines. The fan is located on the op, out of the way, and the air passes up ard in the inside frame of the machine, by means of an inside frame of the machine, by means of an spring on the back end of the machin eeps the machine against the eccentrics. The cloth is cleaned by a snapper fastene the tail of the sieve, and extending the whole length of it, there being a snapper on each rib of the seive. The ribs are aboutsi nches apart, and are lined with rubber, spring. The larger the machine the mor nappers are required. The rubber is placed wear. The inventor lays particular stre upon this cloth cleaning device, as he is convinced of its superiority. He exhibited to us
a seive which he assured us had been running for over a year, and it showed no signs either of wear, of being clogged or pasted over Motion is given to the snapper by a block
fastened on the belt, passing over pulleys and catching the snapper as it passes the seives, The force of the blow can be regulated desired, so as to strike eith-
er heavily or lightly. not space to the special points of adclaimed for this machine, may add here that thesieves inches wide, is no waste of cloth in clothing them. As remarked lefore, the ma-
chine is now in operation in a number
of mills, where we are
informed it is giving very

how on the other side. Has the roller mil et been properly appreciated? Has all the good in it been brought out? Remember, our fore they ever saw a roll. Their habits and ouch are educated to the chop from buhrs, while with the machinery of rolls, simply as machinery, they are utterly unfamiliar. It pparent simplicity is misleading. I know xpensively re-fitted mills that, from shee gnorance on the part of both re-furnisher nd millers, are making dead flour, on rolls have gone pas: line after line of rolls tha vere gnurling themselves to pieces; that
where crooked, out of round, badly fed, dulled nd chipped, clogged and heated; and ye these same rolls, that would make Gray's that sack their flour, in all the glory of red pictures and blue letters, as Extra Roller he word "patent" has, in this country, definite and legal meaning, with a $\$ 400$ me fom forgetting that we one who misuses it Patent Office which has the sole rignt to so permission to use the word.
that the concurrent testimony seems to be the product, considered simply as a product The softer the wheat the more breaks re takes. Thus, where Minnesota hard spring roller milling, our softer winter grades re quire seven,
and $m i x e d$ grades having them take a soft.
The trouble ing six mak breaks with " $9 \times 18$ " rolls mill of consid ity - say 100
barrels per 24 hours at least. i ve suggestlarge garnering and ele-
vating capacity, is to make break, holdings of th results. We may remark alter's dolble current middlings purifier. er, adds no litterienced and successful mil or this purifie weight to the claims made vestigate fully all such claims, and will b pleased to furnish them any particulars de sired. Those who wish them can obtain further information respecting sizes, prices. etc. by addressing a

WHAT ROBERT GRIMSHAW C. E. OF PHILADEL PHIA, KNOWS ABOUT "MILLING NEEDS AND IMPROVEMENTS.

## From his paper read before the Pensylvania miller

## Association. Oct. 10,1882 ) tinued from November number.)

The buhr-ites raise the claim that the buhr as not been developed and well treated that it has capabilities ahead, notwithstanding it runs Methuselah-wards so many dusty centuries. These advocates are right. Not one buhr in five; no nor one buhr in ten, in this state nor in any state, is, so well as it might be, adapted in texture, hardness, and dress, o the work it is performing ; nor leveled, balanced, driven and speeded so as to do any kind of work as well as it might be done. The roller makers are spurring up the stonemen to better and better work. I have seen in the great mills at Meaux in France, where are made the finest of the flours for the
famous bakeries of Paris, 6 foot stones doing famous bakeries of Paris, 6 foot stones doing
work that few mills in this country would not be proud of. In the French burstone quarries at LaFerte and elsewhere, I have noted that about the poorest grades of burr blocks are shaped up by machinery and shipped all ready to put the hoops on after crossing the Atlantic ; and I would advise all to "tight shy" of such ready made goods.
scalping ree
antil the garner is full, then close the first break rolls and run again through the same
rolls set closer, using the same scalper, and rolls set closer, using the same scalper, and
running the tailings this time to the second pair of rolls, which are grooved to make the third and fourth break in the same way, and so on. Th
isfactory.
Shorter rolls than 18 inches have the disadvantage that they take practically the same framing, countershafts, pulleys and belts as long ones, and for only two-thirds the capaand power.

I think that besides the pony break rolls w offered, there will come into favor for mills of 50 to 100 barrels capacity, more
consolidated roll frames; that is, having the expense of framing and setting up lessened by having several pairs of short rolls in one frame, each pair with its separate adjustments of speed, pressure and feed.
One point in which rolls come in play is that light powers can be made available and On fresh wheats, undoubtedly all rollers ucceed better than all buhrs; but there is no reason for any such absolytism.
One of the principal objections to most break rolls is that they break the grain at hap-hazard, "nine ways for sunday," without any apparent defined intention other than to make several pieces of various sizes, shapes and degrees of magnitude. 1 believe that larger rolls and larger corrugations, and the same distance between rolls, would do much more and better work. The first opportuniinch on the fill try four shallow grooves
(Since the fore bing was witter.
(Since the foregoing was written, Mr. Louis H. Gibson, a most intelligent and successful miller, states that eight flutes work better
than ten.)

Rollers seem to effect gradual reduction etter than any thing else. In bran cleaning hey have powerful rivals in the brush and beater machines. For middlings reduction and flouring, the millstone does its work well enough for anybody ; and indeed, per haps, better than rolls. In this matter, circumstances must govern you. If you have ood, sharp buhrs, with proper balanced rive, already in the mill, all that need be one will be to suitably change the dress of解 No one need argue that it can't be done for it is done every day. But if the buhrs are oft, open stock, pitted and mended up with lum or with chloride of magnesium, (o worse yet, with melted lead); either keep hem copping or for corn feed, or rol elics. teps. It is certain that if the buhrs run on pointed instead of spherical cock-heads and are not bsolutely true in face, level, tram, drive and balance, the miller need not expect good esults; and he will not get them. This iece of advice may be thought trite. There may be millers who will laugh at it and say hat they knew all thas. It has been laughed at before by millers who "knew all that itted whose own buhrs were lopsided pala, winding, ringed, out of tram ; not in hat was hot, greasy, uneven, lumpy and killed; who never saw a diamond dresser nd never owned a true staff. Such men sometimes make money, it is true, but it is ecause there is no other mill within 20 miles, and the The rolls must be kept in shape as much as the buhrs. Not that they need it as often, or will so quickly refuse to work at all; but frequent retouching the grooves with a proper machine, will pay. Such a machine should work any style of flutes, with any desired wist and any number per inch or per roll. hould be readily controlled by a laborer and not take over one H. P. to dress at the rate of two flutes per minute. This business of解 harpening
As to purification, I think that one of otir when he talks about purifying flour. I don't say that it can't be done, but it would take a good machine to do it, and it seems to me orking in the wrong direction. The object the middlings purifier was to precede the olts and some of the reduction machines; take out specks and germ before they were al more difficult or even impossible. Now carrying out further this idea of an ounce of prevention being worth a pound of cure, me miller and the inventor are pointed towards wheat meal purification, which has in the Northwest ; mills in Virginia and some measure of success fair that he may become a man; and it is not safe to ridicule wheat meal purification, even although low milling has not been yet set up on its legs again by the ehop purifier. About the only thing that I have heard of yet, that absolutely, as well as proverbially, impossible is "to whistle and chew meal at

## The value of a purifier is not determined

 by the square feet of cloth it contains, nor by its capacity per square foot per hour ; but by its capacity to work your middlings up may work admirably for your one machine log and waste with you and speck the product of a third man.The purifier had been improved up to a very satisfactory point before the reel and Still, in belting madra notice or invention. These are in three distinct lines : first, the centrifugal dresser, with high capacity; second, the stationary screen with rotating beaters and distributors, with marvellous faculty of changing silks ; and third, betterments in the framing of the reel ribs and the stretching of the silk. The improvements in chests are for the most part purely structural, though the cheapness, tightness, and ease of transporting and erecting, make them praiseworthy. At present, attempts are made, and some of them highly successful, to substitute cylindrical for hexagonal reels ; to assist the action of these cylindrical reels by outside straps, whips and knockers, and wide revolving brushes and beaters; and even to throw out the rotating reel and use instead a serew agitator, throwing the chop

CARDEN CITY


Perfection on First Break.
Superior to most

## uent Reductions

Every grain of wheat split through the crease, and so thoroughly done that the split kernels can be brushed or scoured.
The Best and Cheapest Reduction Machine and System yet offered.
Substantial, Durable, Noiseless and Light Running, Slow Motion, Large Capacity.

## RESULTS GUARANTEED. TO ROLLER MHLLS:

We guarantee to improve your Milling by using our First-Break Machine and System. We Split making a greater percentage of high-grade flour than can be made under ANY OTHER SYSTEM. TO MTLLERS:
We have fitted up in our factory a room in which we have several of our Reduction Mills
running. We cordially invite you to pay us a visit, bring sample of your wheat, give our Machine a thorough test, and judge for yourselves.

## GARDEN CITY WHEAT PhiSHI

Gathmann's Patent "inclined bristles"

## ONLY DOUBLE BRUSH

Thoroughly Brush Wheat Guaranteed to IIIPROVE color of the flour. It don't break or scratch the grain. Removes all the dust. Very light running. Send for circular and prices.

## Prices Reduced!

 Improved Garden City Wiililigeg PulifirlWith Travelling Cloth Cleaners

Our impored Purifer has every derice requisitio to make it perfect, and every one in useig iging the greatest estisfaction to the users. The Cloth Cleaners are guaranteed to clean the cloth better than is done any other purifier
Over 4000 Garden City Purifiers in use, nearly 800 of which are the Improved Machine.
The Best and now the Cheapest. Write for We are agents for the

## BODMIFR

Bolting Cloth!
Which has long been acknowledged as the best made, and which has lately been further improved, making it now beyond competition. We make it up in the best style at short notice. Send for prices and samples.
Garden City Mill Furnishing Company, CHICAGO, ILL.
against a single line of stationary silk screens,
These improvements are well worth keep These improvements are well worth keep
ing in view. In bolting, the high art of mill ing comes into play ; for here after all are the and dinicult lasks, and the most imperfec and least understood machines in the mill. ful; of great size, little capacity, and imperfect work. In bolting, the arrangement of
cloths, conveyors, slides and spouts should cloths, conveyors, slides and spouts should
be such as to give all possible chance to make as many grades as possible, should you wan
them ; and then having found by experimen them; and then having found by experimen
just where to stop for your patent and fo each grade made, to get the best market re sults from that wheat and process, fix the
dividing line there keep it neither better nor worse right, an In bolting cloth, it is hard to imagine any need or even chance for improvement in the better grades; and all I can say in this con-
nection is, that there are thousands of square feet of silk, in this section, with are not full count, double twist, square mesh, and even
weave, although they are run by some pretty keen business men. There is such a thing as saving ten cents a yard in first cost of silks,
and losing many times that amount in wew and tear, and in decreased value of product lines of are in the market two or three genuine of these ; and a few poor grades not worth counterfeiting. See to it that you buy of
houses and dealers who are capable judge of the market, and that you get full count and double twist, smooth, sharp and regula
The square feet of bolting surface per bar rel of flour per hour, is yearly increasing
but luckily the capacity of reels, as well as the quality of their work, is improving, also of yield ; and all I intend to do is to set you thinking. There is such a thing as robbing wheat, a certain amount of good stuff which cannot be got out from the offal, and there try to get out. You may save ten pounds to the barrel, of good, fair flour, showing u well in the yield sheet; but it may have
with it two pounds, or even one pound, of discoloring material, that will lower the selling price of that flour double as much as the value of the good stuff saved. To keep the low grade rich enough, is just as much of a to follow what the Jrish it poor enough ; and ixtrame," calls intc play the commercial side of milling, as well as the scientific and practical. for gold dollars. Remember that medals, but profit in modern milling, is saving. It is a number of net two per cents, carefully saved twenty per cent. whit will make the ten over your neighbor up the stream. The
miller who thinks that he can find cleaning machinery which will take out 10 pounds and reduction machinery that will give fifty pounds of sharp middlings from the same ori-
ginal bushel, after the ten ginal bushel, after the ten pounds of dirt are
taken out, will be disappointed. If it costs ifty-six cents to make a barrel of flour from
270 pounds of wheat, worth $\$ 4.50$, cents to make the same stuff from 260 pounds, better not rob the red-dog. If in cost 56 cents ifty pounds pounds of flour from four bushel the same amount from 4 bushels, thirty pounds at the same price, only by reducing make white bran. It is not price, but pro fit, that should be looked after. It is not a question of how many barrels of flour you
can make out of 1000 bushels of wheat, how many pounds or barrels of your Pearl, or Lily, or Snowflake, will dough up ; but you can make out of your mill. In pre cor ner of the state, it may pay best to run the
mill for all it is worth in clearing fifty cents per barrel on 100 barrels of $\$ 7.00$ fiour rather than sixty cents each on
seventy-five barrels at $\$ 8.00$. Generally, the increased profit is on the higher grades; but there are so many controlling circumstances
that each miller must determine for hinself what best suits his wheat, his mill, his mar ket, and his capital.
Fight shy of making too much patent. The word "patent" is as elastic as India rubber ased to be when it was pure and good. It
means anything from 10 the product. The line for "patent ought to be drawn at some point which would mean be drawn at some point which would mean
that above that grade would dough
up a certain number of pounds to the barrel, tional Convention. As it is, the line between patent and next grade is drawn so far down that it reminds me of cutting a dog's tail o behind his ears. How many of you can lay
your hands upon your hearts and say that you can tell what is meant by "patent"? The cut-off slide for "patent" varies with the wheat and the market. "Patent" means the yield may be. It is to the purchaser wh has no aleurometer and no skill in doughing quantity, a variable proportion of an unknown and the "Patent" ought to mean something at least, to mean some certain number of pounds of dough to a barrel of flour
liked hash, because he always knew what he was getting. Well, that is about the way The "patent.
The yield must be increased by careful se lection, cultivation and preparation of the wheat. When you have struck forty-five pounds of flour per bushel,, or to put it better, got seventy-five per cent. yield, then it is into bringing you better, firmer, stronger, envier, cleaner wheat, with bran that is a once thinner and tougher, and something
else-besides starch filling. He might also be persuaded to omit some of the garlic, which appears to be a Pennsylvania speciality; and

## keep goats.

It is happily to be noted that the per-
entage of gluten in Fultz wheat is increasing eel millers who are not farmers should eel just ment will be so radical that the signs " N Clawson or Fultz wheat wanted" can be take sending to Preston for spring wheat to lear that Kansas winter wheat is in demand in Milwaukee, because spring wheat in Minne ota, Wisconsin and parts of Dakota seems be running down in hardness.
In the matter of color, in the race for an absolute white, remember that there are known to artists several kinds of white, blue white, yellow-white, etc.; and that while one way, and should be discarded because they are innutritious and in fact injurious, you may have a yellow-white flour that wil be more nourishing than some that is adjudged a better color ; and in fact it may dough up and bake up whiter. This question of sample of granular flour and divide it inte wo portions, and reduce one portion finer and it will have a different color.
When it comes to strength, housekeepers, your the eventual consumers of most of care less. I have heard "Best Minnesota Gold Medal, Patent Spring," condemned on the ground that it made too hard, dry bread
The housewife had made her mix of dough using the same proportions of water as with raight winter grades. So that is a memo randum worth making. The average housewife doesn't make good bread; those who do don't go at it with à pair of sćales and a quart ing strength in fincy your efforts concentra will probably pay you better to try to strength in the whole yield, up to you will not get repaid :or further im-
provement. If a barrel of flour that will dough up 392 pounds cost you $\$ 7.00$ to make counting interest and all expenses, and you get $\$ 8.00$ for it, there is no commercial economy in making a better grade, to dough up 420 pounds and getting $\$ 7.25$ for it, if it cost gardening for Cattls like some of this fanc as large as a cart, but cost $\$ 1.00$ a pound to raise; or the sorghum sugar that our paternal ington, which cost just $\$ 42.00$ a pound to Let me class wheat Let me class wheat germ as the great Amer ican bug-a-boo. The germ is really amoug the most nourishing parts of the berry; and
unless the flour is to be exported, the more there is of it in flour the richer it is. I know millers who are paying thousands of dollars for alleged germ extractors, and turning right round and buying germs at the drug stores as lids. The public must be educated for invato buy flour that is not only yellowish by reason of containing the germ, but to prefer it The same public was educated to eat not only so called "Graham" flour, but uncleaned
bran ; and even now I see travellers at the
high priced hotels abusing the waiters because there is no bran bread; and that bran bread is made principally out of red-dog and cleaned bran. If they will eat cleaned bran, which is not good for them nor for any animal, they will eat germ flour which is good for them. I will undertake, with the aid of ten notable and ten fashionable physicians, to create a demand for germy flour that will boom up above your extra best silk sifted, wind wafted, china ground, middlings patent new process flour.
There is much experimenting with prope mixes of wheat of widely differing kinds. All he directions I can give on this point are Don't." If it is found desirable to grade the different sizes of one kind of wheat (and it as-
suredly is) it certainly is bad practice to mix widely differing wheats is bad practice to mix roller flutes good foats. She buhr-urrows or ter the bran of the hard, and altogether the plan is bad policy. If mixing is to be done, grind the wheat grades separately, and mix the product.
There are few machines that will pay for hemselves more rapidly and satisfactorily than a good bran dresser. Any machine which recovers waste cheaply, runs up the profits.
A hominy mill is a better paying adjunct to mill than a corn stone. The dust chamber will be found a valuable adjunct; saving stock, keeping the mill dry and warming and lessening the risk of explosions.
I could never see how in so called tin roofing there was any sense in paying one man $\$ 2.00$ a day to chop your alleged tin into 16x ${ }^{3}{ }^{3}$ squares, and then hiring two others to turn up their edges and solder them up in a
leaky way into strips. Sounds foolish; don't Set how much more economical is it to ip out inch boards into strips, and nail and miter them up into cumbrous spouts that hey will carry ap nearly dead plum before $p$ and choke, take up half of your foor room nd spread fire as if built for the purpose when you can buy round tinned spouting with curved elbows, for less money, and have tighter, snugger, better and safer job
In packing and shipping, remember tha oods of any kind attractively and securely put up bring a better price and need less ad vertising than the same put up in ugly pack
ages. There is a good deal in captivating the good wife in each of the thousand home where your best work is meant to attractive brand often secures a trial. Many of you remember in this connection a story did of an Indian squaw who strolled into Winnesota mill in those days when the North West was doing its best to make as good Rochester Richmond and Wilmington and paint to and had to rely on stencils and red paint to do it-and fell in love with and stole rom the bachelor owner a gorgeous flour
sack, which she proudly wore around the best cets of the young town, parading herself as Bartlett's Best choice."
Let me predict the early abolition of the a mon pounds, and their substitution by com to reckon. The publishers of wheat tables nd ready reckoners may pooh-pooh the hange, but it is for the millers' and customIn alterings.and will come all the same. In altering small stone mills, remember that of purifier should precede all other changes (of course, atter the cleaning has been brought p to a creditable point.) Next may follow ill pes or oher styles of bran cleany which lingernit higher grinding, giving mono here is enough purifying and bolting surface and to spare, rolls may betried on the germy middlings and tailings from the purifiers; the uantity of which will have been increased by eason of the higher grinding which followed When atting in of the bran rolls or machines. fitting out a mill, there should be attached plans, diagrams and specifications, showing ccurately what is to be done and how, and what result is to be obtained; the yield quality from a certain grade of wheat, being guaranteed as equal to some stated quantity nd standard. And if the price seems to in cate that somebody is going to "get left," that up before signing. The word " at up before signing. The word "guarantee Pick up any one of the milling papers and note from two to a half dozen rivals, in each line of articles, each "guaranteed" to be bet
ter than all the rest. ter than all the rest. It reminds me of the was the best in town; the second then advertised that he was the [Continued on page 27.]

# The Goo. T, Smith Middilings Purifier. 

# LOW IN PRICE, 

Quantity and Quality of Work Considered.
Licensed Under all Patents
Owned by the Consolidated Middlings Purifier Company.

Simple, Easily Adjusted,

For the more complete protection of our customers, and to put an end at once and forever have recently for royalties by which they chased ALL PATENTS relating to Purifiers,
chen annoyed, we have purlately owned by Huntley, Holcomb \& Heine, including the well-known MIDDLETON PATENT and its several re-issues. Every purchaser or owner of a Geo. T. Smith Puriter, in the past or future, owns the right to
use it unmolested and unchallenged, and in this right we have, can and shall protect them Intending purchasers should give this notice attention, as it is of the utmost importance to

Adapted to all Systems
Of Milling, and every Grade and Condition of Middlings.

FOURTEEN SIZES
Single, Double and Special Machines.

Duráble, Light Running.

## Two Thousand SMITH PURIFIERS were Sold in 1881.

THE SMITH PURIFIER is in Use in every Milling Country in the World. More than Four Thousand are now running in the United States.
The Smith Purifier has a Positive and Effective Means of Cleaning the Silk of the Sieve. The Smith Purifier has Graded, Controllable Air Currents. It is Impossible to do Good and Economical Work without these Features.
OUR CLOTH TIGHTENER OUR AUTOMATIC FEED Makes it both convenient and easy to keep the Silk a!ways properly stretched. $\mid$ IS POSITIVELY SELF-ADJUSTING AND RELIABLE. WRITE FOR DESCRIPTIVE PRICE LIST AND CIRCULAR TO
GEO. T. SMITH MIDDLINGS PURIFIER CO., Jackson, Miohigan.

## A NFW DTPARTURTF

We are the Sole and Exclusive Licensees for this Country under the
MOPEREITEZ MIAFMIIN PATEMNTE $\therefore$ ON

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

## NEW CLOTH FIXING AND STRETCHING DEVICE,

 NEW AND SIMPLIFIED MANNER OF DRIVINC.THE CENTRIFUGAL has more than FOUR TIMES the capacity of the ordinary reel, and will make clear flour and
 IT ISINDISPENSABBLE to a CLOSSE FINISH in any system of gradual reduction milling, and will improve the qualdiy of the low grade flour at the same time it makes the offal cleaner: from smooth rolls, which no other style of reel can

OveI One EIunndied sold in six voeelre. REFERENCE TO LEADING MILLERS IN THE UNITED STATES.
Write for descriptive circular and price list to
GEO. T. SMITE MIDDLINGS PURIFIER CO., - Jackson Michigan.

## WOODBURY, BOOTH \& PRYOR

FROOEEFEFFRE, N. Z.


Manufaoturers of
Automatic Cut-Off, Fixed Cut-0ff, and Slide Valve

## Staam Engines, Tubular Boilers.

[Mention this paper when you write.]

MARSERAエ工'S NEW CORN SHELLER.


The only Self-Adjusting Sheller in use that will
SHELL MIXED CORN, FAST AND WELL,
and that will clean it THOROUGHLY, And that will clean it THOROUGHLY.
Easy of access to all parts liable to clog. Thoroug
made. Sold as cheap as the cheapest. Send for circulars to
G. MARSHALL \& SON,

Founders and Machinists and Manufacturers of Marshall's Rotary Foree Pump. Improved
Jonval Turbine Water Whel, Jonval Turbine Water Wheel, etc.
[Mention this paper when you write to us.]

BUDGETT, JAMES \& BRANTH, Flour Merchants,
bristol, england.
[Mention this paper when you write us.]
Orobio de Castro \& Co., AMSTERDAM (Holland), Europe, Telegrams, OROBIO, Amsterdam, FLOUR and GRAIN. American Correspondence Solicited.
Consignments Acepted.

WILLIAM BRYCE \& CO., LONDON (England.) 40 St. Enoch SQuark, CLASCOW (Scotland.)

BRYCE, London or Glasgow.
CONSIGNMENTS OF FLIOUR SOLICITED.

## STEEL CAB

 Made entirely of STEEL. ONE MAN with it can easily move a loaded ear.Will not slip on fice or $\underset{\text { Wrease }}{ }$


A. PLOUVIER,

Agent for Flour,
ANTWERP, (Belgium.)
Advances on Consignments.
W. M. SHOOK,

Millwright and Contractor
Dealer in all kinds of Mill Furnishings. PRACTICAL ROLLER MILL BUILDER, Office and Shops 172 and 174 South Market Street, CANTON, OHIO.

## WALKER BROS. \& CO.

 flour and grain Commission Merchants trinity square,London, E. C.,
England.
WILLIAM MITCHELL, Flour and Grain Merchant, Londonderry, Ireland.
Consignments and offers solicited.
References:-Messrs Gill \& Fisher, Balti-
BIRGE \& SMITH, PRACTICAL IIILI IIILIIIIII
plans, specifications \& estimates made for all kinds op
MILLWORK, MACHINERY, ETC Flour, Sawmill, Tanners' and Browers' Machinery, and General Mail Furnishers,
Corner of East Water and Knapp Sts.,
MILWAUKEE, - - WISCONSIN.

POOLI \& HONT'S
Leffel Turbine Water Wheel
THE SMALLEST IN THE WORLD!

## Machine Molded Mill Gearing <br> 

 Mixcres and General Outfit for Fertilizer Works.POOLE \& HUNT, Baltimore, Md.

## DOUBLE CURRENT <br> MIDDLINGS PURIFIER.





# James Leffel's Improved WATER WHEEL. 

new price list for 1881,


 dames leffel a Co., springfeld, ohto.
Menton this paper when you write to us.]

|  | FROM 1-4 to $\mathbf{1 0 , 0 0 0}$ LBS. WEIGHT. <br> True to pattern, sound and solid, of unequaled strength, toughness and An invaluable suibstitute for forgings or cast iron requiring threefold Gearink of ail kinds, Shoes, Dies, Hammer-Heads, Cross-Heads, for Loco 15,000 Crank shants and 10,000 Gear Wheels of this steel now running <br>  Circulars and price list free. Address, |
| :---: | :---: |
| Works, CHESTER, PA <br> +Mention this paper when you write us. | CHESTER STEEL CASTINGS CO., 497 Liberty st. Phlladelphia. u |

Buckwheat Refiners \& Portable Mills.
 shewster's celezeratei
Buckwheat Refiner
 PURE, WHITE, SHARP FLLOUR



BREWSTER BROS. \& CO., Unadilla, $N$. $Y$.

## [Mention this paper when you write]

## HARRIS-CORLISS ENGINE.

WM. A. HARRIS, Providence, R. I.
Built under their original patents until their expiration. Improvements since added: "STOP MOTION ON REGULATOR," prevents engine from running away; "SELF-PACKING VALVE STEMS" (two patents), dispenses with
tour stuffing boxes; "RECESSED VALVE SEATS" prevent dhe tour stuffing boxes; "RECESSED VALVE SEATS" prevent the wearing of shoulders on seats, and remedying a troublesome defect in other Corliss Engines, "BABBITT \& HARRIS' PISTON PACKING" (two patents). "DRIP COLLECTING DEVICES" (one patent). Also in "General Construction" and "Superior Workmanship."
The BEST and MOsT WORKMANLIKE form of the Corliss Engine now in the market, gul stantialy bailt, of the best materials, and in both Conlensing and Non-Condensing forms.
The Condensing Engine will suve from 25 to 35 per cent. of fuel or power and consnme no more fuel. Small parts are made in quantities and interct amount to the mept in stock, for the convenience of repairs and to be placed on new work ordiered at short notice
NO
OTHER encine NO OTHER engine bnilder has authority to state that he can furnish this engine
The ONLY WORKS where this engine can be obtained are at PROVIDENCE, parties being licensed.
[Mention this paper when yon write to ns.] WM. A. HARRIS, Proprietor.
(Continued from Page 24.) best in the world; while the third then simply nolined the people that he was the best in that street. Have nothing to do with any such co nparative guarantee. What you wan
to know is how much and how good work the to know is how much and how good work the
engine or machine, or whatever it is, will do. I hardly need speak of the great desirability of taking an interest in the literature of your ancient but progressive craft, and of exchanging ideas through the columns of the official organ of your growing and profitable Association, and of other reputable milling journals. The catalogue of failures is as instructive as the record of successes ; perhaps more so. Hence if any of you have tried some certain machine or process and found
it wanting, let your fellow-members know the it wanting, let your fellow-members know the
facts and the reason why; and if you don't facts and the reason why; and if you don't
know the reason why, perhaps some one else can tell you.
And now in conclusion, let me hope that your meeting and discussion will be product ive of benefit ia a social and commercial way; that your mutual acquaintance and united action will result in better work and better profits and in pleasant friendships. Come next yea to the Convention; and don't any of you come not only of discussions of grave matters of not only of discussions of grave matters of
trade and business, but opportunities for wives and daughters to travel and meet each other

## NEWS



## MR. H. J. Klingler, of Butler, Pa, Messrs. E. P. Allis \& Cos roller outits.

THE Case Mfig Co., Columbus, o.,
Miller, Milton, Iowa, with smoeth rolls.
I. Q. Halteman \& Co., of St. Louis, Mo., have lately put
in two pairs of Allis Rells in Gray's noiseles frames. in two pairs of Allis Roolls in Gray's noiseles frames. Srour Bros. of Emporia, Kans., have put in some new
machinery, furnished by the Case Mfy. Co Columbus 0 . machinery, furnished by the Case Mfg. Co , Columbus O
THE Case Mg. Co., Columbus, O., are furnishing Allen nery.
Messrs. Mattrews bros, of Anamosa, Iowa, have
lately put in two pairs of Allis rolls in Gray's Noiseles
frames. The Case Mfg. Co., Columbus, o., have recently fur-
nished Henry C. Lamb; of Denison, Iowa, some new machinery
c. A. C. A. Pardee, of Colesburg, Ky., has placed an order
for a mill outfit with Nordyke \& Marmon Co., of Indinaa polis, Ind.
first Break Machine, furnished by the Case Mifg. C Columbus, O
Allis Rolls in Gray's noiseless frames, from E. P. Allis a of Milwaukee, Wis
Hikry Reinhart, Wall Lake, Iowa, has ordered one
$9 \times 18$, four Roller Mill, for Bran \& Germ, from the Case Mfg. Co., Columbus, 0
put in a line of rolls in \& Co., of Milwaukee, Wis., have
Messes. E. P. Allis \& Co., of Milwaukee, Wis, have lately
shipped to O. F. Barber, of Golden, Cal., two pairs of Allis Rolls in Gray's noiseless frames.
H. KEPPEL. \& Son, of Zeeland, Mich., have put in two
pairs of rolls in Gray's noiseless frames, from Messrs. Edw
P. Allis \&Co. of Milwankee, II is. Messrs
ly sold M His rolls in Gray's noiseless frames
The shepard Hardware Co. of Butfalo N. Y. recently
purchased an 18x42 Reynolds Corliss engine of Mesars Edw. P. Allis \& Co. of Milwaukee; Wis.
Militon E. Briggs, bas put in a roller outtit, purchase
from Messrs. E. P. Allis \& Co, of Milwaukee, Wis., for
James Gambrill, of Frederick, M. D.
The Case Mfg. Co., Columbus, O., are furnishing the
Brookville Mill Co., Brookville, Kans., with Break Machines, Scalping Reels, Rolls, Purifiers, el Messrs. Edw. P. Allis \& Co., of Milwaukee, Wis., late-
ly put in two puirs of Allis Rolls in Gray's noiseless ly put in two puirs of Allis Rolls in Gray's n
for Mr. J. T. Williams, of Roscoe, Ohio.
Gro. A. Klingen, of St. Charles, Mo, recently put in two
pairs of Allis Rolls in Gray's noiseless frames, from E. P. pairs of Allis Rolls in Gray's noiseless frames,
Allis \& Co , Reliance Works, Milwaukee, Wis. Mrssks. E. P. Allis, \&Co., of Milwaukee, Wis., recently
sold Mr. Ferd. Schumacher, of Akron, Ohio, a pair of 22 x 48 Reynolds' Corliss engines, for his new mill. Miless \& Lenhart, West Mill Grove, Ohio, have placed
their order with the Case Mfi. Co. Columbus. their order with the Case Mfy. Co. Columbus, O
duction machines, smooth and corrugated rolls.
Messes. E. P. Allis \& Co., of Milwaukee, Wis,, have
recently sold Mr. J. S. Oborn, of Shellsburg, Iowa, two recently sold Mr. J. \&. Oborn, of shellsburg,
pairs of their Rolls, in Gray's noiseless frames.
Messses. E. P. Allis \& Co., of Milwaukee, Wis., have re-
cently shipped four of their Rolls in Gray's noiseless frame to the Iowa Iron Works Co., of Dubuque, Iowa.
Messrs. E. P. Allis \& Co., of Milwaukee, Wis., have ship-
ped to San Francisco, tify-eight pairs of Rolls, for a large mill in California, all in Gray's uoiseless frames.
Orro Zarges, of Dugway, N. Y., has recently fitted up his
mill with Rollsand gradual reduction machines, purchasmill with Rolls and gradual reduction machines, purch
ed from Messrs. E. P. Allis \&Co., of Milwaukee, Wis.
Mr. W. E. Partlow, of Greenville, Mich., has recently put in two pairs of Allis rolls in Gray's noiseles fran
from Messrs. Edw. P. Alis \& Co., of Milwaukee, Wis.
The old established milling firm of the D. Suppinger © of milling, and will at once commence the erection of a 350 -barrel roller mill. After a searching investigation of

| the different systems, they have concluded to adopt the |
| :--- |
| rolls and machinery made by Nordyke \& Marmon Co., of | rolls and machiner

Indianapolis, Ind.
Msssrs. E. P. Allis \& Co., of Milwaukee, Wis., have reeently put in two pairs of Allis Rolls, in Gray's no THE mill of J. G. Wolf \& Co., at Morristown, Ind., being remodeled to the new process, using machiner The Winona Mill Co., Winona, Minn., after using number of the first Break Machines from the Case Mfg. , MEssRs. E. P. Allis \& Co., of Milwaukee, Wis., have re ently furnished Messrs. J. Wagner \&C Co., of San Francisc with one of their Roller outfits, in Gray's noiseless frame.
Mssses. Chisholm Bros. \& Gunn, of Minneapolis, Minn have recently ordered sixty one pairs of Allis Rolls Messps. D. B. Merrill \& C Co., of Kalamazoo, Mich., recen y ordered an Allis Roller outit in Gray's noiseless frame
rom Messrs. Edw. P. Allis it Co., of Milwaukee, Wis. M. T. Boult, of A ppleton, Wis, has put in ten pairs
Alis Rolls in Gray's noiseless frames, from Messrs. Edw. . Allis \&Co., of the Reliance, Works, Milwaukee, Wis. Mrss.ss. E. T. Archibald \& Co, of Dundas, Minn., hav
lately ordered two pairs of Allis Rolls in Gray's noiseles rames from Messrs. E. P. Allis \& Co., of Milwankee, Wis.
M mssrs G \& W. Todd \& Co., ot St. Louis, Mo., have re-
ently ordered six puirs of Allis Rolls in Gray's noisele ently ordered six pairs of Allis Rolls in Gray's noiseless
rrames, from Messrs. E. P. Allis \& Co., of Milwaukce, Wis. MEssss. E. P. AlL.ss \& Co., of Milwaukee, Wis., have
recently shipped to San Francisco, difty-eight pairs of rolle or a large mill in California, all in Gray's Noiseless frame. is mill with rolls and gradual reduction machines pu chased from Messrs. E. P. Allis \& Co., of Milwaukee, Wis.
Messms. E. P. Allis \& Co of Milwaukee, Wis, have MEssRs. E. P. AlLis \& Co, of Minwaukee, Wis, hav
recenty sold two pairs of porcelain rolls in Gray's Noise
less frames, to Messrs. A. G. Godshall \& Bro., of Landalat

Mr. J. V. Farwell, of Chicago, Il... recently purchased
24 x 48 Reynolds Corlise a 24 x 48 Reynolds Corliss engine, from Messrs. Edw. P
Allis \& Co, of Milwankee, Wis,, to drive an electric light Allis
plant.
placed their order with Messrs. E. P. Allis \& Co., of Mi waukee, Wis., for two pairs of Allis rolls in Gray's Noise less frame.
H. C. Barry \& Sos, of Waukegan, III., lately im
proved their mill by putting in two pair of rolls in Gray's oiseless frames
Milwauke, wis.
MEssss. C. A. Donnell \& Co., of Conway, Iowa, have
recently made improvements in their mill by putting in
Rolls in Gray's noiseless. frames, from E. P. Allis \& Co.,
Milwaukee, Wis.
Mr. Henry Kritzer of Newaygo,Mich.,has lately improy
d his mill, and added a Roller outitit in Gray's noiseless
frame from Messrs. E. P. Allis \& Co.'s Reliance Works
The Elkhorn Mill Co. of Boonville, Ind., have recently same purchased from Messrs. E. P. Allis \& Co., of Mil
saukee, Wis.
The Cockle Srparator Mrg. Co., of Milwaukee,
Wis., recently placed their order with Messrs. E. P. Alli
Co. of same place for twenty pairs of Co. of same pla
The Case Mfg. Co., Columbus, O, tract of Dye \& Weller, Troy, O., for a full gradual reduc
tion mill, of Breaks, Rolls, Purfiers, Scalping-Reels etc on the Case system,
Charles semarers, Belmont, Wis., is improviug hi
mill by the addition of Break Machines and Scalper mooth and corrugated Rolls, furnished by the Case Mfg.
The Pond Engineering Co. of St. Louis, Mo., recently At in a $12 \times 30$ Reynolds Corliss Engine, from Messrs. Edw.
Allis $\&$ Co., of Milwankee, Wis. for t. Allis \& Co., of Mi.
of Grand Island, Neb.

Messss. E P. AtLlss \& Co., of Milwaukee, Wis., lately
put in one of their gradual reduction machines and four
pairs of rolls in Gray's Noiseless frames, for Mr. Gieo. pairs of rolls in Gray's No
Wall, of Stacyville, Iowa.
putting in two gradual reduction machines and two pair Milwaukee, Wis.
Messrs. Brown Bros., of Stevens Point, Wis., recently
purchased of Messrs Edw. P. Allis \& Co of Milwauke purchase of Messrs Edw. P. Allis \& Co. of Milwaukee
Wis., one of their $20 \times 42$ Reynolds Corliss Engines, to rui their saw mill at that place.
A gradual reduction mill will be built at McKeesport, and machinery will be used throughout. The capacity
THE Caye Mre
The Case Mfg. Co. Columbus, O., have been awarded
the contract of Gieo. L. Hays, Piketon, O. he contract or Geo. L. Hays, Piketon, O., for a fill gradual
reduction mill, of Breaks, Rolls, Purifiers, Sealping Reels, ete., on the Case system.
Hanavalit \& Co., Tipton, Mo., have placed their order
for Breaks, Rolls, Purifier, Scalping Reels etc., for a full gradual 'reduction mill,
Case Mfy. Co., Columbus,
Messhs. Sieberling Bros., of Akron, Ohio, lately place their order with Messrs. E. P. Allis \& Co., of Milwaukee
Wis., for a $24 \times 48$ Reynolds Corliss encine, Wiss, for a $2 \times 18$ Reynold
flouring mill at that place.
MEssks. EdW. P. ALLAs \& Co., of Milwaukee, Wis. re
cently sold Mr. W. Deering of Chicago, Ill, one of their centy sold Mr. W. Deering of Chicago, Ill, one of their
$24 \times 48$ Reynolds Corliss Engines to run his extensive har vester works at that place.
Messss. Edw. P. Allis \& Co., of the Reliauce Works,
Milwaukee, Wis., have recently put in nine pairs of Milwaukee, Wis., have recently put in nine pairs of
their rolls in Gray's noiseless frames, for Messrs. Suively \& Hedges, of Wathena, Kas.
The Hudnuts, of Terre Haute, Ind., recently put in six pairs of rolls in Gray's Noiseless frame, purchased grind corn in their hominy mill.
Messis. Edw.P. Allis \& Co., of Miliwaukee, Wis, are put
ing in an entire line of Allis Rolls, in Gray's noiseles ing in an entire line of Allis Rolls, in Gray's noiseless
frames, for Mr W. Banning of Mt. Vernon, Obio. Outitit frames, for Mr W. Banning of Mt,
includes eight pairs of Allis Rolls.
ncludes A .
A contract has been entered into, by which the Chicago
waukee \& St. Paul Railroad, transferred Ot Pullman Company, the control and management of their entire sleeping car system, covering over 4,000 miles of
road. This contract completes the line by which a contin
nous system of Pullman cars will be established betwee y York and Portland, Oregon.
M sssrs. Wardell \& Hinkley, of Chicago, In., recently rdered a 14 by 36 Reynolds Corliss eng'ne of Messin
dw. P. Allis \& Co of Milwaukee Wis, for en \& Tallaksou, of Chicago, ill.
The mills of Thos. Hallown of Grant. Iowa, and the new, process by the mill both being remodeled Marmon Co., of Indianapolis, Ind.
A new flouring mill is being built at Lucas, Mo., con aining three buhrs. The proprietor, Mr. Taylor, is hav ing his machinery made to order
Marmon Works, at Indianapolis, Ind
The mill of Little, Lilly \& Co., at Littleton, Col., ranks mong the largest and best in that state They are add-
ng Nordyke \& Marmon's rolls, centrifugals, etc. to enable them to keep their mill at the front.
Mr. W. M. Shook, of Canton, Ohio, recently ordered
from Messrs. E. P. Allis \& Co., of Milwaukee, Wis., two
pairs of Allis rolls in Gray's Noiseless frames, for H. J,
Sommen \& Bro., of Canton, Ohio.
THR Case Mf. Co. Columbus, O. have taken the con
ract of Wm. Forseman \& Bros., Circleville, $O$, for Roll
tract of Wm. Forseman \& Bros., Circleville, 0 , for Rolls,
Breaks, Purifiers, scalping Reels, etc., for a fill gradual
reduction mill, on the Case system.
Messer Edw. P. Allis \&Co., of Milwaukee, 'Vis, recently old a $12 \times 36$ Reynolds Corliss eugine condenser, and Rey Wileir new flouriug mill at Fox Lake Wis.
Woore, Lockport, N. Y. are changing their
sill to the gradual reduction system. They have place
Rolls, Breaks, Purifier, Scalping Reels,
MEssRs. E. P. Allis \& Co. are remodeling the mill of
Iessrs. J. Stoltz \&Co at Pekin, Ill., and putting in eight
pairsof Allis Rolls in Gray's noiseless roller frames, togeth
Messps. E. P. Allis \& Co., of Milwaukee, Wis., have lately
furnished Messrr. C. B. slater \& Co., of Blanchester, Ohio,
wo pairs of Allis Rolls in Gray's noiseless frames, for a
nill which they have under construction.
Tue Minneapolis Harvester works of Minneapolls,
Minn., lately put in a Reynolds pat. Feed Water Heater to go with the engine. purchased from Messrs. Ed
Allis \& Co., of Milwaukee, Wis., a short time ago.
F. S. Johnson de Co.'s flouring mill and elevator, at Mil-
ord Neb., were burned last week. There were about 5,000 bushels of wheat in store, which was entirely
ed. The total loss is over $\$ 100,000$; fully insured.
MrsssRs. Edw. P. Allis \& Co., of Milwaukee, Wis, lately
furnished the Great Western Manufacturing Co. of Leavenworth, Kas,, three pairs of Allis Rolls, in Gray's noiseless
MEssrs. E. P. Allis \& Co., of Milwaukee, Wis, have
recently furnished Messrs. Aylsworth \&Co. of Fostoria,
Ohio, with one of their roller outtits in Gray's noiseless Ohio, with one of their roller outits in Gray's noisele,
frame, and one of their gradual reduction machines.
MEssRs, E. P. Allis \& Co., of Milwaukee, Wis., recently
put in three pairs of their Rolls in Gray's noiseless frames or Messrs. Ramsdells \& Hopkins, of Tama City, Iowa, an
furnished other machinery for remodeling their mill. J. G. Patton, head miller for J. Schofield, of Dunlap,
owa, has concluded to embark in the milling business
on his own account. His mill machinery is being built to Messss. E. P. Allis \&Co of of Milwaukee, Wiss,, recentl put a keynolds patent feed water heater for the Mad
son City Water Works, at Madison, Wis., to go with th
Reynolds Corliss engine furnished them some time Mfsshs. Edw. P. Allis \& Co. of Milwankee, cently filled an order for three pairs of Allis rolls in Giray's
noiseless frames, and one of their Gray's gradual reduc tion machines, for the Madelia Mill Co., of Madelia, Minn.
Mr. J. L. Allard, of Paducah, Ky, has Intely put in two pairs of Allis Rolls, in Gray's noiseless frames, purchased
from E. P. Allis \& Co., of Milwaukee, Wis. This is inaddiMessis. Edw. P. Allisic Co., of Milwaukee, Wis, lately of their Reynolds patent feed water heaters, to go with the MEssss. Edw. P. Allis \& Co, of Milwaukee. Wis., have
he contract for remodeling the mill of Messrs. Dexter \& Bridge Bros,, of Whitewater, Wis., aud the outsit will in
clude tivelve pairs of Allis Rolls in Gray's noiseless frames. Gol.b \& Shaw, New Windsor, Ill., are changing their
mill to the gradual reduction system. They have placed their order with the Case Mfy. Co.. Columbus, o., for the
Case system of Break Rolls, Puritiers, Scalping Reels, Jordan, Lstus \& Patrick, who are operating the mill at Louisiana, Mo., are getting roller mills and machinery which to
system.
The proprietors of the large roller mill at Sweetwater, enn., (yhich is. being built by Nordyke \& Marmon Co,
f Indianapolis Ind.) have decided to add sufficient mor
, rolls and other machinery to increase the capacity to 20 L. Schambling of Victor, N. Y., has recently put in a
gradual reduction machine and two pairs of Allis Rolls gradual reduction machine and two pairs of Allis Roll
in Gray's noiseless frames, from E. P. Allis \&Co., of Mil

## waukee, wh roller mill

A mill was buitt at silverdale, Ind., for J. E. Keru sev
eral yenirs nse sy Nordyke \& Marmon Co., of Indiamapo-
lis. Ind. It is now to benlarged, and when completed
will contain all improvements in milling introduced
Mr. R. Ruston, of Evansville, Ind., recently purchase
Messrs. E P. Allis \&C.,., of Milwaukee, Wis., two pair
their Wegmann Porcelain Rolls in Gray's noiseles frames. Mr. Ruston has replaced nearly all his millstones
with porcelain rolls.
The Warren Mfy. Co. of Warren, Mich, Lately ordered
a $14 \times 36$ Reynolds Corliss engine, and a Reynolds pat. $14 \times 36$ Reynolds Corliss engine, and a Reynolds pat
feed water heater, from Messrs. Edw. P. Allis $\&$ Co, o Milwaukee, Wis, for their
use a full line of Allis rolls.
Messess, Edw. P. Allis \& Co ef Milwat wien Messis, Edw. P. Alis \& Co., of Milwaukee, Wis., have ton, Ill., which among other things contains three
pairs of Allis rolls in Gray's noiseless frames, and two of ray's gradual reduction machines.
Jos. Gebhart \& Sons, Dayton, Ohio, who have been run ning some months on the Case system of reduction, furnished by the Case Manufacturing Co., Columbus. O., Lave
ordered from the same Co. two sets, $9 \times 18$, 4 -roller ordered from the same Co. two sets, $9 \times 18$, 4 -roller smooth
Rolls, for reducing middlings, throwing out their Buhrs They will now have a full Roller Mill.

Mr. Ggo. Mader of Winchenter, HIL, recently put in two pairs of Allis rolls in Gray's Noiseleess frames, in his
mill: same were from Messrs E. P. Allis \& Co's Relianees mill; same were from Me
Works, Milwaukee, Wis.
Mr. J. L. Allard, of Paducah, Ky., has lately put in two pair of Allis rolls in Gray's Noiseless frame, pur-
hased from E. P. Allis \& Co of Milwaukee, Wis. This in addition to the Allis rolls, of in when he remodelled his mill.
Messrs. E. P. Allis \&Co., of Milwaukee, Wis, recenty furnished A. P. Ordway \& Son, of Beaver Dam, Wis.,
with five pairs of their rolls in Gray's Noiseless frater with five pairs of their rolls in Gray's Noiseless frame.
Messrs. Ordway \& Son, have several contracts for reme. delling mills in their section
MrssRs, E. P ALLIs \& Co., of Milwaukee, Wis, have recently furnished the entire outfit for remodelling the
nill of Messrs. Hiuman \& Ward, at Battle Creek, Mich. The outfit includes twelve pairs of Allis rolls in Gray's patent Noiseless Belt frames
airs of Allis, of Rushford, Minn., has just put in four Messrs E. F. Allis \&Co., of Milwaukee, Wis. This gives and in southera Minnesota. is., for with Messrs. E. P. Allis \& Co., of Milwankee Ws., for two of their gradual reduction machines, and,
Ont hanging his mill to the roller system.
J. B. A. Kern, of Milwaukee, Wis., has recently purchas-
d four pairs of Allis zolls in Gray's noiselese frest from Messrs. E. P. Allis ic Co. of Milwaukee, Wis. If every-
hing goes on as intended, Mr. Kern will soon have the largest mill in the world.
Mgsshs. E. P. Allis \& Co., of Milwaukee, Wiss, have re-
cently furnished Mr. F. Richards, of Elgin, ml , with two of their gradual reduction machines, and two pairs of Allis Rolls in Gray's noiseless frames Mr. Richards is remod-
eling his mill to the roller system. Mr. INo. REAM, of Hagerstown, Md, recently visited
Milwaukee and left his order with Edw. P. Allis \& Co.,
for one of Gray's gradnal reduction machines, This maor one of Gray's gradnal reduction machines. This ma-
chine is an entirely new design and makes fout reduc-
tions and four separations complete in one Mr. B. F. Gump, of Chicago, Ils., recently ordered
from Messrs. E. P. Allis \& Co., of Milwaukee Wis four pairs of Allis rolls in Gray's Noiseless frames, for one
of his customers. Mr. Gump, is doing ent Messss. Mast, Troyer and Huffman will erect a fulf Gradual Reduction Mill at Buena Vista, Tuscorawas Co.,
Ohio, during the coming spring. They have placed their order with the Case Mfg. Co., Columbus, o., for a A cylinder for grain scoure, invented by Lyman Morwith wedged-shaped ridges extending spirally around its
interior, and rounded ridges falling short in hed . have recently placed their order with Messrs. E. P. Allis Co., of Milwaukee, Wis., for two of their gradual redue-
ion machines and six pairs of Allis rolls in Gray's Noisetrames.
The Beaver Dain Cotton Mills, of Beaver Dam, Wis, ecently put in one of Edw. P Allis \& Co's $22 \times 48$ Reynolds to go with the engine. This is the second Reynolds Cor-
iss engine they have purchased from Messrs. Edw. P. Allis \&Co.
Messhs. Edw. P. Allis \& Co. of Milwaukee, Wis., have Messss. Edw. P. Allis \& Co. of Milwaukee, Wis., have
lately furnished Mr. Geo. C. Goetting, of Altamont mI Mr. Goetting was formerly of the firm of I. Q. Halteman milling business.
ecently sold Messrs Helmer \&\& Cook, Allauke, Wis., have ed water Reynolds Corliss engine and Reynolds' patent P. Allis \& Co. also furnished a full line of their celebra ded rolls for this mill.
Messks. E. P. Allisy \& Co. of Milwaukee, Wis., recently
put in six pairs of Allis rolls in Gray's Noiseless frames
or Messrs. E. Sanderso it or Messrs. E. Sandersou \& Co. of same place.ess Trames, San-
derson mill is gradually edging towards lerson mill is gradually edging towards a foremost place
among the largest mills in the country and is equipped居 East st. Louis, reports the new mill as runniug, though lays. This mill is byilt under the Stevens patent of and pro-
ess, and Mr. Foley, with his able assistants, Wm. Woodley nd and Mr. Foley, with hits able assistants, Wm. Woodle AN improved grinding mill has been patented by Mr George 11 . Whis $n$ of Lanesboro, Minu The improve-
ment relates to mills or cracking and flouring wheat and
other grain, and consists in the combination with the her of rolls and conssists inserted in radial recesses in the run her between the rolls, and provided on their lower edges
with inclined teeth.

Mr immi R Smith of sists in the combination of a separating reel, a return reel neeting them, allarranged to tirst separate the bran, shorts
and coarse middlings from the flour and fine middlings, and coarse middlings from the flour and fine middlings,
and then to spout the shorts and coarse middlings to the The Commerciul, Winnipeg, Manitoba, says: Mr. Wm.
Ogilvie of the Ogilvie Milling Co., has been making a tour of inspection over the different lines of the C. P. R. with view of establishing a regular elevator system at the company's mills, and for shipping to Eastern points, Ex
actly where these elevators are to be located, in a position to state, but we have been furnished with au outline of the plans of the company. At Winuipeg they
will erect one elevator of from 75,000 to 100,000 bushel capacity. Along the main line at different points wes
of this they will have five s of this they will have five s aller elevators, and at dif-

ferent points on the Sou estern branch either thee | $\begin{array}{l}\text { ferent points on the Sou estern branch either three } \\ \text { or four others. Each } \\ \text { country elevators will have }\end{array}$ |
| :--- | a capacity of from 30 50,000 bushels, and all will

be furnished with steam power and the most modern appliances for grain cleaning purposes. The contracti
for the construction of all will for the construction of all will imply their being finished and ready for operation by the fall of 1883, so that
the next year's crop can be handled as soon as threshed. The whole system when finished will supply storage for over 350,000 bushel of grain. The Poiut Douglas mills
of Ogilvie \& Co. at Winnipeg, Che of Ogilvie \& Co. at Winnipeg, could, if running full for
300 days in the year, use up nearly 1,000000 300 days in the year, use up nearly $1,000,000$ bushels of
wheat annually, so that the projected elevator syis of wheat annually, so that the projected elevator system
will be all required to furnish a supply for these mills.

A company has purchased the stle of the old mill that
Wast carted way by floods in the spring of 1888 ,
Fall, Falla, Dakota, and will erect a new mill of large capacity THE following
Tug following parties have bought the Becker Wheat
bruas furing the past few day bruash Auring the past few days-made by the Eurerek Mig.
Co., of Rock Falls, Ill:: Jno W. Diels \& \& on S criber Net
 Morris \& Martin, Reed City, Mich., 8 mith Stratton
Nahatille, Teun, Whitney Bros., Giassboro, N.

 Patton, Holland, Mlec., Hagerty Hunter \& $\& \mathrm{Co}$ o, Peoria
Hus, Goo 8. Young. Boynton Mills Hils, Geo, 8. Young. Boynton Mills, Pa, David Suppinger
$\&$ Co., Highiand, Ills., E. P. Allis \& Co., Milwaukee, Wis., Nordyke \& Marmon Co., Indianapolis, Ind.
Tus San Francicoco Journal of Commerce, in an art
 have been one of the landmarks of Santa Clarara valley.
In that yeir R. G. aud Voiney D. Moody commenced in a
 his sons Charies and D. B. Moody. In 18866 Volney D. tired and the mills. were conducted until this year by
Charies and D . B . Moody, when the former retired dad the entire business is now under the sole control of D. D . Moody. Mr. Mody has just rected a large additito to to
his mille, put in entirely
new machinery and wili, in $a$ few weeke, be prepared to new manachaturere as and will, ina a qualty
of new process flour as is made ou the Coast.
 hominy, pearl barley, buck whutature flour and and all kinds or of
fed. He has also a large free. $f$ ted He has also a large freeproo warehouse, where
he is prepared to store all kind of produce. When in
runumg order Mr. Moody will have ono of che propertises on the Coast, and the Moode of the finest mill
future J. H. Rendield, of Salem, Ind., the well known manuffac-
turer of middilings purifiers, reports trade excellent ade
 machinery Yor complete mill job; Ne. Nelson, Shelt
vile, Ind. , boltign cloths and other machinery;
Cravens, Hardinburg. Ind., puritiers and bolting elothe



 for a 2 2.run mill, John $C$. Vaylese, bolting cloth cons,
Matthew Bros., sattilloville, Ind, mill machinery. THE Topeki Mill and Elevator Co., of Topeka, Ks.,
centy started up thelr new mill The building is $50 \times 6$,
feet on the ground and reet on tha ground, and six stories high. The linseed oin
mill is $35 x 50$ feet ou the ground and


 ten minutes. This is faster than the gharain of a can ber load in in
by hand. With five shovelers in a car the elevator will
keep the bin

porcelain, and a smooth iron. The pover is furnated,


 engiue. orom wiwh the
and m . D. Dozer.
The buildinga and
 carry on the operations of the company bririg tequired tati 1
to siso,000 or more. The flouring mill is capable of pro
tucing from
 runuing on full time, but will soon be at worl
day morning to Saturday night continuously The builiding is is sitaded thithouthout w
communicating with the first flioor. It is intended to turn out thre
will be knowu repertively as
Patent," and " "Bakers's Choice." partial listiknt, of Mansfield. 0. ., sends us the followng







 Bros., Atice,
Ban, Mt Zille
Bandyville, ., for a brush smutter, wheat heater $\begin{gathered}\text { gysou, Wasshington, } \\ \text { and }\end{gathered}$ Ailen Werstler $\&$ Bros, Brimfield, 0, , for
mill, core cornana and feed cod shanting, gearing, puluserer, and otherifugal corn sheller, materials; Messrs.
Mills \& Swegart, other goods; H. Goudy con,
 new outfit complete; Meesra, gearing, pulless, belting bolting
 Calfforita bruah munter, bolting eloth ele.; L. G. Gillbert




 ract brestevens rolls, a Garden City reduction mill for
1 to cloth, middllugg purifiess, wheat cleaning machines,
centrifugal reels, flour packer, shanting, eearing, pullesg centrifugal reels, flour packer, shanting, geari
beltig, elevator cupe, $a$ complete new outfit.

## the united states maize crop.

Charles F. Harding, Esq, of Mansfield, Ohio, in a letter bearing date Nov. 29, 1882, United States for 1882, made by crop of the ties, including that of the Department of Agriculture, are so very much beneath the for this crop that I ask space in your paper spent more money and time in getting ac and corn crops bearing on the wheat, oats vidual in crops of 1882, than any single individual in the world, and for this reason the results of my researches, as they apply to
corn, will certainly not be without weight and ought to prove of substantial value to your readers. In my estimates I have taken it ported by the the corn average for 1881, reacres, is correct, though as is well proven and now universally admitted both acreage and mate for 1881 (actual yield at least $90,000,000$ 000,000 .) The average increase of cornacr, Ige for 1882 (Illinois having made a slight de crease) is about 9 per cent., but in order to
make my estimates rather below the he mark, I consider the increased acreage of $67,474,126$ in 1882 . I have had fivereage ate reports during the season, made up from esponses to inquiries addressed to 15,900 farmers, business men dcaling with farmers
direct, and bankers. The average of the first four reports gave yield per acre for 1882 of shelled corn of 34 bushels, and the fifth
report which was made to me early in November makes exactly the same yield pe acre as the average of the four earlier recre, indicating a total yield of $2,294,000,000$ of bushels, against the Government estimate order to month of $1,650,000,000$. But in taking information, not so ample as mine, because from not nearly so many sources,
from an entirely different source. I ook reported for the weeks ending Nov. 11 and and the average was 35.09 jurnal of Chicaed corn per acre. As these come from farmnot be interested in over-estimating the crop, $2,294,000,000$ of bushels, is of 34 bushels bove actual results. It would be safe to add 000000 is per cent. to the acreage, and 2.400 , tual results. I know it will be an easy matte figh Tom, Dick and Harry to say I am to can present co your readers an accurate estion ate based upon any thing like the same num ber of reliable sources of information, which will not place the crop above the estimate I make of $2,293,000,000$. It is an easy matter money in getting accurate information ridicule the estimates of those who have, but my reward will test the sincerity of such talk,
and will also show does more than guess at the crop ; whereas Thave taken the utmost pains to ascertain in crop will be. It may be that the following facts will interest your readers : following average exports of corn, for five years past, per bushel in gold, have been $87,000,000$
bushels of shell bushels of shelled corn per year. as an average crop in Europe, taking 100 Italy, 120; Hungary, 120; Roumania, 131. Wheat is selling in Chicago at about 8 cents below the average price for five years, and for the same five years orel above the average 33 cents per bushel more than thately at wheat warrants. This on the largest crop by at least $500,000,000$ of bushels, and on the may the least, singular. It we ever had, is, to safe to sell it short, but it looks as if those who want to buy corn for legitimate purposes May at 33 to 38 cents per bushel. Where
storage 18 to be obtained for the quantity which will go into Chicago at the average
price of other seasons (42 cents) is a quesprice of other seasons ( $42 \ell$ cents) is a ques-
tion worth calculating upon by those who tion worth calculating upon by those who
are buying it at 55 to 60 cents for winter delivery there. As to the condition of corn there is some soft corn, owing to frosts, but
much less than for the average of three years past, though more bushels than in 1881 which was the best season (fall) for ripening corn we have had for nearly twelve years, and had rains been abundant last year's yield would have been over $2,000,000,000$ bushels instead of about $1,300,000,000$ bushels, or, as

## BAD FOR THE GRAIN MIXERS.

"Grain-mixer" has been for several years adulterer" cases only another title for "grain-grain-mixer is to take inferior grades and by scouring and mixing in a little superior wheat to bring the inferi~r article of grain is good No. 2 or No. 3 .
During the past month not a little commotion has been created among the grain specuefusal of Mr. Peter McGeoch, kee, one of the heaviest grain operators in nodern times, to accept large amounts Whe justified his course by claiming that "the No. 2 spring wheat he had agreed to tak had been vitiated in quality by mixing with it a percentage of carefully cleaned No.
nd "rejected," so that what was tendere could not fairly grade
scarcely marketable."
The matter will probably be adjusted by the Courts.
This "grain-mixing" business has all along been condemned in unmeasured terms by
ur millers, especially for the reason that the soured grain mixed with unsooured would in the mill together, the result being that some grain was scoured too much and some oo little.
The business in effect is to pass off an in ferior article for a superior one. We hope
the Court will make such rulings as will stop his business and allow the miller to receiv his grain just as it comes from the hands of
the "hard fisted farmer." If the "gron mixer" has any argument to make in "grain defense we should be pleased to hear it. Wheat from grain mixing establishments

## tems of interest.

Edward Atkinson makes this striking comparison in the Atlantic Monthly: It takes 160 000 men , women and children to make the cotton cloth, the use of which is now enjoyed the best clothed people in the world. If hose who do this work were obliged to us nachinery no more effective than the spir$16,000,000$ persons continuously employed 10 hours a day to do the necessary work.
slacking Lime for Mortar.-The marvel y the London Builder in toty is attributed lime remains in a pit covered with water for two years hefore it is used, whereas in Eng land and in this country lime is slacked and ased the same day. Most building specifications even require newly slaked lime.
The Excelsior Manufacturing Co., St. Louis, re using a new smoke consuming apparatus hich is said to answer the purpose adnuir都 is the invention of the superintend The Ageof Steel thus describes it: A draft of
Thent air is admitted through the ash pit and upwards through a hollow briuge wall, and passes through a perforated cast iron top
piece. A two-inch gas pipe wise the boiler, is set in the lining just cross. he fire door. This pipe has a row of above holes drilled about an inch apart. These whole line of hilled lengthwise the pipe, and the air passing from the holes will the draft of half way between the grate bars and the tout of the bridge wall. On the outside of the ide wall is fastened on, to the end of the two nch gas pipe, a funnel-shaped piece of tin rom the steam drum there extends a half inch steam pipe, with a stop-valve, to the
funnel-shaped piece of tin anu into the two cich pipe two or three inches. When the ir through the funnel-shaped ping draft of
into the two-inchpipe, from which it passe into the fire bed through the perforated pipe To Saw Users,-We have just received a econd and enlarged edition, with illustrated supplement, of "Grimshaw on Saws." This second and enlarged edition of this standard practical work contains 280 pages and 354 cuts. The supplement (which is also bound separately, and uniform with the first edition
for those who already or those who already have that) has 120
pages and 120 cuts. The price of thas pages and 120 cuts. The price of the second
and enlarged edition is $\$ 400$; and enlarged edition is $\$ 4.00$; of the supple-
ment, $\$ 2.00$. Both volumes are handsomely printed on heavy toned paper, copiously indexed, and strongly bound in cloth, and either will be sent postpaid on receipt of price by E. Claxton \& Co., 930 Market Street, Philadelphia. Every saw user should have a this work in his library.

## MILL PROPERTY FOR SALE.



## Harper's Magazine.

##   

## HARPER'S PERIODICALS.






 RPER \&BROTHERS, New York.
1883.

## Harper's Weekly



HARPER'S PERIODICALS.


## Harper's Young People. <br> an tillustrantio whekif-16 phiks.

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## PRINZ DUST COLLTHTOR

After years of study and experiment success has crowned the labor of F. Prinz. He produced a machine, that will give sailler tion in such a manner that $n$ miller would ask for anything better.
Simplicity is a Leading Feature in this Machine.
No Dead Air Chamber.-The dead air chamber, which has been a source of much trouble in other machines by wearing out and allowing the air to get in, thereby injuring the power of the cleaning mechanism on the cloth, which results in the cloth filling up, is entirely suvercome in this machine, as it has NO DEAD AIR CHAMBERS.
Less Pover is used with this machine than any other as there is no back pressure on the fan; the motion of the fan has to be reduced whenever this machine is applied.
It does away with the cumbersome dusty, dirty old-fashioned dust room, en-

tirely, and the numerous spouts leading to them, which fill up the Mill, leaving no room to get around.
It Retains the Dust in the Mill, thus al lowing no waste of stock by being blown out into the air as is the case with the old-fashioned dust room.

It does away with the liability of dust explosions, as the air coming from the machine is entirely free from dust, which is not the case with the air coming from any other Dust Collector offered to the milling public heretofore.
We the undersigned manufacturers GUARANTEE ENTIRE SATISFACTION in the use of this machine.
Our machine does not infringe on any patent, which we fully guarantee; on the other hand we caution parties against purchasing infringing machines.

## LOW PRICES FOR EXCELLENT MACHINES.

## THESTIMOINIATES.

MILWAUKEE DUST COLLECTOR MFG. CO.
Dundas, Minn., Aug. 10th, 1882 Gentlemen: We have been using the Prinz Dust Colleetor for the past year. We conE. T. ARCHIBALD \& CO. Hilwaukee Dust Collector Mfg. Co - Sparta, Mich., Oct., 18, 1882. Milwaukee Dust Collector Mfg. Co, Denst Collector reeeived from you a fair trial and are highly
Gleased with it:-We have given the Dustieveit naves us a barrel of Flour a day, (24 honrs, from three run of pleased with it. We believe it maves us a barrel of Flour aday, (24 honrs, from three run of
stones, which will soon pay for it.
SPARTA MILLiNG CO. Milwaukee Dust Culleetor Mrg. Co.
 soon as we can get time to put them in
machine of the kind on the market.
tion with any room and Dust room; the fan blows direct into the mill without any visible sign of dust; it deposits from 75 to 80 ponnds in a barrel in 25 hoars. being all the refuse mater


$\qquad$ sping Valley ohio, Oct. 12, 18 Yours respectfally,
BARRETT \&

Milwaukee Dust Collector Mfg. Co. Gentlemen:-The machine you shipped us some time ago reached ns the forepart of this
week and was put in successful operation to-day, It starts orf all right and we hopeo will continue
to work well, Milwaukee Dust Collector Mfg. Co. Hastings, Minn., Oet. 19, 1882. Gentlemen:-We have now been running your Dust Collector about 10 days and are well
pleased with it. If we had room would put in mare.
Yours truly,
CHAS. ESPENSCRIEB. Co.

## THE CENTRIFUGAL ERA.



The Centrifugal aystem creates a new epoch in milling machinery, and is rapidly becoming popula and indispensible, gradualy supplanting the old system as it goes marching along. nd so we take pleasure to introduce the Excelsior

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 PIRST PREMIUM AND DIPLOMA AT MISSOUBI STATE PAIR, ST. LOUIS, OCT. 5, 1882. Our New Double Reels $\left\{\begin{array}{l}\text { One for scalping Bran. } \\ \text { Oue for Bolting Flour. }\end{array}\right.$ Our New Double Iron Conveyors $\left\{\begin{array}{l}\text { To convey and } \\ \text { Re:Convey. }\end{array}\right.$ Our Two Bolting Frames $\left\{\begin{array}{l}\text { To which the e cloth is attached, and by havinn two sete of trames, of differeut numbers } \\ \text { the can be changed in }\end{array}\right.$ Our Reels excel any other for re-bolting low grades of Flour; handling lumpy and impure material
 rollers; separating break-flour; redressing and mixing flour, and they are especially valuable in finish-
ing patent flour. patent hour.
Our Reels have a capacity three times greater than the common cylinder; they take up less space;
make a cleaner and whiter flour; leave less waste and are less expensive.
For information and reference apply to

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sOLE MANUFACTURERS, 330 파. DIVISION SFRㅍFT,

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Single Break Machine, capacity 5 to 60 bushels per hour.

The first three reductions are made on Rreak Machines, not Rolls-all intelligent experience proves that Breaks are better than Rolls on the earlier Reductions. In proof that our system is the least complicated, least expensive and most successful we can refer to many Mills all of which are ruuning on our full system in the following states, viz:-New York, Pennsylvania, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Dakota, Iowa, Missonri, Kansas, Tennessee, etc., etc. We furnish the complete out-fit of Breaks. Rolls, Purifiers, (we make the unrivalled Case Purifier, Scalping Reels, etc. Our Chest of Scalping Reels is the neatest and most convenient made. Millers wanting a complete system or a good Roll or Purifier are invited to write us.

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Double Break Machine, capacity 120 bushels per hour.
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# EDW. P. ALLIS \& CO. MILWAUKEE WISCONSIN. IIILL BOILDERS AIID PIRIIISERRS, WEGMANN'S PATENT PORCELAIN ROLLER. <br>  


#### Abstract

We shall be Pleased to hear from Millers contemplating an improvement in their Mills, or Building new ones, and can furnish Estimates and Plans of our system of GRADUAL REDUCTION ROLLER MILLING. We have built and Changed over hundreds of Mills, in all parts of the Country, and using all classes of wheat, BOTH HARD AND SOFT, and can furnish references on application. The Largest and Best Mills of this Country are using our System and Roller Machines. Messrs. C. A. Pillsbury \& Co., of Minneapolis, have over 400 PAIRS OF OUR ROLLS AND HAVE RECENTLY PLACED AN ORDER WITH US FOR ABOUT ONE HUNDRED AND TWENTY MORE. We have had a longer and larger experience in Roller Mill Building than any other manufacturers of this country. There is no EXPERIMENT ABOUT OUR SYSTEM and Rolls, so expensive to millers, and when the mills that we build or change over are ready to start, THEY DO SO AND WITH PERFECT SUCCESS, and there is no further changing, additions, stopping or expense. We manufactured and sold during the year 1881 over TWO THOUSAND FIVE HUNDRED pairs of rolls.

We can send competent men to consult with any millers who contemplate an improvement, and whom they can depend upon as being RELIABLE AND THOROUGHLY COMPETENT to advise them as to the number and kind of machines required, best method of placing them and the change required, if any, in the bolting and purifying system. WE DO NOT URGE A GENERAL CLEANING OUT OF ALL OLD MACHINERY unless we clearly see such would be the ONLY COURSE TO PURSUE To make a SATISFACTORY AND RELIABLE MILL. In nearly all instances we can use all the old Machinery, leaving it in its original position, or with as slight a change as possible. We aim to make the Improvement so that it will be a Profitable one to the Miller, and at the least expense possible. and at the least expense possible. Our System is THOROUGH and RELIABLE, and our Roller Machine Perfected by Long Experience, and the Miller takes no chances in using them, as HE DOES with the New Fangled Notions of Drive and Adjustment on many other machines now TRYING TO FOLLOW OUR IMPROVEMENTS and still avoid our Patents, in BOTH of which THEY FAIL. We were the first to advocate the Entire Belt Drive, and were opposed by every other maker, who claimed it was not positive, etc., etc., and now that our Belt Drive is an ACKNOWLEDGED SUCCESS, and will SUPERSEDE EVERY OTHER STYLE, these advocates of Gear Drive have suddenly learned that Belts are the Thing. The same may be said of our Spreading Device, Feed Gates, and Adjustable Swing Boxes. Other Makers are now copying these. ALL these Features, including BELT DRIVE with ADJUSTABLE COUNTERSHAFT and TIGHTENER, the SPREADING DEVICE, FEED GATES, Adjustable Swing Boxes and Leveling Devices, Self-Oiling Boxes, etc., are secured to us by several Strong Patents, and we CAUTION MLLERS in regard to these Infringements of Our Patents and Rights, for we shall look to THEM tor Redress. The matter is in the hands of our Attorneys, who will soon take VIGOROUS ACTION against the Makers and USERS OF MACHINES infringing Our Patents.

Several machines are already on the market which Broadly Infringe, and we are informed that other makers are now changing their Old Style Machines, and adopting in a large measure Our Improvements. BEWARE OF THEM.


Send for New Illustrated Catalogue, Giving full Information, to
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Built only by the MURRAY IRON WORKS CO., BURLINGTON, IOWA. builders of all kinds of enoines and machingry

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FEED MILLS FOR SALE $2-30$ inch and 1-2t inch, Allis de Co,'s Iron
Frame under Rumner Feed Mills for sale. Used but a fen months. Address, $\boldsymbol{H}$.
Machinery Dealers.

## TO WHOM IT MAY CONCERN.

Notice is hereby given, that all differences existing between Mr. A. MECHWART, Director of Ganz's Establishment, owner of the patents on Corrugated (hard-cast) Rollers, dated March 9th, 1876, No. 5527 , and the undersigned have been amicably settled; that we concede his patent to be fully in force and that we will, during the continuance of this patent, waive the right of sale of said Corrugated Rollers throughout Austria-Hungary.
VIENNA, September 20, 1882.

## G. Daverio. <br> A. Niessner \& Co.

Keterring to the above we wish to announce that all legal proceedings against Messrs. A. NIESSNER \& CO., and Mr. G. DAVERIO, have been suspended.
BUDA-PEST, September $22,188 ะ$.
GAINZ de CO.,
Iron Founders and Machinery Mfg. Co.

## COCKLE SEPARATOR MANUFACTURING COMPANY, MLLWAUKEE.



## GEINERAL MILL FURNTSHERS Improved COCKLE SEPARators

## Richardson's Dustless Wheat Separators !

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We will contract to furnish entire Wheat Cleaning Machinery for mills, and guarantee the best results.
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WE GUARANTEE GREAT CAPACITY Combined with GOOD QUALITY OF WORK. Any common Sieve will separate the cockle from wheat, but to separate it VITHOUT WASTE is the GREATEST FEATURE of our Machine. A WASTEFUL machine is id DAILY LOSS OF MONEY in a mill. There is NO MACHINE iN THE MARKET which can stand comparison with ours.

 recommend your cockle separator as the e28th inst. 1 would say that the we have been using two or Beards- requires an unusual amount of power doing all that you claim for it. We combmer, works to my entire satisfac- finisher, for nearly two years, and are
 would not think ot doing wilhout it
having tried it once and
 tiously vouch tor its good work. twenty-seven years, but never have I than rated capacity, and are not using Gentemen:-The Beardslees Grain Perrysibown d Winfrey. sen senything that will equal yours in wheat as well cleaned as any in Minne- from you for our New Era and Milwau-
 Sirs:-The combinti machine I bought screenings and separate the cockle trom $\quad$ CAHILL, FLETCHER \& CO. Ale work done by the machine agree ot you has been rumning about three it without wasting any of the smail weeks. It certainly does all you claim wheat. In my opinion every mill in the $\quad$ for it, and is the most perfect Separator United States ourht to have one, and if or it, and is the most perfect Separator United States ourht to have one, and if Cockle Serosse, Wis., July 30, 1881.




## HOWES, BABCOCK \& EWELL,

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Galt's Combined Smut and Brush Machine.
The Only Practical Cone-shaped Machines in the Market, and for that Reason the Best.
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Nearly 1,000 of these Machines in Use.

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[Mention this paper when you write-)

the gilbert combined reduction roller MILL.
We have the pleasure of presenting to our
readers herewith a view of Gilbert's Combined Reduction Roller Mill, manufactured by Messrs. Stout, Mills \& Temple of Diyton. O. This mill is said to be the best combined and has been operating successfully for several months in several well known flouring mills. Thousands of millers, in all sections of the Thousands of millers, in all sections of the
country have been waiting patiently for a combination roller mill that would do satisfactory work, and at the same time one that
could be purchased for a sum within their means. The manufacturers believe that they have now produced just what these millers want.
The Gilbert Mill has six pairs of rolls and five separating sieves. The sieves having a lateral and vertical motion, causes them to act as an elevator, and while making the
proper separation of each reduction, also carries the remaining stock from one pair of rolls to the next. The rolls are mounted in a strong iron frame. The boxes are babbitted and are self-oiling. There are two main driving belts, each of which is provided with a tightener, whereby they can be tightened independently of each other, and by which the machine can be instantly stopped.

The movable rolls are supported on ing the rolls, The adjustments for setting the rolls are at the lower end of the swinging arm, in which there is a through shaft with ecentric connection, by the movement of which a pair of rolls at each end are part or of rolls at each end are thow granulating. The springs are located in the uprights of the frame and are given their proper tension by moving the nuts on the outside, and will not be unduly disturbed by the movements of the tempering wheels.
The hopper, which has a suitable device for shutting off and regulating the feed, is placed over the highest pair off rolls. The wheat passes through the first set of rolls on lings and flour from the broken whent and on falling through the sieve is caught and carried out of the side of the machine, the broken wheat passing up nine inches in the length of the machine and over the end of the sieve into an aspirator. The aspirator is located just above the rolls, and is connected with the fan on top of the machine by a pout. The suction is regulated ly a valve fan, which removes the light fluff and branny particles. The broken wheat then passes through a second set of rolls, and over a second sieve and aspirator and so on for six reductions, when we have finished brah. It is claimed that this mill makes a larger percentage of middlings and less break flour than by any other process, because it does away with all elevating, conveying and spout ing, between breaks. The motion of the sieve is such that the stock travels in the air in mover hath a flat sieve motion, which is necessary with a flat sieve or with a scalping reel. A great amount of
cloth surface is obtained and the separations are excellent. The light fluff and bran moves on top, and does not became mixed with the middlings. The flour and middlings are removed before suction is applied so that no good stock is removed. In conclusion, it is chamed that this machine saves room, give satisfactory results and is reasonable in price.

The Grain Review, St. Louis, says there are " 25,708 saw mills in this country, turning out annually a product valued at $\$ 233,367,729$," an average of about $\$ 9,000$ worth from each mill. Judging by the produce of some of the big mills, there must be a host of very small

## the decay of piston rods.

On this subject the Mechanical World Manchester England,) says: That piston
rods are liable to corrosion if they are sufrods are liable to corrosion if they are sul-
fered to remain at rest for a considerable period is well known, the corrosion taking place at the point of contact between the To obviate this action turning gerr is always provided by which engines may be moved round at short intervals while the ship is in piston rod in compound engines is sulbject to rapid deterioration while at sea, unless special care is taken to swab it with some lumi-
cant, such as tallow and oil. If this bie neglected the surface of the rod becomes gronved longitudinally or roughened, so that the stuffing box cannot be kept steam tight. The purpose of this article is not to deal with
either of these forms of corrosion, but with


## The Gilibert Combingd Reduction Roller Mill

one totally distinct, and concerning which A case occured on the 18th of April to the Albert Victor steamship, the property of the Southeastern Railway Company, which left
Boulogne for Folkestone at noon. About Boulogne for Folkestone at noon. Abont ous. She is a paddle steamer, 220 -horse power nominal. On leaving the harbor the engines were put a full speed ahead, and she proceeded at a rate of 12$\rfloor$ knots an hour thout twenty minutes after she left the starboard cylinder gave way. The chief engineer immediately shut off the steam from the por cylinder, and when he attempted to shut it off the starboard cylinder the rush of steam from it prevented him, and he was obliged to go on deck. He succeeded in getting at the boiler stop valves, and it was found that the cover fhe starboard cylinder had been that the piston-ros wis out off its position. In the meantime the vessel was drifting before the wind and tide, and the master asked what rospect there was of getting the conla tak bout twenty minutes to disconnect the shaft. The engineer failed, however, to get the ort crank over the centre, and the Albert Victor was drifting towards the French coast. Victor was drifting towards the French coast
The eaptain dropped anchor, and a tug-boa
arrived by which the Albert Victor was towed
into Folkestone. On examination it was into Folkestone. On examination it was
found that the piston had become loose on the rod, and when steam was admitted beneath it was forced violently up the rod, and striking the cylinder-cover with great force smashed it, and broke a portion out of
the side of the cylinder as well. There wat a Board of Trade inquiry into the circumtances, which resulted in making it perfectclear that the accident had been caused
 adopted still, and almost universally used in marine engines twenty years ago. The he frustum of a cone, with the small end ext the crank end of the piston rod. This cone was nearly as long as the piston rod was thick. Above it was a screw of seven or
eight turns, the treads standing up abo ve
a conical hole bored in the pisto
rod was put through the piston. was put through the piston. A large nut was then dropped down by turning this nut the cone was drawn up firmly into the piston. A very good and workmanlike job can be made in this way
It is clear, that on the down stroke the cone takes all the strain, and the piston cannot be forced off unless it is first split; but on the up stroke the nut and screw take all the srain, and if the threads stripped the pion it was found that the screw-thread of the Alber ictor was corroded away. It had decayed fact, and the accident which we have de It was contended during the inquiry that something had got into the cylinder, which he piston struck on the down stroke and so stripped the threw; but the commission
It came out in evidence, that as far back a 1876 the engines were completely overhauled, and it was then found that one thread of the piston-rod screw had been corroded away for length of about eight or nine this, because plenty of thread remained to hold the rod in its place. It will be understood that (once
screwed down) such nuts are never slackened again save under exceptional circumstances consequently they are of iron, as is the piston rod, so that galvanic action between the rod and the nut is not to be anticipated ; but nevertheless, it is certain that in the case of the Albert Victor corrosion of some sort did take place. One of the witnesses suggested that brass from the gland might find its way down the rod and get into the thread in fine powder, but this presupposes a certain considand we hold this theory to be untenable. The southeastern Rak ing warning by the accident, had the pistons of four vessels which had been built in 1861, 1862 and 1865, namely, the Victoria, Alexandra, Albert Edward and Napoleon examined, Albert Edward it was found that the threads of both cylinders were defective and required of both cylinders were defective and required
to be renewed; in the Alexandra and Napoleon the thread of one in each. It was also found-and it is a remarkable fact-that in either the Napoleon or Alexandra, we do not know which, the nut was so tight that it had to be split in order to get it off, and it was then found that the screw was in good condition. In one other case where the nut had to be split the screw was quite gone.

The fact, therefore, that the nut is tight is no evidence at all that the screw is in good condition. It appears to be almost impossible to form any sound conclusion as to the cause of corrosion. The most reasonable is that the rease used to lubricate the cylinder contain free sulphuric acid, which acid has been used to purify the tallow in a way well known, or it may be that oelic acid does the mischief Great work way by capilary attraction into threads of screws and nuts, and the sup ply being kept up, in a series of years the iron would be finally eaten away as described But plausible as this examination is, it does that it is only the piston rod which is attacked the nut remaining, as far as can be learned minjured. It is generully found it is the d when two piece of in cont show symptoms of corrosion, one is found electropositive to the other; but why, in all the five cases cited, the nuts should have escaped while the piston rods suffered, it is not easy to say.
crap. Whe piston rods were of forged we cannot say, but there is no reason to doubt that the texture of the two irons must have been different, and the results of an analysis of the rods and nuts which failed and those which did not would be very instructive. If it could be shown that when the metals were identical in chemical constitution and fibre follow that nut and rod should be made from the same forging. The whole question is one of much interest bearing on the corrosion of metals in a very important way. For example: What is likely to be the effect of an iron nut on a steel piston-rod? The practical lesand ton-rod fastenings of a very large number of steamers now afloat would be no more than prudent.
The Corn Crop of 1882.-The statisticians are still figuring on this important question, and the estimates vary to a remarkable degree. The United States Miner notes the following estimates, all of which have claim. to reliability. The United States Agricultural Department places the yield at $1,680,000,000$ bushels. The Cincinnati Price Current a $1,800,000,000$ bushels. The Farmer's Review, Chicago, at 2,184,908,850 bushels. And Chas. F. Harding of Mansfield, Ohio, at 2,294,154,284 bushels. It would probably be fuir to split diflerence between the highest and the the difference between e. The result would doubtless be as near the actual yield as can be determined, that is $1,987,077,142$ bushels.

## THE UNITED STATES MILLER.

United States Miller.



MILWAUKEE, JANUARY, 1883.
During the year 1882, Minneapolis flou mills manufactured $3,124,219$ barrels of flour

Mr. J. E. Loomis, of St. Louis, and Mr Volkert of the firm of Volkert \& Wagner, Jef

Up to date 396 patents have been granted to Edison, the electrician. This is a larger number then
person.

We acknowledge the receipt of a hand somely framed lithograph of the Stevens Roller Mill, from The John T. Noye Manufacturing Co., of Buffalo, N
P. S. Crandall, the well-known millstone builder and mill-furnisher, died Dec. 17, 1882 at his country home, Melrose, N. Y, aged 75 years. The
S. Crandall $\qquad$

considerable quantity of "Turkish win ter wheat" has been raised in the West during
the past season. It is a red, long-berried wheat, and much harder than other winter wheat. It is well liked by millers whose mills have bee
wheats.

According to the report of the United States Constl General at St. Petersburg, the Russian Government has greatly reduced the "free list" and largely increased the duties gener
ally. The new tariff imposes upon flour of all kinds (except potato-flour,) an import duty of 24 cents ${ }^{2}$ ewt.

Must the Bucket Shops go? It seems that regular boards of trade in St. Louis, Chicago and elsewhere, antagonistic to the "Bucket Shops," and there is a probability that they will be compelled to quit busin
sooner, the better for the public
G. H. Shape, Esq., of the great Schlitz beer bottling firm of Vœecht Milwaukee for Europe January 8. Mr. Shape will visit his old home at Zeitz, Prussia, from
which he has been absent thirty years. He intends to return in July next.-We wish him a pleasant journey and a safe r
It is said that hollow steel shafting is being introduced into France. It is made by casting the metal round a core of lime, the ingot core going with it and diminishing in diameter in the same proportion as the metal, even $\ddagger$ inch.

The total exports of flour from San Francisco, as manifested at the Custom House bbls., valued at $\$ 601,283$. It wasydestined as follows: England, 64,983 bbls.; Ireland, 31,na, 9,324 bbls.; Panama, 2,202 bbls.; Henina, 9,324 bbls.; Panama, 2,202 bbls.; Hawai-
an Islands, 1,982 bbls.; Saigon, 500 bbls.; an Islands, 1,982 bbls.; Saigon, 500 bbls.;
Mexico, 330 bbls.; British Columbia, 243 bbls.; Jexico, 330 bbls.; British Columbia, 243 bbls.;
Japls.; South America, 120 bbls.

According to Bulletin No. 304 from the U S. Census Department, the number of flouring and grist mills in the United States in 1880 was 24,332 , using capital to the amount of $\$ 177,361,878$, and employing 58,407 persons to whom was paid $\$ 17,422,316$. The raw material used was valued at $\$ 441,525,225$ from which a product was obtained worth of 2.4 persons per mill, each person receiving of 2.4 persons per mill, each person receiving
a yearly compensation of about $\$ 298$. It shows also an average earning of each mill of $\$ 2,615$ per annum.
A national exhibition of railway appliances is to be held in the Exposition Buildings at Chicago from May 31 to June 7, 1883. Railway tracks will be laid the entire length of the main building for the accommodation of cars and locomotives, and for use in making tests of railway appliances. It it also said that a series of scientific and practical tests, o be made by well-known scientists and carefully selected committees, extending to every article and every description of rail way material susceptible of a trustworth test, will constitute one of the most interest-
ing as well as most valuable features of the exhibition. An official record of these tests and of every exhibit, including a list of the prizes awarded, will be published. The list of exposition commissioners includes a large number of
the country.

The receipts of wheat at Milwaukee during December, show a very gratifying condition of the city's grain trade. Poor crops in the great spring wheat region tributary to thi city, coupled with other causes made the market here rather dull for a while, but our
unsurpassed facilities for the wheat trade and unsurpassed facilities for the wheat tradeand
the good reputation of Milwaukee dealers, the good reputation of Milwaukee dealers,
have great influence and will again make our fair city one of the great grain markets of the world.
Those who predicted at harvest time that wheat and flour would be a drug in the market at low prices, have probably changed sumption is much greater than ever before, and our flour export shows a remarkable in crease over last year. The rains, snows and
floods in different parts of Europe have not floods in different parts of Europe have not
only ruined much grain that was harvested, but have prevented the sowing of many acres
for the next crop. It is safe to predict that we shall be able to realize a fair, but not fancy price for all the wheat and flour w shall care to export.
There will be a good attendance at the Cleveland, O., Jan. 31, 1883. The followin are the delegates from Wisconsin, E. Sander0.8 . J. B. A. Kern, Milwaukee; John Schuette
Manitowoc; J. A. Kimberly, Neenah; W. S Green, Milford; O. Puhlmann, Plymouth.
The Illinois delegation will consist of D. R. Sparks, Alton; C. H. Seybt, Highland; Henry Scheurmann, Germantown, P. C. Chapman Pittsfield; C. B. Cole, Chester; and E. Kreider, Jacksonville.

Accorling to "Die Muhle," a milling journal published in Leipsic Germany, the German Millers Association offers a reward of a thousand marks for the best method of detecting adulterations in wheat and rye flour, whether
consisting of organic or inorganic substances. Treatises on this subject, written in the Eng lish, German or French languages, and pro-
vided with a motto, will be received till May vided with a motto, will be received till May
1883, and should be directed to the Presiden of the German Millers, Association, Prof. Jos. Van den Wyngaert, Berlin, Germany
It is estimated by late writers that the presnt population of China is $250,000,000$. Should to eating bread made of wheat flour, the demand from China alone would take all the surplus the Pacific States are liable to raise
for a century to come. The Chinese demand for American flour is continually increasing During the month of October last, 16,290 barrels were shipped from San Francisco to Chi-
na. California millers anticipate a large Chinese trade at no distant day.

Postmaster-General Howe has signed contract with George Ehrlich of St. Louis for combination letter and envelope, which will be put upon the market about the middle of January, at prices varying from $\$ 2$ to $\$ 4$ per thousand, according to the quality of
the paper used. All post-offices will be supplied, and a letter sheet and envelope and stamp can be had for three cents, and a ciradding the cost of manufacture.

The total number of miles of new railroad built from the 1st of January last, up to December 15th, according to the Railroad Gaette, is 9,648 miles, against 7,601 miles re ported at the corresponding time in 1881; ,836 miles in 1880; 3,594 miles in 1879; 2,243 miles in 1878; 1,994 miles in $1877 ; 2,283$ miles
in 1876; 1,264 miles in $1875 ; 1,808$ miles in 1874; 3,606 miles in 1873, and 7,065 miles in 1872. This year's mileage, so far, is more than one-fourth greater than that of 1881, and nearly eight times as great as that of 1875 , when new construction was at its lowest point.
The United States Miller gleans from the report of John Nimmo, Jr., Chief of the United States Bureau of Statistics, received December 22, 1882, the following facts. The total amount of wheat exported in November, 1882, was $8,825,845$ bushels, valued at $\$ 9,334,753$, against $9,707,810$ bushels,
valued at $\$ 11,577,378$ in 1881 . The wheat-flour valued at $\$ 11,577,378$ in 1881 . The wheat-flour
export in November, 1882, was 862,881 bar-
rels, valued at $\$ 5,131,936$, against 488,795 barrels, $\$ 3,161,753$ in November 1881. The total barley, Indian corn, corn meal, include wheat and wheat flour, for the eleven months ending November 30,1882 , was $\$ 166,606,693$ against $\$ 210,318,432$ during corresponding time in 1881

We have received The Southern Miller, pub ished twice a month, by the Southern Mil Ler Co., at Nashville, Tenn. Pitkin C
Wright is the editor. The subscription price $\$ 2.00$ per year. The new paper presents good appearance, and will, no doubt, be corcially

We are pained to announce the death of Col. E. H. Gratiot, at Platteville, Wis., Decem er 17, 1882, of paralysis. He was 65 years o milling fraternity everywhere, as the invento and manufacturer of the Gratiot Wheat Heat Col. Gratiot has been in poor health much of the time during the past three yea or more. His eldest son, Charles Gratiot, is Mill Manufacturing Co., of Chicago. His host of friends made during an honorably spent feelings of profound sorrow.

A Large Belt.-In the largest woolen mill Belgium is a double belt, 75 inches wide nd $153 \frac{1}{2}$ feet long, to transmit 650 horse po wer, indicated. The power is obtained from
a Corliss engine, 800 horse power. From the fly wheel, which is 28 feet in diameter by 7 feet 9 inches wide, the force is transmitted direct to the weaving shed, which contain 1,000 looms, and spinning mill adjoining. The belt runs perfectly straight and gives en firm.

Pump That Wouldn't Stop.-A man erected some kind of a new fangled pumping apparatus for a rancher at Paradise Valley Nevada. The pumping machine was to be
driven by wind. The other day, when a ten knot breeze was blowing, the inventor "turn ed her loose." In about half an hour the machine flooded the cattle corral with wate and floated away the butt end af a hay stack. The ranchman yelled to his machinist: "Stop her! stop her!" but it happened that pro vision for stopping was what the invento had not thought of. Had it not been that the well was soon pumped dry the whole ranch would probably have been washed away Even after the well was dry the machine threw up mud and gravel so wicked that to
approach it was unsafe. The rancher now approach it was unsafe. The rancher now
says: "It is a good pump-a wonderful pump -but it needs a regulatsr."

## VALUE OF SMOKE.

A Company at Elk Rapids, Michigan, which manufactures fifty tons of charcoa made day, formerly allowed the smoke Now the smoke as it is formed is delivere into stills charged with lime and surrounded by cold water, the result of the condensation being, first, acetate of lime, second, alcohol third, tar; the fourth part produces gas, which is consumed under the boilers. A charcoal daily, yielding $2,800,000$ cubic fee of smoke, from which are obtained 12,000 pounds of acetate of lime, 200 gallons of alcohol, and 25 pounds of tar. The alcoho has been contracted to a firm in Buffalo, N . Y., for five years, they furnishing the pack ages and receiving it at the works at eighty cents per gallon.

## UNITED STATES Us. RUSSIA.

The grain producers and dealers of the United States have long regarded Russia as their greatest competitor for supplying the grain deficiencies of Europe but it seems that the time has at last arrived when Russian producers and dealers acknowledge that they can no longer compete with us. Our naturally fertile acres, intelligently cultivated y machinery, and our great facilities for contended with by a country like Russia whose agriculture is yet in a primitive state and its transportation facilities yet in their infancy. The St. Petersburg orrespondent of the $N$. Y. Sun says: "Russia has 'thrown up the sponge' in the contest for supremacy as the grain market of the world. Russian farmers and grain dealers and the public at large are panic-stricken. Millions of peasants pay arrears of taxes and other debts. Prices
have been exceedingly low and now many of hem are penniless and have no provision or the winter. The Minister of the Interior has admitted that he has not means enough o save the peasants from starvation and to FLOUR PRODUCTION IN MILWAUKEE FOR 1882. The following figures, obtained by the Unied States Milier directly from the mills, show the production of flour to have been during the year 1882, as follows:
 Mils, ( B A Kern \& Son) $\quad 200,000$ $\left.\begin{array}{l}\text { New Era Mills } \\ \text { Cherryst. Mils, }\end{array}\right\}$ (NewEra Mill'g Co.)235,000 RelianceM, (ills,
Ontario Mills, $\}$ (C. Manegold \& Son). 97,000 Daisy Roller Mill, (E. P. Allis \& Co)... 80,000
Centennial Mills, (Wm. Gerlach\&Co.). 78,000 Empire Mills, (S. H. Seamans \& Co City Mills, (Durant Estate)

The Cream City Mill.........., $\overline{38}, \overline{842} \quad \overline{7,850}$
ion during the past year, and the Ontario Mill has been working mostly on rye, feed and grain cleaning. All the mills have been shut down for repairs, remodeling etc., a considerable portion of the time. The Milwau during the year. The present total daily capacity ( 24 hours) of all the mills is 8,850 r for a working year of 312 days, $2,449,200$ arrels. The product for 1882 is far in ex ess of any previous year.

## BOOK NOTICES. <br> HE BULDERR GUIDE AND EstiMATor's PRICE Boor. By Fred. T. Hodsson. Industrial Publication Company, 49 Miden Lane, New York. Cloth. Price $\$ 2$.

 This is a book that fills a gap in building literature. Itsure to be welcomed by all who have anything to do with estimating the cost of building, and will prove ex

The work appears to us, to be almost exhaustive, as not single item required for building purposes seems to
have been omitted. A large number of useful tables, me have been omitted. A large number of useful tables, me-
noranda, data, and rules are embodied in the voiume, than it wo
ostimating.
Opp's American Sertler's Guidr, published by henry
N. Cop. Washington, D. C. Price, paper, 25 cents;
cloth 75 centa. This is a book of valuable information to all person Arpers Magazinge,-Published by Harper \& Brothers
New York. Subscriptiou price $\$ 1,00$ per year. he Century Magazink, published by The Century co.
New York. Subscription price $\$ 4,00$ per year. The Youths Companion of Boston, is a springtly, enterception, the best of its kind published in Amerika. It is filled to overfiowing with the choicest original matter of so diversitied a character that it never fails to interest nstruct and amuse, and is welcomed in the household
by old and yonng alike. Serial stories will to the Youth's Companion during the win be contribute D. Howells, William Black, Harriet Beecher Stowe and J. T. Trowbridge. No other publication for the family furnishes so much entertainment and instruction of a
superior order for so low price. Subscription prlce $\$ 1,75$

## THE FOREIGN MARKET

Harris Bros. \& Co., 6 Crosby Square, Lon on, under date of Dec. 14, write:
Wintry weather lasts and seeding operations are abou
at an end until spring; supnlies of home-grown very good, but toreign does not come in as freely as it did, closing of North Russian ports in as freely as it some effect. Wheat since our ports of course having holiday times being near and buyers doing aslittle much, sible except keeping up stocks at present moderate rates or American (and they compele shall, whether European are still a drug. Millers in many places call ont at the large imports of foreign Flour, which they find telling sharply against them. Maize may be written very much different range of price, of course, to distant cargoes for shipment uext year contracts. Barley is plentiful, and can be bought cheaper than last week as it arrives, and
for cargoes on passage. Oats are very firm, as is natufal for cargoes on passage. Oats are very firm, as is natufa
from so many ports in the North of Europe being Dunlop Bros., of 100 Wellington St., Glasgow, write Dec. 13 as follows:
With severe frost and dense fogs prevailing, business
has been decidedly quiet during the past week, Arrivals of Flour liberal; Wheat, Maize and other articles light. To-day's Market was moderately attended; but owing to
the darkness, there was little or no the darkness, there was little or no business done, except
on well-known brands and parcels, Whent on well-known brands and parcels. Wheat firm, and the inally unchanged in value. Maize 6d. to 9d. per $22_{0} \mathrm{lbs}$ cheaper on the week; while Barley, Oats and Pease are firm at late rates,
Gibson \& C
Gibson \& Clark, 3I Waterloo St., Glasgow, Scotland, under date of Dec. 13, write: The weather during the past week has been extremely
cold. Our imports from abroad have been The trade during the week has been
have been well maintained for all articles dull, but prices To-day, owing to fog, our Corn Exchange was thinly attended, and only a small business was done at 3d. ad-
vance on best kinds of Spriug and Winter Wheats. Flour vanee on best kinds of Spring and Winter Wheats. Flour
steady. Barley, Oats, Beans and Peas unaltered. Maize

The Haxall Cren
dered addittonal stevens rolls of the sole and only manu-

## roller mills.

## by theodore voss. (LoNDON.)

their pressure and lever arrangement.
The advocates of stone milling have had much to say lately with regard to the heat evolved in roller mills, and it has become their standing argument, that during its passage through the rolls the semolina will be
The advocates of roller milling on the other hand, contend that, even if some heat is evolved in crushing semolina on smooth roller
miils, it is not only less than that evolved in stone grinding, but also that the contact of the roller surface with the semolina is so in-
stantaneous that it cannot be subjected to any stantaneous that it cannot be subjected to any
excessive degree of heat during its passage. They say, if any where the grinding materia is roasted, it must be during the long contact and the intense friction of the meal with the grinding surfaces of the stones. It must be borne in mind, of course, that both parties managed machines. It would be unjust to compare the results of badly constructed and badly managed roller mills with those of first class millstones under good management, or
There are very many good and well managed millstones in this country(England), but as ye only few good and well managed roller mills. The practical experience of generations of millers has been embodied in the construc
tion of millstones, but only few millers hav as yet had an opportunity to work with roller mills, and to cause improvements to be made in these new machines in accordance with their practical experience. It is therefore scarcely to be wondered at, that roller mills should have, up to the present, often met with adverse criticism from those who are unable to comprehend their real advantages, because they lack as yet that familiarity with them, which influences them in favor of their old friend, the millstone. They know what but they do not yet know what can be done with a first-class roller mill. Besides, there is one point which has the greatest influence on the results of roller milling, that is, the condition of the wheat. If the wheat to be ground be hard and dry, the main advantage
of roller mills, that is their bran preserving tenof roller mills, that is their bran preserving tendency, will be most apparent, whereas their wave any injurious influence, hard and dry wheats being easily pulverized by crushing without caking. If, however, hard wheats are ground on millstones, their weak point, he pulverization of bran, is most apparent, and their advantage, the production of granular special influence. This coudition is reversed for soft and moist wheats.
The bran reducing tendency of stones is not very apparent with the tough husk of soft and moist wheats, but their advantage, the production of granular flour through the rubhighly important.
Roller mills treating soft and moist wheat will of course have the same bran preserving acticn as before, but it cannot be denied that their compressing tendency causes not only the semolina to cake much and thus prevents the production of a granular flour, but it also presses much white floury matter so firmly to the husk, that it cannot afterwards be separated in the dressing machines and thus goes into the pollard.
This compressing tendency of the rollers, therefore, only becomes injurious during the treatment of middlings and semolina from soft and moist wheats, and even there it can be, to a great exte
differential speed.
It must be remembered that the differential speed at present in vogue has come to Great Britain and Ireland from Austria-Hungary, and has therefore naturally been adapted to hard wheats.
But an increased differential speed will do much to avoid the caking tendency of soft wheats, and those British and Irish millers therefore, who use mostly soft wheats will in timd find that they will get better results with greater differential speed in their smooth rollers.
Indeed, there is no doubt that one day there will be special roller mills for semolina from soft wheats and for semolina from hard wheats, or else they may be so arranged as to vary the differential speed according to requirement.

A further important point is the feed of the roller mill.
At present most of them are overloaded.
middlings are most easily crushed if there is a free space round each individual grain, so that in passing between the rolls the broken that in passing between the rolls the broken
particles of this grain can easily move sideparticles of this grain can easily move side-
ways without being subjected to excessive compression
If the semolina particles have freedom to spread, the will produce a sharp granular four, but as soon as the feed becomes ex cessive a compression of the broken partices takes place which must injure the baking quality of the flour.
The baker wants a lively granular flour which is not comp
Such flour facilitates the formation of those ittle bubbles of carbonic acid gas which cause the sponginess of bread.
It stands to reason that if the flour is not granular, that is when the small flour par ticles have been excessively compressed, that it will not be so thoroughly permeated by he water. Therefore not so much gluten will become available to enclose and hold back those carbonic acid
Roller mills should be fed so that there is free space betwen the semolina particles qual to their diameter
Supposing a semolina particle was a smal cube of 1-32 inch, and the rolls were set at distance of 1-128 of an inch. Then, if each smolina cube had freedom to spread, it en particles, with the dry wheat) of 1-128t of an inch thick and $1-16$ th of an inch square Hard wheat will thus be easily disintegrated without being subjected to injurious compression, but soft and moist wheats, whic re not so elastic, must undoubtedly suffe we compression during their passage be veen the rollers, and only by greater diffe
ential speed can this compressing action e avoided.
But as soon as roller mills are overloaded hat is if the semolina or middlings have no reedom to spread, there occurs seriou compression and there can be no doubt tha by repeated rollings such semolina becomes greatly compressed that it is not thoroughly With regard to the smallest distang. With regars an of No. 13 silk are 1-130th of an inch square nd those of No. 14 silk 1-140th of an inch quare, that for smooth rolls treating fine emolina 1-144th of an inch may be consider ed as the minimal distance. Coarser midd ings vary in size from cubes of $1-16$ th to 1-48th of an inch and 1-96th of an inch may be ccepted as a suitrable minimal distance.
Rollers must never be allowed actually to touch each other, if they do they will grind ach other, thereby evolve excessive heat and unnecessarily compress and heat the
semolina particles. For the fluted break rolls the following
table may serve as an illustration of the suittable may serve as an illustration of the suithough of course they must in each case b adjusted to the class of wheat ground

Break 1-16th of an inch
II. Break 1-32nd of an inch.
III. Break 1-48th of an inch.
IV. Break $1-64 \mathrm{th}$ of an inch
V. Break 1-96th of an inch

If the proper attention were always bestowon this point and the feed not allowed to overcrowd on the working surface of the rollers, there would be very little heat evolv ed and the semolina particles not being so much compressed a much better flour would be produced.
Also much less pressure, and consequently less motive power would be required as is shown in the following investigation, which will serve to give an approximate idea about the necessary pressu
g with proper feed.
The working mode of fluted rollers is very simple one; it is mostly a shearing ac-
tion, and only sufficient presssure is tion, and only sufficient presssure is required to press the sharp edges of the flutes into those particles that are in contact with both working surfaces. Most of this pressure, of a tangent on the roller surface, and can therefore he supplied "direct" by the belt on the driving pulley Very little "pressure" has to be supplied "indirect" against the roller surfaces of "fluted rollers" by means of springs on weights acting against the bearings.
Professor Kick found that it was necessary to apply a gradually increasing pressure of $4 \frac{1}{2}$ to $5 \frac{1}{2}$ on a knife, in order to cut a grain of wheat in to parts across the middle, and a pressure of $5 \frac{1}{2}$ to $7 \frac{1}{2} \mathrm{lbs}$ in order to cut a grain of wheat longitudinally along the crease. For shearing a grain of wheat, a gradually in-
creasing pressure up to 19.8 lb . was required, teel plates a gradually pressure up to 20 caused rupture of the grain.

## [to be continued.]

## TECHNICAL SCHOOL IN PARIS.

In 1872 the municipality of Paris established a free public apprenticeship school for the education of workers in wood and iron, which has been so successful that $\$ 400,000$ has been chools in various parts of the city. The course of study covers 3 years and the instruction is divided into gentral and technical. The general course includes the elements of mathematics, physics, mechanics and chemistry in their relation to industry, also explanations concerning the tools, the materials, the processe practice of the workshops. During the summer visits are paid to industrial establishments, o Which the scholars give an account in writing The trade instruction in the workshops is subdivided into two courses. In the first the
pupils are taught the nature and condition of materials. In the second, they pass to actua construction. During the first 2 years, 6 hours daily are spent in the workshop and 4 in the
chool. In the third year, 8 hours are spent in the workshop and 2 in the school.
M. Tolain, president of the commisson having he subject under consideration, in his report, f apprenticsequence of tiades, and owing to he specialization and subdivision of manufac tures recently from the introduction of machinery, the number of skilled and intelligen manufactures has decreased, and the standar of technical knowledge has been lowered. This, he considers, has been especially prejudicial to French manufactures, the distinguishe in originality of design. He believes that the establishmer of apprenticeship school*, th object of which should be mainly, reat on of foremen, but the theoretical an practical education of workmen proper. Among ture trades, to form workers in wood, would become chiefly cabiner, joiners an woodcarvers; and workers in iron intending to ecome general smiths and workers in metal f We are thoroughly of the opinion that shool of his kind should pertain much more of the workshop than of the school, and that he teachers who are brought in direct contact with the pupils should be mechanics who have,
or several years at least, earned their daily bread at the bench or forge. Kid-gloved teachers will always fail when teaehing the Woodworker

## OUBLE CU

In the December number of the United States Miller a descripton was given of Walter's Double Current Middlings purifier which was correct so far as the earlier machines were
concerned but in the latest improved machines the Collins Automatic Cloth cleaner is used for cleaning the cloths. This cleaner consists of very fine leather, or any other material sufficiently flexible to hang down, when not in motion, but when in motion is thrown out by centrifugal force so as to gently tap the cloth the entire width of the screen. It travels across once every three minutes or more if desired. Mr. Walter, says: "I guar antee it not to paste the cloth like the brush or cut it like the cords, as any miller will
testify who has ever used the traveling brush or the cords and then tried the flexible beater."
In explaining the method of driving the beaters, Mr. Walter says: "The carriage in construction is entirely of iron, the tracks on which the trucks rest being on the outside of the machine and do not crush the middlings into flour, as is the case where the tracks or guides are under the cloth, so that the middlings fall on them. Another advantage is, the carriage is driven by a lever, which
drives it back and forth, and is worked from drives it back and forth, and is worked from
the outside of the machine, thus avoiding any possible danger of carrying specks from the tail to the head of the machine or carried to the outside of the machine by belts running hrough the machine.
Mr. Walter furnishes each person buying one of his purifiers with a written guarantee "to defend the purchaser against the claims of any and all parties-claiming infringement of patent." The Walter double current middlings purifier is becoming well known and gives much satisfaction wherever tried-Ful particulars can be obtained by addressing $J$ T. Walter, Easton, Pa.
the mate of the "Mark twain." A humorous paper on Mississippi River travel, in the
January CENTRY, is entitled "The Trip of the "Mark
Twain," and is cleverly illustrated by Peunell. A typical character of river life is allowed aser himself as
The first mate of the vessel, he of the fur ap, was a character. It was appropriate to nd him in the Mark Twain. He was bald and looked very old, but declared he was hirty.
"Ef you had ben through what I hev, my ravelin' stranger," quoth he, "you too woould look like an example of the longest kind of long-gevity. My name figures prominently in history. I've been published in four hunded and thirty-nine newspapers and one al manac. I've been blown up by steamboats twenty-t.vo States and several territories. n most occasions, everybody on board per ished except my self. Pieces of my skull s layin' round losse all up and down this iver, and numerous of its tributarrys. Aw knew we were goin' to bust that afternoon or it was about bustin' time with me, and bust we did. When I come down I couldn't find nothin'. Every thing had blowed to ust, or gone so fur that nothin' was within visible distance. But, bless you ! - that' nothin'. Minor catasterfies? Oh, yes. Once ourse when we progressed we went round and round, and so went round and round all the way down ts New Orleans, describin circles the whole time. We all got orful eadaches owin' to the centripetal tendency

## recent milling patents.

The following patents were issued Nov. 28, 1882 :
Feed Mill, Thomas C. Cadwgan, Springfield, Ohio

## Flour-packer, Joseph B. Martin, assignee to Howes Babcock \& Ewell. Silver Creek,

Tlurbine Water Whee, T. H. Risden \& W. W. Tyler, Mt.
Holly, N . .
Pueutic

The following patents were issued December 5, 1882
Hominy Mill, John C. Klauder, Philadelphia, Ya.
Machine for: reducing grain to four and middlings, Charles
Grain Elecator, Orlando D. Spaulding, Eau Cluire, Wis.
Grinding Mul, John Steveus,
Midddings-Purifier, Albert Williams, Hannibal, N. Y.
Barrel-storing Warehouse, Robt Stewart, Baltimore, Md. Barrel-storing Warehouse, Robt Stewart, Baltimore, Md.
The following patents were issued December 12, 1882 . Middling detacher and granula Louis, Mo.
Mill stone dress, Elgin L. Kouklin, Coning, N. Y.
Process of and apparatus for hulling oats, Geo. H. Co-

## Bolting-chest, Nicholac Cornelius, St. Louis, Mo.

Cover for mill hoppers, W. M. Griscom, Reading, P
Ventilating grain, John K. Street, Waco, Texas
The following patents were issued Dec. 19, 1882
Allinois.
Roter Grinding Mill, J. Morton Poole, Wilmington, Del.
Attrition Mill. Thos. L. Sturterant, Farmingham, Mass.

## LATE ITEMS.

dead-Wm. M. Smith, miller at Fleming Pa,

## Witherspoos \& Barr, at Princeton, Lad is Valley, Pa

 Witherspoon \& Barr, at Princeton, Ind, through John,Webster, the ever reliable millwright, have placed an
 full line of break rolls.
GEHLEN Bros., at LeMars, Iowa, have placed an order ditional Stevens rolls.
Mr. Henry Oswald, of Minneapolis, Minn., has recently placed an order with The Juo. T. Noye Manufacturing Co.
of Buffalo, N. Y., the sole and only manufacturers of the Stevens rolls, for three additional pairs tor use on bran and germ.
At New Minden, Ill,, Messrs. J. W. Hohlt \& Co. are put-
ting in five pairs of the stevens rolls, in their mill. ihe John T. Noye Mfg. Co., of Buffalo, N.Y., will till the order. At Perry, N. Y., Messrs. Tominson did ooye Mfg. Co., of Buffilo. .
brated Stevens roller mill.
At Chilicothe, Mo., Geo. Millbank is making some im-
provements in his mill, and has ordered of The Jno. T Noye Mfy. Co, of Buffalo, N. Y., two pairs of Stevens rolls. MUsCATINE, Iowa, also comes in for its share in the roll-
er boom. Messrs. Schrours Bros. having ordered a full line of Stevens roller mills, of the sole
Juo. T. Noye Mfg. Co., of Buffalo, N. Y.
R. L. Frazee, at Pelican Rapids, Minn., has ordered
Stevens roller mills of The Jno. T. Noye Mfg. Co., of BufPenfield, Lyon \& Co., at Oswego, N. Y., cinch their frequently expressed opinion of the superiority of the Stevens rolls over all others by ordering of the sole and only
manufacturers, The Jno. T. Noye Manufacturing Co, of manufacturers, The Jno. T. Noye Manufacturing Co, of
Buffalo, N. Y., additional rolls for grinding middlings. Messes. Clark \& Maynard, at Hunter's Creek, Mich Messss. Clark \& Maynard, at Hunter's Creek, Mich.,
have ordered Stevens rolls of The John T. Noje Manufacturing Company, of Buffalo, N. Y., one pair of rolls for crushing middlings.
S F. Stambaugh, Sharon, Pa., is putting in more Stevens
roller mills, to Le built by The Jno. T. Noye Mig. Co., the sole and only manufacturers.
Msssss. Edw. P. Allis \& Co., of Milwaukee, Wis., are
meeting with a large demand for their new meeting with a large demand for their new four.break
reduction machine. Among others they have recently reduction machine. Among others they have recently
sold one to Mr. A. J. Morris, of Pemberton, N. J., together with other rolls necessary to fit his mill out in good shape on the Roller system.

THE UNITED STATES MILLER.
United States $^{\text {Miller. }}$
E. HARRISON CAWKER, Editor.

PUblished monthly.
Office, Nos. $116 \& 118$ Grand avenue, Milwa Office, Nos. 116 \& 118 Grand a agenue, Mllwaukee, Wis.
subscription price.-Per Year, in advance.
 All Drafts and Pont.o........ Mo................................ 150
payable to E. Harrison Cawker. Bills for advert
wise agreed upou
$\qquad$
MILWAUKEE, JANUARY, $18 \pm 3$.
 this paper, to mention that their advertisement
wus sien in the United States Milder. You will thereby


The high price of corn has been a bad
hing for the glucose factories, many of which have either shut down entirely or running
only a part of the time.

The wheat export trade via New Orleans is
increasing at a wonderful rate. During the
months of September and October, 1881, the
New Orleans wheat exports amounted to 358,839 bushels, and during the
this year they were $2,801,582$. Among the most valued journals coming to
ur table Brabstreet's is considered by u one of the very best. Every miller, merchant,
banker or manufacturer will find it of great
value to him-it will be money in his pocket to take it regularly and study it carefully.
The Journal can be had for $\$ 5$ per year by
addressing Tie Branstrame Co., 279 Broadin Amsterdam, Holland, commencing, May
1, 1883 . Mr. S. A. Wheelright, New York, recently issued a circular urging America
manufacturers and producers to be fully re
resented resented. Our trade with Holland has in
creased from $89,896,732$ in 1875 to $\$ 32,154,81$ Amercan bread-stuffs and dairy products
machinery and Yankee notions.

## The Usiten Stapla Mhaer learns from the

ury Department, dated Nov. 28,1882 , that the total exports of the United States for the
twelve months ending Oct. 31,1882 , of mer chandive, coin and bullion, was of the value of $\$ 796,851,091$; imports during same time same time, $\$ 22,467,859$. During the twelve months ending Oct. 31, 1881 the total export. were $\$ 888,571,910$; imports, $\$ 740,887,371$;
cess of exports over imports, $\$ 147,684,539$.

United States Judge Caldwell, of the Eastern District of Arkansas, rendered a decision
Dec. 7 , involving the liability of parties who Dec. 7, involving the liability of parties who
had bought cotton on futures from the Tennessee Brokerage Association, in this city, for delivery in New York, March 1881. The contracting parties had ordered that their permitted to exhaust the margins. Cotton permitted to exhaust the margins. Cotton
declined rapidly at the time and the Helena
parties threw up their contracts. Suit ha up to brought for margins due on the contrac tion was notified to the Brokerage Associa well decided in favor of the Brokerge Cald ciation, on the grounds that the transactions were legitimate and the contracts exhibited in court were valid ones.
India Wheat. - The most recent report Bombay, from January 1, 1882, to Nov. 7 Bombay, from January 1, 1882, to Nov. .
1882, at $12,589,055$ bushels, against $16,899,627$ bushels during the corresponding period in 1881. The wheat export from Calcutta from January 1, 1882, to Sept. 14, 1882, were 6,030,-
488 bushels. The receipts at the India seaboard from inland points are small, owing t the high railway tariffs, and it is said the natives have refused in many instances to sow miles inland to Bombay, are said to equal the entire rate from Chicago to Liverpool

## MILLING in ANCIENT times.

## In ancient times no mills, even of the sim-

 plest form were used, and no other means ofmaking flour were known, than to grind the roasted grain in mortars. The mortar and pestle were generally made of wood, the latrugated and the bottom furnished with ironpoints. The flour manufactured in this way Was by no means fine; and if a finer quality
was required it was produced by introducing into the mortar a finer iron-lining. The work was generally performed by female used for this purpose
Even in Genesis we find thvented very early Even incient Greeks ascribed their invention sometimes to the goddess Demeter (amon the Romans called Ceres), sometimes to one
Mylas, from whom the name of the apparaMylas, from whom the name of the appara-
tus is said to have been derived. He is report ed to have founded a sanctuary to the "MillEven Homer mentions mills, although c.nly formed the grinding. By degrees improvemotive power employed, they were distinguished as hand, horse, and water mills. The in all of them, and the mill was invariably made up of two stones, of which the upper
was movable and the lower stationary. Such nills have been preserved from ancient times, and in the Orient they are still in use. As long as milling was not introduced or
recognized as a trade, the mills remained in the houses and were worked by the female
slaves while singing. But when milling be came a regular trade, slaves and prisoners which went on both day and night. In order to prevent the laborers from putting any of
the flour in their mouths while working, and perhaps also for the purpose of causing them
still greater sufferings, they were provided with a wooden collar. Afler the introduc-
ion of Christianity these "blood mills," they were generally called, were abolished.
In consequence of the constantly incteusinger demands made on the millers, human power thereof animals were introduced, such as worn-out horses, asses and mules. Necessa
rily the mills driven by animals were larger than those intended for men, and the animals
were tied to a beam, which passed through the rumer stone, and an instrument similar

## ented them also from enjoying an extr

 meal of stolen flour. Better by far were thwater mills, which first appeared at the time of Mithridates, King of Pontus in Asia Mino who was engaged in war against the Romans Rome until the C., but were unknown in first century A. D. They did not, in fact the into general use before the fourth or fifth century. The principal nills in Rome, on Mount Janiculus, were driven by water from an aqueduct. In the sixth century, when
Witiges, King of the Goths $(535$, ) besieged Witiges, King of the Goths ( 535, ) besieged
the Roman General Belisarius in Rome, and blocked up the aqueducts leading to the city, Belisarius constructed rafts, which he placed on the river Tiber, and erected thereon mills, driven by the current, and thus shipmills were invented which were even used at a later period. To combine baking and milling in such mills was manifestly difficult, and since that time indoubtedly, these two trades were
separated. In the absence of any definite separated. In the absence of any definite
date regarding the further introduction of
wind mills, it may be stated at once that this kind of mills is first mentioned in 1105. In early times it was necessary to procure a special license for the erection of a mill. Ori-
ginally everybody had the right to establish ginally everybody had the right to establish
mills on his own or on public water courses, but in the middle ages the feudal lords took possession of the milling privilege, and only the sovereign of a country enjoyed the right of erecting mills. This right could be acquired by private parties only by buying the concession from the srown at a certain stipulated price. This circumstance gave rise to priviwhich the right to perform all the milling in a certain district was conferred, and the in habitants prohibited from employing any other miller. In the middle ages, the millers, seldom placing their vocation in the cities,
did not constitute a guild or fraternity like other tradesmen; on the contrary they were often, even in comparatively late times, lookso that their sons were refused admusiness apprentices in other trades formed into guilds. This injustice was, however, remedied as time now return, all flour that needed to be particularly fine, was put through the mill a second time, or else sifted. Most in use was
barley-or wheat flour, and by the ancient Romans also spelt (or G srman wheat). Rye did not suit the taste of the ancients and was considered even indigestible. Pearl-barley was prepared in the same manner as flour, ron, and in order to give it a white color, was mixed with alumina

## the wisconsin central railroad.

We have the pleasure to announce that the Wisconsin Central Railroad have completed the missing link in their road, making now its connection with Milwaukee on its own independent line. In an interview with Mr. James we learn that the present mileage is 486 miles, of which 65 miles were constructed the present year. It has under construction the R $\mathfrak{b} b$ Lake Line, which extends from Chelsea to the ast, of which some eight or ten miles is under
ntract. It is proposed to clear across the state. It has also in view a line into the Penokee Iron Range. Recent valuable mines in this vicinity at present inaccessible, and a line into this territory will be built within a very few months. The line has
been surveyed and located, and the contract for gracing etc., will probably be let very soon. The present terminal stations are Milwaukee, Portage, Eau Claire and Ashland. From graukee to stevens Point and from Portupon which the usual Wisconsin crops are ber of years past. The balance of for a num-
brops have heen very fine imber, the value of which has constantly in reased. Although millions of feet of lumber have been cut on this line within the past six years, the supply is apparently inexhaustible out of the vast forests. As fast a: the timber cut off the land is placed under cultivation $d$ countries in continction to the soil of timber consin proves to be excellent in quality and capable of producing immense crops. There the road for a number of years. The present officers are C.L. Colby, president of the company and agent of the trustees who are in
possession of and operating the road; F. H Finney, general manager; James Barker auditor and general passenger agent; and $T$ H. Malone, general freight agent. The traffic as compared with the previous year shows a voy great increase, viz: The earnings for 1881 timating the lat while those for 1882 were, es be $\$ 1,330,696.02$. There is in December, wil the completion of the is no doubt but what Superior City to Ashland will at once bring the Wisconsin Central into publicity, and it is deemed an assured fact that this line will be built. The consolidation of the Omaha and North-Western, will not affect the Central's connection arrangements.
The Wisconsin Central's equipment includes 50 locomotives, 1,562 fieight cars, 28 passenger cars and 5 sleepers. It has 70 monthly pay-roll amounts to betoyes. The and $\$ 60,000$. Every one of between $\$ 50,000$ and $\$ 60,000$. Every one of the general offipresident is supported Milwauk and no foreign president is supported. The car shops of the oad, at Stevens Point, the finest in the State next to the St. Paul's, are fitted out with
every convenience, including electric lights.

On the 1st of January three fast trains, will, be put on the new route. Verily it is a Milwau kee institution of which Milwaukeeans are proud.

## steam engine crank pins.

Says the Canadian Manufacturer: One of the great difficuities connected with the steam engine crank pin arises from the crank being necessarily rigidly keyed to the crank-shaft The crank-shaft journals will wear, or the foundations upon which they rest may settle down and throw the shaft a little out of true line. The amount may be very small so far as the shaft itself is concerned, but the crank pin being at the end of a lever is affected to a degree proportionate to the length of that
lever. Hence, engines lever. Hence, engines are often seen running with the bushes of the crank pin so loose as to cause quite a knock or thump, each time a "dead centre" is passed, and yet any attempt at tighteaing is followed at once by heating. It often happens that in addition to this knocking caused by looseness of the bushes, there is another motion sideways, and the bushes which originally were a neat tit between the collars of the crank pin, now jump from side to side as the crank revolves. This is almost certain to be the result of the crankshaft being off the square with the centre line of motion of the engine, although sometimes it is caused by the shaft having become bent, and so producing the same results as if one end of the shaft had moved out of place. If the crank pin is not large enough to resist the strains brought upon it, without forcing out the oil, it will never work satisfactorily, although some lubricants give good results under pressures which caused heating with ther kinds in use
The engineer who is troubled with crank in heating should first find out by examination if the heating is accompanied with abraion or cutting of the rubbing surfaces-as it may be some grit or dirt having got in along with the oil is the cause of all the trouble. If cut the bearings should be carefully filed and craped true again and pecfectly cleaned; at he same time cleaning out all the oil ducts nd cup, and make sure that a regular supIf oil can be maintained
If the bearing is not cut, or if heating conngineer shand the right, the he shaft, but try the level and square of ing rod has a strap connection, it would well to take off the strap and one-half of the brass bush, and try how the bush fits between the crank pin and the butt end of the connecting rod, with the crank first in the one dead entre and then in the other. This may reand save some The crank
The crank pin, in order to work properly, must be perfectly cylindrical. It turns round evolution of the engine; it must also be fair o the surface of those bushes in every posiion it assumes during the revolution of the rank. Having secured this, and good suraces both on the pin itself and on the bushes, he bushes should be ther without being too timht on the pin, and hen the collar tightened up and held in place

In engines mad ncommen to have the yo the crank in made to forking surace of that if the shaft did germ part of a sphere connecting rod itself work off the teeth, it The not bind the pin.
The engineer who wishes to be saved from rouble and vexation should be specially watchful of the crank pin of his engine, and ever have it running with slack bushes or firty oil cup, or in any condition likely to produce heating or cutting.

## the government and the telegraph.

## The New York Board of Trade and

 ransportation has taken the serious step adopting resolutions recommending the ppropriation by the Government of all tele graph and telephune lines as a part of the postal system, follorving the example of all or nearly all European countries action has already been taken by the National Board of Trade at its last two annual meetings. The public is evidently in favor of the move ment, and the sooner it is putinto execution the better. The only wonder is that in a goahead, enterprising country like this, we have so long been willing to put up with the whims of telegraph monopolies, and pay high rates When every post-office is adequate service. When every post-office is a telegraph office, as in the case put down to a minimum rate, will receive an impetus now little dreamed of.FLOUR ADULTERATION BY FLOUR DEALERS. The St. Louis Miller in a recent article in this subject says: It is a destructive offense
against puplic health, and it is so near to against puplic health, and it is so near to
being identified with the milling business that millers have a selfish as well as a humane interest in protecting their fellow-men against the malignant evil. The dealer who is mean enough to adulterate his flour with stone-dust, or other cheap and deleterious substances, would be nefarious enough to unhesitatingly steal the brand of an honest miller and put the false stuff upon the market under a wellincreases the apparent supply of and diminishes the actual demand for flour. It puts in the market a certain amount of material
which is sold and consumed as flour. Millers sell fully that much less of the genuine article. The adulteration can not but prove more or less unsatisfactory, therefore the dispense with flour and turn to some othe food staple. Hence it cuts into the miller's sales through both demand and supply. Whether or not flour adulteration be limited difference it will grow rapidly and at last become hard to suppress. It is something which calls for no trifling measures. It should be dealt with sternly and effectively. Let miller's associations offer rewards for the detection of adulterators, and instruct their ingly prosecuted. Thus a business basis, with prosecuted. Thas a business basireached at the very first step. Millers thereby at once thoroughly remove chance stigma crush out the scandalous abomination-which we suspect is quite closely confined to obscure retail dealers in flour. So far as that is prominent and extensive a dealer the adulte rator may be, the more urgently, and even vindictively, he should be prosecuted.

MILLERS, FARMERS, STEEL RAILS AND THE.
by John w. hinton, of milwaukee.
The Iron and Steel Question of the country is now the most prominent before the people, rail mills, thereby throwing out of employment many thousands of wage earners, makes the subject one of vast importance.

As farmers and millers are deeply interested in all that appertains to so important an
industry as the making of steel rails, and as the "United States Milier" aims to give the truth and impart only correct information for the benefit of its readers, I will give them some facts n
It may startle some of your readers to inform them that it cost nearly three millions that was of Mr. John I. Blair of Blairstown, New Jersey, was made at the National Tariff Convention, Chicago, Nov. 16, 1881.
M. J. B. Grinnell of Iowa, had playfully alluded to Mr. Blair, stating that "he supported about 1,000 miles of railway in Iowa; he is one of the poor manufacturers. I should
like to hear from him. I do not know of anybody from whom I should be more delighted to hear. I refer to John I. Blair of Blairstown, New Jersey.'
Mr. Blair: " Mr. President, I have always
had a high opinion of this gentleman's judghad a high opinion of this gentleman's judg-
ment, but when he calls on me to make a ment, but when he calls on me to make a said she always put her trust in Providence, but one day going down a hill the breeching broke, and she said she had great doubts.
[Laughter.] Then there is another thing [Laughter.] Then there is another thing, 1 am in the position of the New England Yankee, who said he lost his wife right in the
height of making cheese, and he never in the height of making cheese, and he never in the
world had a little foolish thing trouble him as that did. [Laughter.] That is just my case in making a speech. It gives me trouble; I never learned the trade.
I am here, sir, to represent the Lackawanna
Iron and Steel Company, of Scranton, Penn Iron and Steel Company, of Scranton, Penn-
sylvania, who are now manufacturing about sylvania, who are now manufacturing about
a hundred thousand tons of steel rails a year Before, we were in the habit of manufacturing iron rails for this western world, when it was ruleable to give credit, and in consequence of it, we had to take a good many railroads in pay for iron.
making of steen a great deal said about the making of steel rails being a monopoly. I
think I can explain to those who make such allegations that that is not so. Before the bill was passed in Congress for the protection of making steel rails in this country, it was estimated that the difference in the wages in
making steel rails in this country and in Eumaking steel rails in this country and in Eu-
rope was $\$ 20$ a ton. The consequence was rope was $\$ 20$ a ton. The consequence was

Bessemer process, went to Congress and got
a duty laid. What was the result after thi was done? Mr. Bessemer asked a million dollars for the privilege of permitting us to make steel rails in this country. He was
obtaining for steel rails here one hundred and obtaining for steel rails here one hundred and
forty dollars a ton, gold, and from that to one hundred and twenty, and it was said they could
not be made for anything less.. What was the result? We drummed up eleven companies and we bought that patent or the privi-
lege of making rails in this country for $\$ 825$,000. Well, we started; a portion of these companies, in putting their works in opera-
tion, paid a large sum of money, and some broke once and some broke twice. Many of
us went through; and what has been the sult? After we had undertaken it we had not steel ores in this country that would answer the purpose. We had not the workmen in
this country, and it was a number of years before we made any success. It was all loss. And what is the result now? Last year the
various companies made a million tons of steel rails, for which the price has not been
over sixty millions of dollars. Sixty millions of dollars would have been the cost if we had
imported from Europe; and I ask in the nane of heaven, where this money was to come from? That is the situation. This
patent soon runs out. There were eleven mills; they were all equal stockholders, and than the other they should pay to a fund, and each of the stockholders should draw out of
that, so that the mill that made but few rails got the same advantage as the others, and nothing than if they had been working at fut
blast. That is the explanation about steel
cails. Just give us labor in this country a rails. Just give us labor in this country as
cheap as it is in Europe, and we will ask you for no duty whatever. It is the laboring man mat gets it. Look at the laboring man of the and their peculiar clothes. You see ho government that will not protect its own peo-
ple, not only in life and liberty, but in their prosperity, and give them the preference of of but little value to
people. [Applause.]
Gentlemen, what
for this country? It is the railroads of this country and the steam on the ocean that have made the country prosperous as it is to-day.
That is it. I will relate a story that was told some years ago that was told about a gentle-
man from away down below Cairo, who was shipping hogs to this market. He fell out with
the railroad companies, and said he would never ship another hog-he would drive his
hogs all the way to Chicago; and he tried it, and he was six weeks on the road, and he
lost a great deal of money; and when he got through the railroad company said to him: O, no,' said he, 'but I had the pleasure of the company of my hogs for six weeks.'
Now, gentlemen, here are these railroads
all in operation, and any gentleman who wants to drive his hogs to market can do it. He need not send them on the railroad, he he will come out.
Now, what has this tariff done for the wool country now, and we are manufacturing it ourselves. We are making American cloth that is good enough for any gentleman to
wear. I wear it altogether." [Applause.] Mr. Grinnell. "That is a matter of necessiMr. Blair. "Yes, that is my necessity. [Great
aughter.] I see the farmers are well represented here and I may leave that subject. Let me tell you again that the Lackawana ton are paying out a million dollars a month for labor. In 1848 there were five houses there. There are fifty thousand people there teen millions tons of coal. That much I know from my own knowledge, and they are eating up all the produce that is raised in that sec-
tion of Penasylvania, and they have got to come here for many millions of bushels besides. And so in other places. I know in
New Jersey we don't raise enough to support our own people, and in New England the comes from; and on the other hand here is our market.' We send supplies to these West-
ern States, and when we are through we will ern States, and when we a
I regret, gentlemen, very much, that I am unable to make such a speech as the day and
the occasion require. I have not the education. In the days of my boyhood, some three score years ago, it was a very difficult thing to obtain an education. I went some to dayschool and I went some to night-school, but the elements were against me at night-school -it was dark and cloudy and the lamp-light
was dim; but I used to like to do sums in was $\operatorname{dim}$; but I used to like to do sums in
addition, and I have made some additions since." [Applause.]
In 1881 more than $1,300,000$ tons of steel rails were made in the United States; calling them $\$ 60$ a ton, there was a value of $\$ 78,000$,000 . Taking off the duty, $\$ 28$ a ton, for the sake of argument merely, and there was a value of $\$ 41,600,000$. But it does not follow that the consumer of a taxed article has to
pay that import tax. It is well known to those who are posted, that when the proposition was made, early in 1880, to reduce the tax on steel rails from $\$ 28$ to $\$ 10$ a ton, the price of steel rails was raised in England neary $\$ 18$ per ton. But if the railroads have to
pay the tariff tax, why are the English railAnother feature worth it taken off? mense developing of our iron and steel indus ries. As before stated, in 1881 we made $1,300,000$ tons of steel rails-fully 60,000 tons more than was made in England in the same time. Hon. John Welsh, in a late number and our Tariff," says:

One hundred and ten thousand miles country,) in an incredibly short time this a cost of six thousand millions of dollars.
Twenty-seven States are now competing with Pennsylvania in the manufacture of iron. In 1881, the product of pig iron which were out of blast, scattered through twenty-eight States. The first steel rails were
made in England in 1855, and in this country in 1867 . In March 1868, their current price was $\$ 174$ per ton. The price has fallen annu aly in proportion to the increase of our man-
ufactures, until now steel rails are sold at $\$ 45$, and have been sold as low as $\$ 42$ per ton. In
he mean time our production has reached 1, 180,000 tons for 1881 , being greater than ore the 1st of August 1882, Colorado, from
her own mines, with her own furnaces, con her own mines, with her own furnaces, con-
verters, and rolling mills, has produced and There is at least $\$ 60,000,000$ invested in he manufacture of steel rails in this country rails in the United States will be $1,800,000$ tons, equal at $\$ 45$ a ton, to a value of $\$ 75,600$,00 , whereas, up to 1870 less than 18,000 tons steel rails had been made in the United The following table will show the reader ow the encouragement of the manufacture
of steel rails in this country through the tariff has brought down the price:


The marked decline in prices, upwards of 250 per cent., in the thirteen years noted, will
show to any candid mind claimed by Protectionists, that a protective ariff, while it lowers prices, keeps up the price of labor. Mr. Blair says, with "labor
in this country as cheap as it is in Europe, nd we will ask you for no duty whatever." On the subject of cheap labor in the making
of steel rails, Hon. Emery A. Storrs, before the Ways and Means Committee, at Washington, Feb. 3, 1880, spoke as follows
policy of legislation in this country, it to en courage enforced and ground-down reductions of labcir. I do not think that the laborers
of this country have at any time been too well paid; but if the experiment is to be trie pay for it ${ }^{*}{ }^{*}{ }^{*}{ }^{*}{ }^{*}$ the lowest possible those which would correspond to the character of the wages paid to the English laborer, upon the laborer.
"Now, of course, this branch of it is talk-
ed thread-bare. Everybody has urged it ed thread-bare. Everybody has urged it
but the manufacture of steel rails not the only problem, and, without di
cussing general topics, I do not believe this country is the most prosperous when it
laborers are most inadequately paid. I d not believe in the doctrine taught by that modernschool of philosophy, that high wages, unreal and unsubstantial and unsound. I d pauperism. I do not believe that the man prosperous only when he is impecunious. If the sole end to be achieved is cheap
ransportation, and that is certainly to be accomplished by cheapening in the construc-
tion and profits of railroads, it is illogical to confine our efforts to the simple question o should reduce the wages of railroad employ ees, and thereby correspondingly reduce
transportation. We should reduce the sal ries of railroad officials, and thereby reduce
ransportation. We should reduce transportation. We should reduce by legis-
lation the payments of dividends, and thereof the New York Central, and the Chicago Burlington and Quincy, would be content to scale down their dividends so as to match
those realized by the manufacturers of steel those realized by the manufacturers of steel
rails west of the Alleghanies since 1873, we could insure a great reduction in the future rates of transportation; and as their sole ob-
ject is the benefit that the purchaser has to avail himself of methods of transportation from the West to the seaboard, and as they have no motives of individual gain involved-
we suggest that as the means by which the we suggest that as the means by which the
Western farmer may be greatly relieved. But the railroad employee, whose wages cheap transportation, will immediately clam-
so that there may be cheap bread. The farm hand will immediately clamor for lower price in order that he may have cheap hats, shoe and clothes. Finally, there will be a general elysium of a general divide; everything will
be cheap, and there will be a millenium of genuine, solid, uniform, prosperous pauper ${ }^{\text {ism. This }}$
This country never has been prosperous,
nd never will be prosperous, when the borer is inadequately rewarded. Capital aggregated in bulk may be swollen to undue
proportions; but the bone and sinew of the country, the laboring element in it, is disBritain, to whose bright and shining example
we are constantly pointed, a steady reduction of the dignity of the laborer by the steady eduction of his reward has brought the laborer intellectually down to the capacity of
he mule, receiving hardly the attention which the mulereceives, for there are human ocieties organized for the prevention of crihere are none which protect the benighted aborer, reduced to a condition of barbarism by pauper wages, made necessary by the
But one more remark, and I will close. Mr blest writers on Tariff in this coune of the address to the same committee, said:
"It is claimed that the duty on stel an obstacle to cheap transportation; that he duty enters into the cost of railroad conies are obliged to reimburse themselves for in extra cost, by taking it out of the farmer wheat and corn, on hogs and cattle, on seed nd fruits.
The enormous fallacy of this position was ery forcibly exposed by Gov. Carpenter, ed January 27, 1874, thus:
" Nor is it the tariff that burdens the farmer.
An ingenious writer has shown, by estimating with great care and by unmistakable mathe he New York Central Railroad, and assume hat it extends from Chicago to New York,
double track the whole distance, laid with iron weighing 65 lbs. to the yard, and then assume
that this iron only represents half of the road's consumption of iron, and further assume th the original cost of all this iron was increased collected, if each which would have been when he has granted all this, and assumed al laking the cost of transport of one thousand and twenty-one millions tons of freight, the
amount this road carried one mile last year that the exact additional charge on a bushe of wheat from Chicago to New York, would be one cent and one-hundred-and-eighty-eight-
thousandths of a cent, on account of the
tariff. The tariff will never ruin the Western
But for protracting this article to too great length, I might conclusively show that, of all classes in the country, not one has been particulene farmer, principally in the increase of the home market to $47,000,000$ of consumers of portation of the agricultural productions to he Eastern markets and seaboard has been brought down to a lower charge than that of any other country, in some instances to 200 per cent., while during last year, less than 8
per cent. of the entire farm products of the country were exported, the home market consuming 92 per cent. of them.
As shown by the following quotation from "Sir H Fortnightly Review:
Sir Henry Bessemer helped the Americheapened railroad freights in America to ern farmer, can put his whetitor, the westpon our markets for less than and produce tis a The Tariff whl gever ruin the West orn Farmer."

## Milwaukee, Dec. 27, 1882

Littelle's Living Age For 1883. This stand ard weekly magazine, now nearly forty year old, continues to afford the most convenien ure keeping informed in the best litera f of the day, and abreast with the work fhe most eminent writers. It gives an mount of reading unequaled by any othe plete col, and is the only satisfactorily comwhich embraces more a current literature the productions of the ablest writers and hinkers in all departments of literary and cientific work. Hence its importance and value to American readers. It fills the place of many quarterly, monthly and weekly pub ications, and the reader is thus enabled, at a small expenditure of time and money, to keep pace with the best thought and literature of the time. The prospectus is worthy the attention of all who are selecting their periodicals for the new year. Littell \& Co. Boston, are the publishers.

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Reduction Mills and System

## Perfection on First Break

## Superior to most, equal to any on Subse

 quent Reductions.Every grain of wheat split through the crease, and so thoroughly done that the split kernels can be brushed or scoured.
The Best and Cheapest Reduction Machine and System yet offered.
Substantial, Durable, Noiseless and Light Running, Slow Motion, Large Capacity.

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We guarantee to improve your Milling by using ur First-Break Machine and System. We Split making a greater percentage of high-grade flour than can be made under ANY OTHER SYSTEM.

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We have fitted up in our factory a room in
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chine a thorough test, and judge for yourselves.

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Gathmann's Patent "inclined bristles"

## ONLY DOUBLE BRUSH

Thoroughly Brush Wheat Guaranteed to IIIPRROVE COLOR of the PLOUR. It don't break or scratch the grain. Re moves all the dust. Very light running mitm

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With Travelling Cloth Cleaners

Our improved Purifer has every device requisite to make it perfect, and every one in use is giving the greatest satisfaction to the users. The Cloth Cleaners are guaraneed to clean the cloth better than is done on any other purifier
Over 4000 Garden City Purifiers in use, nearly 800 of which are the Improved Machine.
The Best and now the Cheapest. Write for rrulars and price list.

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## BODMIJR

BOLTING CLOTH
Which has long been acknowledged as the best made, and which has lately been further improved, making it now beyond competition. We make it up in the best style at short notice. Send for prices and samples.
Garden City Mill Furnishing Company, CHICAGO, ILL.

HORSE POWER NOTES.
For a mean effective pressure of 55 lbs per quare inch, and with a piston speed of 600 same as the piston gross horse power is th Thus: a 6 inch cylinder will, with 55 m . e. p and 600 ft . piston speed, give 28.29 gross horse power
A 40 lbs and 400 ft . piston speed, the gross
horse power is very nearly half the piston rea. Dividing 55 by .7854 , we get 70.02 ; hence we may say that at $70 \mathrm{lbs} \mathrm{m}, \mathrm{e} . \mathrm{p}$. and 600 qual to the square of the piston power and that at $17 \frac{1}{2}$ lbs. and 600 feet, it is the square of the radius.
At 700 feet piston speed, and 50 lbs . "mean effective," the gross horse power about equals the area of the piston in square inches.
At 1,200 feet, and with $27 \frac{1}{2} \mathrm{lbs}$. mean effect ve, the gross horse power
of square inches of piston.
As the net horse power, after deducting for iction, area of the piston rod, \&c., is ge erally roughly estimated at from $12 \frac{1}{2}$ to 16 per cent., $\frac{1}{8}$ to $\frac{1}{2}$ less than the gross horse pow-
er, or roughly from $\frac{7}{8}$ to $5-6$ thereof; assuming that it is $\frac{7}{8}$ we should require more than th pressures and speeds quoted above; that is we should need 8-7 the pressure or the speed. This would give $8-7 \times 55=$ about $64 \mathrm{lbs} . \mathrm{m}$ get the following (allowing $\frac{1}{8}$ for friction \&c. the net horse power may be said practically and dividing the above power by .7854 we have (allowing $\frac{1}{8}$ for friction):
 Taking advantage of the foregoing, we may m. e. p. will give one gross or one net horse In this case
$\mathrm{PT}=33,000$; and if we can get the product of the mean effective pressure in pounds by the piston area in square inches to equal 33,000 ,
we are all right. The first couple we noted, $55 \times 600$ answer-
ed the conditions. Now below we give a table ed the conditions. Now below we give a table
showing the piston speed requisite to give one gross horse power for each square inch of of piston area, at any given mean effective
pressure.

| Lbs. | Feet. | Lbs. | Feet. | Lbs. | Feet. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| ${ }_{30}^{27.5}$ | 1,200 1 1 1 | ${ }_{50}^{50}$ | ${ }^{6} 60$ | $721 / 2$ | 455.2 |
| 32.5 | 1,016 |  | 660 | 751/2 | ${ }_{426}^{440}$ |
| ${ }_{3}^{35}$ | 8880 | 57.5 60 | ${ }_{570}^{572}$ | 80 | ${ }^{413}$ |
| $4{ }^{31 / 4}$ | 885 | ${ }_{62.5}^{60}$ | ${ }_{5}^{525}$ |  | 400 <br> 388 <br> 8 |
| $421 / 2$ | 777 | 65. | 508 | 871/2 | 377 |
| $471 / 2$ | 733 695 | ${ }_{70}^{67.5}$ | ${ }_{471}^{189}$ | 90 100 | 367 | ber of pounds $m$. to give one gross horse power for each square inch of piston area.



By dividing the figures in the foregoing which will enable by .7854 we get some be expressed by the square of the diameter instead of by the piston area.


Thus at 400 feet piston speed and 105 lbs mean effective pressure, or at 600 feet and with
$70 \mathrm{lbs} . \mathrm{m}$. e. p., or with any of the combina tions in the last table, an engine with 15 inch bore will give 225 horse power, one of 20 inch bore 400 horse, \&c.

## the largest <br> COMPLETE EUROPE.

In a recent number of Die Van den Wyngaert gives the following descriptive account of a visit to the steam flour mills at Malmö (Sweden,) which werestarted a few months ago, on Nagel \& Kaemp's sy stem, and which is the largest complete roller mill in Europe. The mill is worked by the Joint Stock Copenhagen Steam Mill Company, the manager being Mr. Rud. Schmidt, and one of the main objects of the promotors was to acquire the export trade to England, Hol land and other countries, which had in measure been lost to German millers by the introduction of the new customs regulations Mr. Van den Wyngaert says: The establish ment stands on the so-called West-Basin of the Malmö harbor which is adopted to the admission of vessels of the greatest draught Two lines of rails, one of which is public and one belonging to the owners of the mills, pass between the quay and the mills, and above both lines, at a considerable height, is an dischor $h$, discharging the cargoes of both the largest
and smallest vessels. The premises are occupied by the wheat store and cleaning rooms, the mill and flour warehouse, th front faces of which are towards the water In the yard are placed the engine and boiler house, and at the side furthest from the water are the offices, stables, etc.
The mill is driven by a compound high and low pressure, surface condensing steam engine, built hy the well-known firm Burmeister \& Wain of Copenhagen; the indicated horse-power is 500 , whilst the effective is cal culated at 350 , which is transmitted by 14 hempen ropes from the fly-wheel to two main line shafts. One of these two line shafts is
in the basement, whilst the other is situated in the second story. A more beautiful or smoother transmission of power cannot be imagined and it cannot be too strongly recommended for all cases where a sufficient space intervenes between the fly-wheel and line shaft, as the ropes run best when not too tightly drawn over the pulleys and consequently have a certain amount of sag. The about 0.052 metre ( 2 inches) and wigh of (about ( 2 inches) and weigh 2 kg (about $\left.4 \frac{1}{2} \mathrm{lb}\right)$ per metre. The fly-wheel has
a diameter of 6.27 metres $(20 \mathrm{ft} 5 \mathrm{in})$ and a diameter of 6.27 metres ( 20 ft 5 in ) and
makes 55 revolutions per minute. The normal capacity of the mill is 1,200 acks of wheat to 100 kg ( 220 lb ) or 800 sacks of rye in 24 hours, and I was informed by the manager that the consumption of the Newcastle coal amounted to 8,000 or $9,000 \mathrm{lb}$.
The cleaning machinery is capable of treat ing this quantity of wheat in from 12 to 1 hours, thus necessitating only a very limited amount of night work in this department. From the elevator the grain passes to two automatic weighing machines which indicate as every ton weight of grain leaves the machines to be transported by means of elevators, endless bands and tubes to silos and storage. Here the grain undergoes the operation of mixing through the agency of other elevators and endless bands. Before return-
ing to the silos the grain. "Richmond Grain Cleaner"" asses through a which the rough dirt and dust are removed. The grain on its way to be reduced is first ent over another "Richmond Grain Cleaner," and thence to a sorting cylinder which separates it into three portions according to size, and so over a threefold system of cleaning machinery consisting of cockle separators, Eureka brush machines and stone sieves into a large hopper in the mill which is capable of containing a sufficient supply for the grain is performed by chiller cleaning of which lightly crush it in chilled iron rollers dirt remaining in the crease of the grain. The reducing process is performed first by fluted chilled iron rollers followed by centrifugal dressing machines. The broken wheat is then sent to smooth chilled iron rollers followed by a dismembrator, after which it is dressed and then again to smooth chines, the end discharge from which is the finished bran. The flour produced by the hree operations just mentioned is conveyed by dlings are sizs to the flour bin, whilst the middlings are sized before going to the Prokopee
purifiers. The purified middlings are reduced by smooth rollers and dismembrators, similar machines being used for "dunst" (dust flour) and tailings respectively. The flour produced by these processess enters the two conveyors already mentioned, to be conveyed to the four bin, with the exception of that made from the straight run of flours.

Generally speaking there is, with the ex eption of the tailings flour referred to, only one grade of flour made, and when this is the case the flour from the two conveyors fall into one elevator and is thus transported the flour bin shamber from which it packed into sacks by a mechanical appliance The mill contains six fluted roller mills, sixteen smooth roller mills, five double dis nembrators and about twenty centrifugal ressing machines, all of which have been upplied by Messrs. Nagel \& Kaemp; the lan of the mill is by Messrs. Jacks \& Behrns.
It is particularly worthy of notice that in this mill both rye and wheat are reduced by the same machines, the only alteration ne essary being in the speed of the dismembrat ors. This is a matter of great importance in the case of the Malmö Mill, as it is frequenty required to grind wheat and rye upon alternate days.
In addition to the machinery already menioned three pairs of millstones have been erected for the purpose of grinding rye for the manufacture of the well-known Swedish "Knäckebröd," the rye being ground so fine that the bran is absolutely reduced to powder ; the porous surface of the millstone is admirably adapted to this work, whilst the rollers and dismembrators cannot reduce the bran sufficiently.
The ship-elevator, referred to at the commencement of this article, is by Messrs Jaacks \& Behrns who have patented the idea The elevator is arranged in such a manner the grain may be raised from a vessel of any description, and without stopping the ork the elevator may be raised or lowered will.
The buckets of the elevator are of such a form that the grain can be carried by them a horizontal direction as well as vertical thereby facilitating the transport of grain to any desired point. I was informed that the capacity of the elevator was $50,000 \mathrm{~kg}$ ( 50
tons) per hour--Corn Gazette, (London.)

## the use of coal.

About the beginning of the thirteenth century much objection was raised qgainst its in roduction into London on the plea that ite smoke was an intolerable nuisance. This opposition was continued for nearly 200 year in some quarters, but was at last obliged to give way before the growing scarcity of timber. Toward the beginning of the fourteenth century many shallow collieries were opened out in the neighborhood of Ncwcastle-onTyne, but little is known about the progress of our subject during the course of the fifteenth century. There is enough to show, however, that the demand for coal went on increasing. In a petition presented to the Council by the Company of Brewers in 1578, we find that corporation offering to use wood only in the neighborhood of Westminster Palace, as they understand that the Queen findeth "hersealfe greatley greved and anoyed with the taste and smoke of the sea cooles." Another author writing in 1631 says that "within 30 years last the nice dames of London would not come into any house or room when sea coals were burned, nor willingly eat of the meat that was either sod or roasted with sea-coal fire." Soon after the commencement of the seventeenth entury the use of coal for domestic purposes, as well as for washing, brewing, dyeing, etc., was general and complete. The mines were still shallow, and they where drained by means of horizontal tunnels called adits, water-gates. etc. Already attempts had been made to sink some of them under the water-level and to raise the water by machinery. In the year 1486-7 the monks of Finchdale Priory expended a sum of money at one of their collieries on the Wear "on the new ordinance of the pump" and on the purchase of horses work it. Underground fires and noxious ases began also to appear about this time. mer, a wedge, and a wooden shovel a hamoal was raised to the surface in shovel. The coal was raised to the surface in some cases mines in the east of Scotland, it was carried up stairs on the backs of women called coalbearers. In the year of 1615 the fleet of vessels called the coal fleet, which carried the produce of the northern collieries-one-half London, the remainder to other destinaessels also, 400 sails. Many foreign cargoes of coal to their respective countries Twenty years later the coal fleet had increased to 600 or 700 sails, and was already regarded as "a great nursery of seamen."Nature.

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Quantity and Quality of Work Considered.
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Durable, Light Running, Flour Merchants,

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Made entirely of STEEL ONE MAN with it can easily move a loaded car. Will not
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BIRGE \& SMITH, PRACTICAL IIIL IIIIILIIIIN. plans, specifications \& entimates mads por ilu kindso or
MILLWORK, MACHINERY, ETC. Flour, Sawmill, Tannors' and Browors' Machinery, and Genoral Mdll Furnishers, Corner of East Water and Knapp Sts., MILWAUKEE, WISCONSIN, [Mention this paper when you write to us.]

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OUR CLOTH TIGHTENER OUR AUTOMATIC FEED
Makes it both convenient and easy to keep the Silk a!ways properly stretched. IS Positively self-adjusting and reliable.
Write for descriptive price list and circular to
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We are the Sole and Exclusive Licensees for this Country under the


# Centritugal Flour Dressing Reels 

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

NEW CLOTH FIXING AND STRETCHING DEVICE, NEW AND SIMPLIFIED MANNER OF DRIVING.
THE CENTRIFUGAL has more than FOUR TIMES the capacity of the ordinary reel, and will make clear four. CD PTED to handlin IT IS INDISPENSABLE to a CLOSE FINISH in any system of gradual reduction milling, and will improve the qualIT MAKESA CLEAN SEPARATION on caked and flaky meal from smo

IT IS VASTL Y SUPERIO
-veir one Finmdied soldin six tueelke. REFERENCE TO LEADING MILLERS IN THE UNITED STATES.
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MLanufacturexs of
Automatic Cut-Off, Fixed Cut-Off, and Sliae Valve

MARSEAS工'S NEW CORN SHELLER.


SHELL MIXED CORN, fast and well, and hat will clean if morogghly. Easy of access to all parts liable to
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Bold as cheap as
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1


VOECHTING, SHAPE \& CO., CELEBRATED MILWAUKEE LAGER BEER
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## WITH COLLINS' AUTOMATIC CLOTH CLEANER.

This Furner has he followitig features, whith are seoured to it by patent, and
each number of Cloth-The Settling of Theking out the Feavy Specks between oach number of Cloth-The Settling of the Heavy Dust and Lifting the Light Fruzz into the Dust foom.
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Smut Machines,
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## HARRIS-CORLISS ENGINE.

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RIS, Providence, R. I.
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Built under itheir original patents until their expiration. Improvements since added: "STOP MOTION ON REGULATOR," prevents engine from running away; "SELF-PACKING VALVE STEMS" (two patents), dispenses with tour stuffing boxes; "RECESSED VALVE SEATS" prevent the wearing of
shoulders on seats, and remedying a troublesome defect in other Corliss En gines, "BABBITT \& HARRIS' PISTON PACKING" (two patents). "DRIP OOLLEOTING DEVICES" (one patent). Also in "General Construction" and Superior Workmanship."
The BEST and MOST WORKMANLIKE form of the Corliss Engine now in the market, substantially built, of the best materials, and in both Condensing and Non-Condensing forms.
The Condensing Engine will
The Condensing Engine will save from 25 to 35 per cent. of fuel, or add a lirke amount to the popt in Atook, for the convenience of repairs and to be placed on new work oriered at short notice.
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## steam engine economy.

The question of steam-engine economy, which is being agitated in the columns of some of our cotemporaries by writers who discuss it in a general way, is little benefited by such general discussions. When terms like "less
first cost," "less skill," "less cost of repairs," "extra boiler capacity required," "small powers" and "considerable powers" are used without direct qualification, defintion oring An engineer accustomed to build or use engines of 500-horse power or above, might consider "small powers" any way from one horse power to 100 or 200-horse power, while to another the term "small powers" would
convey the idea of engines from one to tenhorse power, and a 100 or 200-horse power engine would rank under the classification of "considerable power." Similarly the term
"less," " less," as applied to "cost," "skill" and "re
pairs," may vary in the reader's or writer"s mind within the limits of zero and infinity. When ideas or suggestions are based on such general terms as above, they are useless to any one, and the reader after having perused such articles, knows more than he did be he can apply in practice
When discussing the question of steam engine economy, one must come down to fig ures; and if this cannot be done, little of real use can be achieved. The "less" must be horse power must be stated, and then there is at hand the data for comparison and diss-
cussion. Often the lack of experimental determinations prevents one from coming down to exact figures; but the need, then, is not discussions and general assertions, but expericussions which we would assail, serves to retard the institution of necessary experimental trials; for the air of wisdom and erudition and boldness assumed serve to mystify a large
class who would otherwise urge and help to class who would otherwise urge and help to raise o
The question of steam engine economy is fortunately one that, as a rule, can be settled with sufficientaccuracy in any particular case; but each case must be considered as a special problem, to which the laws of engineering, of cost of production and attendance, and occasionally experimental trials must be applied; just as in the maintenance and design of a bridge. There are many who oppose algebraic methods of presentation, and some the use of higher mathematics, who indulge in the evil writing to which we refer. Whe of sentation of a position, be it graphical or mathematical, there is a word to be said in favor of analytical methods, and that is that the writer has to come down to figures and close analysis. "Generalities" recede to the vanishing point.
The abuse to which analytical methods and formule are subject is the wholesite and indiscriminate introduction of "constants," but any improper use of constants can be detect ed ly any one comprehending the mathe-
matical demonstrations. The ablest and most satisfactory analysis of questions of steamengine economy are those that give definite replies to inquiries in dollars and cents. the great general problem of all engineering, expense in money, such curvern expense in money. Such current expense
includes, of course, interest. repairs and de preciation of plant, cost of attendance and other current costs of production--America Engineer.

## ivory wheat and millo maize.

J. T. Henderson, Commissioner of Agri-
culture of the State of Georgia, in a report for 1881 and 1882 calls attention to the claims of "Ivory wheat" and "Millo maize" to a These are both members of the large family of sorghums, of the class that have for many years been cultivated in Central Africa and other tropical countries for bread purposes. Analyses made to gain the relative theoretical dinary standard wheat show that there i scarcely more difference in the proximate analyses of "Ivory wheat," so-called, and Dallas or Red May than appeared between the analyses of the latter two varieties of orlarger wheat. The flouminoids (flesh formers,) slightly less of starch and more of fats (fat and heat producers) than either of the true wheats. The Millo maize has considerably less of the albuminoids or flesh-forming subssances than either of the others, being
about equal to the Indian corn in this respect "The flour made from the Ivory wheat, when properly ground and bolted, is rather darker than ordinary 'family' flour, but posesses the property of kneading well and is therefore adapted to the process of "raising" with yeast or by similar means. Bread made from it, though not equal in any sensible re spect to that from fine wheaten flour, is by no means unpalatable, and as indicated by analysis is probably fully equal in nutritiveness to any. For making the forms of bread fo which buck wheat flour, rice flour, middling of wheat, \&c., are usually employed, viz waffles, griddle-cakes, muffins, \&cc., the Ivory Hour seems to be well adapted." Mr. Henderson does not speak from actual experiment of the bread qualities of the Millo maize but is of the opinion that in this respect will be found to resemble Indian corn meal It is claimed that both of these plants ar normously productive, rather indifferent a o soil and culture, and almcst independent of the seasons after the soil has been prepared raordinary seasons of this year it has no been practicable to test their capacity to resis? drought, and a sufficient number of report of experimenters has not yet been received to productiveness under ordinary circumstances. But Mr. Henderson is of the opinion that the reports will show that both are very productive-far more so than any grain
crop now grown in this State. The Millo Maize is quite late in maturing, requiring favorable culture and the full season from planting time (April) until frost to mature in north Georgia; but this difficulty will probably soon yield to the acclimatizing effect This plant appears to be unusually produc ive of foliage, will bear two or more cuttings, and promises to be very valuable for soiling and general forage purposes.

## the boiler blow-off

One of the most important parts of a steam boiler is the blow-off. It is also one that is subject to more abuse in its construction, location and use than almost any other fixture
pertaining to the boiler. The most peculiar ideas seem to prevail in regard to its construction and position on the boiler. Some put it at the front end, some at the back end, and some put it in the middle of the shell. The great majority, also, instead of pr:tting it on the bottom of the shell, where he belongs, in-
sert it through the heads of the boiler, anywhere from two to six inches above the bot tom of the shell, thus rendering it impossible to entirely empty the boiler when desired,
and greatly impairing its efficiency for any purpose.
The only place for a blow-off pipe to enter a horizontal externally-fired boiler, is through the bottom of the shell within a foot or so set slightly lower at the back end than at the front, say three-fourths of an inch for a boil er fifteen feet long. Then it may be entirely emptied by simply opening the blow-oft
valve, and all syphoning of water through valve, and all syphonin
hand holes is obviated.
This, however, is not the most important reason for locating the blow-off at the back
end of the boiler. In a horizontal externallyfired boiler the application of the heat and the resulting circulation of the water, is such that the sediment is always deposited at tha any other part of the boiler. Obviously, then, this is the place for the blow-off. It is true that most boiler-makers now place it there, but there are many who still persist in placing it at the front end.
The proper method of constructing and attaching the blow-off pipe to the ordinary
horizontal boiler is as follows: First, the pipe should be two inches in diameter. A circular piece of boiler plate about eight inches in diameter should be riveted on the bottom of the shell, with its center not over twelve inch es from had better not be made until after this
pipe piece is riveted on, and then it should be drilled. If, however, facilities are not available for doing the job in this way, it may be drilled before it is put on. The hole should then be tapped, when it is ready for the pipe. The ivet holes on the inside of the shell should always be counter-sunk, and the heads of the rivets driven flush with the inner surface of the plate. If this is done there is no project ing rivet heads to assist in the collection of sediment at this point. A blow-off attached in this manner and provided with a straightway valve outside the setting will algh away valve outside the setting will always
give perfect satisfaction if properly cared for.

In many cases, however, where the water is bad, they are not opened often enough, and the inevitable consequence is that they soon become filled up with scale and sediment. When this occurs it may always be regarded as the best possible proof that it is located in just the right place, and, if properly attended o, will prove most effective in keeping the boiler free from scale and sediment.-Fron
The Locomotive. The Locomotive.
how good bread can be made.
A correspondent of The Miller, (London), yys: Pace 10 his. of good flour in a clean re, leaving a portion of flour lying at the oottom. Sprinkle on the flour round the edge of the bowl about $1 \frac{1}{2}$ to 2 ounces of resh German barm* mixed to a smooth paste in a basin with half-a-pint of lukewarm water, adereto. Into the "pit" formed in the lour, pour gently a quart of lukewarn water, stirring in a little of the flour from the
ides, (not from the bottom), then pour i he basinful of yeast and taking a little more flour from the sides, add about one pint more ukewarm water, stir till nicely smooth but cloth, allow it to stand in a moderately warm place for half an hour (if you want sour east is good, and you have ont mised in much of the salt, it will have risen in half an lour from the sides of the bowl, adding more lukewarm water if desired, and kneading
the whole well with clean hands for twenty minutes or half an hour, and so that it is not too stiff, but not to stick to the hands. Place it with the cloth cover in a moderately warm cut off your lumps of dough to form a then Knead it separately and well on a board, place it in the tins, slightly rubbed with a lithe rise in the tins in the som warm q quarter of an hour. Then bake in the top part of a Yorkshire oven with moderately
brisk fire, occasionally turning the loaf tins round, keeping the oven closed as much as possible, and avoiding cold draughts to the
oven. When baked enough place the baked loaf. When baked enough place he of corners, so that the air can play freely and as equally as possible round the whole loaf; if lhere fresh from the oven, it may be heary. not the result, these directions being carefully observed, there is something amiss with
boller treatment and engine manage
There being so many engines in use where first-class engineers camnot be employed, it few simple rules to be observed in the man sh have on il in them, it is besto blow out the first filling at the end of a day tendency to foam. A small amount of oi will prevent incrustation.
Tie supply of feed water should be regular Th no case should the feed pump be required o lift water more than five or ten feet, and from a tank situated above the pump. If fom the high temperature of the water the pump refuses to work, a remedy may be found
in allowing a slight leakage around the plunger, thus allowing the accumulation of vapor to ame purpose.
Never fire when the water is below the low
est gauge. The safety valve should receive daily attention, and if not raised by the steam should be raised by hand. Frequent firing i most economical. Sudden cooling is injurius to a boiler. Portable boilers, in particuar should not be blown off entirely when ream is above ten pounds; the doors should be kept shut while cooling. The efficiency and durability of a boiler are greatly increa ed by keeping it clean. Where water coliNew engines that have been exposed in shipping should be thoroughly cleaned before starting, and oil of a good quality freely used during the first few days' run.
A priming tendency will sometimes be obiated by opening the throttle valve slowly, ylinder cocks should always be open on taring the engine. All leaky joints should as soon as discovered. The governor belt hould be kept tight to insure sensitive action $\stackrel{- \text { esr }}{ }$ Yeast.
of the governor. To lubricate the cylinder and valve, either cylinder oil or tallow should be used. Lard oil is not good for this. Belts, when new, frequently slip or require to be unusually tight. An application of equal parts of neat's-foot oil and tallow will be found very ood on leather belts, and on rubber, eithe inseed or castor oil-the latter preferred ut a small amount at a time will be needed Inimal oil should never be applied to rubber elts.
By observing the above, and exercising good judgment, but little trouble may be appreended in the management of an engine.Dynamicus in American Machinist.

## items of interest

Smotherisg Smoke.-A great deal of fus made regarding the smoke nuisance, and arious methods have been employed in the ttempt to consume the black vapor. The位 the same time the smoke from their own himneys rolled out in great smutty clouds and blew into adjacent windows. But is was more easy to howl at the tugs, which could
howl back in disdain, than to formatory experiments at home. Recently, among other tests, a trial was made of a
smoke purifier, which operated upon the smoke purifier, which operated upon the
smoke with cold water, and the result was very satisfactory. A simple remedy is already in vogue in England, which is also
declared to be effective, though it has not been introduced in this country, unless in solated instances. It is not a smoke consum-
er it is said, but a smoke stiller, and the priniple of its working is the intermixture of moke with steam and air. This is effected y means of a small pipe leading from the op and front of the boiler through a hole cate with the fire. The furnace door is perforated, so as to admit a strong draught of air. It is found that after replenishing the
fires, and while a cloud res, and while a cloud of thick, black smoke tap be turing from the top of the stack, if the the pipe in the furnace, the smoke will be at once subdued, and that too, without affecting the fires; the dense black cloud will disappear, and the stack will give no more show of what The whole cost of the apparatus is less than $\$ 10$.
The Strength of Beams.-Recent experihalf to two-thirds their breaking strain, finally break after a long and steady deflection, which continually increases until the tinal experiments, this fact will go far toward explaining the frequent falling of mill and warehouse noors, under to be perfectly safe. The floors of all such buildings should be sufficiently strong can, by any possibility, be put on them, and an least five times ats strong as the ordinary load. Where there is running machinery in the building, which is likely to produce jar or
tremble, these figures must be exceeded as the effect of a continuous jar and strain combined is very destructive to the building in which they are found.

## solid Matter of The Wheat Kernel.-

 Does the solid matter of the wheat kernel inrease after cutting, when the grain is cutbefore ripening? This is a question oftenbefore ripening: This is a question often-
times discussed by farmers. Some hold that hen wheat is cut while still green the growth of the kernel is completed after cutting, in ed to stand until fully ripe. In order to get ondution on his point in experiment ylvaniad by Professor Jordan on the Pennyheama state College grounds, samples of in each case the kernel of a portion of the sample being removed immediately upon cutting, and the keruels of the remaining portion being allowed to dry on the stalk in he usual manner. After the wheat had be come as dry as it would get in a warm, dry fom, lots of from each sample and then weighed. In this manner any appreciable growth on the part of the wheat dried on the stalk would be etected. A table giving the various weights of the kernel at different stages, makes the ncrease in weight of the kernel after the wheat was cut to have been about 22 per cent, in the case of the partially developed kernels taken June 24. In all subsequent samples the kernels dried on the stalk seem to no heavier than those removed before drying and immediately after cutting.

## NEWS

Dead.-Geo. M. Hammon, of Tom's Brook, Va.
Angus Shaw, Turner, Oregon, has sold his mill.
 J. C. Hopriss, Irasburgh, Vt, has sold his mill to Wm.
Morev. Susong $\&$ Co., Bridgeport, Teun., have sold their mill to
Boyd \& Co.
 F. E. LRserrt \& Co., millers, Adam's Mills, O., have
made an assignments.
Heuba rd \& Jones of olathe, Ks., are succeeded in busi
 Chari.Es Groth of Gillmore, Neb., has sold his mill to
Messrs, Wilrodt \& Barydory. Divssors \& Blarimore, millers, Cornersville, Tenn.
have dissolved partuership. H. . Lench $\&$ Co., millers,
to the Golden Gate Milling C . RUnNED out-The Saginaw
Mich. Loss reported at $\$$ s75,000 BURNED.-Joos. LL. Guernse's's slour mill at Jeffersonville,
mi. Loss 820,000 . No insurance. BUnsed out.-Samuel Rideonts flour mill at Calais,
Me., Loss $8,0,0$. Insurance 82,50 .
 Bros. of mianna, Gat, win smooh rolls.
THE milling firm of Ballard, Isom \& $C$
Oregon, is succeeded by Isom, Lanning \& Co

 MLL.RR \& Trayer, Buenavista O., have placed their
order wtth the Case Mfg. Co., Columbus, o, for smooth E. A Rosk, La, Porte. Ind., is putting in some new ma-
chinery, furnished by the Case Mfr, Coo., Columbus,
Ohio. The U.S. Albumen Mff, Co., Osterville, Mass, recently
ordered a pair of porcelain Rolls, in Gray's noiseless
frames. THBC Case Mfig. Co., Columbus, O., are furnishing Geo.
Millabant, Chillecothe, Mo., with the Litule Giant break Geo. W. Wiceevanner, Piqua, 0 ,., is improving his mi
and putting in rolls furnaishing by The Case Mfg. Co. Co.
fumbus, 0 . J. Q. Howe, at Phelps, N. Y., have ordered additional
Stevens rolls of the sole and only mannfaceurers, The Jno. Mr. W. Abbott. of Hillsboro, Ill., lately put in one pair
of porechaiu Rols from Messss. Edw. P. Allis \& Co, of
N. MR C. N. Wilson of Cannon Falls, Minn., lately put in
one pair of anilis solls in Grays noiseless frame, from
Messs.s. E. P. Alls Mess.S. . . . MC Kim, of Deloit, Iowa, recently purchased a
Roller outtit in Gray's noiseless frames, from Messrs. E. P. M. C. Goldth waite has ordered of Messrs. Edw. P. Alilis
$\&$ Co, of Milwauke, two four-break Reduction machiues

## M Pssse. E. P. Alis \& Co., of Milwaukee, Wis, recentiy gold hte Doyton National Home of Dayton. Ohio, an $13 x$ 42 Reynolds Corliss Engine.

 Messss. E. P. Allis \& Co., of Milwaukee, Wis., lately soldthe Zenith Milling Co., of Kansas City, two pairs of Allis Messss. Faul \& Buchholk, ot Portland, Ind., reeenuly
purchased one pair of Alis rolls in Gray's noiseless frame,
from Messrs. Edw. $P$ Allis \&C Co fATH, Ewald $\& \mathrm{C}$, St Louis, Mo., have ordered a full
line of the stevens rolier mills of tue sole and only manuA. Scrambling \& Son, of Victor, N. Y, are putting in
8tevens rolls, ot be furnushed by The Jno. T. Noye Mig.
Go, the sole nud only
 THE Ogilivia Milling Co., of Winnepeg, Manitoba, have
recently put in additional poreclinin rolls, trom Messrs.
Edw. P. Mllis \& Co of Nillwaukee Wis sold Mr A. Friedenhacen, or St. Chanles. IIN, two pairs of
Allis Rolls in Gray's patent noiseless frames.
 Mrssss. Halliday Bros. of Cairo, IIL., recently put in
four pair of Allis rolls in (iray's noiseless frames, from MEssns. Edw. P. Allis \& Co. of Milwaukee, Wis., reeent.
ly obld Messs. Hutton, Harris \& Co, of Auburn, IIl, two The Metropolitan Railroad Co., of Washington, D. C. has ordered of The Jno. T. Noye Mif. Co., of Buffalo, N .
one of the Steven's roller mills for use on cor Mrsss. Edw. P. Allis \& Co. of Millwaukee, Wis, recently
gold to the Union Roller Mill Co, of Broommagton, 1 l one pair of Allis rolls in Gray's noiseless frame.
Messes. Kreuger Bros. of Canton, D. T., lately purchased
one pair of Alls rolls in Gray's Messre. Edw. P. Allis \& Co, of Millwaukee, Wis The Jewell silling Co., of New York City, has reeenty

The Bass Foundry and Machine Works of For Ind., which are handing the Gray patent Roller Mulle, manufactured by Messrs. E. P. Allis \& Co., Milwwaukee Delphos, ohio, and are puting in the Allis Rolle.
 two pairs of Allis Rolls, in Grays noiseless frames,
Messrs. Edw. P. Allis \& Co., of Milwaukee, Wis. Mr. Julius Lehnkind, of Davenport. Iowa, reently
purchased one pair of dilis rolls in Grays noiseless frame,
from Nester from Messrs. Edw. P. Allis \& C.,., of Milwaukee, Wis.
MR. J. H. Pool of Rochester, N. Y., recently purchased
 MEsses. Edw. P. Allis \& Co., of
recenty sold Messsm Guthrie Bros.
eight pairs of Allis Roll in ic
of Mil waukee, Wis,
ros. of suprior,
on Mrsses. G W. Hecker \& Co., of New York City, latel
put in two pairs of Allis rolls in Gray's nokelese put in two pairs of Allis rolls in Gray's noiseless frame
from Messrs. Edv. P. Allis \& Co., of Milwaukee, Wis.
 Mr. J. B. Warren, of Wauwatosa, Wis, has placed h
order with Messrs. Ed. order with Messrs. Edw. P. Allis \&Co., of Miliwaukee, Wiss
for eight pairs of Allis Rolls, in Gray's noiseless frames. Seevers \& Anderson, of Baltimore, Md, are increasin
their compliment of Steven's rolls, their compliment of Steven's rolls, to be supplied by The
Jno. T. Noye Mfg. Co., the sole and only manufacturers. Messhs. E. P. Allis \& Co., of Milwaukee, Wis., lately re for an Allis Roller outtit, in Gray's pat. noiseless frames. DEC. 7. Charles Decker, the proprietor of the grist-mill
at Deckerville, Mich., got caught in a revolving shatt and was drawn in an killed. His body was terribly mangled
Messrs. Edw. P. Allis \& Co., of Milwaukee, Wis., recent MEssrs. Edw. P. Allis \& Co., of Milwaukee, Wis., recent
1y furnished Messrs. Richards \& Butler, of Indianapolis. Messes. Lukens \& North, of Atchison, Kansas, lately
purchased two pairs more of Allis Rolls in Gray's noiseless purchased two pairs more of Allis Rolls in Gray's noiseless
frames, from Messrs. E. P. Allis \& Co, of Milwaukee, Wis.
MEssrs, Carl \& Blake. of Canton, Ohio, recently ordered
of Messrs, Edw. P. Allis \& Co.'s Reliance Works, Milwau-
kee, Wis, one pair ot Allis Rolls in Gray's noiseless frame. of Messrs. Edw. P. Allis \& Co.'s Reliance Works, Milwau-
kee, Wis., one pair of Allis Rolls in Gray's noiseless frame.
Messss. Edw. P. Allis \& Co., of Milwaukee, Wis , recent M Fsses. Edw. P. Allis \& Co., of Milwaukee, Wis, recent
y chipped eight pairs Allis rolls in Gray's noiseless frames
Lo Ean Francisco, for a mill that they are furnishing there. Messes. Geo. Crosby \& Son, of Princeton, Ill., recently
purchased two pairs of Allis rolls in Gray's nioseless
frames, from Messrs. Edw. P. Allis \& Co of Milwaukee, Messss. Laird, Norton \& Co., the prominent lumbermen
of Winona, Minn., recently bought a $30 \times 42$ Reynolds of Winona, Minn., recently bought a $30 \times 42$ Reynolds
Corliss engine of Messrs. E. P. Allis \& Co., of Milwaukee,
Wis. The Independence Mill Co., of Independence, Iowa,
recently purchased a roller outfit in Gray's noiseless
frames, from Messrs. Edw. P. Allis \& Co., of Milwaukee, Messrs, Albrecht \& Poggenburg, of Newburg, Wis., re-
cently purchased of Messrs. Edw. P. Allis \& Co... of Mil-
waukee Wis.. six pairs of Allis rolls in Gray's noiseless Mrames.
Messes. Fath, Ewald \& Co , of st. Louis, Mo., have plac-
ed their order with Messrs. E. P. Allis \& Co., of Milwaukee,
Wis. ed their order with Messrs. E. P. Allis \& Co., of Milwaukee,
Wis., for ten pairs of Allis Rolls in Gray's noiseless belt
frames.
Additional Stevens rolls are being put in the mill of Ellis \& Knawses, at Evansville, Ind., by the Jno. T. Noye
Mfg. Co , of Buffalo, N. Y., the sole and only manufacMessss. Edw. P. Allis \& Co., of Milwaukee, Wis., have
recently received an order from Mr. G. Ziebold, of Red Bud, ,lil., for sixteen pairs of Allis Rolls in Gray's noiseless
belt frames.
D. Hagett \& Son, at Conococheague, Md., are putting in D. Hagett \& Son, at Conococheague, Md., are putting in
bran and tailings rolls to be furnished by the sole manufac-
(urers of the Steven's rolls, The Jno. uffalo, N. Y.
M sssns. Church \& Paterson of Sterling, Ill., recently or-
dered one pair of porcelain Rolls, in Gray's noiseless Iered one pair of porcelain Rolls, in Gray's noiseless
rame, from Messrs. E. P. Allis \& Co., Reliance Works,
Milwaukee, Wis. Messees. Pauels, Van Patten \& Co., of Holland, Mich. of Milwaukee, Wis., for four pairs of Allis rolls in Gray
noiseless frames. Messrs. May Weber \& Co., of Watertown, Wis., lately
placed their order with Messrs Edw. P. Allis \& Co. of
Milwaukee. Wis,, for two pairs of Allis Rolls in Gray's The Case Mfg. Co., Columbus, O., have the contract of
Padgam \& Ailler of Union City, Mich., for a full gradual reduction mill of break, rolls scalping reels puriffers ete.
on the Case sy tem. Mr. B F. Gump, of Chicago, Ill., lately placed his order
with Messrs. E. P. Allis \& Co., of Milwaukee, Wis., for
one pair of porcelain rolls in Gray's noiseless frame, for
one of his customers.
Messes. Edw. P. Allis \& Co., of Milwaukee, Wis., re-
cently filled an order for two pair of porcelain rolls in
Gray's noiseless frames, for Messrs. R. G. Waples \& Co.,
MEssrs. Edw. P. Allis, \& Co., of Milwaukee, Wis, lately ieceived an order from Messrs. Lambert \& Bishop, of Jol-
iet, Ill, for a $38 \times 48$ Reynolds Corliss engine, to run their
barb wire fence works. Charles E. Ellreith, of Syracuse, N. Y., has ordered The Jno. T. Noye Manufacturing Co, of Buffalo, the sol
and only manufacturers of the Steven's roller mills, a cou ThE Case Mfg. Co., Columbus, O, are furnishing Werne
Miller \& Co., Wright City, Mo., wih breaks, rolls, purifien scalping, reels chest, etc., for a full gradual reduction
mill, on the Case system.
The Hudnuts, of Terre Haute, Ind., recently purchased wor morinding corn, from Messrs. Edw. P. Allis \& Co.'s Relif
fratis for grinding corn, from Messrs.
ance Works, Milwaukee, Wis.
Messrs. Edw. P. Allis \& Co., of Milwaukee, Wis., have
the contract for building a new 125 -bbls mill, Loudenslager \& McAdoo, of Newark, Ohio. The mill will contain ten pairs of Allis Rolls.
already a large complement of the Steven's, who have aiready a large complement of the Steven's rolls, have
placed their order with The Jno. T. Noye Mfg. Co., of Bnffalo, N. Y., for a double mill.
MEssRs. Tanner, Sherman \& Co., of Otter Lake, Mich,
recently placed their order with Messrs. Edw. P. Allis recenty placed their order with Messrs. Edw. P. Allis \&
Coiliance works, Milwaukee, Wis. for an Allis roller outfit in Gray's noiseless frames.
Mksses E. P. Allis \& Co., of Milwaukee, Wis., have the
contract for remodeling mill for Messrs. Hanley Bros., of

Petosky, Mich., and are putting in three pairs of Allis
Rolls, in Gray's noiseless frames, and one of their new our-break reduction machines.
with the Case Mfg. Co, Columbus, O., for a full line of breaks, rolls, puriffers, scalping, reels, etc., for a full re
Mpsspes H A H L J Dem.
MEssRs. H. A. \& L. J. Deland \& Cro, of Fairport, N. Y
ave recently purchased two pairs of noiseless frames, from Messrs. E. P. Allis \& Co., of Milwaukee, Wis, to use for grinding soda.
Jas. Purdy, Grand Rapids, O ., is putting in the world
renowned Steveu's rolls for use on bran and germ. The sole and only manufacurers, The Juo. T. Noye Mfg. Co
of Buffalo, N, X., will fill the order MEssRs. Edw. P. Allis \& Co., of Milwaukee, Wis, have ishing their mill, and are putting in twsenty Ino., for fu Allis Rolls in Gray's noiseless frames.
The Case Mfg Co., Columbus O., have furnished M E
Moore of Waterville, Kans., with a uritier, scalping reels etc., for a full gradual reductio Case system, using no millstones
8 c. Wilson \& Co., of Alney, IIl., through the eve
terprising Jno Webster, has placed an order with no . T. Noye Mfg Co., of Buffalo, N. Y.
steven's roller mills for use of middlings.
Messrs. Edw. P. Allis \& Co., of Milw. he contract for remodeling the mill for the Kenton, Mill
Co., of Kenton, Ohio, and are putting in eighteen pair ng Co., of Kenton, Ohio, and are putting in eighteen pair
MIlis Rolls in Gray's noiseless frames. MEssRs. Edw. P. Allis \& Co. of Milwaukee, Wis., recent
took the contract to furnish Messrs. J. S. Woodhard Co's Mill at Urbano, Ohio, and have put for
olls in Gray's noiseless frames, in the same.
CApr. E. W. Pride, the general agent for Steven's rolls t Berlin, Wis, for bran rolls. The Jno. T. Noye M. Mg Co., W. W. Warner manufacturers, will fill the order
W.

Warner's Safe Remedies, have ordered of The Jno. T oye Mfg . Co., the sole and only manufacturers Messs. Hagerty, Hunter \& Co., Peoria, Ill., have the Messrs. Edw. P. Allis \& Co., of Milwaukee, Wis., twe pairs of Allis Rolls, in Gray's noiseless belt frames.
The Bass Foundry \& Machine Works, of Ft. Wayne,
nd., recently placed an order with Messrs. E. P. Allis \& o. of Milwaukee, Wis, for an Allis roller outfit in Gray's noiseless frames, for Mr. J. S. Hart, of Decatur, Ind.
Messms. J. Q. Halteman \& Co., of St. Louis, Mo , recen for a mill that they are furnishing at Paris, Mo., same were Messss. Kelly \& Bennett, of Rochester, N. Y., have just
ordered of Messrs. E. P. Allis \&Co., of Milwaukee, wis wored of Messrs. E. P. Allis \& Co., of Milwaukee,
chines. Tney are refititing theirir mill to the Roller angystem chines. Tney are refitting their mill to the Roller system.
MEsssms. C. B. Slater \& Co., of Blanchester, Ohio, lately Milwaukee, Wis., for two pairs of Allis rolls is in Gray
noiseless frames, for Messrs. Juo. Alt \& Co., Efingha, MEssRs, Chisholm Bros, \& Gunn, of Minneapolis Minn
recently ordered of Messrs. Edw. P. Allis \& Co recensy ordered of Messrs. Edw. P. Alis \& Co., of Mil.
waukee, Wis., thirty six pairs of Allis rolls in Gray's noi-
seless frames, for Mills, that the haye under Messis. Willford \& Northway, of Minneapolis, Minn recently placed their orders with Messrs. Edw. P. Allis \&
Co., of Milwaukee, Wis., for nine pairs of Allis rolls in Mr. Rubert Grimshaw of Philadelphia, has been retain ed by H. B. Rathbun \& Son of Deseronto, Canada, to
direet the alterations of engines \&c. in there various flour

Messrs. E. P. Allis \& Co., of Milwaukee, are refurnish McConnell \& Kirk, at Findlay, Ohio. The mill whencomelt írames.
AT Prospect, Marion Co,, o , Messrs. Marrow Bros, a putting in Steven's rolls for germ and bran, for which pu
pose they are uuexcelled. The Jno. T. Noye Mfg. Co
of Buffalo, N. Y., the sole and only of Buffalo, N.
fill the order.
Messrs. Richards \& Butler, of Indianapolis, Ind., repo
steadily increasing mill furnishing ave recently ordered of Messrs. Edw. P. Allis \& Co., Milwaukee, Wis., fourteen pairs of Allis Rolls in Gray
noiseless frame. The mill of Gulliford Bros. \& Co., at Mentor, $o$. , is re nished by the sole and only manufacturers, The Jno. T.
Noye Mfg. Co., of Buffalo, N. Y. It will make a complete nill when doue.
The Case Mfg. Co., Columbus, o., are furnishing Alle Co., Lenox, lowa, with rolls and other machines.
WEBBER \& WEBBER \& Son Omaha, Neb., have put in one of the Messrs. Edw. P, Allis \& Co., of Milwaukee, Wis., have Me contract for furnishing the machinery and engine for
he new mill of Heny \& Cook of Fond du lac, Wi hey will put in eight pa
Reynolds Corliss engine.
The Great Western Mufg. Co., of Leavenworth, Kan heir section. They handle the well known Allis ing in and have recently placed orders for twenty four pairs, R. L. Frazee, of Frazee City, Minn., one of the leve
headed progressive millers of that state, has ordered he sole manufacturers of the celebrated Steven's roile mills, The Jno. T. Noye MIg. Co., of Buffalo, N. Y
additional rolls for use on middlings.

Erder with The Jno. T. Noye Mfg. Iowa, have placed or additional Steven's roller mills They have had ase for some time one of Noye's improved concentrate AT Wall Lake, Iowa, Messrs. R. Hammi

## Buffalo, N. Y, the sole and Jno. T. Noye Mfg.

 Suavo, N. Y, the sole and only manufacturers forSteven's rolls for bran and germ. Mr. F. R. Fletche the Messrs. Hull, Parker \& Co, formerly wellknown order ng circles in Minneapolis, have purchased a mlll at Baraboo, Wiss, and are refitting it to the Roller system, and have placed their order with E.P. Allis \& Co., Millwaukee,
Wis., for six pairs of Allis Rolls in Gray's noteseless
M. J. J. Hennickson, of Conshohochen, Pa., who is
doing the millwright work for

Chestnut Hill, Philadelphia, visited Milwaukee, Wis., re-
cently and placed his order with Mesars. Edy, cently and placed his order with Messrs. Edv. P. Allis \&
Co., of the reliance works, for a full line of Allis rolls in Gray's noiseless belt frame.
MessRs. Edw. P. Allis \& Co., Reliance Works, Milwau-
kee, Wis., are furnishing the machinery and plans for the ee, Wis., are furnishing the machinery and plans for the new 125 -bbls mill of Messrs. Manro, Neyhart \& Manro, of
Abburn, N. Y. The mill will be all Auburn, N. Y. The mill will be a full roller mill, con-
aining thirteen pairs of Allis Rolls in Gray's noiseless frames.
Messrs. Edw. P. Allis \& Co. reliance works, Milwaukee Wis., have the contract for building the new mill for
wessrs. Carr \& Brown, of Hamilton, hen completed will have a capacity of 250 barrels per hay and will contain thirty pairs of rolls, all in Gray's nol Me
Mr. A.A.Taylor of Toledo, Ohio, recentiy putin another kee, Wis. Mr. Taylor is using a Compound Reypolds Cor liss engine, also built by Messrs. Allis \& Co. to furnikh pow-
er for his mill, and is making a barrel of flour with 20 lbs. er for his mill, and is making a barrel of flour with 20 lbs .
of soft nut coal. This economy has uever been excelled, and speaks well for the engine furnished by the Reliance

MEssrs. Walsh, DeRoo \& Co.'s Standard Roller Mill, a Holland. Mich., ts completed, and running full time. It is fitted up with Gray's Roller mills, and the most modern milling machinery. The mill is driveu by steam power,
and has the capacity of 200 barrels of tlour per dey and has the capacity of 200 barrels of flour per day. Abra-
ham Privat, formerly of Milwankee, is head miller, and B. Oggel, formerly of Beloit, wis., second miller. The dipping facilities of the mill are excellent.
Burned-Nov. 27, the flour mill of Upham, Sou \& Co est in the state, Kis., The mill, which was much the largsince overhauling and rebuilding, during which time six teen of the patent process rollers were put in. The total
loss, counting $\$ 12,000$ worth of wheat and flour will amount to $\$ 72,000$ on which there was an insurance of $\$ 80,000$. On this amount $\$ 30,000$ was on the mill and machinery and $\$ 40,000$ on the stock. The National Mill ers' Fire Association carried $\$ 10,10 \mathrm{of}$ the Insurance and the Home 85,000 . The stone walls, which were four feet
thick, are still standing, and will probably be utilize in rebuilding. The mill proper was $56 \times 86$, four stories high and had an easy capacity of 288 barrels of flour high or 1,440 bushels of wheat. The partners were Cyrus
Upham, S. T. Upham, Henry Flueke and R. S. Craft. Henry Flueke is a resident of Atkinson, where he operated a depot for the sale of the product of the mill. The
water power at Blue Rapids is probably the finest in the West. Upham, Son \& Co., have a power rated at ti50 horse,
and will probably rebuild in Blue Rapids on this account. The GREATETT LIVING AUTHORA, such as
Prof, Max Muller, Rt Hon. W. E. Gladstone,
Jas.

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 tions of the most eminent authors abovers named produc-
nand
nany others; fmbracing the best Seria and Short
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tian Sdvocale.
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nary diary in similar binding
and
rices of Difiere

 Address, UNITED STATESMLLLER, $\begin{gathered}\text { Milwankee, Wi }\end{gathered}$

JOEIN C. EICCINS,

## Mill Picks,

No. 169 W. Kinzie Street, CHICAGO, ILLINOIS


# Read It! An Immense Success! Read It! OVER 500 MACHINES IN SUCCESSFUL OPERATION. 

The only Dust Collector in the market which has been in steady operation over ONE GEAR, giving the best of satisfaction. It is an origlnal machine and fully protected by LETTERS PATENT. It does not infringe anyone's pratent, which we tully guarantee. Beware of infringements. We shall machine and infringers to the forill extent or t the law
prosecuth
thooroubly tested machine. Try it and satisty

## FULLY GUARANTEED. NO LONGER AN EXPERIMENT.

Nofilling up the cloth. All the leading mills are adopting our machines, many having dispensed with the old dust room entirely, operating our DUST COLLECTORS exclusively. We refer you to any of the parties using our machines,

## AN IMPORTANT PROBLHM SOLVFD AT LAST,

Taking Care of the dust laden air from middlings purifiers and other machines, using air to carry off the dust, has been thoroughly met and conquered in the highest degree by the

## PRINZ DUST COLLECTOR

After years of study and experiment suceess crowned the labor of F. PRINZ. He produced a machine that will give satisfaction in such a manner that no Simplicity is a Leading Feature in this Machine.
The dead air chamber which has been a source of much trouble in other machines by wearing out and allowing the air to get in, thereby injuring the power
of the cleaning mechanism on the cloth, which results in the cloth filling up, is entirely overcome in this machine, as it ins
NO
DEAD AIR Machines of Difforent sizes Euilt.




Mlwaukee Dust Collector Mfa. Co., Milwaukee, Wis., U. S. A.

## TEBTPIMOONIATS.

This is the only Successful Dust Collector in Operation.


St. Louis, Mo., Oct. 11, 1882.
 steady operation for 30 days and works satisfactorily in every way; the machine has no connece
tion with any room and Dust room; the fan blows direct into the mill without any visible signs of dust, it deposits from 75 to 80 pounds in a barrel in 25 hours, being all the refuse matter
from the purifier; another machine has arrived; will attach it to a Garden City Purifer and from the purifier; another machine has arrived; will attach it to a Garden City Purifier and
have it in operation in a few days.
Yours respectfully, Spring Valley Ohio, Oct. 12, 1882
 work and would not exchange it for any machine of its olarss, kee know of. Yours respectfully,
BARRETT \& SON Yours respectfully, BARRETT \& s
Milwankee Dust Colleetor Mfg. Co. Gentlement-The machine you shipped us some time ago reached us the forepart of this
week and was put in successful operation to-day. It tatarts off all right and we hope will continue to work well. Your truly, Hastings, Minn., Oet. 19, 1889. Milwaukee Dust Colleotor Mfg. Co.
Gontiomen:-WV have now beon running your Dust Collector about 10 days and are well
pleased with it. If we had room would put in more. Yours truly,
CEAS, ESPENSORIED. Co.
milwaviseo, Wis.

# THE CENTRIFUGAL ERA. 



The Centrifugal system creates a new epoch in milling machinery, and is rapidly becoming popular and indispensible, gradually supplanting the old system as it goes marching along,
and so we take pleasure to introduce the Excelsior

## CENTRIFUGAL

## Flour Dressing Machine.

FIRST PRBIIUII AND DIPLOMI AT MISSOUBI STATE PAIR, ST. LOUIS, OCT. 5, 1882

 Our Great Feature\{ \{The botom reel frame is composed of Zinc instead of Cloth, sp that the Bolting Cloth, in the two Our Reels excel any other for re-bolting low grades of Flour; handling lumpy and impure material; dusting middinngs and bran; flattening germ stuff; finishing tailings and cut-offy; boiting chop from any ing patent flour.
Our Reels have a capacity three times greater than the common cylinder; they take up less space ; make a cleaner and whiter flour; leave less waste and are less expensive.

For information and reference apply to
 [Mention the United states Miller when you write to us.]

## Our INew Year's Card!



Lowell, Mich., Dec. 22nd, 1882. Messrs. Case Mfg. Co., Columbus, O. Dear Sirs

Your favor duly received, and in reply we wish to say that we have delayed giving you our opinion of your system in our mill, not wishing to commit ourselves until we were thoroughly satisfied as to its merits, and we are now pleased to say that we are gettirg results that surpass our expectations, and that we are very confident can be surpassed by no system of milling we know of. We are using not to exceed $4_{\omega}^{33}$ bushels wheat per bbl., and are making a straight grade Flour that equals ordinary Patent with 5 to 6 per cent. low grade. We get about 60 per cent. Middlings Flour that we have yet to see equaled in Winter Wheat Patents-we run a straight grade, leaving this middlings flour all in.

We think your system is a grand success, and predict a brilliant future, first wishing you a prosperous New Year.

We remain yours truly,
WISNER BROS.


The Case Roller Mill.

## Address:

CASE MANUFACTURING CO.,
$\qquad$ COLUMBUS, OHIO.

## J. H. RMDFIFLD,

## Millwright and Mill Furnisher,

REDFIELD'S COMBINED ELETATOR \& PURIFIER And the Champion Wheat Cleaning Machinery.

Large stock of Du Four's Bolting Cloth on hand, which we sell lower than can be purchased elsewhere. Cinths made up to order and guaranteed to fit, and be of the best material, and made in the most workman-like manner.

Send for catalogue and price list. It will pay you.
J. II. REDFIELD, Salem, Ind


IMPORTANT NOTICE TO MILLERS
 Indianapolis, Ind, with a:l the former patterus, tools, and
machinery and thoose of the tirm who formeriy built up
 addressed with care to
NORDYKE \& MAMN CO

GANZ \& CO., Budapest, Austria-Hungary.
We are the first introducers of the Chilled Iron Rollers Oor milling purpases, and hold Letters patent for the
Uuited states of America. For full particulars address as
Uner above.
[Mention this paper when you write to us,]


PATENTS Ve continue to act as Solicitors for Patents, Caveats, Trade uba, England, France, Germany, etc. We have had Patents obtained through us are noticed in the ScIEN-
TIFIC AMERICAN. This large and splendid illustrated TPIPIC AMERICAN. This large and splendid illustrated
weekly paper, $\$ 3.20$ a year, shows the Progress of selence
very
 tipic American, 37 Park Row, New York. Hand book
about Patents sent free.

Northwestern Mill Bucket Manufactory s10, 312, and 314 FLORIDA STREET.


Is furaishing Mills and Elevators in all parts of the They are UNEQUALED for their SHAPE, STRENGTH and Leather, Rubber, Canvas Belting and Bolts at lowes market rates. We have no traveling ageuts, sample cherels sent on appication. Large orde
iberal disconts.
Address all inguiries for sample order. Address all inguiries and orders to
L. J. MUELLER 19. Reed
Ment.
Milwaukee, Wis.

 MILW AUKEE, FEBRUARY, 1883.



## COMPLETE ROLLER MILL OUTFIT

For Mills of 30 to 70 Bbls. capacity in twenty-four hours, can be secured by ordering Gray's Patent Noiseless Belt Roller Mills as combined in the new Four Break Gradual Reduction Machine, designed especially for use in small mills. This machine contains the celebrated GRAY'S PATENT ROLLER MILLS, in combination with the necessary Scalping Reels and Elevators, to make the reductions and complete the separations essential to the most perfect system of roller milling. This machine, in connection with Gray's Combined Roller Mills and Bolting Reels for reducing the middlings, forms a complete roller outfit, which is compact, efficient and cheap. For particulars, prices, etc., address :

## EDW. P. ALLIS \& CO., Reliance Works, Milwaukee, Wis.

ODELI
We invite particular attention to the following

## POINTS OF SUPERIORITY,

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

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

## ROLLTR



## MIL工.

3. It is the only Roller Mill in which one movement of a hand-lever spreads the rolls apart and shuts off the feed at the same time. The reverse movement of this lever brings the rolls back again exactly into working position and at the same time turns on the feed.
4. It is the only Roller Mill in which the movable roll-bearings may be adjusted to and from the stationary roll-bear ings without disturbing the ten-sion-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!

[^1]Circular and Prices on Application to Sole Manufacturer,
STILWELL \& BIERCE MANUFACTURING CO

## RERIIANGE: UVOREXS,

 EDW.P.ALLIS \& CO.Prop's. MILWAUKEE. WIS., U. S. A. sole manufacturers of Gray's Patent Noiseless Belt Roluer mills Wegmann's Patent Porcelain Rolls.

Unexcelled for reducing Middlings to Flour.<br> stones for this purpose.

## Read the Following Ietters.

Terre Haute, Ind., Aug. 22nd, 1882.
Milwauke, $W$ is. Gentlemen :- Ne are viery much pleased with the whole eight set of Porce-
olls you put in our Mill. The two double set sent us soon after starting up II last fall, we put in place of two run of stones for grinding our coarse e fin l the Flour from the Porcelain Rolls much more evenly granulated and Iiddlings are much better, being almost entirely free from germs and not
aky. Yours Truly,

KIDDER BROS.

Messrs E. P. Allis \& Co. Kings County Flour Mills, Brooklyn, N. Y., Aug. 15th, 1882. Gentlemen:- You ask how I like the Porcelain Rolls as compared with Mill Stones a long time ago that Mill stones couldid not produce as satisfactory results. 1 am now operating $\dot{\text { our }}$
working withour Impored Machine of inceased size with nice adjustments, Working without noise wilh Gray's Patent Belt Drive. The Flour it produces is beautifully
grainy and strong and its capacity two or three times more than the old Gear Machine with costly stone dressing gnd no trouble, consumes less power than Mill stones, dispenses is unequaled by any Machine, iron or stone, at least this is my opinion after five years of
practical experience. Yours truly, JOHN HARVEY,
also sole manufacturers of the celebrated
EXNOLDS'
Over Three Hundred of these


These Engines are especially adapted for use in Flouring Mills-being unsurpassed in Simplicity, Durability and ECONOMY OF FUEL, and far ahead of any other
Automatic Cut-off Engines.

[^2]Edw. P. Allis \& Co., milwaukee, wis.
he following is a partial list of Flouring Mill owners who are using the Reynolds' Corliss Engines.

| Hilwaukee, Wis. | Albert Wehausen.....................................Two Rivers, Wis. | 1. Lanier \& Son................................ Noshville Tenn. |
| :---: | :---: | :---: |
| .. Red Wing, Minn. | Green \& Gold..........................................Faribault, Mimn. | Wells \& Nieman........................................................... |
| ...Milwaukee, Wis. | Meridan Mill Co............. ..........................Meridan, Mimn. | Grundy Centre Milling Co..................................Schuyler, Neb. |
| ... \ilwaukee, Wis. | Townshend \& Proctor...............................Stillwater. Minn. | B. D. sprague..................................Grundy Centre, Iowa. |
| .... Winona Minn. | Sooy d Brinkman................................ireat Bend, Kansas. | The Eisenmeyer Co.................................................. |
| ......Anoka, Mimn. | Frank Clark..............................................Hamilton, Mo. | A. W. Ogilvie it Co.........................................ittle Rock, Ark. |
| st. Paul, Minn. | N. J. Sisson.............................................. Mankato, Minn. |  |
| .....La Crosse, Wis. | Jas. Campbell.....................................Mannannah, Minn. | A. A. Taylor................................................Buffalo. N. Y. |
| ...Milwaukee, Wis. | C. J. Coggin..............................................Wauconda, III. | Pindell Bros Co................................................Toledo, O. |
| .........Chicago, III. | J, J. Wilson...............................................Algona, lowa. | Kehlor Mıllmg Co..................................................... |
| ...stillwater Mimn. | Ames \& Hurlbut.......................................Hutchinson, Minn. | Walsh, DeRoo d Co...................................East St, Louis, Ill. |
| ..... Winona, Minn. | Lincoln Bros............................................Olivia, Mimm. |  |
| $\ldots$. Dundas, Mim. | Northey Bros, .............................Columbus Junction, Iowa. |  |
| Sacramento, Cal. | Bryant Mill Co..............................................Bı yant, Lowa. |  |
| . Hasting, Mimn. | 1ravid Kepford..................................Girundy Centre, lowa | Strong Bros..............................................Topeka Kan. |
| ...Manitowoc, Wis. | Waterlury \& Wagner................................Janesville Minn. | C. A. Roberts.....................................................aceville, Minn. |
| Simetonka, Minn. | W. A. Weatherhead.............................South Ly |  |
| . Faribault, Mimm. | Geo. Bierline............................................Waconia, Minn. | J. G. Schaapp ............................................................................. Lake, Wis. |
| Fualina, Kansas. | James M. Cafferty........... ..............................Burtom, Mo. | Fred Schumacher. |
| Faribault, Minn. | $\qquad$ Menomonee Falls, Wis | Warren Mfg. Co..........................................................arron, Ohio. |
| Owatonna, Minn. New Ulm, Minn. | Winona Mill Co. compounding their present $24 \times 60$ Wiuona M. |  |
| New Ulm, Minn. | Forest Mills Co.... ......................................Forest, Minn. |  |

## The 11 nited States


MILWAUKEE, FEBRUARY, 1883.


## CALIFORNIA ROLLER MILL.

gperry \& Co's 1000 barrel mill at stockton,
The leading industrial improvement in the city of Stockton, Cal., at the present time, is that of the new flouring mill erected by the well-known firm of Sperry \& Co. The firm consists of S. W. Sperry and Mrs. Austin Sperry, widow of the late Austin Sperry, the former partner, whose interest she retains. The entire business is under the able management of S. W. Sperry, who is assisted by two of his sons, George B. and Austin B. Sperry. The San Francisco office is in charge of Mr. James Hogg and Mr. James W. Sperry, another son of Mr. S. W. Sperry. The firm started in business in 1852 with a
small mill for grinding barley. That mill was subsequently replaced by the one recently burned down. The present admirable structure is located on the site of the burned mill. It is the result of thirty years'assiduous attention to business, and such honorable dealing as has ensured the present success. The entire plant will cost brick building, the plans of which were drawn with the intent of combining economy in space with adaptability to the contemplated work, and were the result of a long practical experience in milling matters. It is not only a success on the score of complete utility, but it is also an ornament to the city of Stockton. It possesses the advantage of being on the marFrancisco, and its close proximity to rail Francisco, and road transportation, affords it ample op-
portunities for shipment by either vessel or car. The building is divided into three departments. The first, which is the mill proper, is $50 \times 100$ feet, and five stories high. Strength and solidity have been carefully attended to in its construction, and a rigid supervision of the material has been exercised during the entire progress of the work. The walls are thirty inches thick for two stories up; above story. They are laid in mortar and cement. The second department is occupied by the cleaning machinery and is $40 \times 100$ feet, including the packing-room, and is three stories high. The third or warehouse department is $117 \times 100$ feet, and two stories high. The ground on which the building stands was laid in concrete two and a half feet thick, and upon this solid formation the foundation was laid and the structure erected. This concrete was extended from the line of the building to the curb, on both Beaver street and Weber avenue, affording a sidewalk twelve feet in width on each of them. In the mill building the stairway to all the floors is placed in one corner of it, where it will not interfere with any of the milling operations. There are dividing walls between the different departments, the passages through which are provided with iron doors, making each division safely isolated from the others in case of fire. The entire lot of ground is 200 feet square, and a new warehouse will soon be built to cover the remainder of the whole lot. The architects are Percy \& Hamilton, of San Francisco, and their work reflects much credit on them. The brickwork and building was done by Confer Bros., of Stockton, California. The mill furnishers were Edw. P. Allis \& Co., of Milwaukee, Wis.
The Mill Building-First Floor. All the lower floors are laid in cement marked in squares in imitation of stone flagging the cement being granite-like in hardness. In the engine room there are four tubular boilers made of the best material;
each 54 inches in diameter, and 16 feet long, each 54 inches in diameter, and 16 feet long,
containing 40 tubes of $3 \frac{1}{2}$ inches diameter. containing 40 tubes of $3 \frac{2}{2}$ inches diameter
The engine is a Corliss, with an extra heavy
bed and a cylinder $26 \times 48$ inches. It is of 350 nominal horse power, with a working capacity of 500 . It was built by Tatum \& Bowen,
of San Francisco. The boiler and engineroom is $50 \times 50$ feet, and 18 feet high, wel lighted and with excellent ventilation. The smoke stack is 120 feet high by 54 inches in diameter. The main line of shafting connects with the engine and extends through chinery by a 26 -inch double leather belt which wraps the pulley, which is 17 feet 6 inches in diameter, and 28 inches face in the basement room, and also wraps the pulley on of the best oak-tanned leather, and is a very creditable specimen of the workmanship of L. P. Degen, No. 13 Fremont street, San
Francisco. This main line of shafting drives directly, and indirectly by means of counter
ed by this arrangement, and additional sta bility is given to the floors of the building. These girders "are made of two pieces Oregon pine $6 \times 16$ inches, and bolted together
They possess greater strength than if They possess greater strength than if made
from one piece of the same dimensions. On his floor are four lines of rolls, consisting of 38 pairs of corrugated iron rolls, Gray's pa-
tent, and are the best roller mills manufacured. They are driven by double leathe belts, and are very easy of adjustment. The belts can be tightened without removing them from the macnines. There are also 18 pairs of smooth iron rolls, and 6 pairs of porcelain There egemun eet in diameter, run at the velocity of 180 evolutions per minute. There are three low the lower bolting chests, which are on
 under the reels by means of upright shafts geared to horizontal shafts. All the elevaors, 42 in number, receive their motion from hafts in this room; they all head on this loor, and are driven by a horizontal shaft extending through the mill. There are 12 salping reels built on iron shafts, with iron piders to which are attached the wooden reel ribs. These reels are clothed with polished steel wire cloth of different numbers to grade the material as wanted. The scalpers grade the material to the break rolls. The main driving belt wraps the 72 inch pulley in his loft. There is also one "Improved Marin Centrifugal Flour Dressing Machine" here. The horizontal line of shaft at the head of he bolt chests on this floor is driven by or line. a cross line geared to main elevaabove, carries head pulleys of five break ele-

The six break elevators being located
on the other line of shaft in the centre of the mill. The dust room is on this
floor; it is $13 \times 80$ feet. Under it are conveyors to gather the dust to prevent accumulation and to convey it to the reels set apart for handling it.

Cleaning Works. - The cleaning works are entirely separated from the
mill. This department is $40 \times 60$ feet mill. This department is $40 \times 60$ feet, packing room, 40x40 feet. There are three packers. The first floor is occupied by the wheat dumper and rougher. On the second floor there are two smutters made at the mill, and invented by O.F. Cook, the head miller. Also three Sturtevant exhaust fans, large size; one of which is No. 8, and two are 32 -inch fans. There are three brush machines, of Richmond manufacture. contains elevators, separators, floor contains elevators, separators,
wetting conveyors, rolling screens and graders.

Warehouse. - A large store-room occupies a portion of the space of the ground floor of this department; it is
100 x 150 feet, and fifteen feet high. It is capable of storing 5,000 tons of wheat. On the second story is a room of the
cated in various parts of all the departments, |elevators to bins over the flour-packers in 20 viz.: Six run of stone, 18 pairs of corrugated olls, 18 pairs of smooth iron rolls; 6 pairs of porcelain rolls; 4 Gray's purifiers for middlings; 16 Smith's purifiers; 4 Martin's centrifugal reels; 5 Sturtevant fans, and 13 scalping reels. These machines will be noticed more fully in their respective locations. A counter shaft extends into the engine room, and is driven by a 26 -inch double leather belt wrapping a 7 -foot and 6 inch pulley with a 28 -inch face. It runs 16 Gray's patent rolls, and the power is taken from the shaft to drive the machinery in the cleanings rooms. Cadwell's patent conveyors are on this floor with several dumps through which the grain is emptied from the sacks into them. They have a capacity for conveying 1,000 bushels per hour. They dry and wetting garners are based upon this floor. There are 6 garners, $8 \times 18$ feet, and 30 feet deep, which will hold 500 tons of wheat. These garners are built in the most substantial manner possible, and are strongly braced, and also strengthened by transverse iron rods. On this floor are located the foots of the six break elevators; and also of the elevators that take the product of the stones and smooth iron and porcelain rolls; which they receive by five conveyors located overhead. The barley
room, also on this floor, is $40 \times 40$ feet. It room, also on this floor, is $40 \times 40$ feet. It
contains one run of stone for grinding barley, and a crusher for crushing barley
Second Floor. The upright columns on his floor upon which the girders rest that upport the floor above, are capped with iron lates which run up between the sections o each girder, and the posts on the third foor
rest upon them. All lateral motion is avoid-
vators to bins over the flour-packers in driven by an upright shaft in front of the bolting chests, and which is extended to this floor for that purpose
Third Floor. - There are five bolting chests on this floor, each containing 4 reels, 32 inches by 16 feet; they are clothed with silk ranging from 0000 to No. 15. Around each chest is a walk supported by iron brack ets. Between the rear of chests and head of purifiers is a line of elevators used for handling all material of the mill. All spouts in this mill are shellaced to ensure steady run of material and to prevent choking. On this floor are 10 purifiers for middlings. Two are Gray's patent, made in Milwaukee, and 8 are Smith's patent, built in Jackson, Michigan There is one "Improved Martin Centrifugal Flour Dressing Machine" on this floor; also a line of shafting for driving purifiers, from which line is another taken off at right an gles for driving some of the machines on the floor above. There are in addition to the above-mentioned machines, two Sturtevant fans for sucking out light dust from the chop conveyors under rolls and stones.
Fourth Floor.-In this room are 5 bolt ing chests, of 4 reels each, and of the same size, and clothed with silk as those before de scribed. Then two more "Improved Mar-
tin Centrifugal Flour Dressing Machines" There are, also, two more Gray's and eigh more Smith's purifiers. All conveyors in this mill are made by turning a wooden shaft five and a half inches in diameter, to which are attached galvanized iron conveyor floats Fifth Floor.-On this floor is located al machinery for driving reels and conveyors
same size, with a storage capacity of

## 000 barrels of flour

, 000 barrels of flour.
Take the entire building through and through, it is the most complete and perfect mill building in the United States. The machinery embraces the latest patents and most recent improvements, and it is so arranged that when in operation the grain shall pass steadily onward without manual handling, through all the ramifications of the mill, until it is turned out at last in the highest known grade of flour, at the rate of 1,000 barrels per day of 24 hours.

Machinery Prospects for 1883.-We present this week letters from over forty establishments engaged in manufacturing machinery, engines, boilers, tools and machinists supplies, representing several States, which have been written in answer to our special annual inquiry as to condition of business, progress during the past year, and prospects for the year before us. A general perusal of them shows that 1882 has been a signally prosperous year, and that confidence in trade for the present year is not lacking. Taken as a whole, however, prices of machinery and tools are lower than they were last January and the tendency is towards closer competition Shops have enlarged their capacities to such an extent that, even should the demand during the year 1883 prove equal to what it was during 1882, (which at this writing seems unlikely,) customers generally will not have to wait any extra length of time to get their orders filled. One feature of interest is the fact that several manufacturers are having a foreign trade for theirlmachinery as well a good home demand.-American Machinist, January 20.

## THE UNITED STATES MILLER.

United States Miller. Ublished monthly

## $=$

$3=2=$
MILWAUKEE, FEBRUARY, 1883.
St. Louis has a grain elevator capacity o $10,450,000$ bushels. Another million bushel elevator is now being built in East St. Louis. Treasury Department shows that during the three months ending Sept. 1882, bolting cloth to the value of $\$ 121,156$ was imported against $\$ 95,037$ in corresponding months in 1881.

We have received a very useful little work from the publishers, John W. Wiley \& Son,
entitled "Saw Filing," by Robert Grimshaw, Ph. D. It is designed as a practical aid to hose who use saws for any pur
believe fills the requirements.

The annual statement of the Western Manufacturing Mutual Insurance Co., of Chicago, shows that they have on hand a
surplus of $\$ 410,281.11$ over all liabilities. The surplus of $\$ 410,281.11$ over all liabilities. The
Illinois Mutual insurance Co., of Alton, Ill., shows a surplus of $\$ 262,378.74$.
The first shipment of bulk grain ever made from Savannah was cleared a few days ago
for Liverpool, consisting of 20,000 bus. of Tennessee corn; and now that Savannah has a large grain elevator, it is believed that she will be able to de
grain export trade

The death of Clark Mills, the distinguished American sculptor, took place a few days ago at Washington. Mr. Mills, who was
born in Onondaga county, N. Y., in 1815, began life as a millwright, and then became a plasterer. He began experimenting in
plaster busts, and eventually achieved fame plaster bus
$\qquad$
Disasters by fire and floods have been
numerous of late, and co-equal with those numerous of late, and co-equal with those
on the seas. The floods in Germany are estimated to have destroyed property to the extent of twenty millions of dollars. Other European countries have also suffered heavi-
ly from overflows. In our own country fire has been the chief destroying element, and has been the chief destroying element, and
has lost the insurance companies the past year about ninety millions of dollars.

The Postmaster-General issued an order Jan. 30, forbidding the delivery of money
orders and registered letters to Fleming \& orders and registered letters to Fleming \&
Merriam, R. E. Kendall \& Co., Charles J. Heney \& Co., Benlett, Holtzmann \& Co., and Cudworth \& Co., all of Chicago, and nomi-
nally engaged as grain and stock brokers, under which cover it is alleged they rcceive money for inve
return therefor.

## The Iowa Millers' Fire Insurance

 their meeting Jan. 17, in Des Moines, Iowa, re-elected the old officers. The Finance Committee reported that, instead of the usualboard rate of 43
per cent., for Iowa mills, this ssociation hen yers carried a risk of $\$ 1,400,350$ at an average of 1$\}$ per cent., and
for 1882 at less than $\frac{1}{2}$ of 1 per cent., thus for 1882 at less than $\frac{1}{2}$ of 1 per cent., thus
saving to millers nearly $\$ 195,923$. The total losses paid last
penses, $\$ 3,366$.

At the annual meeting of the Miller's Mut. Ins. Co., of Wisconsin, held at Milwaukee in the Empire Mill Office, Jan. 17th, the follow-
ing directors and officers were re-elected: ing directors and officers were re-elected:
E. W. Arndt, President, J. L. Clement, Vice President, S. H. Seamans, Treasurer, John Schuette, Secretary. The Company has had
remarkable success so far. In the brief time remarkable success so far. In the brief time
of its existence it has issued over 200 policies, which covers over $\$ 250,000$ risk and having no more then $\$ 3,000$ on any one mill. The capital consisting of premium notes and of nearly $\$ 53,000$, and we think that there are few Companies that can make such a good showing in such a short period.

During 1883 the Canadian Pacific Railway Company intend advancing their line from Indian Point Farm, about 940 miles west of
Winnipeg, 330 miles further on toward the Rocky mountains. The Selkirk branch, 23 miles, will be completed, and connection will be made from Emerson to the soutwestern
branch, a distance of 22 miles. On the eastern division the road will be completed 130
miles west of Callender, and it is likely the Nipissing and Algoma branch, from Wahniptic river to Algoma, about 110 miles, will be
finished. The line eastward to Thunder Bay finished. The line eastward to Thunder Bay will probably be completed to a point about
40 miles east of the Nepigon river. Wort 40 miles east of the Nepigon river. Work
will also be begun at a!l available points along the north shore of Lake Superior, and will be pushed on vigorously.

## FLOUR-MILL PERFORMANCES.

Messre. Prescott, Scott \& Co., of San Francisco, have deduced from a number of exmance of flour-mills in this country persingle run of 4-foot stones:



## MILL-PICKS

Are usually made of cast steel hardened and tempered in anthracite forges. If the tool is of English steel, it should be forged at a It should not be hammered after it has lost its redness. Heat to a low red heat then for hardening dip the tool in salt wate slightly tepid, and temper it to a brown. If
American chrome steel is used, heat to a American chrome steel is used, heat to
yellowish color for forging, to a low red fo hardening, and quench right out. Mill-pick should weigh from 2 to 3 lbs., and in grinding them the pressure should be moderate and grind to a featherage.

## millers' national association.

[Special Dispatch to The United States Miller.]
Cleveland, O., Jan. 31.-The Miller's tional Association met here to-day in special tional Association met here to-day in special
session, called by the Sub-Executive Commitee. Nineteen States and about one-tenth of the milling interests of the country are rep resented. President George Bain, of St. Louis, presided, and Secretary S.
of Milwaukee, was at his post.
After much discussion various resolutions were adopted, the substance of all of which is that the Sub-Executive Committee, which has served since 1877, was empowered to act in
its discretion to protect members of the Asso ciation by settlement or litigation in paten suits. The Secretary was authorized to re ceive new memberships on payment of $\$ 5$ per run. It was decided to hold a grand reunion next June at some place to be designated by ably be New York. A premium of $\$ 1,000$ was offered for any invention by which bra or ship-stuffs can be compressed so
a saving of 5 cents per 100 pounds.

## The session will be continued to-morrow.

## the seeding of winter wheat

The returns of December relative to wint
wheat and rye show a very small increase of
area. In the South there is little increase
except in Virginia, North Carolina and Texas Kentucky and West Virginia have enlarged their area, and Kansas has made some increase.
autumn parts of the Middle States the is generally in good condition. It is crop is generally in good condition. It is looking
fairly well throughout the South, though the sowing has been later than usual. In parts of Texas the weather has been too dry, and the pressure for cotton picking has been an
obstruction in some districts. Condition is good throughout the West-nearly up to the full standard of full vitality.
The Hessian fly attacked early sown wheat
Delaware. The fly has injured some field in Delaware. The fly has injured some fields Virginia. Frequent mention is made of similar damages in Tennessee and Kentucky; in Ohio such reports are less frequent, yet the fly has made its appearance at many points. sown wheat has been attacked, but the injury has not generally been severe, and is nowhere onsidered irreparable.
In the more southern States seeding w
ot completed on the first of December.

## to prevent rust.

It is said that the best plan for preventing ools from rusting is the simple preparation employed by Prof. Olmstead, of Yale College for the preservation of scientific apparatus, and which he long ago published for the general good, declining to have it patented. It is made by the slow melting together of six till cool. This remains semi-fluied stirring for use, the rosin preventing rancidity and
supplying an air-tight film. Rubbed on bright surface ever so thinly, it protects an preserves the polish effectually, and it ca from wiped off nearly clean, if ever desired, as coal a knife-blade; or it may be thinned with Stream says that if oxidation has begun, n matter in how slight a degree, it will go on under a coating; it is therefore essential tha the steel surface be both bright and dry when filmed over.

## INCREASE $\overline{\overline{\text { OF BRITISH IMPORTS }} \text { OF BREAD }}$ stuffs.

The total net imports of wheat into th United Kingdom in the year 1882 were 1,550 , 000 quarters greater than in 1881, and th during the year were just about the same as in 1881 ( $7,600,000$ quarters), but as the total stocks of wheat show an increase of only 600,000 quarters the difference is ascribed by the local statistical authorities (and notably by Beerbohm's Corn Trade List) to an increased consumption of wheat in the United King
dom in the past year, which has been in duced by the low prices of wheat as compa ed to other foodstuffs. This increased con sumption has been at the rate of from 3 to per cent. over that of the preceding year. I consumption of wheat is more largely due to he scarcity and high prices of potatoes than any other one fact. Prices of potatoes London are from 50 to 100 per cent. highe
than last year, and throughout the kingdom his is the rule, except in some districts in reland, where they are more than double the price of last year. If the scarcity of this one important edible root has caused such United Kingdom it would necessarily have the same effect on the continent, where the potato crop last year was almost a complete sumed that the consumption of wheat on the continent has consumption of wheat on the if not more than in the United Kingdom, and that, notwithstanding the increased import ations of wheat this year by Germany and France, their stocks in store have not increas ed in even the same proportion as those in

## he United Kingdom.

## MILLSTONE, OR BUHR-STONE.

This interesting form of silica, which oc curs in great masses, has a texture essentially cellular, the cells being irregular in number hape and size, and are often crossed by chin plates or coarse fibres of siles. The buhr one has a straight fracture, but it is not s britle as fint, though its hardness is nearly the same. It is feebly translucent; its colors
are pale and dead, of a whitish, greyish, or yellowish cast, sometimes with a tinge o blue.
The buhr-stones usually occur in beds which are sometimes continuous, and at mid deposits of sands, or beds are placed erruginous marls which penetrate betwe them, filling their fissures and honey comb ogical Buhr-stones constitute a very geoonly in the mineral basin of Paris, and ance adjoining districts. Its geological position is well ascertained: It forms a part of the ocustrine or fresh water formation, which the locality alluded to, lies above th upper eocene gypsum, and the stratum sand and marine sandstone which cover it Buhr-stone constitutes, therefore, in the
locality in which it is found, the uppermos ocality in which it is found, the uppermo above it there is nothing but alluvial soil, o diluvial gravel, sand and loam.
Buhr-stones sometimes contain no organic forms; at others they seem as if stuffed full of fresh water shells, or land-shells and vege tion known to growth. There is no excephells have assumed a siliceous nature; and their cavities are often filled with crystals of Quarz. The best buhr-stones for grinding corn have about an equal proportion of solid matter and of vacant space. The finest quarz of them is upon the high ground, near $L$ Ferte sous Jouarre, France. The stones are quarried in the open air, and are cut out in cylinders from one to two yards in diameter, by a series of iron and wooden wedges, gradually but evenly inserted. The pieces of buhr-stones are afterwards cut into parallellopideds called panes, which are bound with iron hoops into large millstones. These pieces are exported chiefly to England and or breccia is, in some cases, used as a sub stitute for buhr-stones; but it is a poor one.

A Weallhy Nation.-Says the Chicago Journal af Commerce: It is hardly understood why a few people in this country have so suddenly become rich. It is because the country is doubling in value every ten years, is doubling in the value of everything in it, and a few men happen to be in possession of the main arteries of trade and manufacture; and as the land of every town doubles in value. so does the railroad and telegraph right of way double each ten years, and will continue o do so until the country is fully occupied very foot of land in the new West, every ailroad and telegraph and manufactory wil e worth double in 1890 what it was in 1880 Only get hold of as much as possible of material of this country and hold If the grumblers would do this in tead of finding fault with owners of railways ecause their property doubles and doubles gain in valuel Opening mines and laying ailroads is not always a sure road to wealth but the mines which chance to be bonanzas nd the roads which chance to be the great highways will give their holders fortune. Go in, don't stop to grumble

## recent milling patents.

## The Grinding Mull, Devore \& Winger, Freeport, 11. Mille <br> Mindustone Driver, Heury Heard, Greensboro, Ga. Buen

Bush Box for Millepindles, Henry Heard, Greensboro, Ga. Blomingalale, Mich.

## \section*{Caston, P} <br> The followi Kasten

## and, Pa. Grinding

## C., Boston, Mass. <br> 

 This book embraces within its handsome covers a great
mount of useful information. It contains tistics with reference to the names, circulations, advertisiog rates, etc., of all the newspapers published in the United States and Canada. It also gives the population
and principal products of every state and county in the nited states and Canada; the population of every town
having one or more newspapers; a list of all towns with a population of o
political statistics.

## A disturbing element.

The fact that some members of Boards of Trade will appeal to the Courts to save them from the results of their own speculation when they happen to be on the wrong side of the market, has a tendency to depress seculative trading. On this subject Bradreet's, of Jan, 27, says:
The corn market has been excited and has experienced some rather violent fluctuations as the result of the speculations in Chicago, which have taken the shape of a corner in the January option but which received a set-
back on Wednesday by the most prominent back on Wednesday by the most prominent
short-seller, (John B. Lyon,) appealing to the courts to save him from the results of his own speculations, by restraining anybody
from calling on him for margins, or from buying in the corn or mis contracts, and making him pay the difference, as he would
be obliged to do under the rules of the Chicago Board of Trade. The question as to whether the injunction of the court will be sustained in law and by higher judicial uthorities is one of more importance than ine mere settlement of this one speculation
in corn. If the power of the Chicago Board of Trade to discipline its Chicago Board expel them for disregard of its rules can be restrained by the courts, the Board of Trade has no functions to perform, and there would

The Northwestern Lumberman of Chicago has issued a special "Saw Mill Edition," con-
taining a full and complete directory of the saw mills of America, and also the manufacturers of everything, required in the successful and economical manufacture and manipulation of lumber. By its tables we find hat the total number of saw mills in the United States is 15,020; in Quebec, Ontario and Manitoba, 657. The largest number in ny one State, is 1291, in Pennsylvania. New York comes second with 1069 , and Indiaw third with 1006. Michigan 933 , andiana 820 and Oi 706 . New England is as follows: Maine credited to Hampshire, 260; Vs follows: Maine, 464; New Hampshire, 260; Vermont 381; Massachusetts, 91; Rhode Islands, 47; Connecticut, 119 . These figures, the Lumberman explains, are exclusively saw mills, the census of 1880 givng 25,708 saw and shingle mills in the counry, including everything that bore any semlance to a saw mill, whether stationary or portable. The directory, as published by the umberman, is a large though very conveniently arranged book, of over 200 pages, and is sure to be very popular among the class for whom it is specially intended. It is a grand work and its perparation shows great enterprise on the part of its publishers.

## MILLING SCHOOL

The necessity of a Technical School for Millers in the United States is now pretty generally acknowledged by thinking millers. In these days of such radical changes in the machinery and processes of milling, the owner
of a mill does not like to risk his valuable property in the hands of unskilled and unlearned employes. A millowner goes to a millbuilding establishment of high reputation and says that he desires his mill fitted or refitted with the best machinery that money can buy, and capable of turning out, say 300 barrels of flour per day. The milling engineer makes his plans and completes the erection or change of the mill and turns over the completed work to the owner, after starting the mill and showing that, in the hands of a man educated to use the machinery and process it fullifls the letter of the contract. He pays the mill builder for his labor and machinery, and there the mill builder's responsibility ceases.

Now comes the nip," as the Irishman said as he slid off the edge of a high roof. A mill of 300 barrels capacity per day will require, say 1,400 bushels of wheat which will cost, say $\$ 1,400$ per day for raw material. Now the quantity and quality of the flour made of this wheat will vary in price in proportion to the skill used by the operating miller. If the flour cannot be sold for more than the cost of and tear of machinery and fair interest on the money invested in the mill, the owner is not making a profit, and if less, he is losing money
There are, it is true, times when a miller may lose money on account of the fluctuations in the market, but if he is a reasonably careful buyer and makes as good flour as can be made from the wheat used, he generally will make a profit. The great point, therefore, in which every mill owner is interested is, to secure a practical miller understanding
the machinery and process used in his mill.
Where will he get him and be sure of it?
As matters are now, it is a game of chance There are scores of good millers, but there are hundreds that are incapable of occupying the responsible position of head miller or second miller in a mill of 300 barrels capacity per day What can be done
A technical school for teaching young men all that is useful and necessary in the opera tions of flour milling can be established. Af ter completing their course in such an institution they should be obliged to pass a critical examination, not only as to generalities but as to details, and if a satisfactory examination was passed, the student should be awarded a diploma which should be a sufficient recommendation to any mill owner.
We have written and published many ar ticles on this matter, and we are gratified to
know that it is becoming a subject of serious thought to so many in the trade. We would not advise American millers to go to foreign countries to attend technical milling schools, as America rather leads the world to-day in the manufacture of flour. The best that can be done at present is to study well such books
and papers as contain pertinent information -to secure situations in mills of established reputation, and to observe well.
If the Millers National Association does not take hold of this matter soon, the mill builders and mill furnishers will have an opportunity to establish an enterprise that will prove a lasting benefit to one of the foremost branch-
es of industry in this country; and the milling press will, we think, without exception do all in their power to help the matter along

## the "Bismark" Four-ROLLER BELTED MILL

 The Case Manufacturing Co. of Columbus, Ohio, have recently introduced on the mar ket a four-roller belted mill which they havenamed the "Bismark." The manufacturers named the "Bismark." The manufactu
in speaking of their " Bismark" mill, say
1st. It has a solid Iron Frame, strong, substantial and beautiful in design,
wooden parts to shrink and swell.
2d. The Boxes in which the
2 d . The Boxes in which the Journals of the Rolls run are wider than in any other Rolle Mill now made, and using none but the best of babbitt metal, they are the truest running and most durable of any.
3d. The door for examining the stock and arrangement for leveling the Rolis is $t$ fection of simplicity and convenience.
4th. Our perfected "Bismark" Mill is dus less and noiseless and has the best arrange ment in use for tramming and oiling the Rolls
and tightening the belts; every miller will and tightening the belts; every miller will appreciate these points who has had experi-
ence with Rolls that were dusty, noisy and inconvenient.
5th. The Belt Tightener is perfectly con-
structed and can be connected with the driving pulley at an angle of forty-five degrees, often saving the expense of a counter shaft in
making connection. The most perfect differential speed is obtained by this tightening pulley. It is positive and certain. We have never heard of such a thing as a slipping belt on our Roll.
6th. It occupies less space and requires no tock hopper on top.
7th. By the simplest possible device the Rolls are thrown apart the entire length of the Roll, and when brought together again they come back to their exact position, so tha no resetting is required, no loss of time in testing and handling material, but the same esults as before

## experimenting.

8th. We now mention that which mor than all others is the essential thing in Roller Mills, viz: The Feed. In this particular and important feature our Roller Mill surpasses all others, and we wish to call special attention Feed. We guarantee that millers using our Rolls need not give the least attention to the Feed, and that the stock on all the machines will at all times be distributed perfectly even along the entire length of the Rolls. It is the sam feed as that used on our Purifiers by ou "Perfect Feed Box," hundreds of which are in use on every make of Purifier. It starts and stops with the mill, cannot choke up or fail to feed and requires no attention but $t$ be let alone.

## steam engine economy.

The question of steam engine economy which is being agitated in the columns of some of our contemporaries by writers who discuss it in a general way, is little benefited by such general discussions. When term "less first cost," less skill," "less cost of re-,
pairs," "extra boiler capacity required," "small powers" and "considerable powers" ar used without direct qualification, definition or exemplification, they convey but little mean ing. An engineer accustomed to build or us ngines of 500 -horse power or above, migh consider "small powers" any way from one horse power to 100 or 200 -horse power, while to another the term "small powers" would convey the idea of engines from one to ten horse power, and a 100 or 200 -horse powe considerable power." considerable power." Similarly the term less," as applied to "cost" "skill" and "repairs," may vary in the reader's or writer What within the limits of zero and infinity When ideas or suggestions are based on suc general terms as above, they are useless to
any one, and the reader often having perused such articles, knows no more than he did before perusal; nor does he find anything which he can apply in practice
When discussing the question of steamengine economy, one must come down to igures; and if this cannot be done, little of eal use can be achieved. The "less" must e qualified in dollars and cents, the ranges of horse power must be stated, and then there
are at hand the data for comparison and disare at hand the data for comparison and dis-
cussion. Often the lack of experimental determination prevents one from coming down do exact figures; but the need, then, is not discussions and general assertions but xperimental determinations. The very class of discussions which we would assail, serves o retard the institution of necessary experimental trials; for the air of wisdom, erudition and boldness assumed serve to mystify a large class, who would otherwise urge, and
help to raise opportunity and funds, for experimental work.
The question of steam engine economy is with sufficient accuracy in any particular case; hut each case must be considered as a special problem, to which the laws of egineering, of cost of production and attendance, and occasionally experimental trials must be applied; just as in the maintenance or design of a bridge. There are many who oppose the use of higher mathematics, who indulge in the evil writing to which we refer. While we at all times favor the simplest mode of representation of a position, be it graphical or mathematical, there is a word to be said in favor of analytical methods, and that is that the writer has "come down" recede to the vanishing point.
The abuse to which analytical methods and formulæ are subject is the wholesale and indiscriminate introduction of "con stants," but any improper use of constants
can be detected by any one comprehending
the mathematical demonstrations. The ablest and most satisfactory analysis of questions of steam engine economy are those that give definite replies to inquiries in dollars and cents. Steam engine economy is but one phase of the great general problem of all engineering, to obtain a given result for the least current expense in money. Such currepairs and depreciation of plant, cost of attendance
duction.

## the grain trade in poland

There is a general complaint throughout the Polish provinces of the present depression in the grain trade. In many provinces, as for instance those of Lublin and Kielce, not only the export of grain has entirely ceased in the absence of buyers, but even specuators in the small towns, who otherwise supply the local consumption, have lost all enterprise in such a degree that the larger milling establishments and bakeries are unable to procure through them the necessary upply of grain. Generally when a small quantity of grain is wanted by the buyers the rice offered is so low as to appear unaccept ble to the producers. In consequence hereof the Polish papers are advising the grain producers to discontinue all sales for the present and await better times. This entire standstill in the grain trade has naturally a very depressing influence on social and business circles, and the intercourse between he population of the city and country has almost entirely ceased. The farmer has no money, can therefore make no purchases and business in cities is very dull.
The Russian grain dealers are likewise in despair. The early and very severe winter has interfered with their grain in transit. On the Volga an immense number of ships are frozen up and compelled to wait until spring for release. The enormous quantities of grain stored in the warehouses of St Petersburg cannot be brought on board ships
owing to the fact that the Neva :s closed by owing to the fact that the Neva is closed by
ice. As far as possible, therefore, the raiload to Reval is utilized, but it will be but a short while, however, before even this harbor will be closed, and then there will be no possibility of bringing to the European markets any grain whatever from Russia Even Odessa, although not directly incom moded by these climatic disadvantages, suf-
fers, however, from the lack of sufficient supply by reason of the freezing up of the rivers from the north, on which she depends Der Oesterreichisch-Ungarische Mueller, January.

## WHAT OF FIFTY YEARS?

Ten years ago there was no Centennial State, no millionaire in Colorado, no electric ights, no telephone or phonograph.
Fifteen years ago, and there were no rail roads penetrating the Rocky Mountains, no palace sleeping cars in existence, no
Twenty years ago, and there were but five railroads running to Newyork, and but three to London, and none west of the Missouri

Twenty-five years, and there was no ocean cable, no signal service, no telegraph or rail road crossing the continent, and no oleomar garine sold for creamery butter.
Thirty years ago, and it took sixty days to go from the Missouri River to the Sacramento and not a white man found in that vast ex-
panse, save it were a handful at the Holy City.
Thirty-five, and gold had not yet been
found in the Sacramento, Pike's Peak no heard of, the silver mines of America were in Mexico
Forty years, and coal oil had not been discovered in the bowels of the earth, the tele graph had not been invented, and not a rail road built west of the State of New York, and the Great New York and Erie was yet on

Forty-five years, and there was no pathway across the continent of America, the Great Salt Lake had not been discovered, and not a hundred miles of railroad in the entire country, and but fifty in all Europe.
Fifty years ago, and there were no railroads no gas lamps, no coal oil, no electric lights no telegraphs, no public schools, no car bonates, and but little imp Philadelphi were lighted with whale oil lamps and tallow were lighted with whale oil lamps and tallow candles, and all minor towns groped their
ways in darkness.-Denver Journal of Com-

## the parent wheat

Grant Allen in Macmillan Magazine
The nearest form of true wheat now found wild in the British Isles is the creeping couch grass, a perennial closely agreeing in all essential particulars of structure with our cultivated annual wheats. But in the south European region we find in abundance a large eries of common wild annual grasses, forming the genius Fgilops of technical botany, and exactly resembling true wheat in every point except the size of the grain. One species of this genus, Egilops ovata, a small, hard, wiry annual, is now pretty generally ecognized among botanists as the parent of our cultivated corn. There was a good rea son, indeed, why primitive man, when he first began to select and rudely till a few eeds for his own use, should have specially affected the grass tribe. No other family of plants has seeds richer in starches and gluten, as indeed might naturally be expected from he extreme diminution in the number of seeds to each flower. On the other hand, the flowers on each plant are peculiarly aumerous; so that we get the combined advantages of many seeds, and rich seeds, so eldom to be found elsewhere, except among he pulse family. The experiment conduct ed by the Agricultural Society in their College Garden at Cirencester have also shown that carefully selection will produce large and rich seeds from Egilops ovata, considerably resembling true wheat, after only a few year's cultivation.
Primitive men, of course, did not proceed early so fast as that. Of the earliest atempts at cultivation of Egilops all trace are now lost, but we can gather that its till age must have continued in some unknown western Asiatic region for some time before the neolithic period; for in that period we find a rude early form of wheat already considerably developed among the scanty relics of the Swiss Lake dwellings. The other cul ivated plants by which it is there accompani ed, and the nature of the garden weeds which had followed in its wake, point back to central or western Asia as the land in which it tillage had first begun. From that region the Swiss Lake dwellers brought it with them to their new home among the Alpine valleys. differed much already from the wild Ægil ps in size and stature, but at the same time was far from having attained the stately dimensions of our modern corn. The ear found in the Lake dwellings are shorter and narrower than our own, and the spikelets stand out more horizontally, and the grains are hardly more than half the size of their modern descendants. The same thing is true in analogous ways with all the cultivated fruits or seeds of the stone age; they are in variably much smaller and poorer than their epresentatives in existing fields or gardens, From that time to this the process of select ing and amelioration has been constant and unbroken, until in our own day the descendants of these little degraded lilies, readapted to functions under a fresh regime, have come over to almost all the cultivable plains in all he civilized countries, and supply by far the argest part of man's food in Europe, Asia, America and Australia.

Howes, Babcock \& Ewell have been enlarging their works at Silver Creek, N. Y., by building a brick addition, $44 \times 66$ feet and ve stories high, making their capacity ouble what it was a few years ago. They lso contemplate in the near future the erecion of an additional building for offices, etc. From a lengthy descriptive article in the Silver Creek Local we take the following relative解 While there have been several changes in it proprieiorship, some of the members of the proprieiorship, some of the members of the
present firm have been identified with it from the first. The smut and separating machine was the only one then made. Everything except'the iron work was done by hand, and from six to eight men em

United States Miller.

## E. HARrison Cawker, Editor.

## Phick, Nos. IT\& \& 118 Grand avenve, Milwa uker, Wis.


 Bills for advertisin
[Entered at the Post ofice at Milwaukee, Wis., assecond
clans matter.]

## MILWAUKEE, FEBRUARY, 1883.

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 Mllikr. You
will thereby oblige not only this paper, but the advertisers.


The census of 1880 gave Dakota a pop:lation of 135,000 . The population January 1 ,
1883 is estimated to be 335,000 . The number of homestead and pre-emption entries for the year 1882 was 33,000 . Dakota is indeed growing.
$W_{E}$ have recently received a neat catalogue from the E. T. Barnum Wire Works, Detroit, Mich. This house was established sixteen years ago in a very modest way, with only
four or five employes. The Company has just moved into its new works, which are 140
$\times 600$ feet, and three stories high. Six hunx 600 feet, and three stories high. Six hun-
dred hands are now employed, and a great a mount of goods are turned out annually.
W. A. Hall, a miller and prominent citi-
zen of La Porte, Ind., lost his life at the burning of the Newhall House in this city, Jan. 10, 1883. His partner, M. Weber, who was stopping at the same hotel, was saved. These pose of purchasing mill machinery of Edw. P. Allis \& Co. It was at first thought probable that Mr. Hall would recover, although terri-
bly disabled, but after lingering a couple of days, he passed peacefully away.
France receives annually from England about twenty millions dollars for butter and
cheese. This is suggestive to the American farmer. Many of our farmers know how to, and do make good butter, but there are many farmers who do not know how to, or at least do not make good or clean butter. If any one doubts this let him visit any city commission house, and he will find butter of eve-
ry conceivable color, form and smell, and will lose his appetite for butter for a week at least. A little piece of bad butter will ruin the taste of the best bread that the skillful miller and baker can make.
General Francis A. Walker advocated before the Massachuselts teachers the other day the early teaching of the elements of science. He said: "I asked a pupil of one of our best public schools in Boston the other day, an excellent schclar, in the highest class, why it is that water rises in the pump, and this young person of fifteen years had not the vestige of an idea on the subject. No teacher during eight years of school had offered an explanation of the phenomenon or ever called attention to it. I hold that it should be made far more discreditable to a
teacher to have pupils ignorant of the action
of atmospheric pressure, than it would be to have that pupil unable to spell 'relieve' or separate.' Create such a requirement on the part of the public, and you will soon have
teachers who will find no difficulty in making their pupils understand the simple laws of physical and chemical action. Why should a child go on for years walking about on this earth, his eye falling every waking hour upon a multitude of objects, and never once be instructed regarding them?"

Ilinvors Corn.-The latest returns made ts the Illinois Department of Agriculture show that the aggregate corn crop 'of the State for the past year was $179,471,729$ bushels, which, with the exception of the crops of 1881, 1874 and 1873, is the smallest since 1869. The average crop of the State for the preceding ten years is $224,939,367$ bushels, or $44,467,638$ bushels more than the late crop. The quality of the crop, except in the southern portion of the State, is much below an average. The corn
acreage $(7,471,950)$ of the State is much larger than last season, and the yield per acre a fraction larger

## IOWA MILLERS' ASSOCIATION. <br> THE NINTH ANNCAL SESSION.

The ninth annual meeting of the Iowa Millers Association was held at Des Moines, Jan. The President made a short address, lamentThe President made a short address, lament-
ing the fact that an association of so much ing the fact that an association of so much
importance as the Millers' Association of Iowa should receive so little encouragement from its members and be so poorly attended. Their apathy and neglect cause the few faithful to come here year after year, and stand sentinel over their interests. Still good interest was
taken by those present, and we hope profitay. The secretary was instructed to notify ill delinquents to pay up their assessments,
and or drop their names from the list of members in sixty days.
On motion of Hammond, of Leonard, the Association proceeded to the election of officers for the ensuing year, which resulted as follows: President-J. J. Snouffer, Cedar Rapids; Vice President-D. B. Knight, Boone; Secretary and Treasurer-J. S. Lord, Ogden; Executive Committee-S. M. Smith of Guthrie, E. H. Brooks of Carroll, and J. R. Van Meter of Van Meter.

## destruction of the newhall house.

 On the morning of January 10, 1883, the Newhall House in this city was destroyed by fire, involving a loss of hundreds of thousandsof dollars, and seventy-five precious human lives. The building covered one-fourth of a block, and had a basement and six stories. In 43 minutes from the time the fire was discovered, the great building was nothing but a smouldering pile of ruins. There was not a single fire wall inside of the four outside walls. Considerable pains had been taken and considerable money expended for stand pipes, hose, chemical fire extinguishers, etc., but so far as we have been able to learn no effort was
made to use any of the appliances in the building for putting out the fire.
It is useless now to talk about what might have been, so far as the lost are concerned, but it is the duty of the living everywhere to provide again.
Legislators everywhere, whether State or Municipal, should consider it their solemn duty to enact laws providing for the thorough inspection of all buildings used for public purposes such as hotels, theatres, lecture-rooms,
hospitals, etc., and no building should be al lowed to be used for public purposes deemed unsafe by competent inspectors. Buildings can be made fire proof, but it requires time, skill and money to erect such buildings, and
in the past safety has been risked to save in cost.
The Palmer House in Chicago is constructed of fire-proof materials, and has stood practical tests, such as starting the fire in one of the rooms-all of which are like so many bank vaults-and letting it do its worst unas-
sailed.
The Mitchell Bank Building and Chamber of Commerce Building in this City are supposed to be fire-proof.
The Manhattan Storage Company, New York, is now erecting, at the corner of Lexington avenue and Forty-second street, a
building eight stories high, and fronting 200 building eight stories high, and fronting 200
feet on Lexington avenue, to cost $\$ 500,000$. It is designed to be fire-proof, and there will be no wood in the building, the elements of construction being simply iron, brick, cement and glass. The floors will be of cement apartments, separated by thick walls.

There are numbers of large fire-proof buildings in various sections of the country, and so long as it is possible to build such buildings human life should not be endangered in "fire-traps."

## Written for the United States Mhlier.]

 EXAMINATION OF FLOUR FOR QUALITY AND ADULTERATION.Flour should be examined physically, microscopically, chemically and practically by making bread.

The quality is best determined by chemial examination; adulterations by the micro scope.

## physical examination.

white, or with.-The flour should be quite white, or with the very slightest tinge of yel-
low; any decided yellow indicates commencing changes; the amount of bran should not be great.
Feeing.-There should be no lumps, or, if there are, they should yield to slight pressure; there must be no grittiness, which show that the starch grains are changing and adhering too strongly, and will make an acid bread. There should, however, be a certain amoun of adhesion when a handful of flour is compressed, and if thrown against a wall or board some of the flour should adhere to it. When made into paste with water the dough must be coherent, and draw out easily into strings.
Taste.-The taste must not be acid, though the best of flour is slightly acid to the testpaper. An acid taste, showing lactic, or acetic acid, is sure to give an acid bread.
Smfle.-There must be no smell of ferentation or mouldiness.
The age of flour is shown by color, grittiness and acidity
hemical examination
1, Amount of Water.-Weigh 1 gramme spread it out on a dish, and dry either by a water bath or in a hot-air bath or oven, the temperature not being allowed to go above $200^{\circ}$. The flour must not be at all burnt, o nuch darkened in color. Weigh as soon as the flour is cold; the loss is the per centage

The range of water is from 10 (in the dry flours) to 18 in the worst. The more water
the greater liability of change in the flour and, of course, the less is the amount of nutriment purchased in agiven weight. If, then, the water be over 18 per cent. the flour should be rejected; i
bly spoken of
or 100 grains if thluten.-W eigh 10 gramme and mix, by means of a glass rod, with a little water, so as to make a well-mixed dough; let it stand for a quarter of an hour in an evaporating dish; then pour a little water on it work it about with the rod, and carefully wash off the starch; pour off from ti ne to time the starch water into another vessel. After a time the gluten becomes so coherent that it may be taken in the fingers and worked about in water, the water being from time to time poured off till it comes off quite colorless. If there is not time to dry the gluten, then weigh; the dry gluten is rather more than one-third of the moist; 1 to 2.9 is the usua proportion; therefore divide the weight of the moist gluten by 2.9 . If there be time, dry th gluten and weigh it. This is best done by
spreading it out on a crucible-lid and drying it in the bath. The dry gluten ranges from to 12 per cent.; flour should be rejected in which it falls below 8 . If there is much bran it often apparently increases the amount of gluten by adhering to it, and should be separated if possible; in fact, the gluten, as thus obtained, is never pure, but always contains some bran, starch and fat. The gluten should be capable of being drawn out into long threads; the more extensible it is the better. It is always well to make two determinations question of quality.
3. Amount of Ash.-Take 10 grammes put into a porcelain or platinum crucible and incinerate to white ash. Weigh. The ash should not be more than 2 per cent.; if more probably some mineral substances have been added; it should not be less than 8 , or the flour is too poor in salts.
The incineration of the flour requires a crucible and gas. It is difficult to do it over charcoal fire will do quite well when gas applinces are wanting.
If the ash be more than 2 per cent., add hy drochloric acid, and see if there be effervescence (magnesium or calcium carbonate) Dissolve, and test with oxalate of ammonium, and then for magnesia, in the same way as in water. As flour contains both lime and magnesia, the quantity must be determined by
weighing the incinerated calcium
he magnesium pyrophosphate.
If theres no effervescence add.
If were or sulphuric acid and lime, to see if calcium sulphate (plaster of Paris,) has been added In normal flour the amount of sulphuric acid is very small. Notice also, if the ash be red (from iron). If clay has been added, it will be left undissolved by acids and water.
If magnesium carbonate has been added the ash is light and porous and bulky. An easy mode of detecting large quantities of added mineral substances is given by Redten backer; the flour is strongly shaken with chloroform; the flour floats, while all foreign mineral substances fall. This is a very useful test.
If the quantity of water be small, the gluten arge, and the salts in good quantity, the flour is good, supposing nothing is detected on micoscopical examination. But in all cases it is well, if time can be spared, to have a loaf made.
Practical Test by Baking.-Make a loaf and see if it is acid when fresh and how soon it becomes so, if the color is good and the rising is satisfactory. Old flours and flours a changing state do not rise well, give yellowish color to the bread, and speedily ecomes acid. Excess of acidity can be de lected by holding a piece of bread in the mouth for some time, as well as by test-paper.
Test for Ergot.-There is no very good est for ergot when it is ground up with the flour. Lanceau's plan is to make a paste with weak alkaline solution; to add dilute nitric acid to a slight excess, and then alkali to neutralization, a violent red color is said to be given if ergot is present, which becomes rosy red when more nitric acid is added, and vio et when alkali is added. Wittstein consider this method imperfect, and prefers trusting to the peculiar odor of propylamine (herring-like smell,) developed by liquor potassæin ergoted

The Microscopical Examination is directed o determine the relative amount of flour and bran, the presence of fungi or acari or the fact of adulteration by mixing of other grains.

EFFECTS OF SPOILED BREAD ON THE ANIMAL SYSTEM.
The "Oest. Landw. Wochenblatt" publishes the results of a series of experiments in regard to the effects on men and animals of moulded bread from which we make the folowing extracts. A cavalry regiment station ed in Oran in Algeria was served with bread hat showed black and orange colored spots of mould, within 48 hours after the baking.
The soldiers refused to use this bread, but ave some of their horses a little of it to eat These horses in a short time after having eaten only half a kilogram of this bread showed symptoms of a severe poisoning, such as colic vertigo, drowsiness \&c. A thorough microscopical examination of the bread indicated that the species of mould, which formed a speckled black coating was Ascuphora Nigrans, while the other one forming light orange colored spots was Oidium Auranthiacum. Further more it appeared on cutting the bread through that the fungus-cells had existed in the flour, which consequently was poiled before its transformation into bread Meguin believes that both kinds of fungi had an equal share in causing the symptoms of poisoning which occurred

## a machine for picking cotton.

Mr. Ransom, statistical agent for South Carolina describes a cotton-picking machine, and believes, from its success in a recent field trial, that the inventor, Mr. E. B. Hazleon, of Charleston, has solved the problem of picking cotton by machinery. Theimplement somewhat resembles a long wagon on two wheels, from whose naves motion is conreyed by a chain band, horses or mules furnishing the motive power. The pickers are toothed steel disks revolving between two wooden disks; the latter prevent unopened bolls, foliage, etc., from entanglement, while he fibers of the blossom, dropping even but slightly between, are caught, drawn entirely in, and taken cleanly from the boll by the teeth of the swiftly turning metal. A revolving brush removes from the teeth the fibers, which fall upon an endless apron and are conveyed to the body of the machine. As the machine moves forward, a $V$-shaped evice converges the plants to the pickers. The shaft on which the latter revolves is inclined in such a way that the blossoms at
any distance from the ground are reached. Motion is also conveyed to brushes on the ront of the implement, by which sand and dust are removed from the plant.

## ROLLER MILLS.

BY THEODORE VOSS. (LONDON.)
their pressure and lever arrangement. (Continued from January number.
To find the percussive work which was ne cessary to crush a grain of wheat, a weight of $\frac{1}{2} 1 \mathrm{~b}$. was allowed to fall from different heights on a grain of wheat, laid between two steel plates, and it was found that a height of 1 in . was generally sufficient to cause a rupture in the grain.
In order, therefore, to find the necessary pressure for fluted or smooth rollers of certain dimensions, we must first ascertain how long the particle remains in contact with the working surfaces of the rollers, or how many grains are in contact at the same time. This can easily be done in the following manner:-

Supposing $O^{1}$ and $O^{2}$ in the accompanying engraving to be the centres of two rollers of 9 in . diameter by 15 in . long, and $f$ is the point where the grain comes into contact with both working surfaces. Then in $c$, on centre line $O^{1} O^{2}$ the contact may be said to cease, because beyond $c$ the distance of the two rollers increases again.
Then as soon as we know the size of the granules, which are to be treated between the rollers, and as soon as we set the rollers to a certain distance, $a b$, we can easily ascertain the length of $c f$, that is the length of contact.
For instance, it is well known that the average thickness of a grain of wheat is $\frac{1}{8}$ th inch, and as already mentioned, $1-16$ th inch may be taken as a suitable distance for the first break. Therefore we have $a b=1-16 \mathrm{in}$; $a c=c \quad b=1-32 \mathrm{in} . ; \quad d f=f e=1-16$ in
$c=c b=1-32 \mathrm{in} . ; d f=f e=1-16 \mathrm{in}$
$o_{1} e=o_{2} d=o^{1} b=o_{2} a=4 \frac{1}{2} \mathrm{in} . ;$
$\begin{aligned} \text { and } c f^{2} & =o f^{2}-o c^{2} \\ o f & =v o f\end{aligned}$
$c f=\sqrt{o f_{2}-o c^{2}}$
$c f=\sqrt{\left(4 \frac{1}{2}+1-16\right)-\left(4 \frac{1}{2}+1-32\right)^{2}}$
$=\sqrt{20.8104-20.5313}$
$=\sqrt{0.2851}$
tact.
By multiplying this with 15 ins , the length of the rollers, we find the area of contact surface $=8.00922$ ins
Now if these first break rollers are smooth we may take it that there are three grains at the same time in contact, say one grain of wheat in point $c$ under a pressure of say 22 lb , one in the middle between $c$ and $f$ under a pressure of say 11lb, and one in point $f$, just This would leave sufficient freedom betwre. This would leave sufficient freedom between the grains to avoid undue compression. Lengthways over the surface of the roller we may take it that one grain nearly touches the other, or that about four grains lie per inch, say 60 grains in each row. We have, therefore, two rows of sixty grains each, under pressure at the same time; and if the rollers would revolve very slowly, a pressure of $60 \times 22$ $+60 \times 11=1980 \mathrm{lbs}$ would have to be supplied against the roller surface, say 990 lbs per bearing.
But as a matter of fact the rollers work peroussive, with a sudden pressure, that is, the roller surfaces move with a great velocity against each other, taking between them and shattering the wheat grains or other material. The velocity with which the roller surfaces approach each other during their contact with the grinding material, can be ascertained in the following manner.-
Supposing the above-mentioned rollers of 9 in . diameter revolve at a speed of 200 revolutions per minute, then we find with reference to fig. 1 the velocity $v$, in the direction of th tangent, of a point on the roller surface

$$
v=\frac{3.14 d n}{60} \quad n=200 \text { revolutions },
$$

therefore $v=\frac{3.14 \times \frac{3}{4} \times 200}{60}$

## $v=7.854 \mathrm{ft}$

Now in order to find in any point the velocity $w$ in the direction of $o_{1} o_{2}$ we have the well known relation
$w=v \sin \mathrm{x}$
where $x$ the angle of the radius of the investigated point with $o_{1} o_{2}$. In our case, we want to know the velocity with which the two roller surfaces approach each other in the point of contact, that is for $x=m$.

In order to ascertain this angle $m$ we know that $c f=0.533948$ and $o f=4.5625 \mathrm{in}$., therefore
> $\sin m=\frac{0.533948}{4.5623}=0.11703$
> and
therefor
> $m=6^{\circ} 43^{\prime} 10.45^{\prime \prime}$
> $v=v \sin m$
> $w=7.854 \times 0.11703$
$w=0.91915362 \mathrm{f}$

If, therefore both rollers revolve at the same speed, as is usual for cracking wheat, we have in point $d$ and point $e$ an opposite velocity of 0.019 ft ., therefore, a total velocity of 1.838 ft . per second.

As before mentioned, Professor Kick found that $\frac{1}{2}$ lbs. falling through one inch was sufficient to crush one grain of wheat, and we know therefore that this weight had acquired a velocity,

$$
\begin{aligned}
& v=\sqrt{2 g h} \\
& v=\sqrt{2} \times 32.187 \times 1-12 \mathrm{ft} . \\
& v=5.3645 \mathrm{ft} .
\end{aligned}
$$

when it struck the grain.
If this falling weight had only the speed of 1.838 ft ., as in the smooth rolls, we should have to use a greater weight before we could produce the same effect as before.
Now the actual energy of a moving body
is $=\frac{G v_{2}}{2 q}$ where $G$ represent its weight, $v$ its
velocitiy, and $=32.18$, the acceleration of gravity.
We have, therefore, in our case, in order to find the greater weight moving at less speed which is able to crush one grain of wheat:



Therefore, if the rollers were arranged in a inner bearing surface. Therefore, even if a vertical position, one above the other, the weight of the top roller would become useful for supplying the crushing pressure, and if we take the weight of a roller of 9 inches diameter and 15 inches long to be equal to 250 lbs., including shaft, wheel, \&c., this weight would supply the necessary percussive pres sure for $\frac{250}{4.2593}=58$ grains


There are about 120 grains in contact with both working surfaces, and it would therefore $62 \times 4.2593=264.07 \mathrm{lbs}$. per roller.
$=132 \mathrm{lbs}$ per bearing.
If the rollers would have been arranged horizontally the weight of the rollers would not be available to supply the necessary pres sure,
supply

## $\begin{aligned} 120 \times 4.2503 & =511.11 \mathrm{lbs} . \text { per roller } \\ & =256 \mathrm{lbs} . \text { per bearing } .\end{aligned}$

I have madenumerous trials with $9 \mathrm{in} . x 15 \mathrm{in}$. rolls, arranged one above the other, and set to 1-16in minimal distance, and I have founh. that, with a pressure of 1501 bs . per bearing, up to 15 cwt . of wheat per hour could be properly cracked between smooth rollers. In these trials the top roller was carried in one forked lever, to which the weights were gradually hung until the required pressure was obtained. There was of course a set screw under the lever, so as to avoid the rolls coming too close.
Similar experiments were made with fluted rollers, and it was found that a pressure of 1501 bs. , in addition to the weight of the top roller, was sufficient for the first two breaks on any wheat; 200lbs. were required for the THIRD and rourth breaks, and 250 lbs . were amply sufficient for the fifth break. -
Coarse middlings treated on smooth rolls set at 1-48in. minimal distance required 320 lbs . but if a slight differential speed was employed (five teeth difference, ) only 250lbs, per bearing, was required in addition to the weight of the top roller. Finer middlings, set at
$1-96$ in. minimal distance, required $350 l b s$ with
ifferential speed, and fine semolina, with rolls set at
It give these pressures as the result of very carefully conducted experiments with $9 \mathrm{in} . x$
15in. rollers, and invite milling engineers and $15 \mathrm{in}$. rollers, and invite milling engineers and
millers to test their accuracy. It is obvious hat it is of the greatest importance not to put greater pressure on the rolls than is absolutely necessary. Every pound of unnecessary pressure is a direct loss of power, because it in-
creases the friction in the bearings and consequently causes increased wear in the bearing surfaces.
This wear in the bearing surfaces has a very great influence on the proper distance following facts
Supposing two rolls are arranged horizontally, as shown in fig. 2, and the bearing of roller B is pressed against roller A by means of pressure springs, then, as soon as the rolls them, the sinaft will be pressed towards the outer bearing surface, and there will be a small free space between the shaft and the

carried in levers, when the mere elasticity the levers will cause the rolls to close up or
open, according to variations in the feed. It is therefore clear that in such rolls a perfectly regular feed is of the greatest importance, ecause a small feed will be much more com ressed than a full feed
It must be borne in mind that the distance of the rolls is generally less than this looseness in the bearings, and that even the best fitted bearings cannot fit quite tight, and thus avoid the movement of the shaft in the bearing.
This closing up of the rolls with varying eed, however, becomes far more injurious or the vertical arrangement of rolls, as sown in fig. 4. When the feed is on, the top shaft will rest against the upper bearing surrace of the top bearing, and as soon as the reed becomes unequal or decreases for an instant, the top roller will drop down on the bottom roller, and touch either on one side $r$ over the whole length of the roller.
Even the very best feed apparatus canno obviate a momentary irregularity, and as a
matter of fact rollers grind each other nore than is generally thought possible. It is chiefly this grinding of roller surface gainst roller surface which evobes most heat in roller milling, and it may be said that if rollers would be so constructed that they cannot touch each other, whether there is feed passing or not, they will grind much cooler and with less compression than at present.
The vertical arrangement of one roll above the other possesses undoubtedly some great advantages. The most important of them is
useful as part of the necessary crushing pres sure. Therefore less pressure is required for the top bearing, and consequently less friction produced. The following numbers will further illustrate this:
Supposing a roller of 9 in . diameter by 15 in. long weighs 250 lbs ., and a pressure of 500 lbs . per roller is required to crush the middlings, then, if the two rollers are ar ranged horizontally, each bearing will be exposed to a pressure of $\frac{500 \times 250}{2}=375 \mathrm{lbs}$., and corresponding amount of friction will be thereby caused.
If these same rollers are, however, arranged vertically, the weight of the top roller, 250 lbs ., becomes useful and only 250 lbs ., pressure is required for the top roller, to create the necessary pressure of 500 lbs .
The bottom bearings are exposed to the same pressure as in the horizontal arrange ment, viz, 375 lbs. each
Therefore, whereas in the horizontal rolls $1,500 \mathrm{lbs}$. (four bearings with 375 lbs . each) cause a corresponding amount of friction, only $1,000 \mathrm{lbs}$., (two bottom bearings of 375 lbs . each, two top bearings of 125 lbs . each), are thus acting in the vertical rolls.
The vertical arrangement has also the advantage of requiring small floor space and presenting better access to its working parts. Horizontal rolls may draw in the feed a little easier, but their scrapers are very inaccesssi-
ble. Moreover, as the feed can be quite satisfactorily supplied to such vertical rolls, their advantage of using less power will ultimately bring them to the foreground.
This refers, however, only to vertical roller mills with two rollers. Three rollers arranged in vertical line generally combine too many disadvantages with their few good points, and it would therefore be unwise to prefer them to horizontal rolls.
It is generally urged in favor of "three" roller mills that the pressure of the top and bottom roller annihilate each other, and that therefore the middle bearing is not exposed to any pressure. Consequently, it is said, only four bearings are subjected to pressure and cause friction, against eight bearings in a corresponding horizontal roller mill.
This is, however, only partly the case, because generally the pressure of the top roller differs widely from that of the bottom roller. Nevertheless it must be admitted that probably less power is required for "three" roller mills than for a horizontal "four" roller mill of the same capacity.
In spite of these important advantages of "three-high" roller mills-viz., small motive power and small number of bearings-they are much inferior to horizontal rolls with regard to their pressure adjustment and the desired constant distance between the rolls. "Three-high" roller mills are in most cases employed in such a manner that the same kind of feed is passed through the top pair as through the bottom pair.

## [to be continued.]

Machinery Trade Secrets.-Whatever the value of trade secrets may be elsewhere, says the American Machinist, in this country they appear to be substantially worthless. Espe cially in machine construction, a hint at their possession is looked at with a certain dis trust, and those shops that have the best reputation are notably the ones that make no pretentions to mysterious operations. Secret processes are at a still further discount in this country, for the reason that those who buy machinery want to know, not only that it is good, but they also want to know why it is good, and whether it can be kept so. A machine is likely, or certain, in time to need repairs, and no one wants machinery the parts of which can be satisfactorily repro duced only by special means about which there is some mystery. The secret of the cheap prouuction of good machinery is an open one, but those who do not possess the skill and ability can no more appropriate it however much they are allowed to examine processes, than they can write like the ac complished penman by stealing his pen and inkstand. In every workshop in the country there may be certain special knowledge of value to the general industry, and it is to the fact that ordinarily there is no attempt to conceal it, and frequently something more than a willingness to impart it, that much of the material industrial progress is due. The compensation comes in mutual giving and receiving, and in the fact that what the giver contributes does not make him the poorer.
The skill and ability to plan and The skill and ability to plan and execute a qualities of managers and workmen that cannot be given away or appropriated-constitute the secret of success, but are in no sense trade secrets.-Manufacturers' Gazette.

CARDEN CITY
Reduction Mills and System

## gathmann's patent.

## Perfection on First Break

Superior to most, equal to any on Subse quent Reductions.
Every grain of wheat split through the crease, and so thoroughly done that the split kernels can be brushed or scoured.
The Best and Cheapest Reduction Machine and System yet offered.

Substantial, Durable, Noiseless and Light Running, Slow Motion, Large Capacity.

## RESULTS GUARANTEED.

 TO ROLLER MILLS:We guarantee to improve your Milling by using the wheat, and brush the split kernels, thereby making a greater percentage of high-grade flou
than can be made under A YY OTHER SYSTEM TO MULLERS:
which we have several of our Reduction Mills running. We cordially invite you to pay us a
visit, bring sample of your wheat, visit, bring sample of your wheat, give our Ma
chine a thorough test, and judge for yourselves.

## GARDEN CITY WHEAT PRISHI

Gathmann's Patent "inclined bristles"
ONLY DOUBLE BRUSH

Thoroughly Brush Wheat.
Guaranteed to IIIPROVE COLOR of the PLOUR.
It don't break or scratch the grain. Re moves all the dust. Very light running. Send for circular and prices.

## Prices Reduced! Improved Garden City Wiililing Pulifir!

## With Travelling Cloth Cleaners

Our improved Purifier has every device requisite to make it perfect, and every one in use is giving the greatest satisfaction to the users. The Cloth Cleaners are guaranteed to clean the cloth better than is done on any other purifier.
Over 4000 Garden City Purifiers in use, nearly 800 of which are the Improved Machine.
The Best and now the Cheapest. Write for circulars and price list.
We are agents for the

## BODMMR

BoLTIMG CLITH
Which has long been acknowledged as the best made, and which has lately been further improved, making it now beyond com petition. We make it up in the best style at short notice. Send for prices and samples.
Garden City Mill Furnishing Company,
CHICAGO, ILL.

## st. louis milling statistics.

In this paper, of date January 5, 1882, was
published the fact that three St. Louis mills published the fact that three St. Louis mills
had been destroyed by fire in 1880-the " been destroyed by fire in 1880-the two in 1881-the "Atlantic" and the "South ern"-entailing a loss in production for the two years of over 500,000 barrels of flour. In the same edition, we gave a list of the mills in
existence January 1, 1881, with the daily capacity of each. There have been numerous changes during 1882 in the flouring industry The "Pearl," Geo. P. Plant \& Co., has been abandoned and will not be run any more.
The "Gamble Spring", has been torn down and the Anchor Milling Company has erected a new mill on its site, with a capacity of 1500 barrels per day. The extensive cracker factory of the Kendall-Bayle Cracker Company has been erected on the
ruins of the O'Fallon. The Mississipppi Valley, Flanagans \& Richardson, is now run by Flanagan Bros., Richardson having retired The Phenix Empire Milling Company, has
been operated during the year by the Atlan ic Milling Company. The Park, formerly stanard \& Kauffman, is now run by Mr. Kauffman. The Victoria, a new mill with a daily capacity of 500 barrels, has been built by the Victoria Milling Company. The At lantic Milling Company has erected a mill on the site of its old structure-burned Aug.
12,1881 -with a capacity daily of 1,400 barrels, and will start it to work in the course of the next month (February). Kehlor Bros., it might be mentioned here, propose to build a new mill at East St. Louis, the present year, which they intend shall be the largest among the thousands, and it will be equipped with all the latest and most improved mawith all
chinery.

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The Atlantic Mill was burned Aug. 12, 1881; rebuilt and completed Dec., 1882. The Iron Mountain Mill was destroyed by fire August 24, 1882.
The Kehlor Mill was completed during Dec. 1882.
The Venice Mills were also burned during the year.
by st. LOUIS Firms located out SIDe the ctry.
anard \& Co., Alton City Mill
E. O. Stanard \& Co., Alton City Mills,
Alton, Ill, product in 1882, 122,277 bbls.
F. Tidemann \& Co., Cape County Mill, F. Tidemann \& Co., Cape County Mill,
ackson, Mo., product in 1882, 36,412 bbls. Fath, Ewald \& Co., St. Mary's mill, S Marys, Mo., product 37,600 bbls. in 1882 . John W. Kauffman, President Mill, Bethalto, Ill., product in 1882, 30,605 bbls. Burned in August 1882.
D. L. Wing \& Co., Planet Mills, Litchfield, Ill., product in 1882, 195,210 bbls.
Kehlor Bros., Edwardsville Mills, Edwardsville, Ill., product in 1882, 121,681 bbls. There are also seven mills which turn out corn meal, rye, flour, h
lour.-St. Lous Miller.

## what our ancestors ate.

Persons of extreme views are apt to maintain that all mankind, being normally savages, were as normally cannibals; but leaving that moot question altogether on one side, it seems probable that humanity ate acorns long before they ate cereals or learned the art of making bread, and that the veneration entertained by the Druids of Gaul and Britin for the oak was due to the circumstance people. Bread, properly so called, was transmitted by the Greeks to the Romans; and either the latter or the Phoenicians may have introduced the cultivation of corn into Gaul. While, however, the land was mainly covered with immense forests, a long time must have elapsed before the practice of eating doned, and even when corn' was regularly grown, ripened and harvested, the grains were merely plueked from the ear and were merely plucked fro
raw or slightly parched.

The next step was to infuse the grain in away and the channel cieared from end to hot water for the making of a species of end in accordance with the provision of Congruel or porridge, and a long time afterward gress on this subject. But whether Mr. Syme it may have occurred to some bright genuis will be allowed damages for his mill deto pound the corn in a mortar or rub it to a pends upon the suit now pending. When powder between two stones. Subsequently the Department of Justice will render its came the hand-mill; but it was not till after the First Crusade that the wind-mill was introduced from the East, whither it had probably found its way from China. The first bread was evidently baked on the ashes and unleavened, and the intolerable pangs of indigestion wrought on by a continual course of "galette" or "damper" may have suggested the use of a fermenting agent, which in the first instance was probably stale bread turned sour. Pliny has distinctly told us in his "Natural History" that the Gauls leavened their bread with yeast made from the lye of beer; yet strangely enough, they abandoned the use of beer yeast, and did not resume it un
til the middle of the seventeenth century Its revival in France made the fortury. Its revival in France made the fortune of many bakers; then the medical faculty sounded an alarm, declaring that yeast made from beer was poisonous. Its employment was prohited by law ind 1066, but he outcry
raised by the bakers and the public was so vehement that in the following year the decree of prohibition was cancelled, with the proviso that the yeast was to be procured
only from beer freshly brewed in Paris or its immediate neighborhood. Some form of fer mented bread, however, the French had been eating for 1,600 years, in contradistinction to the gruel and pulse-eating Italians and Levantines and the purely vegetarian Hin

## the menasha, wis., dam.

akom Norkes Ways: As is gene dy known the work of the lowering of the dam and increasing the outlet of Lake Win nebago has stopped, pending the injunction sued out by Alex. Syme and now awaiting the question of high water and the height of the Menasha dam has been under consideration the main question has been as to the
ownership of the dam. The Lawson estate first got out an injunction restraining the Government from touching the dam and claiming full ownership of the dam. This was withdrawn and it is understood that th else shall be held responsible for the owner ship of the dam
Col. Harshaw, of Oshkosh, has just returned from Washington, and while there with Sena tor Sawyer, called on the Secretary of War, the situd a consultation with him regarding position of the War Department on this the ject, it is only necessary to say that Secretary Lincoln informed his cal'ers that the Department would proceed nofurther until it was definitely concluded as to who owned the Menasha dam. If the Government owned it, he should instruct the engineers to carry out the proto its fullest scope, but if it was determined that the dam belonged to private parties, the Department would refuse to expend anothe dollar upon it. This main question of own-
ership Secretary Lincoln has referred to the Department of Justice, and the Departmen of Justice has referred the question to O. B. Thomas, of Prairie du Chien, for his opinion and report which will be reviewed by the At torney-General when received. This, then whenever it happens, will decide the action and orders of the War Department as to proceeding further with the work. Now comes in one more question, more a private one than one affecting the Government's position in the premises, and that is what acquired rights Alex. Syme has to maintain an obstruction in the stream in theshape of a mill which rights the Government is in any way bound to respect. Symes claims in his bill praying for an injunction that he had rights and privileges prior to the Government's pos Improvement, property, franchises, etc, that the Government purchased, subject to all the rights, privileges and franchises then held by private parties. This suit, then, will decide whether Syme has property rights which the Government must pay for if it destroys his mill. Secretary Lincoln said he was willing and would be authorized to pay to Syme any damage he might sustain by reason of the destruction of his mill and wa-
ter power, provided the courts hold in his favor on this issue. Therefore the status now is, that the Government will only proceed with the work of the Menasha dam in case the
opinion
opinion that
dam, in which
opinion on the ownership question is not known, but steps will be taken to bring about an argument of the Syme case on demurrer within the next sixty days, so as to decide that branch of the question.
Why Boys Dislike to Learn Trades.The Blacksmith and Wheelright believes that the old system is, in the main, responsible for the aversion that such a large number of boys manifest for learning trades. For the first year a boy in a blacksmith shop, for instance, is put to the roughest and most disagreeable work. He is made to do a thous-and-and-one things that will be of no use to him when he grows up, and have nothing to do with making him a skillful mechanic. He knows this and naturally rebels and want to do something that will be of benefit to him. He is brought to feel that to be a good blacksmith, a man requires much brawn and little brains. That he obtains an erroneous idea of the trade he is trying to learn we all know, but, nevertheless, this impression is apt to become fixed in his mind from the character of the work he is put to do. Is it any wonder that he looks with envy on the boy behind a counter or in a lawyer's office, and longs to get away from an employment which has become irksome?

A Ship Load.-The story of the water which got into the hold of a ship loaded with rice, and so swelled the cargo that it burst the ves sel asunder, reminds the editor of the "Kin derhook Rough Notes," of the captain of a North River sloop, who, having hired a new cook at Albany; set him to cooking rice, which
he said he had done a hundred times. Telling him that he would find five pounds in the locker, and cautioning him against cooking too much, the captain went about his business of loading his vessel with pig iron. In half an hour the new cook rushed out, exclaim ing:
"For heaven's sake, captain, don't take on any more pig iron; we will have a load of biled rice before night.
The captain rushed into the cabin where he found all the pots, kettles, pails, pans, dishes, and even two washtubs full to overflowing with cooked rice, which was also seething ver the top of the kettle and falling off upon the stove and the floor. "What'n thunder you been doin'?" yelled the skipper, as he glanced around. How much rice did you put in that pot?"
"Put the whole of it, Cap.," said the lad, 'and I've been doin' nothin' but bailing out rice for the last twonty minutes. Great Moses. where does all the stuff come from

The Krupp Works, at Essen, Germany have this year added a wrinkle that is not new, but has probably never before been ried on so large a basis. For some time past the common workmen have been given the choice between going home at noon and lunching in the great dining hall of the works. The dinner furnished in the latter case costs the workman about $6 \frac{1}{2}$ cents in American money. This department has now been extended to include all the foremen, master workmen, superintendents, officials, etc., who are furnished with a good, substantial meal, uch as would cost about 40 cents at an ordinary restaurant here, for about 10 cents in American currency. The object gained or thus providing for the welfare of employes is two-fold. It prevents the loss of the few minutes so commonly dropped, here and there, in getting back to duty after the whistle has stopped, and which, when multiplied by housands of workmen, run quickly up into hours and days and weeks; and, again, this system insures substantial food to the men, and a consequent keeping up of full animal strength. The meals of a machanic, whether master of journeyman, have much to do with his steadiness of purpose and work, and the brain and body condemned to live under the pressure of inferior and poorly cooked victuals will deteriorate at a rapid rate. Skilled labor must be fed well, and the Essen owners are doing no favor nor charicy in providing in this manner for the workers in their great hops.
Burned-The North star Flouring Mill, Minneapolis, Wned by J. G. Crosswell, located on the east side of the
iver burned January 9 . It was one of the oldest buildings in the city and recently remodeled. Loss on build-
ing, toeek, aud machinery, 820,000 ; Insurance 23,000 . The ire was but ten feet from the ut the splendid fire pro

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THE UNITED STATES MILLER.

## (For the Unitrd States Miller.) 4 sENSIBLE ENOLISHMAN's VIEWB SIBLE ENGLISHMAN'S VIEWS ON AMERICAN PROTECTIVE TARIFF.

Editor United States Miller.
Milwaukee, Jan. 26th 1882. The following extracts, are published for the first time in this country, from an address which was prepared for delivery before the Liverpool, England, Chamber of Commerce, late in 1881 by Mr. Samuel Smith, a gentleman, who has a large acquaintance in this for many years. He says, in the preface to for many years. He pamphlet, from which we copy-"It is written without bias of any kind, and simply written without bias of any kind, and simply
with the view of putting forward the truth as with the view of putting forward
it presents itself to the writer."
The candid spirit and kind language in which the author treats our tariff question, renders it particularly worthy of perusal; for that reason we commend it to the readers of the United States Miller.
"To form sound opinions upon this point it is needful to put ourselves mentally in the
positions of foreign nations, who levy heavy positions of foreign nations, who levy heavy tecting native industry, and to ascertain duce them to follow a course which all our dal. It strikes me that there is great ignor-
ance, and often not a little mis-representaance, and often not a little mis-representa-
tion, of the real motives that actuate such
countries as the United States and Canada in following out the policy they have delibe rately adopted.
"As one who has often argued the point
with intelligent Americans in the United States, as well as in this country, I am bound to say that they make out a much better case
than is generally supposed here. Speaking than is generally supposed here. Speaking
broadly, the view which Americans take is that manufacturing industry on a large scale cannot be planted in a new country, mainly out a period of protective duties. They hold, and I think justly, that they never could tries in the face of free and open comg induscolonial days, and up to the war of 1813-14 the United States had few manufacturers;
they drew theirsupplies chiefly from Europe and were mainly an agricultural community, dike Australia or New Zealand, but so great
was the suffering caused by the war of 1813 against this country, that it decided them to cultivate home manufactures even at the cost of paying higher prices. This policy enormously stimulated by the civil war which made a large revenue necessary, and hrow a considerable part of the cost of the war upon Europe.
act, that they pay higher prices than they need to do for many kinds of goods in order to argue that they get a full compensation in the great centers of industry that are thereby created, and in the capital and population
that are attracted to their country by the protitable employment obtained in those great seats of trade.
States had neever levied any duties at the解 $a b$ initio a system of absolute and mutual free trade with this country, much of the population and capital that are now employed in Massachusetts an Pennsylvania would have been located an ron regions, producing the goods required United States would have been a vastly magnified Australia or New Zealand, containing a thinly scattered population, and a few large commercial cities on the sea-board; but pro-
bably some millions of people would have remained in these islands, and made the goods which the American farmer needed manufacturing towns of New England, Pennsylvania \&c. It is quite true that if we look
merely at the interest of the individual and not at that of the nation, it is better that these nillions of people emigrated and found should have remained to swell the already too dense population of Great Britain; bu different point of view to individuals, and what has been a source of national gain to America has been a cause of national loss to expect absolute identity of interest between expo rival nations.

It may be argued, that now that the manand suffices to supply almost her whole consumption, she has no longer any interest $t$ bolster it up, but rather to aim at being a cheap producer and compete with England there is force in this view, and it will gradually gain ground in America and lead to a relaxa
tion of her tariff, especially as her rapidly diminishing debt makes it unnecessary to raise so large a revenue.
The point
The point, however, I wish to insist upon
that the United States, like all new counis that the United States, like all new coun-
tries, our own colonies included, consider the aequisition of extensive manufacturing industries worth paying a price for, and there is no way in which they can obtain that object in the earlier stages of national growth ex-
cept by a protective tariff. This motive is
so strong, and operates so constantly, that we need never expect to see it disappear, and New Zealand, and our other colonies reach a certain stage of progress they will protect their own manufactures, as Canada our economists err in supposing that mansuch as can be shown logically to facilitate the acquisition of wealth for the individual. Human nature is a very complex thing, and
man is not a mere wealth producing maman is not a mere wealth producing ma-
chine. He is influenced, and justly influenced, by motives that appeal to other parts of his nature than his pocket
are all motives that of kindred, of religion, and make them willing to sacrifice something of mere gain, and it is the want of perception of this truth which has led many of our com-
mercial authorities to underrate the powerful motives that sway foreign countries, and even our own colonies, in settling their commercial policy. Most of the countries with
whi $\rightarrow$ we deal are willing to make slight in dividual sacrifice to keep a larger population at home, and give them widely varied industries, and th
It is the necessity of being a large ex
porter which makes it the undoubted inter of England to practice and preach free trad and just as other countries reach that posi tion their policy will also change, and imitate
"I would take this opportunity of saying but lame guides for the statesman when taken per se, and without due regard to the other relations that men sustain to each other. * *
It has yet to be correlated with those others which deal with man as a member of society powerful influence on the side of religion,
family and country-lepislation then upon no higher conception $m$ an than of a producer or consumer of wealth will
signally fail-our economical authorities and their imitators, who are often mere doctrinaires, lecture foreign nations because they
do not legislate on pure economical ground -they often display their ignorance in doing they palm off as universal axioms what are only deductions from our insular experience.
"Our earlier economists deduced thei formulas principally from British experience and many of these are only true as applied ourselves; at least, they need large qualificacountries. To form correct conclusions al round, this science needs to be looked at,
and its problems treated, from many and nd its problems treated, from many and hat, as this process goes on, we shall be less
surprised that able and intelligent statesmen in America, France, and Germany demur o some of our dogmas."
There is ability, candor, and comprehensive deduction in the above meriting the careful consideration of every American reader
The causes, which produced the panic and their absolute disconnection with ou ariff so plainly shown, that I will furnish them for your next number.

## JOHN W. HINTON.

tWO SOURCES OF DAMAGE TO BOILERS.
The Locomotive contains the following hints which should be carefully read: Leakage a he girth seams and around the tubes of exter nally-fired, horizontal tubular boilers is one
of the defects most often found, and one which is sure to become very serious in hort time if not attended to, for it induce corrosion in one of its most dangerous forms. There is nowhere to be found a better illus ration of the truth of the old saying: "A stitch in time saves nine," than in this matter; and also no better illustration of the economy and value of proper care and management fo team boilers. Leakage at the seams of boil ers may be induced by a variety of causes, of workmanship and bad management. When the defect is due to bad workmanship the only help for it is, generally, to dress and re-caulk the edges of the plates. Sometimes, though not often, it will be necessary to cut out the e-caulk. This also is generally necessary when a boiler has been overheated through hortness of water or otherwise. Sometimes too much lap is given the plate, when it beThe writer has in mind now a certain rotary leacher, whereon the plates lapped four inch beyond the rivets. The result may be im agined. Obviously the only remedy in such induced by face the lap. Leakage is often and delivering it close to the hot plates over the fire. Severe local contraction is thus caused, which no material can resist, and leakage is suce to follow. The solid plates of the shell are very frequently fractured in this manner. Where the use of cold water is unavoidable the boiler should always be provid
ed with a circulating feed pipe as a meanis ed with a circulating feed pipe as a mearis of economy and safety.

In too many cases, however, the seams are haken by the habit, which prevails extensively, of pulling the furnace doors wide open without closing the chimney damper. This is a very common way of checking the generation of steam, when there is a lull in the demand for it from any cause, and cannot be loo strongly condemned. The effect of a colder than the furnace and boiler, degrees along the under side of the shell, is sufficient a loosen the best joint that ever was made, through the solid plate. The effect of this is ven more marked with some types of inter nally-fired boilers, such as the "drop-flue," for instance, than
turn tubular boiler
Another fruitful source of damage to boilers and one which has ruined thousands, is the practice of blowing a boiler off and immediately refilling it with cold water, while the brickwork is red hot. Nothing will tear a
boiler to pieces quicker than this. Boilers have exploded with disastrous effect from this cause, hours after the fire had been drawn. Probably most persons not familiar with the tinacity with which cold to know the per the lowest point of a boiler under these circum stances. Local contraction of such severit is thus induced that nothing can withstand its sufficient to ruin any boiler.

## ITEMS OF INTEREST.

Headache.-Dr. Haley says (Australian Medical Journal, of August 15, 1881) that, as a rule, a dull, heavy headache, situated over chilliness, and a feeling of general discomort, with distaste for food, which sometimes approaches to nausea, can be completely redose of iodide of potassium dissolved in half a wineglassful of water, this being sipped so that the whole quantity may be consumed in about ten minutes.-Glasgow Med. Journal.
Aboct Old Socks.-In the grave of an
of knitted stockings, which gave the surpris ing evidence that, firstly, short stockings, Egyptians; and, secondly, that the art of knitting stockings had already attained great perfection in ancient Egypt. These curious stockings are knitted in a very clever man-
ner, and the material, fine wool of sheep, that might once have been white, is now
brown with age. The needles with which the work was done must have been a little thicker than we should choose for the same purpose, and the knitting is loose and elastic.
The stocking is begun just as we make the
single thread, but in the continuation of the work it is not simply plain but fanciful. The usual border of the stocking which prevents the olling up of the work, is narrow, consisting nicely shaped heel, which is a little different o our method, show a very skillfui hand.
But in the point of the stocking there is characteristic difference betwen the Egyptian tockings and our modern socks. While ours end in a rounded point the Egyptian tockings run out in two long tubes of equal width like the fingers of a glove. This strange furnished with a strap, fastened whon are middle of the sandal, and as the strap has to needed.
The Secretary of the Treasury has autho rized the coinage of a five-cent nickel piece of a new design. The new coin weighs twenmore than the present coin, and is a little larger and thinner than the one now in circulation. On the face of the new coin is a emale head surmounted by a fillet upon which is inscribed the word "Liberty," the whole being surmounted by thirteen stars he reverse side contains a wreath surround ing a Roman numeral representing the de omination of the coin
A Sound Opinion.-If our opinion were asked as to the manufacturing and mining outlook of 1883, we should confine it to impressing upon workingmen the value of eco nomy, the laying away of whatever each can meet a contingency. If business shall move along quietly and prosperously the avings will do no hurl, while if there shal se trouble the dollars in the old sock or the a soings bank will be of infinite use, and serve a solid basis of consolation to counteract the misery of idle days.-National Labor Tri-
bune. bune.

NEWS.
N. W. Pacr \& Son, owners of the steam grist mill at Ar. A. P. Hoale, miller at Richmond, Ind., has made an
assigument. J. G. Higarns succeeds
business at Guilford, K Crow, Threlkeld \&
the mill at Shelbiua, Mo Leb Ores has purchased James L. Cowan's mill Ir is said that Brandon, Manitoba, offers first class in. BENNETT \& GATES of Geneva, Ill., have placed an order
with TTe John T. Noye Mfg. Co., of Buffalo, N.Y., for anThe John T. Noye Mrg. Co., of Buffalo, are filling an
order for Mr. C.W. Turner, of Christ Church, New ieal which inclndes one tive-break concentrated roller mill; purifiers; one Barnard \& Leas separator; a Richardson
wheat scourer; Empire Ewell scourer; Empire bran duster; Howes, Babcock \& Foote \& WEaver of Honeoye Falls, N. Y., have bought
20 -inch middlings mill of The John T. Noye Mfg. Co. ElLes \& Krauss of Evausville, Ind, have ordered anoth-
er Stevens double roller mill, of the John T. Noye Mfg. Sylvester Nelson of St. Catherines, Ont., has ordered
of the John T. Noye Mfg. Co., four Niagara bran dusters. Walter J. Blood of Yates P. O., N.Y... will puta a 6 -inch
under runner mill, furnished by The John T. Noye Mfg. John T. Noye Mff. Co. of Buffilo, for W. S. Meyer \& Bro.,
of Westmiuster, Md. Jos. PoLLARD \& Co., of Vincennes, Ind., have ordered
nother stevens double roller mill from The John T. Noye
Mfg. Co. ot Buffalo, N. Y. Smith, Hill \& Co. of Quincy, Ill, have recently placed with The John T. Noye M. Mg. Co. of Buffaio,
double aud one siugle, Stevens roller mills. Higbee \& Co. of Bellevae, Ohio, are putting in anothe Jus. WaGNER \& Co. of San Francisco, Cal., placed an or ast mouthe John T. Noye Mifg. Co. of Buffialo, during the

SLoss \& son of Traer, Iowa, have ordered a Steven d. Y. roller mill of The Juo. T. Noye Mfg. Co. of Buffalo.
J. D. Green \& Co. of Faribault, Minn., is putting in a May, Weber \& Co., Watertown, Wis., have ordered one GEo. H. Johnston of Detroit, Minn., has placed his order
with The John T.Noye Manufacturing Co. of Bafffalo, N.Y. Th The John T.Noye Manufacturing Co. of Buffalo, N.Y. A Stevens double roller mill has been ordered by the
reat Western MIf. Co. Leavenworth, Kan., from The John Noye Mfg. Co. of Buffalo, N. Y.
Henry Huch, at Columbia, Ill., is making some ver material changes in and additions to his mill at that place ets of double Stevens other necessary machinery, fou THE nill of Messrs. Rodee \& Bill at Ogdensburgh, N. Y of Stevens double roller mills, supplied by the John T.

## Mecently purchased four pairs of Allis Dell Davenport, Iow

 Wis. frames from Messrs. Edw. P. Allis \& Co. of Milwaukee Mr. H. Hutch of Columbia, Il., has been remodeling his oiseless frames, from the Reliance Works of Messrs. E. P.Messss. EDW. P. ALLLs \& Co. of Milwaukee, Jately sold Allis Rolls in Gray's noiseless frames, for their mill pair Messrs, Willy \& Co. of Appleton, Wis., have put in two
pairs of Allis Rolls in Gray's noiseless belt frames, from lessrs. D. P. Allis \& C .

## Mr. G. Eisenmayer of Summertield, Ill., has lately pur

## vaukee, Wis.

## Nesshs. E. P. Allis \& Co. recently sold Messrs. Manro Nef Auburn, N. Y., two pairs of their Allis Roll

## Messshs. EDW. P. AL arder from the Great Western Mf o. of Leavenworth, Kas., for eighteen pairs of Allis Rolls.

 in Gray's noiseless frames, for mills that they are furnish-ing. The Great Western Mfg. Co. is doing quite a large
busiuess in Allis Rolls.
Messrs. Chisholm, Bros \& GUNN of Minneapolis, Minn.
placed an order with Messrs. E. P. Allis \& Co. lately, for
eight pairs Allis Rolls in Gray's noiseless frames.

## Mr. D HAMIL of Newton, Kas., has put in two pairs ot Allis Rolls iu Gray's noiseless frames recently, from

Mely sold EDW. R. Mons \& Co. of Milwaukee, Wis., have paire of Allis Rolls in Gray's noiseless belt frames.
The Garden City Mill Furnishing Co. of Chicago, In.
recenuly purchased two pairs of Allis Rolls in Gray's noise less frames from Messrs. E. P. Allis \& Co. of Milwaukee,
Wis. Wis.
Messrs. Edw. P. Allis \& Co. of the Reliance Works, Milwaukee, lately received an order for two pairs of Allis
Rolls in Gray's noiseless frames, from Messrs. Matthews
Bros, os., for their mill at Anamosa, Iowa,
The Hudnuts of Terre Haute, Ind., have purchased two
pairs more of Allis Rolls for their Hominy mills at Terre Haute, in Gray's frames.
M sssks, hutron, Harkis \& Co. of Auburn, Ill, have put
in an Allis Roller outit in Gray's noiseless belt frrames mesers. Edw. P. Allis \& Co. of Milwaukee, Wis.
The Saxony Mills of St. Louis, Mo., have placed their order with Messrs. Edw. P. Allis \& Co., of Milwaukee, Wis,
for twenty-tour pairs of Allis Rolls, all in Gray's noiselees for twenty-to
belt frames.

W. s. MyRas \& Broo in Westminster, Md., the owners o
the fine flouring mill at that place, are getting the mat the fine flouring mill at that place, are getting the ma
chinery for a 30,000 bushel elevator from Nordyke \& mon Co. of Indianapolis, Ind.
Burnkp, Jan. 23, the "Model Mills" at Necedah, Wis
The loss The loss is estimated at from $\$ 15,000$ to 817,000 . Fully in Bured Fire supposed to be incendiary.
BUnNRn, the flouring mill owned and operated by John
J. Kelly in the town of Washington, five miles south J. Kelly in the town of Washington, five miles south of
Eau Claire, Wis, together with its contents, consisting or Iarge quantities of flonr and grain, was burned, Jan. 24
Total lose estimated Total loss estimated at $\$ 8,000$, on which there was an insur
ance of 4,500 in the following companies: Standard of London, 81,250; Orient of Hartford, 81,250; Star of New York, 81,000; Western of Toronto, $\$ 1.000$.
Messrs, Lukins \& North have recently purchased
pairs more of Allis Rolls in Gray's their mill at Atchison Kas.
Burged, Jan 23, the flour mill owned by Haynie \& Burned, the North Star Burnen, the North Star Flouring Mill, Minneapolis,
owned by J. G. Crosswell, located on the east side of the river, burned January 9. It was one of the oldest build
ings in the city and recently remor ing, stock and machinery, $\$ 20,000$; insurance $\$ 32,000$. The
fire was but ten feet fire was but ten feet from the mammoth Pillsbury Mill, action averted danger.
The Creston Milling and Produce Co, Creston, O., have ing purchased of stout, Mills \& Temple, Dayton, $O$,, a full
line of Livingston mill J. M. Veasiton mills and necessary machinery.
roller system, having just purchased of Stout, Mills \&Te the ple, Dayton, O., a full line of Livingston double mills. Carson \& Rand, Eau Galle, wis., are putting in a ful ry, from Stout, Mills \& Temple, Dayton, 0 , H. L. Wetherald a
just contracted with the old, reliable mill furnishers, Stove
uills Mills \& Temple, Dayton. O ., for a complete roller mill and Livingston finishing rolls.
Klser \& Prerson, ottumwa, Iowa, have contracted wit chines and machinery, Dayton O., for a full line of ma the Gilbert combined mill and Livingston fini mill, using Sharps Distilung Co., Lairs Sta., Ky have jog rohs, their order with Stout. Mills \& 'emple, Dayton, place additional Livingston rolls, being so well pleased with wose purchased some time since.
Will to the graoral Lockport, N. Y., are remodeling the from Stout. Mills eduction system, having purchase eastern agent, Charles Rakes, Dockport, through their combined mill, with Livingston finishing rolls, and a necessary machinery.
Jno. SChaUTZ of Zimmermanville, O., has just ordered of Stout. Mills \& Temple, Dayton, o., a Gilbert combine mill, and Livingston finishing rolls.
THE new gradual reduction mill of J. F. Wattling. Nor vell, Mich, just finished by Stout, Mills \& Temple, Dayton,
O., has been running successtan and without a change ever since they started it, now ove three weeks. They are using Livingston rolls. Burned, Jan. 30, the "Cambridge Flour M
bridge, O. Loss si0,000. Insurance $\$ 5,000$. The trade of the Pos. Insurance $\$ 5,000$.
1882, shows a considerable improvement the mills during In 1882, in fact, the exports of flour from Pesth were 2,866 , 628 sacks of 280 lbs., against only $2,245,000$ in 1881 .
The Flour mill at Cambridge, 0, The Flour mill at Cambridge, o. burned Jan. 31st.
Total loss $812,000,00$, insurance $85,000,00$.

## foreign news items.

ON the morning of Dec. 29th, the largest roller flour mill in Great Britain was destroyed by fire. The mill was the property of Mr. Bernard Hughes, and was located in Belfast, Ireland. One fireman was killed and three others were badly hurt. The mill and stock was insured for $\$ 200,000$, which goes a good ways towards covering the loss. Over thirty roller mills were built in Great Britain during 1882, and a great many other mills put in rolls and made other extensive
improvements. Contracts have also been
made for fitting up three mills on the Jona than Mills system
In Southern Brazil wheat-flour sell for 7 to 10 cents per pound, corn-meal 3 to 5 cents, and bread from 8 to $12 \frac{1}{2}$ cents per pound.
United States Consul General Jno. H Smyth, says, that flour of good quality in barrels and half barrels is an article in great demand at Monrovia, Liberia, Africa
There is a steam-flour mill in Jaffa, Palestine. It consumes half of the coal imported into the country, or 300 tons a year.
The value of the wheat, exported from British India, to Great Britain during the crop year 1881-'82, was $\$ 15,862,572$, against $\$ 8,183,097$ in 1880-' 81.
Hon. Eugene Schuyler, United States Con sul General at Bucharest, Roumania, in his report to the Department of State just pub"By says:
"By a law passed during the last year import duties have been placed on flours as follows: Wheat flour of every quality, 3.50 francs per 100 kilograms ( $67 \frac{1}{2}$ cents per 220 pounds); rye flour, 3 francs per 100 kilograms millet, and bur 220 pounds); maize, barley, 100 kilograms ( $38 \frac{1}{2}$ cents per 220 pounds); and on bran of every kind, 1 franc per 100 kilograms ( $19 \frac{1}{3}$ cent per 220 pounds.)" 100 The average wheat crop of Roumania is said to be about $25,000,000$ bushels.
Greece does not export grain of any description but imports generally about half, the amount of wheat and maize consumed by the inhabitants from Russia and Turkey he crops of 1882, were especially good, and British millers are not very well satisfie with business during the past year, having suffered greatly from the increased competion American and Hungarian flours. There was the heaviest import of wheat and four during 1882, yet recorded at being 147, 200,000 bushels in 1882, against $130,400,000$ bushels in 1881.
Messes J. \& H. Robinson's new Gray roller mill at Deptford, London, is nearing completion.
Messrs Meads' mill, London, on the Jonathan mills system, will be running soon J. W. French's mill, London, built on the Stevens roller system, started up recently,
satisfactorily to all parties concerned.

The new permanent station for the Signal pleted. There Peak, Col., has been comnecting the station with less altidutinous points. The new building is constructed in the most substantial manner, of granite, laid in cement, and every precaution taken to secure the observers from accident or distress
from the terriffic storms that delight in visiting that high old place. This station in 14,000 feet above the level of the sea.

The new elevator just erected in
is one of the largest in the erected in Detroit brick, is 311 feet long, 93 feet wide, and 133
feet high. It feet high. It has a capacity of $1,300,000$ belt is 48 inches wide. The elev. The main belt is 48 inches wide. The elevator bucket is said, has a capacity to handle in ten hours it is said, has a capacity to handle in ten hours
all the grain the elevator can store.

## A Complete Gradual Reduction Mill

We are making a distinct line of machines for mills of different capacities. We have one size for small mills, 25 to 75 bbls. in twenty-four hours; one for medium, 75 to 150 bbls.; and another for the largest size. Prices according to capacity. From each we guarantee results equal to any in the world. Our Patent Automatic Feed is on each Roll, large and small, we send out. The Feed is all important in Roller Milling.

For circulars and particulars, address :

## CASE MANUFACTURIING CO.,



Our Four Roller Belted Mill "BISMARK" The King of the Mill, has an

## ulpoove COCKLE sephamoras

## Richardson's Dustless Wheat Separators ! Also Sole Manufacturer of BEARDSLEE S PAT. GRAIN CLEANER.



We will contract to furnish entire Wheat Cleaning Machinery for mills, and guarantee
Send for Illustrated Catalogue. trom wheat, but to separate it WITHOUT WASTE is the GREATEST FEATURE of our Machine. A WASTEFUL Machine is a DAILY LOSS OF MONEY in a mill. There is NO MACHINE IN THE MARKET which can stand comparison with ours.

Carbondale, Ill., Dec. 2, 1881.
 Genthemen:-Repiying to your late Gents:-In answer to your inquiry of
favor, would say that we can cheerfully the 28th inst., In would say that the have been using two of Beards- requires an unusual amount of power
recommend your Cockle Separator as combined machine ibought of you last lees's wheat cleaners, a scourer and to run it. doing all that you claim for it. We wummer, works to my entire satisfac- finisher, for nearly two years, and are $\begin{aligned} & \text { wespectfuly yours, } \\ & \text { have tested ours thoroughly by this tion. }\end{aligned}$

would not think of doing spithout it, having tried it once, and can conscien tiously vouch for its good work

Yours respectfully,
BROWN \& WINFREY. Perrysville, Ind., Nov, 24, 1881.
Cockle Separator Mfg. Co., Miliwaukee.
Sirs:-The combined machine I bough Perrysville, Ind., Nov, 24, 1881 .
Cockle Separator Mfg. Co., Miliwaukee. As an Oat Separator it is No. 1, and
Sor Cockle it cannot be beat. Ican take sirs:-The combined machine I bought screenings and separate the cockle from er it and is the most perfall you claim wheat. In my opinion every mill in the hat I have any know perfect Separator United States ought to have one, and if I were to build a mill I would have no
P. S.I per D. G. THOMA twenty -I have been milling now fo twenty-seven years, but never have seenanything that will equal yours in cleaning wheat
than rated capa them, one third wore Cockle Separator Mfg. Co. any other cleanery, and are not using Gentlemen:-The Beardslee's Grain wheat as well cleaned as any in Minne- from you which we have purchased apolis.

Yours truly,
CAHILL, FLETCHER \& CO. La Crosse, Wis., July 30, 1881. Cockle Separator Mfg. Co., Milwaukee. Gentlemen: - The Beardslee Grain Gentlemen: - The Beardslee Grain
kee Mills give us the best of satisfackeen. Experienced millers having seen the work done by the machine agree With us, that it cannot be beat. You are atencerty to use our names as a ref-
erence, and to any party calling on us we will be pleased to show the machine
in operation, in operation, Yours truly,

NEW ERA MILLING CO.

Yours respectfully, other. I remain



Shells and Cleans 2,000 Bushels Ears per Day The Cheapest, Best, and most Simple Power Corn Sheller
in use., Senfd or Circular and Price List. Manufacturers of Steam Engines, Mill Builders
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Galt's Combined Smut and Brush Machine. The Only Practieal Cone-Shaped Machines in the Market, and for that adjustable while in motion.
Nearly 1,000 of these Machines in Use.
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rich Silk Anchor Bolting Cloth, by the piece or made up with webbing in any quantity desired. Prices always reasonable. Personal attention given to all communications relating to Plans, Speciflcations and general arrangemient, and selection of Machinery free to my customers.

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I am very respectfully,
C. F. MILLER
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Tru FROM 1-4 to 10,000 LBS. WEIGHT.
True to pattern, sound and solid, of unequaled strength, toughness and
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An invaluable substitute for forgings or cast iron requiring threefold
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gearing of all kinds, Shoes, Dies, Hammer-Heads, Cross-Heads, for Loco-
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15,000 motrives hhant
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Milling Made Profitable. We build mills on any system known. We guarantee a
saving of 25 , prer eent. On the cost of coustruction and
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BOLTING CHESTS.



## Our



## INe【v

## Year's

Card !
Lowell, Mich., Dec. 22nd, 1882. Messrs. Case Mfg. Co., Columbus, O Dear Sirs

Your favor duly received, and in reply we wish to say that we have delayed giving you our opinion of your system in our mill, not wishing to commit ourselves until we were thoroughly satisfied as to its merits, and we are now pleased to say that we are getting results that surpass our expectations, and that we are very confident can be surpassed by no system of milling we know of. We are using not to exceed $4_{\infty}^{3 \infty}$ bushels wheat per bbl., and are making a straight grade Flour that equals ordinary Patent with 5 to 6 per cent. ow grade. We get about 60 per cent. Middlings Flour that we have yet to see equaled in Winter Wheat Patents-we run a straight grade, leaving this middlings flour all in. brilli We think your system is a grand success, and predict a brilliant future, First wishing you a prosperous New Year. We remain yours truly,

WISNER BROS


The Case Roller Mill.

## Address :

CASE MANUFACTURING CO.,

## HOWFS, BABCOCK \& FWELL,

manufacturers of the world-renowned evreks Grain oleaningy, Now Yorls, ర. S. A. Msabished 1856.


The Eureka Separator
acerp pee but Hute opace: does itwork in an




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


Eureka Brush Finishing Machine
Recognized as the leading one of this
Reikn Bilver Creek Flour Paeker. Recognized as the leading one of this
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Whill perk whole and half barrels, and
hail
quarter

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Colon gen. Agency for Austrailian Colontes \& New Zealand, THOS, TYSON, MELBOURNE, VICTORIA.

# EDW. P. ALLIS \& CO. MILWAUKEE, WISCONSIN. 

#  <br> <br> MILL BUILDERS AND FURNISHERS, 

 <br> <br> MILL BUILDERS AND FURNISHERS,}

## AND SOLE MANUFACTURERS OF <br> Gray’s Patent Noiseless ROLLER MILLS <br> CORRUGATED AND SMOOTH CHILLED IRON ROLLS, <br> Wegmann's Patent Porcelain Roller.

We shall be Pleased to hear from Millers contemplating an improvement in their Mills, or Building new ones, and can furnish Estimates and Plans of our system of GRADUAL REDUCTION ROLLER MLLLiNG. We have built and Changed over hundreds of Mills, in all parts of the Country, and using all classes of wheat, BOTH HARD AND SOFT, and can furnish references on application. The Largest and Best Mills of this Conntry are using our system and Roller Machines. Messrs. C. A. Pillsbury \& Co., of Minneapolis, have over 400 PAIRS OF OUR ROLLS AND HAVE RECENTLYPLACED AN ORDER WITH US FOR ABOUT ONE HUNDRED AND TWENTY MORE. We have had a longer and larger experience in Roller Mill Building than any other manufacturers of this country. There is no EXPERIMENT ABOUT OUR SYSTEM and Rolls, so expensive to millers, and when the mills that we build or change over are ready to start, THEY DO SO AND WITH PERFECT SUCCESS, and there is no further changing, additions, stopping or expense. We manufactured and sold during the year 1881 over TWO THOUSAND FIVE HUNDRED pairs of rolls.

We can send competent men to consult with any millers who contemplate an improvement, and whom they candepend upon as being RELIABLE AND THOROUGHLY COMPETENT to advine them as to the number and kind of machines required, best method of placing them and the change required, if any, in the boling and purifying system. WE DO NOT URGE A GENERAL CLEANING OUT OF ALLOLD MACHINERY unless we clearly see such would be the ONLY COURSE TO PURSUE to make a SATISFACTORY AND RELIABLE MILL. In nearly all instances we can use all the Old Machinery, leaving it in its original position, or with as slight a change as possible. We aim to make the Improvement so that it will be a Profitable one to the Miller, and at the least expense possible.

Our System is THOROUGH and RELJABLE, and our Roller Machine Perfected by Long Experience, and the Miller takes no chances in using them, as HE DOES with the New Fangled Notions of Drive and Adjustment on many other machines now TRYING TO FOLLOW OUR IMPROVEMENTS and still avoid our Patents, in BOTH of which THEY FAlL. We were the first to advocate the Entire Belt Drive, and were opposed by every other maker, who claimed it was not positive, etc., etc., and now that our Belt Drive is an ACKNOWLEDGED SUCCESS, and will SUPERSEDE EVERY OTHER STYLE, these advocaten of Gear Drive have suddenly learned that Belts are the Thing. The same may be said of our Spreading Device, Feed Gates, and Adjustable Swing Boxes. Other Makers are now copying these. ALL, these Features, including BELT DRIVE with ADJUSTABLE COUNTERSHAFT and TIGHTENER, the SPREADING DEVICE, FEED GATES. Adjustable swing Boxes and Leveling Devices, Self-Oiling Boxes, etc, are secured to us by several strong Patents, and we CAUTION MLLERS in regard to these lifringements of Our Patents and Rights, for we shall look to THEM for Redress. The matter is in the hands of our Attorneys, who will soon take VIGOROUS ACTION against the Makers and USERS OF MACHINES infringing Our Patents.

Several machines are already on the market which Broady Infringe, and we are informed that other makers are now changing their Old Style Machines, and adopting in a large measure Our Improvements. BEWARE OF THEM.

## Send for New Illustrated Catalogue, Giving full Information, to

# EDW. P. ALLIS \& COn, 

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## Branch Office 318 Pine Street, Benson Block, SAN FRANCISCO, CAL.

## Gilbert Combination Reduction Roller Milll

 A COMPLETE SUGGESS!Six Breaks, Five Scappers and Elevators, with aspirating after each break, combined in a strong neat Iron Frame. The whole Mill driven hy two endess belts, requiring but two driving phileys. A Tweive Ronn mil making six reductions as above described, occupien foor space of only $\quad$ ox feet,
as att ordmary font koter mill.

## What we Guarantee.

1st. To make large percentage of Middlings and less break-flour than by any other process, because we do away with elevating, conveying and spouting between breaks.

2nd. To scalp, cleancer and better than can be done by revolving reels. -3d. Our system of elevating from one pair of break rolls to the other is far preferable, because we elevate but nine inches, and while elevating the scalping is done, which dispenses with scalping reels, elevators and driving machinery for same, thus greatly simplifying the machinery, and saving the power.

4th. We obtain a greater amount of cloth surface in the same space.

5th. The flour and middlings are removed before we apply our suction consequently do not remove any good


6th. The mill runs smoothly and noiselessly.

7th. The tensions of driving belts are regulated with tightening pulleys, and the mill can be stopped or started at pleasure without interfering with any other portion of the machinery of the mill. These mills meet a want no other mills can meet as they are complete in all their appointments and will do all that any mills can do, and they occupy a very small space. They are adapted to either large or small mills. The space saved is worth the price of the mills. We need not enlarge upon the advantages of the Gilbert Combination Mills. We guarantee all we say in reference to them. References and letters of introduction to parties using these mills will be given to any who wish to see them in operation.

Circulars with price lists will be sent on application. Address:

## STOUT, MILLS \& TEMPLE, maviaciturers. DAYTON, OHIO.

 Read It! An Immense Succees. Read It!
## OVER 500 MACHINES IN SUCCESSFUL OPERATION.

The only Dust Collector in the market which has been in steady operation over onE YEAS, giving the best of satisfaction. It is an origlnal machine and tilly protected hy LETTESA PATENT. It dues not infringe onyones putent, which we tuily wuarantee. Beware of infringements. We shal


## FULLY GUARANTEED. NO LONGER AN EXPERIMENT.

Nofilling up the cloth. All the leading mills are adopting onr machines, many having dispensed with the old dust room entirely, operating our $D$ USI COL-

## AN IMPORTANT PROBLTM SOLVHD AT LAST,

## Taking Care of the dust laden air trom middlings purifiers and other machines, using air to carry off the dust, has been thoroughly met and conguered in

## PRINZ DUST COLLECTOR



## The Uluited $\mathfrak{B l a t e s}$



## 

## ODELLS' CONCENTRATED ROLLER MILL.

 PATENTED SEPT. 19, 1882.A good many old mill buildings are so constructed and arranged as to be very much cramped for room, especially floor space, and in changing them over to the roller system of milling, valuable room is saved, and the work facilitated and cheapened, by the use of what is termed a Concentrated Roller Mill. To meet these requirements is the object of the machine illustrated on this first page, which was invented and patented by U. H. Odele, and of which The Stilwell \& Bierce Co. are the sole manufacturers.
The machine consists of a series of pairs of corrugated rolls with suitable scalping reels for making and scalping all the various re ductions from the first break down to the finished bran, all comprised within one frame, which occupies less floor space than is neces sary for two ordinary four-roll mills. The frame being made in sections, machines can be put up making either $2,3,4,5$ or 6 reductions as may be desired.
The engraving represents the manner in which the rolls are driven; the pulleys shown are oh the slow speeded rolls, and are all driven by a six inch open belt running from a driving pulley on counter-shaft below the floor, (or a cross belt running direct from power shaft may be used if desired.) The fast speeded rolls are driven on the reverse side of the machine in a similar manner, by a six inch open belt running from the power shaft. It will be observed that all of the fast speeded rolls, excepting on the first break, are run in stationary bearings; and the speeded roll in The grain receiving hopper, provided with an automatic feed regulating device, is locat-
ed above the upper pair or first reduction rolls. After passing between these rolls the broken wheat passes into an ordinary scalping reel, which separates the flour and middlings from the broken wheat, the former being conveyed away by an ordinary conveyor located underneatis each scalping reel, and the broken wheat tails over the end of the soalping reel and falls between the sec ond reduction rolls. This process of reduc ing and scalping is repeated until the fina reduction, which finishes the bran, is made on the lower pair of rolls. The manner in
which the reels and conveyors are driven from an upright shaft, is clearly shown in the engraving; power is communicated to the upright shaft by chain belt from one of the foll shafts.

The manufacturers say: "The advantages possessed by the ordinary scalping reel over shakers, 'reciprocating sieves,' or any other known device for scalping the various reductions, will not be questioned by prac tical and experienced millers.
The reel runs slowly; can not get out of order; its efficiency is not effected by elight changes in speed, and years of experience has proven its entire adaptability to the work to be performed. On the other hand, a "shaker" or "reciprocating sieve" for scalping must run at a very high speed, which renders it liable to be out of order at any moment; an absolutely uniform speed, which is difficult, if not impossible, to obtain; the cloths clog up, thus carrying over the mid dlings, and in spite of the most careful management, will not deliver the material to the next reduction rolls in an even stream, but jerks it over in varying quantities.
The frame of this machine is all iron, and rests upon a substantial bed plate. The rolls are mounted in large self-oiling bearings and are provided with all the adjusting and leveling devices requisite for perfect work, and which have rendered Odell's Roller Milliso famous.
This machine is also provided with Odell's patent devices for simultaneously throwing each pair of rolls apart and shutting off the
feed, all of which is accomplished by a single movement of either one of the three hand levers shown in the machine, thus giving the miller absolute and instantaneous control of is entire machine. In short, this machine Odell's realy a combination of several of his superior adjustments, and the requisite scalping reels and conveyors all' within one frame. There can be no question as to the quality of its work, since the rionas the separations are all made in precisely the same manner as when the ordinary roller mills are used, but in much less space and with a breaks and the power to drive them.
Concentration is a good thing, proried too far and cedtainly is and it certainly is carri-
ed too far, when or the sake of sav ing a little in th height of the ma chine, it is so condensed as to render it complicate and difficult of ac ess to some of its parts; and so as to $f$ inferio the us or scalping the re ductions, and thu prevent clean,
close milling uch a concentra tion "saves at the spigot, and wastes at the bunghole." About the only advantages tha can reasonably be claimed for any concentrate d mill, as compared with the ordinary roller mill process, are foor space, which in some cases is of great value.
2. A saving of room occupied by ing ordinaryscalp ing reels, and ele
vators from the break-rolls, and the cost of erecting the same. dimensions and capacity chine.

| Extreme length |
| :---: | :---: |
| over all. | \left\lvert\, \(\begin{gathered}Extreme width <br>

over all.\end{gathered} \quad $$
\begin{gathered}\text { Height from bottom } \\
\text { of Be P Plate } \\
\text { of }\end{gathered}
$$\right.\)


## IX break machine

| Extreme length |
| :---: | :---: | :---: |
| over all. |\(\left|\begin{array}{c}Extreme wiath <br>

over all.\end{array}\right| \begin{gathered}Height from bottom <br>
of Bed Plate <br>

ot top of Hopper.\end{gathered}\) | 8 feet 6 inches. | 5 feet. | 25 feet 6 inchts. |
| :---: | :--- | :--- |

On the first break rolls we put a $30 \times 7$ pulley on the fast speeded roll, and run it two hundred revolutions; and a $36 \times 7$ pulley on the slow speeded roll, and run it eighty revolutions $\mathrm{p}^{\mathrm{r}} \mathrm{r}$ minute. On the subsequent reductions we increase the speed of the rolls at will, by varying the size of the pulleys; it is only necessary to provide driving pulleys of suitable size to produce the above mentioned speed.
By varying the size and number of rolls in this machine, we can make them of any capacity from 150 barrels down to 75 barrels per day, and less if required.
Parties desiring further particulars should write to the Stilwell \& Bierce Manufacturina Co., Dayton, Ohio.

## ROLLER MILL8.

BY THEODORE VOSS. (LONDON.)
their pressure and lever arrangement (Continued from February number.)
It is therefore, and also for other reasons of the utmost importance that the pressure of the top roll is equal to that of the bottom pairs remains constantly the same.
This, it will be easily seen from fig. 4, is hardly ever the case. The rollers must be set so that the top shaft touches the upper surface of the top bearing while the feed, se
 hereas theresasthe bottom roll will be kept firmly by its own weight in the lowest point of the bottom bear-
ing, the middle and the top will be in a state of constant vacillation. With every slight variation of the the two upper rollers will tend to bring the rollers tact, and as, therefore the distance betwen them will be constantly varying (however little that may be,) it is certain that the vary accordingly. lnequalities in the reduced mafore, unavoidable, and this is proved fact that three high rollers only work well with a full even feed. If a positive constant kept up in such vertical rolls the crushing effect
ought to be the same for any feed,
as long as the rolls are not overcrowded.
With regard to the equality of the top and bottom pressure in vertical three-high roller mills, I am not acquainted with any construction in which this desideratum has been fully obtained.
Before going further into this question, I must ask the readers of this article to excuse the introduction of mathematics into this subject, but as my opinion differs entirely fron. that hitherto expressed by the manufacturers and agents of three-high roller mills I am obliged to prove my assertions.
The lever arrangement of one of the most prominent three-high roller mills (I believe Britain from 300 to 400 at work in Great accompanying diagram (fig. 5.) [The arrow $\theta$ o o d the bottom roller sho
the welght of the roll draws downwards.]
The middle roller is carried in fixed bear ings, whereas the top and bottom rollers are carried in two elbow levers, bent at right angles. These two elbow levers are pulled against a small fixed eccentric by means of spring $s$, and a small double lever, $a, b$.
This, small double lever, $a, b$, has a long arm, $b$, and a short arm, $a$, and is probably intended to equalize the top and bottom
pressure, but practically it does so only under pressure, but practically it does so on
the most exceptional circumstances.

With reference to this illustration, fig. 5 , the two elbow levers, $d c_{\mathrm{t}}$ and $d c_{2}$, with their respective arms, $d_{1}, c_{1}$, and $c_{2}$, turn round their fulcrum, $f_{\mathrm{x}}$ and $f_{2}$ respectively, and the different forces acting on these two levers different forces accing on these two levers the forces which tend to turn to the right hand must be exactly equal to those which tend to turn to the left hand.
If we, therefore, name $G$ the half-weight of the top or bottom roll which acts in each of the four bearings (two top bearings and wo bottom bearings,) $p$ the tension of the pressure spring which acts in the fulcrum of the small double lever $a b, p_{\mathrm{r}}$ and $p_{\mathrm{a}}$ the omponents of this spring pressure, corresponding to the relative length of arms $a$ and of double lever $a b ; P_{1}$ and $P_{2}$ the bottom he feed pressure resp ctively produced by Then om we have, with regard to $p$ and its ponents, the following relations :

## $p_{\mathrm{r}}=p_{a+b}$ and

Round fulcrum $f_{\mathrm{x}}$ we have $G$ and $P_{\mathrm{x}}$ tend ing to turn the lever to the left hand, acting with lever $d$ as arm, and $p_{\mathrm{r}}$ acting on lever ore wing to turn to the right hand, therefore we obtain the following equation

and by introducing the above value for

In the same way we have $\left(G\right.$ and $p_{2}$ turning o the left round fulcrum $f_{2}$, with levers $d$ and $c_{2}$ respectively, whereas $P_{2}$ turns to the right hand, with $d$ as lever, therefore,
$P_{2} d=G d+c_{2} p_{2}$
$\left.P_{2}-G\right) d=p_{2}$

$P_{2}-G=\frac{c_{2}}{d} p_{2}$

and by introducing $p_{2}=p \frac{a}{a+b}$
$P_{\mathbf{2}}=p \frac{a}{a+b} \cdot \frac{c_{2}}{d}+G$
, $b, c_{1} c_{2} d$ and $G$ are of constant value in be seen from there and it can there nly one value of $p$, for which the top pressure ecomes equal to the bottom pressure; that is for $P_{2}=P_{1}$ when we find that

## $p \frac{b+b}{a+}-G=p \frac{a}{a+b} \frac{c_{2}}{d}+G$

$p^{(a+b) d}-p \frac{a c_{2}}{(a+b) d}=2 G$

## $\frac{p}{(a+b) d}\left(b c_{1}-a c_{2}\right)=2 G$

Therefore, only for this one value of $p$, viz.:
$p=\frac{2 G(a-b)}{b c_{\mathrm{x}}-a c_{2}}$
is the top pressure equal to the bottom pressure, because every factor on the right side of this equation is constant.
Every miller knows, however, that it is often necessary to alter $p$, that is the tension of the pressure spring, according to the nature of the material treated, and it is therefore clear that in order to make $P_{2}=$ $P_{\mathrm{x}}$ for a different spring pressure $p$, it becomes necessary to alter some of the levers, either, $a, b, c_{4}$ or $c_{3}$
Readers who have had interest enough to follow this investigation, cannot fail to come to the conclusion that for a roller mill with a lever arrangement, as shown in fig. 5 , a spring
pressure must be objectionable. It is pracically very difficult to adjust the two pressure springs, one on each side, so that both have the same tension. In most cases they will be unequal, consequently there will also be different pressures acting in each bearing. These four different pressures cause a corres ponding wear in the four bearings, and these herefore require a continuous adjustment. Such means for minute adjustment have been
provided for these roller mills in an admirprovided for these roller mills in an admir-
able manner, and it may be said that without their minute adjustment they would British mills.
British mills.
Readers als.
Readers also cannot fail to see that it would be preferable to make the top roll

that each roller pair can be adjusted acord ing to the material treated without influenc ing the other roller pair, or the small double ever $a b$ might be differently proportioned for the different roller mills. For instance for the first three breaks $a$ and $b$ might be proportioned for $p=150$ and $P_{2}=$
$P_{\mathrm{L}}$. For the fourth and fifth break $p=200$ lbs. might be employed. The double leve $a b$ for smoth rolls for reducing middlings might be proportioned for $p=300$ and $P_{2}=P_{1}$ and smooth grinding rolls for semolina might
employ $p=400$. But as the workman is never able to tell whether he has 200 or 300 lb. pressure on a spring, it is absolutely necescary in this case to produce the pressure $p$
by means of weights, the influence of which is unchangable.
stilwell's lime-extracting heater and The waters used for the generation of steam for mechanical purposes, are, the world over,
to a greater or less degree, impregnated with some foreign matter held in solution and ready for precipitation upon the slightest chemical pravocation. Among these may
be most frequently counted lime, magnesia sulphur, iron, silica, etc., or mud and vegetable impurities not yet resolved into their
original component parts. The universaity of the existence of this condition of thing renders the provision for a safeguard against a remedy for the consequent evils, a neces
sary factor in the primary calculations of every engineer. The course of injurious ac tion in all
Where th
Where the feed water is pumped directly heat soon frees the impurities, which are precipitated upon the inner surfaces of the boiler shell and upon the flues as well, to which they cling in the form commonly known as "scale." A non-conductor of heat boiler shell which can hardly fail in causing : a rapid deterioration of quality and quantity of the iron, from burning and corrosion; an excessive waste of fuel; explosions as matters
of frequent occurence; priming or foaming of the boiler, which causes grit to work over with the steam into the engine, greatly to the injury of all its parts; frequent and expensive repairs to boilers; stoppages and elays incident to the necessary cleaning o
boilers. The actual cost and damages sus. ained from these more prominent evils, together with many minor ones unmentioned, from the presence of scale in boilers, if summed up and expressed in dollars would astonish those whose profits and prosperity in business are suffering so largely from this cause. This is not a matter of speculation or vague theory.
Competent men, of learning and experi ence have expended much thought, time
and money in experimenting, with reference o the nature and effects of boiler incrusta tions. In a very able paper on Incrustation of Steam Boilers, read before the American Association for the Advancement of Science by Dr. Joseph G. Rodgers, he says: "The evil effects of scale are due to the fact that it is relatively a non-conductor of heat. Its conducting power as compared to that of iron
is as 1 to 37.50 . This known, it is readily is as 1 to 37.50 . This known, it is readily
ppreciated that more fuel is required to heat water through scale and iron, than through iron alone. It has been demonstrat ed that a scale I-16 of an inch thick require he extra expenditure of 15 per cent. nore uel. As the scale thickens the ratio increa ses; thus, when it is $\frac{1}{3}$ an inch thick, 60 per
cent. more is required; at $\frac{1}{2}$ inch, 150 per cent., and so on. To raise steam to a working pressure of 90 pounds, the water must
be heated to $320^{\circ}$ Fahrenheit. This may be done through a $\ddagger$ inch shell by heating the external surface to about $325^{\circ}$. If $a \frac{1}{2}$ inch scale intervenes, the boiler must be heated to $700^{\circ}$, almost a low red heat. The higher the temperature at which iron is kept, the
more rapidly it oxidizes, and at any temperamore rapidly it oxidizes, and at any tempera-
ture above $600^{\circ}$ it soon becomes granular and brittle from carbonization, or conversion into the state of cast iron. Weakness of boiler chus produced, pred plosions, and makes
expensive repairs ne-
We find that ordinarily there will have boiler after four months' use, 1-16 of an inch of scale; af-
ter eight months' use, of an inch of scale, and so on. Now, if Dr. Roger's theory,
s stated, in the scienific paper herein uoted from, be corect, it necessarily ollows that after one month's service a 31 per cent. more fuel than at first ; after wo month's service, and so on; making an average for the year of over 20 per cent.
more fuel than it would have concumed if using pure water. Perlich the nost practical point
from which to view the matter is that of direct loss in dollars horse powers, at five pounds
hour amounts per
2,500 pounds coal per day of 10 hours, or $7 \frac{1}{2}$ tons per week of 60 hours; or 390 tons per annum. This amount of coal at $\$ 3.50$ per ton-a low average price-amounts to $\$ 26.25$ per week, and $\$ 1,365$ per anrum, expended for coal. Now 20 per cent. of this am:ount equals $\$ 5.25$ per week of 60 hours, and $\$ 273$ per annum, which amount is actually lost in fuel alone on a fifty-horse power boiler,
and which would be saved by the use of pure water, or in other words, by preventing the ormation of the scale.
The difficulty of this scale formation can overcome in three different recognized ways: First, picking the scale off by mechanical means. This is slow, clumsy and appcable to certain builds of boilers only. Second, purging the boiler by means of the
chemical compounds known as boiler powders. This is dangerous chiefly from the evident fact that an acid or other chemical strong enough to eat off the scale will not stop there, but will go ahead and eat the oiler shell as well. Third, the use of pure ater. The simplest and surest way is al ways the safest and best. If the water is puri-
fied from scale forming material before entering the boiler, certainly no scale can form. This brings us directly to a consideration of the means acknowledged by competent engineers as the best in use for the prevention of this formation by the furnishing of pure water.
tilwell's Lime Extracting Heater and Filter Combined consists of an iron vessel of suitable size for requirements of the case,
constructed in various shapes, but usually of
upright cylindrical form; into which th escape steam from the engine is exhausted. (Where no engine is employed it may be arranged for using steam direct from the boiler.) The cold water intended for the ooilers enters the heater at its top, and in its passage downward to its outlet is thoroughly oiled, which process liberates the free caronic acid, sets free the salts held in solution, and precipitates them upon suitable removble surfaces provided for their reception.
In a report of experiments made by Prof. . E. Chandler, of Columbia College New York, for the N. Y. C. R. R., and read before the American Institute Polytechnic Associaion, the following article appears: Boiling water expels the carbonic acid, and causes he separation of the carbonates of lime and magnesia, and if conducted at a high temperature, and under considerable pressure, results in the almost complete precipitation of the sulphates of lime. This would, howver, merely transfer the incrustation from he locomotive boiler to some other vessel." This is exactly what the Stilwell Heater accomplishes. The water enters the heater and in its downward passage traverses a large area of heating and dispositing surfaces, arranged in the form of removable shelves, having alternate openings. As the th of which are very hot, and descends from shelf to shelf, downward in its and constantly acted upon by an of steam, which enters the heater at the lower part. The action of this lower current of the sempletes and precipitation of the foreign particles, which is begun when the heater. The construction of the heater is such that an pass down through it with-
out being thoroughly boiled. The lime, magnesia, sulphur, iron, silica, etc., which boiling sets free from the water, are deposited in a crystalized state upon the entire series of shelves, the depositalways being heaviest quon the upper shelf and diminishing in quantity as it approaches the lower shelf.
From this lower shelf the water passes through the filtering chamber, which completes the purification, and it is then fit, in its fuelsaving capacity, to enter the boiler.
The peculiarly advantageous features of his heater and filter, all of which are secur ely covered by letters patent, may be sum med up as follows: The escape steam from the engine is utilized and the volume used enables the purifying of large quantities of water, while every particle of the water is boiled thoroughly; no other heater applies the same degree of steam heat, nor does any other allow the same opportunity for salts deposit; the arrangement of the shelves and the ease with which they can be handled and withdrawn for cleansing; the filtering-system, the leading point in which is that the water passes upward through the filtering chamber on its way to the disharge pipe and not downward or side ways, as is usually the case; the arrangement by which the door of the heater is fastened; there are no bolts, set screws, nor keys used, and the door of the largest heater can be removed in a couple of minutes; the heater is self-contained; occupies but very little space; very simple; easily and cheaply attached, and cannot get out of repair; finished in workmanship; supplied with a glass water-guage, waste-cock, and can be successfully run by a common laborer; the peculiar adaptness of the upright round heater for muddy water impregnated with iron, sulphur, ete.
It is claimed that the use of the Stilwell

Heater effects a saving of at least ten per cent. of fuel where soft water is used, and when "hard" and impure water is used, it will effect a saving of from 15 to 50 per cent. of fuel not to mention the saving to the boilers, in time, and in obviating the necessity occasioned by "scale" of frequently "blowing off" and cleaning. The cut used herewith is from a photograph of a heater now in use, taken after a two week's use in heating water loaded naturally with lime held in solution. These heaters have been tested abundantly during the past ten years, and there are today over three thousand in active use. They are manufactured only by the Stilwell \& Bierce Manufacturing Company, of Dayton, Ohio.
another large california flour mill.
The Journal of Commerce of San Francisco,
The new flour mill built by Starr \& Co., of San Francisco during the coming summer, on the southern shore of the Straits of Carquinez, near South Vallejo Junction, will be built upon a hard rock foundation, above water at low tide, on concrete arches, through which the tides can flow and ebb. The main building is to be of hard brick $150 \times 180$ feet, subdivided into three parts each $150 \times 60$, the central $150 \times 60$ being the first mill, six stories in hight. This is to be filled with the best machinery the present day can supply, and driven by a powerful engine. The two other brick buildings, $150 \times 60$, one on each side of the mill, are to be used as warehouses, but will be so constructed that either or both can easily be adopted for use as mill buildings when necessary. The capacity of this first mill is to be 2,000 barrels of flour per day, with a possible future enlargement to 6,000 bariels per day, when all the three buildings are completed. The mill will have wharfage or schooners and barges on the east and west sides, while on the north will be the deep water berth of ocean going ships to load flour for Europe. Adjoining the mill to the west will be a grain warehouse and deep water wharf, $600 \times 200$ feet where grain ships will load for Europe. After a water-way of 150 eet another similar wharf and warehouse $600 \times 150$ feet, is to be huilt. But the mosz interesting feature is to be a regular wheat elevator, with the best eastern improvements, to be constructed between the new mill and wharf warehouse on the west, where wheat will be graded as Numbers 1, 2 and 3 shipping in bulk, but also into the various qualities required for all milling purposes. There is also room for a fine brick warehouse The contract " in shore of $1,000 \times 250$ feet. The contract for building the wharves has, however, already been let, as well as all maerial purchased. Work is to be commenced early in February, and rapidly proceeded with. The demand for Starr flour in Europe has forced this extension upon the firm here, who have been quietly adding to their mills
at Vallejo, until now their capacity is 1.500 barrels per day, to be increased to rels per day by the 1st of May next. enlarged mill at Vallejo and the new one on the straits of Carquinez will, when completed turn out over 100,000 tons, or $1,000,000$ barrels of Flour yearly, a quantity which, large ily and is not more than can even now be readily and profitably disposed of, as the firm's brands bear a most enviable reputation in Europe and elsewhere, and have done so for
many years. Some of our leadin many years. Some of our leading capitalists Co. in this extension of their well established business.
We have often felt surprised that so much of our annual export should go as wheat and so little as flour. This enterprise, therefore, seems a step in the right direction, and, if
well managed, should certainly be fairly well mana
profitable.

## additional items.

The Milwaukee Dust Collector Mfig. Co.'ss works are crowded with orders, and are obliged to increase their
manufucturing facilities and put in a larye amount on new tools.
THE Northwestern Milling Co.. of Millwaukee (lormerly New Era Mills), are putting in more of the Prinz Patemt Dest Collectors, furnished by the Milwaukee Dust Collector Mfg. Co.
Thornron \& Chester, of Buffalo, N. Y., are just putting in seven spectal sizes of Prinz Patent Dust Collectors, nanufactured by the Milwaukee Dust Collector MIg. Co.
Oor 14 large size
The Alantic Milling Co., of St. Louis, (Geo. Bain, Pres.)
navd started their new mill and report great suce the Prinz Pateut Dust Collectors manufectured by the Milwaukee Dust Collector Mfg. Co., of which they have wenty in operation.
A. A. Freeman \& Co., of La Crosse, Wis., are putting in
the Prinz Patent Dust Collector, manufactured by the Milwaukee Dust Coll Collector, manufactured by the old dust-room entirely. Freeman \& Jaekson, of Rive Falls, Wis, are doing the same.
Brcker \& Underwood, of Dixon, II., having tested Milwausee Dust Collector Mfy. Co lors, arnished by the hroughout their mills, being fully impressed with their superiority over all others.

THE UNITED STATES MILLER.

## cleaning split wheat

The acknowledged necessity of well-cleaned wheat in mills employing from six to eight reductions, where numerous purifiers and endless bolts assist in removing impurities, becomes a still greater necessity in mills making but a few reductions. The chief question now before millers operating mills of the latter class is how they can compete in the quality of their flour with larger mills equipped with a full line of gradual reduction machinery, and plenty of purifiers and other appliances for carring out the gradual reduction theory in detail. The Garden City Mill Furnishing Co. of Chicago, Ill., sole owners of the patent issued to Mr. Gathmann in 1881, covering this new departure in whet-cleaning, believe, and claim that it is exactly wath such millers need to bring up the grade of their flour, by removing impurities from the wheat at the start, and not depending altogether on bolts and purifiers to remove these impurities.
That the reader may from an intelligent opinion of the new step in wheat-cleaning and judge to what extent it is suited to the wants of the trade, we give below an abstract of the letters patent. We also present three illustrations of a wheat kernel. No. 1 is a half kernel after being split through the rease or seam, and showing the impurities lodged therein. No. 2, is a kernel broken crosswise showing the depth of the seam, and also showing the impossibility of cleaning or hulling the entire surface of the wheat berry unless it is first properly split, so that the whole surface of the berry is exposed to the hulling or cleaning acion. No. 3 is a grain wheat well cleaned without abrasion of the mportance is of great importance in the suc cessful operation of this new departure. Mr. Gathmann believes tha vantage in wheat heat ing, and had provided in his patent for any previous manipulation of the wheat before sending it to the splitt
ing machine, the point ing machine, the poin he makes being to se cure thoroughly cleaned wheat before the flouring operations take place. He says that while a few years ngo only one reductions was employed, millers have now gone to the other extreme in making from five to eight reductions and that if the wheat be properly prepared by thorough method of

substance. It is, of course, obvious that such a scouring will take effect in a practical sense equally upon all portions of the bran surface and that, therefore, by this method the parts of such surface originally protected or hidden in the crease will

## qually with the rest

"In ordinary milling it will be advisable to clean the wheat before splitting it, and my method will in such milling be usually employed, mainly, for the purpose of simply cleaning the surfaces not exposed on the whole or unbroken wheat. This, however, is immaterial to my invention. I do not limi myself by reference to any steps that may precede splitting, or that may follow the cleaning or hulling of the half kernels o fragments produced by splitting, but only to the brushing, scouring or equivalent opera tion as a step succeeding the splitting of the grain, and preceding further reduction; no is it material to my invention whether the grain is bolted after splitting and before scour ing, as will sometimes be advisable, such

limit of the reduction of the grain; nor do
limit myself to any particular mode or mean
ing cloth. The split kernels of wheat drop the scalper, which is provided with brush blades something like the arms of a centrifugal. The black crease flour is scalped of from the product of the splitting machine and the split kernels in their progress through he machine are brushed by the blades. The split wheat so brushed tails over the end of the wire cylinder. The germs detached tail over the end of the cloth cylinder, while conveyor carries the flour back to the head of the machine where it is taken off. The manufactures claim that they can do the work thoroughly and not make more than one per cent. of break flour in the operation; and consequently that the flour made on buhrs or reduction machines after this method of cleaning will be of a high grade. The Garden City Mill Furnishing Co., of Chicago who own the patent on the process described manufacture all the machinery described above, and it may be seen in operation at number of mills.

## the miller and the fox.

An Oriental Tale translated from the language of the Avars of Caucasls, by Prof.
Anton Schiefner, of St. Petersburg, Russia.]
There once was a miller who was known by a name which may be translated as the Loathsome Hadji. From his house things used to be stolen. Angered thereat, he lay act of stealing. He was about to put it act of stealing. He was about to put it to
death when it besought him to be calm, ob-
ants dashed into the water, rescued the miller and provided him with raimentso sumptuou that he could not keep his eyes off it. The ox explained that Bukutchi Khan was mourn ing for the loss of his own garments, which were composed of nothing but diamonds and ubies. "They did look like a rainhow," eplied the khan's attendants, who were like wise induced to believe that the limewood gun was a priceless heirloom of Stamboul manufacture. "We remarked" they observed, "that it shown like silver."
The so called Bukutchi Khan received the khan's daughter in marriage, and at the end of a festive week set out to take her to hi home. The fox ran on in front, and when it came to a prairie on which much cattle wer grazing, asked to whom the herds belonged "To the dragon," was the reply. "Take aame no more, his cause is lost, the the seven princes is going up against him with cannon, artillery, mortars and guns. If you say the cattle are his, you will be killed, and every head of cattle carried off. There is a khan feared by kings, called Bukutchi Khan If any one asks you, say the cattle are his then no man will have anything to say against you." The herdsmen followed the advice of he fox, as did the shepherds, mowers, and ther laborers whom it accosted. Wheneve the attendants of the young married coupl asked to whom belonged the cattle or sheep meadows they saw, the answer was alway entered the castle of the dragon, who was the rea proprietor, and informed seven prine host of the seven princes was com-
ing againsthim. "What ing against him. "What
shall I do?" exclaimed shall I do?" exclaimed
the terrified dragon "Creep under that hay, replied the fox, pointing to a huge stack in th The dragon did so, and the fox set it on fire "like a sausage," and his castle, together with into the hands of the newly wedded pair All went on well for a time. At last the fox ex-miller's gratitude. So it lay down one day and pretended to be dead "Just look!" cried the khan's daughter, "ou ' It would be a piece of luck if it were to die after the other," replied
her husband. "This good-for-nothing has be duced to flour by mak
ing fewer breaks than would be possible if the moval of the hull or of a portion thereof, wheat were not so well cleaned
The following is a portion of the specifica tions of Mr. Gathmann's patent, numbered 250,436 , and entitled Method of Cleaning and Hulling Grain: "The object of my invention is to employ a method whereby the hull or any portion thereof, as desired, may be more equally removed over the entire surface of said hull, including that originally extending into the crease; and also whereby, if no more is required, the impurities only upon the surface originally confined within the crease may be more perfectly detached preparatory to further reduction. To this end my inven tion consists, broadly, in brushing or scour ing the grain after it is split, for the purpos either, of removing the superficial impuritie exposed by splitting or removing the hull to a greater or less extent, as may be desired over the entire surface thereof as it is expos ed after splitting. If the grain is properly split, the fracture will be through the crease and the portions of the bran surface original ly hidden within the crease will be, fully and equally with other portions, exposed upon the fragments; also, if properly split, the fracture through the crease will expose but a relatively small surface of the food sub stance, and but little of such surface will be losened in the act of splitting, so as to be readily detached. I have found that grain so split may be scoured sufficiently to remove the hull, or less severely to remove a portion of the hull, or still less to remove only the superficial impurities without detaching any considerable portion of the food
or of the superficial impurities. I, however, prefer to use a brush grain cleaner, particuarly for the lighter actions desired, and to accompany the brushing with an air-draugh to immediately, separate the parts detache I am aware that it has been customary to split the lobated grain through the crease and thereafter to submit the split kernels to n air blast or to a bolting action. This obviously is not the equivalent of the method herein claimed, which involves the subjec ion of the split grain to a positive scouring action, since such mere bolting or blowing is only adapted to take out particles or impu rities already detached from the grain, an not to detach them or to in any degree decor ticate the grain. The splitting of the grain may be effected by any of the well-known and approved machines for the purpose, but preferably by the smooth-surfaced corrugated dises or rollers now extensively used in splittng and reducing grain
The claim made under these specification is: "In the reduction of creased or lobated grain, the method described, which consists in splitting the grain through the crease, and hereafter subjecting the fragments or half kernels to a brushing or scouring action, preparatory to further reduction." The machinery for carrying out this process is shown our illustration which is almost selfexplanatory. The engraving shows a Garden City Wheat Splitting Machine placed above one end of the Brush Scalper and Aspirator, which is a double cylinder clothed within with wire cloth, and on the outside with bolt-
serving that " hasty water reaches no sea. and promising in case of pardon to make the miller a great man, and to gain for him the hand of a khan's daughter. The miller accepted the offer of the fox, and promised, if it made good its. words, to feed it, as long as it lived on fat and to bury it after its death en veloped in a mass of fat sheep's tails. The fox ran off and searched among rubbish til it found a silver coin. Then it went to the khan and asked for the loan of a measure in which to mete the silver wealth of its maste Bukutchi Khan. The khan wondered who the unknown potentate could be, but lent the measure, which the fox presently returned with the coin sticking in it. Next the fox searched about till it found a morsel of gold Then it went again to the khan and borrowed the measure once more, this time for the purpose of measuring the golden stores of it master Bukutchi Khan; taking care that the measure when returned, had in it the morse of gold it had found. The khan formed a high opinion of Bukutchi Khan's pecuniary resources, and "died of joy," that is to say was glad when the fox asked for the hand of the khan's daughter on behalf of its master Bukutchi Khan. Next day the fox made a garment for the miller "out of the most beau tiful flowers of the hills," and sent him down with a gnn made of lime-wood on his should er, to a river on the further side of which the khan's retainers were to meet him. In ac cordance with the instructions of the fox, the miller stumbled and fell while fording the river, and the stream rapidly carried away all he had on and with him. The khan's serv-
ed the fox and come a bore." "Shall I tell of the Loathsome Hadji? Tell about the lime wood gun? All about the miller tell?" Down on his knees went Bukutchi, wept and prayed, and smote himself on the head. So the fox forgave him. But soon afterward the ox died in reality. Bukutchi Khan was afrai that this also might be a pretence, so he slit open a fat sheep's tail, and carefully placed the fox inside.'

A series of experiments were recently con ducted in Europe by Mr. Sanson to determine whether it was better to feed horses with ats whole or crushed A graduated electric pparatus was used to measure the muscular nd nervous excitability caused by the feed, and the results led to the telief that oats aten whole produce more exciting power per hour than crushed oats. The exciting principle in oats is a brown nitrogenous sulstance uncrystalizable, apparently belonging o the family of alkaloids, and which Mr. Sanon calls avenine. On many of our breeding farms it is the custom to bruise or erush oats fed to the old mares and young colts. The stimulating effect of the food is more immediate than if the oats were fed whole, but it is not so strong or durable. For racehorses and workhorses uncrushed oats is the better food.

Schwarting \& Co., Wolcott, Iowa, have ust contracted with Stout, Mills \& Temple, Dayton, O., for a complete roller mill, using he Gilbert combined mill for breaks, and Livingston finishing rolls. .

## United States Miller.

## E. HARrison CAWKER, Editor.

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MILWAUKEE, FEBRUARY, 1883.
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.
During the month of January, $12,940 \mathrm{im}$ migrants arrived in this country.

During the year 1882 the receipts of rice from the Hawaiian Islands at San Francisco, were 120,500 bags.

The Grain Review of St. Louis, has changed its name and put on a new head, which reads "A merican Trade Journal \& Grain Review."
The Board of Trade of Kansas City, Mo have passed a resolution requiring all flour received into regular warehouses to be inspected. This is a move in the right direction.

Abundant rain has fallen in California, about the same amount as in 1880 and the Journal of Commerce, San Francisco, predicts a crop of $70,000,000$ bushels of wheat this year in California.
$W_{E}$ acknowledge the receipt of a very handsome catalogue of flour milling machinery from Messrs W. R. Dell \& Son, 26 Mark Lane, London E. C., England. This firm deals very extensively in American mill machinery.

Mr. Frederick Richardson, of Sunderland, late President of the National Association of British and Irish Millers, died recently. He was one of the most active and influential members of the Association, and his loss is deeply deplored.
We have just received from Houghton, Miftlin \& Co., Boston, Mass., publishers of Knight's New Mechanical Dictionary, the third section of that valuable work. The author died recently but the work of getting out the fourth and last section will only be delayed a few weeks. The price of the work complete is $\$ 8.00$.
"Milwaukee, her Commercial and Manufacturing advantages," is the title of a neat book of 200 pages just issued by Mr. Jno. E. Land. Mr. Land has had much experience in this class of work, and the result of his labors will, doubtless, be of benefit to Milwaukee. He is now engaged in preparing a similar, though far larger work for Chicago. We wish him success.

A miller in the backwoods of Wisconsin, recently received a sample copy of the United States Milier, and returned it to the Postmaster. - In notifying us of the miller's refusal to accept it the Postmaster says: " He refused to accept it. Says that he is a nutural born miller, and consequently no milling paper would be of use to him. He is a knowin' old D-.
The cities and towns on the banks of the Mississippi and Ohio rivers and their tributaries suffered greatly during February from unprecedented floods. Considering the circumstances the total loss of human life has been small but the destruction of property amount to million of dollars in value. The cities which have suffered the heaviest are Cincinnati and Louisville. Contributions to a large amount have been collected for the homeless and destitute.

The United States Miller gleans from mass of official reports the following facts relating the U. S. Patent Office:
January 1, 1883, there was in the U. S Treasury the sum of $\$ 2,205,471.10$ to the cred it of the Patent Fund, this sum being the amount of receipts in excess of expenditures of the Patent Office Department.
During the year 1882 there were 31,522 regular applications filed, and miscellaneous
filings requiring examination increasing the number to 36,114 .
The number of patents which expired during the year was 6,099 .
The total number of patents granted during the year to citizens of the United States was 17,861 ; to foreigners 1,135 .
The surplus of the office in the year 1837 was $\$ 4,721.44$, in the year $1882, \$ 325,351.78$. The Commission now asks for more room and more help to keep business up to date.

In answer to a correspondent the United States Miller states that the wheat crop of 1881 was $380,280,090$ bushels, and for 1882 it was $502,789,600$ bushels, being an inc
$122,509,510$ bushels, or 32.2 per cent.
The corn crop for 1881 was $1,194,916,000$ and for 1882 it was $1,624,917,800$ bushels, showing an increase over the previous year of $430,001,800$, or 36 per cent. The products of agriculture constituted about 80 per cent. of the total exports of the United States during the year 1882 .
We had a pleasant call from Mr. William Lehmann, the Milwaukee inventor, and Mr. Schaeffer, head miller of the Centennial Mill in this city. Mr. Lehmann has recently patented a valuable machine for wheat reduction purposes which he calls, with considerable claim to propriety, "a steel millstone." The stone, or rather steel disk, is in form and dress very similar to a mill-stone, as dressed and proved by Lehmann's Patent Staff and Method. We will give a more extended description of th:s machine at an early date. tennial Mill.

## BAKING TESTS.

Philip Lang of New York recently baked a barrel of "Pillsbury's Best" (spring wheat flour), and a barrel of "White Light" (winter wheat), and found only a difference of $4 \frac{1}{2}$ pounds of bread in favor of spring wheat flour. A baking test by another party, produced 2872 pounds of bread from a barrel of winter wheat to $302{ }^{\frac{2}{3}}$ pounds from a barrel of spring wheat flour. Another test was made with flour from Fultz and Mediterranean wheat; the Fultz yielded 308 pounds and the Mediterranean 287 pounds. A barrel of flour in another test made from Fultz and Mediterranean wheat mixed, yielded 304 pounds of bread.

## DRIVING PILES WITH DYNAMITE.

A correspondent of the United States Miller, in Budapest, Austria-Hungary, in a recent letter, mentions an interesting experiment in pile-driving by the use of dynamite. The piles experimented on had already been driven by an ordinary pile-driver, but it wa desired to drive them down further. An officer of the military engineer corps was detailed to superintend the experiment. The piles wrought-iron plate 15 inches square and $4 \frac{1}{2}$ inches thick. A $17 \frac{1}{2}$ ounce charge of dynamite in the form of a cake six inches in diameter, in the form of a cake six inches in diameter,
wrapped in paper and clay was placed on the centre of each plate and fired. The effect produced was estimated to be equal to 5 blows of a 1,500 -pound hammer, falling from a height of 10 feet.

## mpiled for the United States Miller RECENT Milling Patents.

he following patents were issued from the United
States Patent Oflice, January 1883 :
Cockle-seed Separator, Geo. Adams and M. M. Jêtrins, herburne, Minn.
Weighting-scoop, Issacher Bevis, St. Louis, Mo. Mill-stone driver, James F. Callahan, Knoxville,Tex.
Apparatus for Gradual Reduction of Grain, William Apparatus for Gradual Reduction of Grain, Wimain
iray, Milwaukee. Wis. Flour-dresser, Louis W.
Flour-dressing Machine,
Bail and Driver for Mill-stones, Jacob M. Replogle, Farra-

## nt, Iowa.

Roller-nill, sherman B. Richardson of Coopersville Mich., assignor to O. E. Brown Manufacturing Co., o,
Grand Rapids, Mich. rund Rapids, Mich.
The following patents were issued February 6. 1883.
Bag- holder and Filler, Duncan R. Adkinsol, Coren
Bag-holder and Filler, Duncan R. Adkinson, Corsicaza,
Tex
Grain Choler and Drier, Sheldon P. Cook, Minneapolis,
Grain
Minn.
Water.
Water wheel, Augustus FIgge, Middlesex, Eugland. Centrifugal Flour- boul, Holeomb\& Heine, silver Creek,N. Mill-stone Dressing Machine, C. S. Hoover, Laucaster Pu.
Boting-reel, John D. Hurst Ealem, Oreg. Bolting-reel, John D. Hurst Ealem, Oreg.
Rollev-reductian machine for flour mills, Har

## ear Lake, Iowa.

Bag-holder, W. E. Shellenberger, Woodland, Cal.
Middlings-purijler, John R. Smith, Rochester, N. Y. Mull-cone Driver, Philip steinmetz, assignor of one Z, Gessinger, Philadelphia, Pa.
Water-wheel gate, E. B. Williams and D. D. Earle, For-
The following patents were issued February 13, 1883. Centrijugal Sachine, Oluf S. Andersen and T. F. A. Han Roller Grinding-mill, Cyrus T. Hauna, Allegheny, Pa Grinding-mill, Charles W. Lawrence, assiguor to Law rence White Iron Portable Grist Mill Co., Boston, Mass. Feed-hopper, Waller MI. Rand. Olney, III. Machine Co., Freeport, III.

The following patents were issued February 20, 1883: Grain and Seed Cleaning-mill, William Bowen, Edi
Roller-mll, Charles B. Campbell, Buffalo, N. Y. Turbine Water-wheel, M. D. Grow, Dubuque, Water whece, Bernhard Keiser, Ferndale, Pa.
Gratn Weigher and Mecasurer, Freeman C. M

## om, Mich. Dust-collect

Wis.
Middlings-purifer, F. Prinz, Milwaukee, Wis. Middlings-purifter, F. Prinz, Milwaukee, Wis.
Grain-cleaning Apparatus, William Shaw, Paris, Ky.
Combined Corn-sheller, Grinder and Horse-power, Josep

## FOREIGN MARKETS.

The date of Feb. 14, Duulop Bros., of Glasgow, write The tone of trade has been strong throughout the pas prices. Arrivals demand for wheat and hlour at ful articles, liberal.
To-day's Market was fairly attended. Wheat firm, and a teady business done at about 3 d . to 6 d . per 240 lbs ad-
vance since last Wednesday. Flour unaltered, but in good request. Minnesota Patents and Straights very firm at fuil prices, as also winter wheat flours of this description Hungarians at late rates selling largely for forward deliv-
ery, but the advance of fd demanded teuds to check busiery, but the advance of 6d demanded tends to check busi-
ness. Maize firm at last week's prices. Barley and oats in fair demand, and rather dearer, while beans and peas are unaltered.
Anton Kuteke, of Liverpool, under date of Feb. 14, writes tormy and wet, thus entirely preventing any progress to be made with field work. The agricultural situation is now
becoming more and more serious for farmers, becoming more and more serious for farmers, who are
anxiously looking forward to a change for the better. Deanxiously looking forward to a change for the better. De
iveries of native wheat continue on a fair scale, viz: 212,00 qrs. at the average price of 40 s . 8 d . during last week, gainst 46s. 5 d . same time last year. During the past week
here has been a continued good demand for flour of all descriptions, amd buyers have had to pay extreme prices, with an occasional advance of 6 d . per 280 lbs . on favorite brands of winter Patents. California tlours, which are now
in smaller compass are meeting with a leady sale at full prices. Hungarian tlour also is in fair request, but with out change in value.
Wheat of all classes must be quoted 2d. per ceutal dearer
on the week and cargoes on passage and for shipment on the week and cargoes on passage and for shipments business transacting.

A correspondent in Sturgeon Bay sends us the following geometrical problem, which we ake great pleasure in answering.
Three brothers live on the corners of a wish to dig a well so that it will be They one as the other; required the distance to the well."
The question to be considered, stated in other words, will be as follows: to find the radius of the circle, which circumscribes riangle whose sides are 11, 12 and 13 rods.
According to Euclid, the three lines which bisect the sides of a triangle at right angles meet in a point and this point is the centre of the circle, circumscribed about the triangle. Now, if the three brothers among other useful tools, also were provided with a surveyor's transit, they could easily find the point, which is of so much interest to them, but supposing they are not in possession of such an instrument, let us help them along in their noble endeavors to deal justly with each other. If $A B C$, therefore, be the
riangle, in which

$A C=11, B C=13$ and $A B=13$. Bisect the sides in $E, F$ and $G$, and let the lines drawn from these, perpendicularly to the sides, meet in $D$, the lines $A D, B D$ enting the radius to the circumscribing circle.
We now recollect the familiar formula, viz.
$A=\sqrt{\frac{1}{2} S\left(\frac{1}{2} S-a\right)\left(\frac{1}{2} S-b\right)\left(\frac{1}{2} S-c\right)}$ if $A$ denotes the area; $a, b, c$, the sides of a triangle and $S=(a \dagger b \dagger c$. $)$
In this case we have, for the triangle
$A B C=\sqrt{18 \times 7 \times 6 \times 5}=6 \sqrt{105}=61.44 ;$
$A D C=\sqrt{\left(\frac{11+2 r}{2}\right)\left(\frac{11+2 r}{2}-11\right)\left(\frac{11+2 r}{2}-r\right)^{2}}$

$$
=\frac{11}{4} \sqrt{4} r^{2}-121 ;
$$

$B D C=\sqrt{\left(\frac{12+2 r}{2}\right)\left(\frac{12+2 r}{2}-12\right)\left(\frac{12+2 r}{2}-r\right)^{2}}$
$=3 \sqrt{4 r^{2}-144}$
$A B D=\sqrt{\left(\frac{18+2 r}{2}\right)\left(\frac{18+2 r}{2}-18\right)\left(\frac{13+2 r}{2}-r\right)^{2}}$ $=\frac{13}{4} \sqrt{4 r^{2}-169}$
and because $A B C=A D C+B D C+A B D$
we at last have our final equation
$\frac{11}{4} \sqrt{4 r^{2}-121}+3 \sqrt{4 r^{2}-144}$
$+\frac{13}{4} \sqrt{4 r^{2}-I 69}=61.44$
$11 \sqrt{4 r^{2}-121}+12 \sqrt{4 r^{2}-144}$
$+13 \sqrt{4 r^{2}-169}=4 \times 61.44$;
$\sqrt{484 r^{2}-(121)^{2}}+\sqrt{576 r^{2}-(144)^{2}}$
$+\sqrt{676 r^{2}-(169)^{2}}=4 \times 61.44 ;$
from which equation the value of $r$ can easily be found. The distance is nearly 7 rods.

# THIS IS BUSNESS! 

## The Milwaukee Dust Collector Manufacturing Co. Set a Good Example.

## WHICH MILLERS WILL PULLY APPRECIATE.

A straight-Forward business letter.
The following letter, reprinted from a copy furnished to The United States Mlleer, peaks for itself:
To the Executive Committee of the Millers' National Associution, Mr. S. H. Seamans, Sec'y. Gentlemen: We have noticed with great interest the proceedings of your late meeting at Cleveland, and the various suggestions there made relating to pendant and threatened patent litigation. Although we own and control a number of valuable patent claims bearing pon milling machinery, we heartily concur in the precautionary measures which you have seen fit to advance for the protection of he milling trade against unfounded claims. protracted and costly litigation.
"Millers ought not in any case to buy machinery from irresponsible manufacturers, or from parties who are not willing to assume themselves the burdens and experse of litigaion that may grow out of sales made by them."
The proceedings of your convention have sufficiently demonstrated that a large number of speculative suits have in the past been commenced, which, although successfully defended by your association, have nearly exhausted your cash resources and caused an expenditure upwards of $\$ 150,000$ in defending claims ltogether unfounded.
Now with a view of assisting in your efforts, and bearing what we consider to be but a fair proportion of the burdens that any patentee who exacts royalty, or any manufacturer of milling machinery, ought to coniribute towards the common end, we propose to your Association:

1. That we will abstain from the instituion of all suits against individual millers r milling associations on ground of our patents and from a multiplicity of suits, until he validity and scope of our patent claims re fully established in one or two test cases, o be instituted in that behalf.
2. That we will not sue millers in any instance, unless the manufacturers cannot be properly reached or shall prove to be jnsolent.
3. That we will assume the defense of the first case that may be institut. ed against any one purchasing milling ma chinery from us anywhere in the United States, employing counsel, defraying alll expenses, and fully indemnifying the defendant against any damages and costs, if we should not meet with success in defeating such claim.
4. That we will enter into a bond to your Association in trust with good and sufficient surety in an amount not less than $\$ 50,000$ for the faithful performance of the various conditions and undertakings before stated.
We confidently hope that this example of ours will not only meet with your hearty endorsement, but will be speedily followed by all manufacturers of milling machinery who mean to cater for the good will of the public.
If our'suggestions were universally adopted, it would relieve your association and the milling trade at once of the vast expense and annoyance now undergone, while at the same time the interests of honest, fair-minded inventors and manufacturers would remain fully secured and protected.
Will you please acknowledge the receipt hereof at an early date.

Respectfully,
Mhwaukee Dust Collector Manufacturing. Company,

## THE UNITED STATES MILLER.

OFFICIAL REPORT OF THE PROCEEDINGS O the millers' national association AT CLEVELAND, $0 .$, JAN. $31,1883$. Secretary's Office,
Milwaukee February 5, 1883.$\}$ To the Trade :-I herewith submit for your
information a condensed report of the proinformation a condensed report of the pro-
ceedings of the second delegate convention ceedings of the second delegate convention,
held at Kennard House, Cleveland, Ohio, January 31 st , 1883, (pursuant to the call which is made a part of this report), a copy of which will be sent to every member, that he may be thoroughly conversant with the affairs of the Association. No condensed report, however can do the Convention justice, and it is to be regretted that a larger representation of the milling interest was not in attendance. In
my last report I made this statement: "Each year proves more and more conclusively the necessity of a strong organization, having for its purpose the welfare and protection of its members, regardless of the consequences to those who expect to reap its benefits, without sharing in the burden and expense," which the experience of an additional year and a half only intensifies.
I would particularly call your attention to instructions given to the Secretary, "to make out and furnish for publication a list of all the members and the capacity of their several mills." Before doing this, however, new blanks will be furnished each member in order that such changes as may have been made in the

At a meeting of the Sub-Executive Com mittee, Millers' National Association, held in Chicago Nov. 20th, it was resolved to call a, delegate Convention at the "Kennard House,' Cleveland, Ohio, Wednesday, January 31st, Executive Committee, Millers' National AsExecutive Committee, Millers National As-
sociation, and in addition thereto, each organized State is invited to send its President, Secretary, and Executive Committee, and from each unorganized State, five prominent members are invited, all of which are desired and expected to be present.
This meeting is called for the purpose
1st. To examine into, and discuss the various matters pertaining to patent litigation in whic.

2d. To discuss matters of dormant State Associations, and to propose some method whereby membership may be increased, and new interest be awakened to an extent, that all millers may come in and be benefitted by organization.
3d. To discuss matters pertaining to, and arrange for a Grand Re-Union of the members of the Association, in June next, a ath upon place for holding same
4th. To discuss the advisability of offering a line of premiums for each meretorious taining to milling and its methods, as may be deemed important and valuable.
5th. To discuss any, and all matters of interest, and attend to any business that may be deemed important, and for the good of our Association or its members.

Yours respectfully
S. H. SEAMANS, Sec'y.

Missouri.-George Bain, President of the association and a member of . F. Lawton, of Carrolton, President Missouri Millers' Association, Frank Hill, Carthage, W. H. Waggoner, Independence, W. L. B. G. Allen, St. Louis, R. C. Miller, St. Louis.
Iluivors.-Col. Jas. C. Edwards, C. H. Seybt, Highland, John H. Herman, Highland, Hy Schurman, Carlisle, D. R. Sparks, Alton, President Illinois Millers' Association, Robt. Suppier, Highland, Edwin Raith, Highland, D. S. Shellabarger, Decatur, S. S. Randolph, Charleston.
Kansas.-O. W. Baldwin, Ottawa, Secretary Kansas Millers' Association, W. J. Hays, Salina, T. J. Holdridge, Anthony, G. F. Harges, Welington, Frank Goodnow, Salina.
Indiana. - W. L. Kidder, Terre Haute, Phil. Trout, Mt. Vernon, J. W. Keeper, Terre Haute, Wm. Pollock, of Vincennes, Andrew Eckert, of Jasper, Wm. Frank, of Mt. Vernon, Lewis Suhrhomrich, of Evansville, Wm. Trow, of Madison, Jno. R. Callender, President and Nic. Elles, Sec retary of the Indiana Millers' Associatior.
Minnesora.-John A. Christian, Chairman of the Executive Committee, W. P. Brown and E.
D. Baker, of Red Wing, and E. V. White, MinD. Baker, of Red Wing, and E. V. White, Min-

Wisconsin,- Was represented by S. H. Seamans, Secretary, and F. D. Blanchard,
Seeretary of the National Association.
Secretary of the National Association.
OHio.-Honer Baldwin, President, Robt Colton, Secretary, T. E. Barney, Secretary,
Ferd. Schumacher, Akron, A. R. Elson, Magnolia.

New York.-Thomas Chester, President, Bur falo, J. A. Hinds, Becretary, Rochester, S.
Howes, Silver Creek, W. G. Gage, Fulton, w E. Boardman, Rochester, H. W. Davis, RochesE. Bo
ter.
PENN

Penngylvania.-B. F. Isenberg, President, Huntingdon, Landis Levan, Secretary, LancasThe
The newspaper contingent included C. M Palmer, of the Northwestern Miller, W. L. Thomas and K. H. Stone, of the St. Louis Miller, Frank Wenborne, Milling World, Mr. Tepper, Millers' Wenborne, Miling World, Mr. Te
Journal, Mr. Kellogg, Roller Mill.
The convention was called to order at 9 oclock in the parlor of the Kennard House, by Jno. A Christian, Chairman of the Executive Committee, who stated briefly the purposes of the meet-
ing and then asked Hon. George Bain to preing an
side.
Mr. Bain took the chair. He said that the assemblage had been called together with two principal objects in view, first, to discuss the general situation of the associations' affairs, and second, to get an expression of views as to the
neccessity and usefulness of a general reunion neccessity and usefulness of a general reunion
of the members. No annual meeting was held of the members. No annual meeting was held last year, for the reason that the body was in the beautific condition of having nothing to do At the next annual meeting also, officers will be chosen. The first business before the assemthat the members would discuss it freely. He alluded to the fact that at a previous convention it was decided to exclude reporters, but said henceforth the meetings would be public, with he exception of those from which it is con ies. report of the secretary.
Mr. S. H. Seamans then read his report as Mr. President:-At a meeting Jan. 29, 1883. xecutive Committee a meeting of the subPrecuive Commitce convened at the Grand
Pacific Hol Chicago, Nov. 20, 1882, it was deemed advisable to call together at this meet ing , a sufficient number of our members from the different States, which would give us a ful delegation from each State, which probably would not be the case if only the representative of each State in the Exxecative Committee wa notified to attend.
Under these circumstances this meeting may properly be styled the second delegate con tion of the Millers' National Association.
Each Secretary of the different State Associa nions has been supplied notices of thects of this meet ing, and attached thereto the blank to be filled by the State Secretary, officially notifying the proper delegates of their appointment, while the delegates from unorganized States hav
elived their appointment from my office
ince the delegate convention in Chic meeting 6, 1881. At that meeting the all-absorbing topic , 1881. At that meeting theall-absorbing topic by the sub-Executive Committee was empower ed to settle the same for $\$ 6,000$.
Owing to a conflict of interests claiming ownership, a setliement could not be consumated antil the November following, when the sub-
Executive Committee met Mr. Knickerbocker at St. Louis, and closed the settlement upon th terms as agreed in the convention.
Few members appreciate the trouble and anx iety of your committee, who have had this in charge since the meeting at Buffalo in 1877, nor the relief they experienced when this matter was settled so far as it concerned the members of this Association. When we consider that
this case started with a decision of the United States Suprese with a decision of the Unied against the millers of the United States for be tween $\$ 30,000,000$ and $\$ 40,000,000$, and when at the first onslaught the Washhurn mill was put under $\$ 250,000$ bonds, while some were glad to make run of stone, we may be well satisfied with th final outcome.
In accordance with the terms of settiement a st. Louis, the suits at Minneapolis and St.Louis were disme on appeal before the Supre to all our were dismissed, icenses were giver o. receiv ed their money.
During the convention at Chicago, June 7th, the Denchfield matter was taken under consideration and fully discussed by various members, resulting in the unanimous adoption by the association of the following
whole Executive Committee
"Resolved, That the matter of defense or set lement of the Denchfield patent be left to the sub-Executive Committee, for them to take such action as they may deem
terest of the Association."
The claimants under the Denchfield patent having been very successful in litigating befor the courts in New York, placed a high value
upon their claim against millers using or infring ing it, consequently had never offered any term that Millers or State associations were willin toaccept. Before the expiration of their patent, consin and Illinois which your committee pre pared to defend most vigorously, at the same
with the owners of the Denchfield patent. This resulted in a meeting at Chicago Dec. 20 181, between Mr. Jenney, attorney, and Mr. L. interest, and the entiresenting the Denchifiela mittee, representing the Millers' National As sociation.
At this meeting the matter was very fully discussed by all parties, the Denchfield people while not making a definite proposition, intimated that a settlement might be effected upon a basis of $\$ 80$ per infringing run of stone, a price your committee would not for one moment enter tain, in view of the fact, that our attorneys ad vised against a settlement, assuring us that the the case on appeal came before the United States Supreme Court
However, in view of the further fact that the result of a suit at law is very uncertain, and many members were desirous of having th case settled and out of the way, your committe made what they considered a liberal proposition, viz: $\$ 25$ per infringing run of stone for al members of the association. This proposition they declined to accept; further negotiation were suspended, and Mr. Harding was retained to take full general charge of the defense, while Mr. Gridley was retained to look after the suit in Minnesota, Wisconsin and Illinois.
Since the conference at Chicago, several suits vering similar grounds pertaining to re-issue have been decided by the United States Su preme Court that warrants us in the belief that our success in the result of the case now be Mr. Harding in 6, states that the case will, without doubt, be reached for trial in March next, and that the court will, in his opinion, declare the re-issu void.
With this suit off our hands, we shall be free from litigation, but that we shall remain in this much-to-be-wished-for condition for any lengt of time I do not believe.
Even though our direct litigation may b ended with the termination of the Dench field suit, we would be false to our trusts as represen we to withhold our interest or our aid in paten right suits, the decision of which will directly or indirectly affect the interests of our associa or ind
tion.
At the present moment it looks as if the Patent Office had put in the "new process" for turning out patents on milling devices, and fore most among them are those on rolls and roller
mills. In this connection would say the Clevemills. In this connection would say the
land Leader this morning, has this item:
Washington, Jan. 30th, 1883, "There was is sued from the patent office to-day 371 patent nd 43 designs."
I am informed that we may expect ere long to be met by a 'bed rock' patent on the corrugating and use of corrugated chilled iron rolls. If this proves true, and my authority for the in-
formation is good, who is to defend it? It certainly ought not to fall upon the 2,500 capacity now represented in our association, while the 20,000 outside will reap equal benefits.
Every mill using Modern or improved machinery, such as rolls, purifiers, centrifugals, etc., should belong to this association through the main objects for which this convention is called is to investigate and provide some method by which this can best be accomplished. A large and complete organization insures small assessonts, great power for

Respectfully submitted,
S. H. SEAMANS

The President invited discussion.
C. H. Seybt, of Illinois, said that the Denchfield suit was the only actual case of litigation now commanding the association's attention. He was of the opinion that many machinery builders are making machines without proper patent protection, and many millers are using heir devices without proper reflection. This gets them into trouble and they come to the
mesociation for protection. He wanted millers association for protection. He wanted millers
to use ordinary business caution, and thought that the association should not be expected to defend suits arising from the purchase of mahinery at random. He alluded to the growth use, which might cause trouble, and thought that the millers should reap the reward or bear the burden of their own wisdom or folly as the ase might be.
This precipitated a lengthy discussion betveen Mr. Bain, Mr. Sparks, Mr. Seamans, Mr. Christian, Mr. Snouffer and others, and resulted nally in the reference of the whole matter and others alluded to in the Secretary's report, each State. Mr. Bain antagonzed Mr. Seybt's notion, which was in substance to the effect hat the Millers' National Association is not expected to defend its members in infingement cits unless the purchases are made only from responsible parties. The motion for the appointment of a committee to consider this and
the other points was adopted, and the president
appointed Elles of Indiana, White of Minnesota, Gage of New York, Sparks of Illivois, Baldwin of Kansas, Snouffer of Iowa, Waggoner of Missouri, Barney of Ohio, and Levan of Pennsylvania, as such committee, to which, on motion of Mr. Snouffer, was added Mr. Christian of Minnesota, and Mr. Seamans of Wisconsin.
A dispatch was received by Mr. Bain, which read as follows: $\quad$ Sr. Lours, January 31, 1883. "Exports from New York for the week 270 ,-湅 sacks flour, against 203,000 bushels of wheat. Kind regards to all. ALEX. H. SMITH.
The significance of this dispatch was much reat adedance in flour exports. The figures ententiously signify that our export was equal o at least five times as much in the shape of our as in wheat. The dispatch was received with great applause.
The report of the treasurer was next read, eceived and adopted.
treasurer's report.
or's report national millers' association Balan
June
Recei


| disbursements. |  |
| :---: | :---: |
| Postage and telegrams........................ | \$44.85 |
| Blank books and stationery................... | 27.25 |
| Printing (miscellaneous)................. | 16.10 |
| Printing (crop reports June and July 1880 and 1881) | 97.25 |
| Travelling and hotel expenses (officers)... | 36.93 |
| Exchange. | 31.08 |
| George Harding, account A M. P. Co. |  |


| Exchange <br> George Harding, account A. M. P. Co. <br> suit. $\qquad$ |  |
| :---: | :---: |
|  |  |
| Account Denchfield suit... | 7,000.00 |
| Stenographer. | . 00 |
| N. C. Gridley, account Denchfield suit... | 1,765.75 |
| P. B. Gove, account Geo. Harding.......... | 200.00 |
| Jacob Amos, acount Geo. Harding. | 130.00 |

Defending A. M. P. Cosuit (Jos. La Croix) $\quad 500.00$ Defending A. M. P. Co. suit (incidentals)
Defending A. M. P. Co. suit (final settle-
..........6,000.00-6,623.51
 $2,000.00$
$318,329.59$ $\begin{array}{r}\$ 18,329.19 \\ 8,049.13 \\ \hline\end{array}$ $\overline{\$ 26 \text { 378.72 }}$
NS , Sec'y.
Total................................................. $\begin{gathered}\text { SEA } \\ \text { Balance on hand June 1, } 1882 \text { per previ- }\end{gathered}$
ous report ..................................
Received from Illinois assoeiation.....
Received from New York.
Received from New York.
$\$ 8,049.13$
$1,000.00$

|  | 150.0 |
| :--- | :--- | :--- |
| Received from Wisconsin..................... | 200.00 |
| Received from interest acet.............. | 490.00 |

Total................................................
DIsBURsEMENTs.
Postage and telegraphing.... .......... .. 8 5.00


 $\$ 6,512.98$
$\$ 9.889 .13$ S. H. seamans, sec'y. It was stated that Mr. Geo. Harding is reained as counsel until the Denchfield case is
argued before the Supreme Court. Adjourned. argued before the Supreme Court. Adjourned.

The committee appointed at the morning meeting re
preamble and rasolutions.
Winedis, It is necessary that important and minediate steps shall be taken to keep up and maintain the existence of
Whereas, It is now evident, and such information is to hand, that there will again be trouble with patentees of mill machinery; therefore, be it
Resolved. That the Millers' National Association will defend or settle all patent right suits against its members, except in cases whers the National Executive Committee after full investigation, decide against the advisability of de fending or settling such claims, and so notify the member threatened with suit.
Resolved, That we recommend the National
$\$ 10$ per unit of capacity, (thirty-five barrels out-
$\$ 10$ per unit of capacity, (thirty-five barrels out-
put in twenty-four hours to constitute such unit
of capacity), payable, 85 March 15, and $\$ 5$ September 15, 1883; said sum to be used for the purpose of defraying the expense of carrying on the association, the investigation of patents, and the defending of such suits as may be brought against our members.
Resolved, That organized State associations may admit new members, who will also be
members of the National Association upon the members of the National Association upon the payment of the assessment levied for 1883.
From unorganized States new members will be From unorganized States new members will be on the same terms
Mr. Snouffer said that the resolutions commanded his hearty approbation after the lengthy discussion in the committee room which had resulted in their expression. They had met with deliberate consideration and been adopted
unanimously. He hoped they would be aunanimously. He hoped they , would be adopted without change as they were cale
to advance the best interest of millers.
Mr. Seybt suggested that the general intent of the resolutions differed in no manner from the previous policy of the association. The de-
sire is to keep millers out of trouble, not to prosire is to keep millers out of trouble, not to pro-
tect or defend them when they got into it. tect or defend them when they got into it.
There was but little improvement on material points over the procedure of the association heretofore.
Mr. Bain was opposed to the passage of the resolutions for several reasons. He did not
want to admit new members on the same basis as those who had borne the heat and burden of the many wearisome and perplexing days through which a few comparatively had bravely
struggled. He was not so much opposed to the admission of new mills at the low rate proposed but he was emphatically opposed to the idea of letting in the selfish class of millers who wanted to save $\$ 30$ or $\$ 40$ in a penny-wise and
foolish adherence to the organization.
Mr. Schumacher thought they
made to pay twice the rate.
Mr. Isenberg, of Pennsylvania, said that he knew from personal experience how difficult it was to collect the assessments, even as low as
they now are, and said that he had heard that it was equally difficult in some of the other States.
A motion was here made that the preamble and resolutions be taken up and dicu-sed seria-
tim, upon which the preamble was again read by the secretary and adopted without debate.
The first resolution was read, and after a few remarks from Mr. Sparks, adopted.
The second resolution was taken up.
Mr. Hinds, of New York, moved that the secretary be instructed to publish and send to all mem-
bers of the association, a eomplete list and capacity of all mills belonging to the Association, a copy of lieation. The motion passed.
Mr. Bain commented on the fact that the milling journals had taken their usual active as to how or on what basis the assessments should be made. It was immaterial to him, how they were made, provided the result was
money, with a big M. He suggested that a pubmoney, with a big M. He suggested that a pub-
lication be made, showing the actual return of the output of the hon-st millers, giving the daily average capacity of the various mills.
This idea was added to the resolution and thus amended was carried unanimously.
The third resolution was read and provoked an exceedingly animated discussion.
Capt. Baker desired to
Capt. Baker desired to amend the resolution,
so that new members should pay an initiation fee of $\$ 5$ per unit of capacity, in addition to the assessment for 1883 ; this he considered a very diberal proposition.

Mr. Snouffer, of Iowa, criticised the remarks of Mr. Bain, and alluding to the financial conment said that he was in fasor of admitting new, on the same basis as the old, members in order to encourage new members
help to mainfain the organization,
Mr. Sparks said that the resolution
Mr. Sparks said that the resolution had been
adopted as a matter of policy and as an adopted as a matter of policy and as an assis-
tance in raising money, and he would therefore vote against Capt. Baker's amendment.
Mr. Elles stated that his state (Indiana) had fallen off considerably in membership, and
based a favorable opinion of the resolution sans amendment upon the thought that many of these men might want to come into the "sheltering arms" once more. Indiana now has sev-enty-one runs represented. He thought a gain
would result if the fee was not increased, and would result if the fee was not increased, and
he endorsed the resolution as a matter of policy. Mr. Hinds, of New York, gently suggested that such members would be likely to drop out minent.
Mr. Baldwin, of Ohio, was in favor of the adoption of some measure that would result in
larger membership from his State. He instanced the parable of the Husbandman, and was of the opinion that no one would dispute the goodness of the agriculturist referred to. While the
lamp hold out to burn the vilest sinner may return. Let these latter day saints come in. return. Let hees
Be magnanimous
Mr. Isenberg: Pennsylvania is losing in mem ship he knew. He said that the adoption of the
amendment would prevent accessions, but that
the liberal policy would give the association many new members from his State. Which is better, 200 members at $\$ 100$ each or 1,000 at $\$ 20$ each? He felt that the association needed the numerous membership.
Mr. Snouffer was determined to vote agarnst the amendment, for the reason that the committee had considered the resolution thoroughly. He did not wish to require a bonus from either new
or old members. Without inducements
to men to join they would not come in o the ogagization. He alluded to the fact that even ir there was, as he had stated, no plethora in the treasury, there was no reason to look for At this poinc Mr. Bain arose and made a ver impressive speech in which he "sat down," to use his own vernacular, upon the assertion that of association was not in a robust description of financial health. He was in tavor of relying
on those whose courage had been tried and not found wanting, who did not wait until they could ride at half-fare, so to speak, and from whollecting its assesssments. The indisposition to assist came from just the class which was of no
material assistance in the times of need. Besides, he suggested a new point in the question as to whether a person ot corporation holding
a claim against the members would not be more easily persuaded to a settlement if the associa tion numbered 2,500 that if its ranks were
swelled to 10,000 . With the association small, but influential, the closer a corporation it was the greater the benefits that could be derived by its members. He alluded in strong language oo the derelict States and alluded to the States of Minnesota, Wisconsin, New York, Missouri, Illinois and Indiana as those who had done the most for the organization, "We have $\$ 7,000$ in debts." He reapelled the insinuation that the institution was penniless, and stated that adding the money that has been paid to attorneys and which still commands the lawyers' services the assets of the association were equal to least $\$ 20,000$. If we have to pay out, outsiders
should be required to put up more to come in. should be required to put up more to come in
Mr. Bain's speech was received with deep at ention and solidified the meeting into one se Mr. Snouffer of the amendment.
Mr. Snouffer made an explanation of the as sertions made by him as to the poverty of the
association, giving the reasons that lead him into an error that he was happy to find was one. Mr. Elles withdrew his objections to the amend
ment and it was adopted amid much enthuiasm. Third resolution as ameh ent
Resolved, That organized State Associations
nay admit new members who will also b members of the National Association, upo payment of an initiation fee of $\$ 5$ for each unit From unorganized States new members will be admitted direct to the National Association upthe same terms.
Mr. Seybt introduced a resolution, which was ney. It reads as follows :
Resolved, That the Executive Committee be empowered to employ some legal counsel by the year, whose duty it shall be to keep fully ac-
quainted with the patents affecting mill machinery. Said counsel shall, when called upon, re port to the committee what patentee has, accord-
ing to his opinion, the foundation claim to any disputed device. All millers have the right apply to the Secretary of the National Associa tion, for such information, and in this way much
uncertainty and danger of litigation may be avoided.
Mr. Seybt then introduced the following resolution, which was adopted unanimously
Rcsolved, That in order to guide the members of this Ass vciation in purchasing mill machinery they shall use due caution to buy only of respectable and responsible dealers, whose character and business standing is some guarantee for the worth and title of the machinery. If millers out using ordinary bachines at rand $m$, without using ordinary business caution as to the
title of the machines, they must know that they do so at their own risk.
Mr. Sparks made a motion "that the Secretary be instructed to prepare a memorial, petitioning protect the the passage of a law which shall protect the innocent purchaser of a patented
article in the open market, that may turn out to be an infringement." Which was concurred in. A large number of communications were read by the Secretary, including invitations to visit various points of interest in and about Cleveland, an invitation to the Association from the man-
vgement of the Louisville Cotton Exposition, to ggement of the Louisville Cotton Exposition, to hold its annual meeting at that place in August, and communications from S. M. Brua of Harrisburg, and C.T. Hanna, of Pittsburg, concerning certain inventions interesting to the persons

Also the following which explains itself, but upon which no action was taken:
Cossolidated Midd's Puripirg Co.,
JAckson, Mich., Jan. 24, 1883.
To the Sub-Ex
Association:
Gexvlemes:-A state of affairs exists which
indicating a resumption of hostilities on vur part against mill-owners, and we therefore de-
sire to call your attention, and through you the sire to call your attention, and through you the o the circumstances on which our action is based. We were in hopes that after the agree ment at Chicago, in May of '79, all occasion for fringement suits against millers would be removed, and that only friendly intercourse between the trade and ourselves, tending to nutual profit and satisfaction would prevail your association millers who are members of plied with the terms of the contract made with you at Chicago, and others persist in purchasing mach ines of irresponsible mauufacturers, which are flagrant infringements of the patents owned y us. We have spent very large sums of on the alert to dispel any doubt which may arise as to the legality of our patents, to the end that millers who use purifiers licensed by us, while having the best machines, may also ave with them the indisputable right to their use, undisturbed by claims for royalty or s sits
for infringement. But when millers, nevertheless insist on buying purifiers which are copied from ours in important respects, and which we their usefulness almost wholly to feature which are covered by our patents, and buy could of irresponsible parties, from whom we elf-defense to proceed against the purchasers themselves. In pursuance of this plan we have already begun suits against several concerns, native but to we can now see, have no alter ases, in the near future, where millers have endered themselves liable as above indicated. We desire your association to clearly under stand that we take this course under compul sion only, and not from choice. We should be lad, indeed, if the friendly and harmonious elations which we have constantly striven to establish and maintain with the millers of the whole conntry could have continued unim-
paired in a single instance, but we hope and believe that in defending our rights and protecing our property, and the trade interest of our licenses by the only means to which we can
resort, we shall have the approval of your asso
ciation and of all fair-minded men.
Very respectfully,
The next subject introduced was the propriety of holding a real old fashioned annual meeting of the Association. "The first meeting of the Association," said Mr. Bain, "was held in St. Louis, one has been held in Milwaukee, one in Chicago and one in Cincinnati." Mr. Bain obvious business reasons, being the best in point of pleasurable inducenients. Mr. Sparks avored the idea of a meeting and endorsed New York. A del-gate from Kentucky spoke
nost eloquently in favor of Louisville. The eneral expression was in fävor of New York but the whole matter was finally referred to the President and Secretary, with
pREMIUMS.
Mr. Bain next read the portion of the published call for a meeting which refers to pre-
miums, and spoke in favor of the adoption of miums, and spoke in favor of the adoption of ated to stimulate inventions needed in the nilling art.
Mr. Seybt said that one thing he would wish to see was a practical device for the packing of terially export. Such an invention would ma crease those of whent would be the withdrawal of one principal element of the support which enables the European millers to compete with America, as their reof the offal.
Mr. Brown made a motion to offer a premium of $\$ 1,000$ for the invention of a package that red pounds a saving of five cents per one hunred pounds.
Mr. Bain supplemented by saying that what was wanted wassomething that will do effectual
work in small as well as large mills, and that the purchase of the machine should be arranged or. Referred to the Sub-Executive Committee As soon as possible, the Secretary will furnish to explicit particulars of what is required to compete accessfully for the above premium.
Mr. Hafner, of Pittsburg, thought that $\$ 1,000$ would not go a great way toward compassing the end desired, judging from his own experence in the inventor's role.
Mr. Cummer, of the Cummer Engine Company, was granted the privilege of addressing He also extended an invitation to the mengh to visit his works, which was accepted and taken advantage of the next morning by the entire delegation.
Adjourned to 9 o'clock Thursday morning. In the evening the millers made a visit to th
pany and witnessed the Brush Electric Com-
Prush-Swan system of inibition of the

Second Day's Proceedings. called to order by President Bain, at 10 o'clock, with ahout fifty delegates and members present.
Afte
After some desultory discussion of an informal
nature, in the course of which the difficulties of nature, in the course of which the difficulties of pocking bran for export were considered, Mr. Sparks secured the floor and spoke for some he necceits suject of the associ of $\$ 25,000$ or more in the treasury at all times, ready to fight any and all litigation brought against the association or its members. He desired all members to urge upon their friends and fellow mempromptly and willingly.
Mr. Christian requested the president of the Ohio association to speak on the condition lof the association in his State. Mr. Baldwin responded and said that when he took his State association, it was all broken to pieces and that it was in that condition now; that a meeting had not been held in two years. He spoke of the great difficulty experienced in getting millers to join the association, and said that he was
ashamed of his State so far as the millers ashamed of his state so far as the millers were
concerned. He was discouraged in the attempt concerned. He was discouraged in the attempt
to get new members when no difference could to get new members when no difference could
be noticed in the treatment of members and non-members
Mr. Seybt asked Mr. Baldwin to assure his brother millers that they would be sued for all infringements as fast as suits can be broughtthat the lenient policy of the past was unfair to members of the association, and that the owners of patents would no longer follow it.
The discussion which followed, occupied con-
iderable time and the sentiments of Messrs. Baldwin and Seybt seemed to be the unanimous opinion of all members present.
Mr. Hill, of Missouri, offered the

## Resolved, That the Executive Committee of uthorized and instructed to effect settlements in behalf of the association when the same can be effected for a nominal sum. But in case such settlement can not be effected and they able grounds, they are instructed to contest up to the courts of last resort, and with all possible vigor. Snouffer spoke at some length of the ben- Mits. he had derived from his ment the association, instancing a number of cases where he had, saved considerable amounts of money which non-members were obliged to pay. and said that Mr. Snouffer had not given the association sufficient credit for the saving it had effected to its members, and cited other ex- <br> mples amounting to large sums. Mr. Sparks, Mr. Isenberg, Mr. Baldwin, Pres- ent Bain, Mr. Colton and others took part in the rambling talk which followed, on the best interest in the State and National Association, after which the meeting adjourned sine

## 

## Millers' National Association.

Siccretary's Oficice.
Milwaukee, Wis., February 19th, 1883.

## ditor United States Miller:

By virtue of a resolution adopted at as Delegate Convention Millers' National Association, in Cleveland, Jan. 31st ult., the Sub-Executive Committee are instructed to offer a cash premium of $\$ 1,000$ for the inention and production of the best practical machine that will enable mills of ordinary capacity to compress Bran economically into a suitable, cheap and safe package for Export, at a saving of at least five cents per hundred pounds in the process, package and freight, ver the methods now in general use.
Requirements.-First. A machine that will compress one hundred pounds of ordinary Bran into a package not to exceed fifteen (15) inches square, or two hundred pounds in the ame ratio.
Second. That will, with the aid of an attendant and a reasonable amount of power, preare for shipment one ton or more per hour. Third. The inventor or owner of the successful machine must stipulate to sell it at a easonable price, (to be agreed upon between the Executive Committee and himself,) to all Fembers of the Association.
Fourth. The offer to remain open one year, the Committee to be at liberty to reject all devices, competing for this premium, that do ot come up to the requirements of the trade, Sugabstions.-First. Other results being equal, the machine producing the best form r close "stowage," will have the preference Second. The package should be compressed in such a manner that when the covering is
removed the Bran will assume its ordinary condition without manipulation.
Third. No machine or process, requiring ign substance, will be entertained.
Fourth. It is desired that parties building,
$r$ with machines in model, intending to com
pete for the premium, will report progress at an early date.
For further
S. H. SEAMANS, SEo'


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OHIO.


American Turbine Water Wheel, Best quality French burr millstones. Sole Agents in Dayton for the sale ot du four \& co's celebrated boltinn cloths. Fiour and Papor Mill Machinory, Best Chiled od
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Wheel ever known. It has also been otherwise greatly improved.
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[Parties corresponding will please state where they saw the advertisement.]
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## HARRIS-CORLISS ENGINE.

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

The BEST and MOST WORKMANLIKE form of the Corliss Engine now in the market, sub tantially built, of the best materials, and in both Condensing and Non-Condensing forms.
The Condensing Engine will save from 25 to 35 per cent. of fuel, or add a like amount to the ower and consume no more fuel. Small parts are made in quantities and inter-ch angeable, and pept in stooks, for the convenience of repairs and to be placead on new work ordiered at short notioe.

NO OTHER engine bnilder has authority to state that he can furnish this engine.
The ONLY WORKS where this engine can be obtained are at PROVIDENOE, R. I., no outaide parties being lioensed.

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WITH COLLINS' AUTOMATIC CLOTH CLEANER. This Purifier has the following features, whith are seeured to it by patent, and The Automatic Separating Foedor - The Process of Taking out the Feary Specizs between oach number of Cloth-The Sottling of the Hoavy Dust and Lifting the Dight Fuzz into the Dust Room.
J. T. WALTER,

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LOCKPORT, N. Y.,
RICHMOND'S CELEBRATED
Smut Machines,
Brush Machines,
Grain Separators, and Bran Dusters.
Nearly Two Hundred of these Machines are now in operatiou in the elty of Minneapolis, Minn., alone, and more than sixty in the eity of Milwaukee, Wis. They are also extenwively used in many other sections, both on Whator hia sprisg
wheat.
 [Mention this paper when you write.]

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MUTUAL INSURANCE COMPANY

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is now issuing Policies of Insurance on all approved applications received so far. The Company has now sufficient members to allow it to increase the risks on any one Mill from $\mathbf{\$ 1 . 0 0 0}$ to $\mathbf{\$ 3 . 0 0 0}$.

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Simple, Easily Adjusted,

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For the more complete protection of our customers, and to put an end at once and foreve to the demands for royalties by which they have recently been annoyed, we have pur-
chased ALL PATENTS relating to Purifer chased ALL PATENTS relating to Purifiers, lately owned by Huntley, Holcomb \& Heine, including the well-known MIDDLETON PATENT and its several re-issues.
Every purchaser or owner of a Geo. T. Smith Purifier, in the past or future, owns the right to use it unmolested and unchallenged, and in this right we have, can and shall protect them.
Intending purchasers should give this notice attention, as it is of the utmost importance to them.

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FOURTEEN SIZES Single, Double and Special machines.

## Two Thousand SMITH PURIFIERS were Sold in 1881

THE SMITH PURIFIER is in Use in every Milling Country in the Worla. More than Four Thousand are now running in the United States.

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And we are now prepared to fill orders for machines with latest improvements, which include Our New Double Conveyors! New Cloth Fixing and Stretching Device!

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THE CENTRIFUGAL has more than FOUR TIMES the capacity of the ordinary reel, and will make clear flour and a lean finish on stock that cannot be treated in the common reel without loss, no matter how much sill it is passed over, IT IS SPECIALLY ADAPTED to handling soft, reground material, full of light impurities, whether from rolls or stone. IF IS INDISPENSABLE to a CLOSE FINISH in any system of gradual reduction milling, and will improve the qual-
que
of the low grade four at the same time it makes the offal cleaner. $y$ of the low grade flour at the same time it makes the offal cleaner.
IT IS VASTL Y SUPERIOR to the on caned and faky meal from smooth rolls, which no other style of reel can do.
THEY CAN BE USED TO ADVANTAGE as a complete system of bolting, to the exclusion of the ordinary reel.
Over one Frundred soldin six voeelre. REFERENCE TO LEADING MILLERS IN THE UNITED STATES.
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Round and square cases. Buckets aud Rims of
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Durable and wrought iron. Cheap as the chea
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Is furnishing Mills and Elevalors in all parts of the country with their superior BUCKETS,
They are UNEQULLED for their SHAPR, STRENGTH and CHEAPNEB8, Rubber, Canvas Belting and Bolts at lowest market rates. We have no traveling agents. Sample
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grease. CAR
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PLANS, SPECIFICATIONS \& ESTIMATES made for all kinds or MILLWORK. MACHINERY, ETC. Flour, Sawmill, Tannens' and Browors' Maohinory, and Genoral Meill Furnishoss, Corner of East Water and Knapp sts., milwaukee, wisconsin.
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Materials and Plans for Stone or RollerMills. Roller Mills furnished complete with all necessary appliances, and the most perfect system of bolting for Mills of any desired capacity. Genuine Zurich sill Bolting Cloths by the piece, or made up with Webbing. Warranted best quality. [Mention this Paper when you write to us.]

GRAY'S GRADUAL REDUCTION MACHINES. FOR SMALL MILLS.
The accompanying cuts represent the New Four-break Reduction Machines which Edw. P. Allis \& Co, of Milwaukee, Wis., are now vuilding-and which have been especially lesigned to meet the wants of that numerous lass of millers whose mills are small, or wh lesire to supply only a limited trade, but who are forced by competition with larger mills, to put in improved machinery. The manu facturers say: "We are aware that numer ous attempts have been made to furnish machine or combination of machines which would enable a small mill to adopt the gradual reduction system of milling but in all these attempts, the purpose has been to urnish something cheap nd which would sell with ut regard to the work hich it was intended to erform. In nearly e mevis nealy all he devices which have rived for this purpose, the aim of the anufacturer has been to find something which would take the place of xclusively used in larg mills; and the cost of hich has precluded it o in mills of less than seventy-five barrels capacity in twenty-four hours so far no attempt to super sede the roller mill ha been successful, and ou long experience in designing and building mills on the roller system, has con vinced us that for quality of work, capacity, mini
 amount of power eral adaptability to its work, the roller mill is unsurpassed.
We have not attempted to deceive millers with promises to perform with so-called gradual reduction or break machines, results which in the best equipped mills are reached only by a carefully considered succession of machines, and each designed for its allotted place in the complicated process of gradual reduction or roller milling. Neither have we at any time lost sight of the fact, that for the great majority of millers, the system of roller milling, as used in the larger mills, was too expensive in first cost, and too complicated in detail to meet with general adoption; and we have kept steadily in view the purpose to furnish machinery suited to the needs, and which in first cost would be within the means of the smallest mills.
In the machine illustrated, tried to devise some cheap substitute for roller mills, nor to a bridge our system of roller mil ing, which we have put in opera-
tion in by far the greater portion tion in by far the greater portion of the most successful roller mills in this country. The re ductions are made on rolls, in every respect, except length, the same as those used in our Standard roller mills. They are the best Ansonia rolls, and are turned and corrugated, the same as the longer rolls, and not as in the cheap affairs which have been palmed off on unsuspecting mill ers as roller mills, with corrugations cast in, which soon wear out and cannot be replaced. The adjustments are the same as in the Standard Gray's Patent roller mills; and the only respect in which the roller mills in thi machine differ from our stand ard machines, is in being placed on the frame which contains the scalping reels; the rolls, reels and elevators being combined in one machine, all parts of which are readily accessible, which can be placed on the grinding floor, without extending into the story ubove, and which requires only one driving belt. The machine is cheap,-not that it is slighted in any way, or that it lacks any single essential part of our standard roller mills, but because it is compact, simple, durable, and requires very little millwright work or machinery to place it in the mill. This will be readily seen from the following description:
The machine occupies a floor space of $7 \times 8$ feet, and from the floor to the top of the elevafeet, and from the floor to the top of the eleva-
tor heads is 10 feet 6 inches high. The frame
of the machine is solidly constructed of seasoned timber, strongly framed together with joint bolts. On the top of this frame, one a each corner are four corrugated roller mills, each with one pair of rolls, and provided with the same adjusting devices as Gray's Patent Noiseless Belt roller mills. Each pair of rolls is placed in a solid iron frame. The rolls for he first and second breaks are 9 inches in diameter and 8 inches long, and for the third and fourth breaks are 9 inches in diameter and 12 inches long. The corrugations are the ame as in the Standard Gray's Patent roller mills for the same breaks. The manuer of
driving the rolls is plainly shown by the cuts, and is the same as in our standard roller mills. The main driving shaft and pulley are
below the floor, and the driving belt passes over the driving pulleys on fast rolls, and under the pulley on counter shaft, which extends through the machine, and from the posite end of which the slow rolls are driv n. The rolls are coupled to the correspond
ing ones on the opposite side of the machine by short shafts, forming an universal joint, thus permitting the adjustment of each pair of rolls without interfering with the others. The rolls are just the right height from the Hoor to be easily adjusted, and to permit the miller, while standing on the floor, to feel of the chop and examine the work
In the body of the machine there are four scalping reels of improved construction. These reels are placed two on each shaft and driven by cross shaft and gearing, as shown in the cut. The reels discharge at the center into elevators, which elevate the tail-
ings from each reel to the next succeeding
pair of rolls. The whole machine is selfcontained and when once adjusted to its work requires very little attention. Under each scalping reel is a hopper from which the flour and middlings from the different breaks can be spouted separately or together, as desired. The machine contains all necessary elevators and is complete, ready to attach driving belt. This machine is constructed so that it can be separated in halves, for convenience in shipping and locating in the mill. Any millwright who can set a purifier or put up stand of elevators can place this machine in
position, ready for work without any trouble.

For new mills of seventy barrels capacity and under, on the complete roller system, we have designed a somewhat similar machine which is shown in the accompanying illustraion, combining, two of our standard $9 \times 1$ nch double or four--oller mills, containing mooth iron and porcelain rolls with four entrifuga reels and the necessary eievator Each centrigaga reet is the same in every espect as the centrifugal reels built by us nd is provided with double conveyors. The four Reels are placed two on each shaft $\mathrm{i}_{\mathrm{n}}$ on a solid frame above the mills are placed the reels. Either one double $9 \times 14$ inch roller mill and two cen trifugal reels, or fou roller mill roller mins can be used The former is a very convenient machine for bran and tailings, and used in connection with the Four break machine and the machine with two double roller mills and four centrifugal reels forms a very perfect arrangement for a small but complete roller mill. A still cheaper
and simpler arrangement can be had by usingement four-break maching the the machine wine and double roller mills and the four centrifugal reels."

## en Princtifle in Rice

 Miling..-The Sugar Bowl calls the attention of rice planters to an invention which introduces a newprinciple in rice milling. This invention consists in

\section*{substituting for the ver- <br> The very small amount of millwright work $\mid$ tical movement in common use, whereby rice} | $\begin{array}{l}\text { necessary to accommodate this machine to } \\ \text { the work of the mill is greatly in its favor, but }\end{array}$ | is decorticated by a species of pounding, a |
| :--- | :--- |
| rotary motion wherewith the grains of rough |  | the work of the mill is greatly in its favor, but its great merit and excellence lie in its adaptabity to any mill, however small. It can be used to make either three or four breaks, still further, five or six breaks may be made by adding one of our double $9 \times 14$ Standard



## gradual reduction machine. [back side.

 rice are decorticated and polished through a simple friction with each other. The object sought is to avoid the breakage of grains and the pulverization of the husks, which has cost so much time in winnowing and separation of the broken grains.BREADSTUFF EXPORTS
The Untted States Milier gleans the following facts from official sources
The value of exports of breadstuffs during January, 1883, was $\$ 11,977,524$, against $\$ 15$, 874,286 in Jan. 1882.
The value of exports of breadstuffs for seven months ending Jan. 31, 1883, was $\$ 133,696,842$, against $\$ 124,121,439$ for corresponding time one year ago
During January, 1883, 6,989,077 bushels of wheat, valued at $\$ 7,632,102$, and 935,486 barrels of flour, valued at $\$ 5,293,823$, was exported. During January, 1882, 6,772,511 bushels of wheat, valued at\$7; 602,889 , and 482,731 barrels of flour, va!ued at $\$^{2} 2,935,541$, were exported.
During 7 months ending Jan $31,1883,82,618,153$ bushels of wheat, valued at $\$ 92,457,200$, and $5,469,470$ barrels of flour, worth $\$ 32,930,945$, were exported.
During 7 months ending Jan $31,1882, \$ 66,731,515$ bushels of wheat, worth $\$ 79,690,312$, and 3 , 326,975 barrels of flour, wort $\$ 3,326,975$, were exported.
The foregoing figures show an increase of exports in the seven months ending January 31, 1883 over corresponding time ending Jan. 31, 1882, of $15,886,638$ bush els of wheat and $2,142,495$ barrel of flour. The proportion of ship ments of wheat to flour in 188 :

## combined reduution machine for middlings. [driving side].

 is as 1 to 0.3 . While in 1882 iroller mills for bran and tailings. In small mills using two or three run of buhrs, one or
two run can be retained to reduce middlings. two run can be retained to reduce middlings.
In most mills the bolting and cleaning maIn most mills the bolting and cleaning ma-
chinery will need but little addition, and but little new iron work, belting, etc., will be required. All that is of value in an old mill can be retained, and that which is actually necessary to insure good work can be added with the least expense consistent with doing good work. Another important advantage, where the power is limited or the cost of fuel an important item, is the small amount of power required to make the reductions on
rolls instead of buhrs.
was as 1 to 0.2 , a condition of export trade ex tremely gratifying to millers in the United States. We trust and believe that future figures will show an increase in the percent age of exports of flour over wheat, Great ef forts are now being made to find a ber compressing machine, suitable for use in flour mills of any size that will compress bran to a fraction of its natural bulk for the purpose of cheap transportation abroad. If this problem is successfully solved, and we think it will be,
the exports of bran and feed-stuffs will be the exports of bran and feed-stuffs will be
increased beyond all present calculation, the fortunate inventor of the successful machine will not only win a fortune, but do his country an immense service.

## THE UNITED STATES MILLER.


improved by the addition of roller mill machinery made by
Nordyke \& Marmon Co., of Indianapolis, Ind. by Wm. Tisley, jr.. who is having his machinery made b Nordyke \& Marmon Co., of Indiavapolis, In
JAses \& Towssenr, of North Fork, Tenn., is building
three-run water power mill, using machinery which wa made by Nordyke \& Marmon Co., of Indianapolis, Ind. Ballard \& BaLLa rd, of Louisville, Ky., proprietors of
the Lindeu Mills in thatetty, have placed their order witl The Jno, T. Noye Mfg Co., for two pairs of Stevens Rolls. Stout, Mllls \& Trmple, Duyton, O, will furnish 21 dou-
ble sets Livingston mills, for L. Day \& Son's Palisade Mill, Minueapolis, Minn., having overcome the sharpest competition
Stout, Milis \& Trmple, Dayton, o, have sold Hascel bined mill, $9 \times 24$ inch rolls, and two double sets Living
Dawson Bros., of Pontiac, Mich.. are remodeling their mill to the roller system, using Odell rolls for reductions
but the other machinery is made by Nordyke d Marmon but the other machinery is made by Nordyke \& Marmon
Co., Indianapolis, Ind. Lucus \& Aikgn, Uhricksville, o., are changing to the gradual reduction system, and have placed their ord
with the Case Mfg. Co., Columbus, o., for a full line o breaks, rolls, puritiers, scalping reels, \&c
MCHose\& CLARK, Vassar, MLch , are putting up a 200 -bh mill on the Case gradual reduction system, and have pla
ced their order for breaks, rolls, purifiers, scalping reels sce., with the Case Mfg. Co., Columbus, 0
Stins \& Wohlval (formerly New Era Milling Co.) a putting in the Prinz Dust Collector, manufactured by th M11waukee Dust Collector Mfg. Co., using no
dispensing with the old dust-room eatirely.
dispensing with the ord wis
The Victoria Flour Mill Co., Alex. H. Smith, Secretary
st. Louis, Mo., will largely increase their capacity, 8t. Louis, Mo., will largely increase their capacity, an
to that end have ordered from The Jno. T. Noye Mfg. Co of Buffalo, N. Y., twenty-two pairs of Stevens Rolls. The Crocker Fisk Co.'s and E. V. White \& Co.'s mills, a
Mianeapolis, are aperating the Prinz Pat. Dust Collector manutactured by the Milwaukee Dust Collector Mfg. $\mathrm{Co}^{\prime}$ using no other, and dispensing with the old dust-room entirely.
Smirth, Lawther \& Co.. are erectiog a new mill at Nick-
erson, Reno Co, Kan., and have placed their erson, Reno Co, Kan., and have placed their order wilh
the Case Mfg. Co.,Columbus, O ., for breaks, rolls, purifiers the Case Mifg. Co., Columbus, o,., for breaks, ronk, puriners,
scalping reels \&c.,for a full gradual reduction mill on the Case system.
The Kehlor Milling Co, of St. Louis, started up three
or four months ago, is using 18 Prinz Dust Collectors, or four months ago, is using 18 Prinz Dust Collectorn,
manufactured by the Milwaukee Dust Collector Mfg. Co They use no other devices. They say the machines work
like a "charm." Gllbert \& barbra, the well-known miling firm of Ge neva, Wis., have decided upon the erection of a handsome ing the entire job has been awarded to Nordyke \& Marmon Co., of Indianapolis, Ind.
WILLIAMs, WORDEN \& Co. are making alterations in their
mill at Avon, ohio, and will put in six pairs of the Stevens lis, Ind the pro
trade.
non-cutting roller mills. The G. R. Gale Mfg Co. of Cleve
land. Ohio, have the contract, and The Jobn T Co , of Buffalo, will furnish the rolls.
A handsome engraving of the Davis \& Faucett mill, situ ated in the heart of St. Joseph, Mo., will soon appear in this paper. The handsome machinery is being set up by a large number of millwrights under charge of Col. Winn. The mill contains 40 pairs of rolls and is driven by a 250 Carson \& Rand, Eau Galle, Wis., by Stout, Mills \& Temple Daston, 0 ., was wrecked between Chicago and Eau Galle
By direction of R. R. Co , the above firm made a duplicat By direction of R. R. Co, the above firm made a duplica
shipment, causing little or no delay in construction consignees' mill.
A recent visit to the mammoth mill-furnishing estal hishment of Nordyke \& Marmon Co., at Indianapolis, Ind.
shows them to be teeming with activity. A smallarmy over 350 men is indnstriously engaged in getting out
large number of orders. Owing to large number of orders. Owing to their splendid facil
ties many of the other mill-furnighing houses supplies from this house.
ser many
Chrisnian Bros. \& Co. and Leonard Day \& Co. (Palisade Mills), Minneapolis, are being furnished with the Prinz Dust Collector Mfg. Co., throughout their mills, dispensing with the dust-room and other dust catching devices. horse power automatic engine. The machinery of this mill was made by Nordyke \& M.
lis, Ind.
In a recent letter from the Atlas Enigne Works, Indian apolis, Ind., they say: We have contracted with Messra,
Morrow, Hamby \& Co., lessees of the State Penitentiary Rusk, Texas, to furnish the new machinery required for
their shops, consisting of two Corliss engines, one slide valve engine, five boilers, steam pumps, heaters and con plete pipe connections. Our business is excellent, an
the prospects look very bright for the coming

STout, Mhiss \& TEmple, Dayton, $O$., the old reliable
mill furnishersand manufacturers of the Gilbert combine and Livingston roller mills, have recently made an important addition to their large works, in the shape of building specially adapted tor building bolting chests. In it they set up complete all sizes chests, from one and two
reel to ten reel. The building is buill reel to ten reel. The building is built adjoining the ca
penter shop, and is $20 \times 40 \mathrm{ft}$, and 35 f . high. It is buil with galleries around it, to enable workmen to et at upper part of chests advantageously. Having all the latest im proved wood-working machinery, they are enabled to put hese chests together in the very best manner, and at
low figure. The chests are set up complete before leavin the wokrs, and all parts being marked, they can be set u

FOR SALE
A good two-run flour mill. Water power. Building 32 by 56 reet. Good dwelling and 20 acres land, with plenty
timber. Poor health is my reason for selling, Mill is 10 cated seven miles from county seat in a good wheat. A. E. ADAMS,

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PAINESVILLE, OHIO,
Boilers, Engines, Flouring Mill and Elevator Machinery.

## ROLLER MILLS AND MILL FURNISHINGS

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Mas Millwrights, Builders and Contractors, send for our Desciptive Machinery Catalogue of 1883

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## 1st Break Machine

BRUSH SCALPER

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To Millers Operating Buhr Mills.
We guarantee to improve the grade of your flour by the use of our 1st break Machine and brush scalper. Putting in these machines will necessitate no other changes in the present arrangements in your mills.

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 Mills.By the use of our 1st bREak machine and BRUSH SCalpER you can positively remove all seam impurities and germs after the first break, thereby obtaining better results.
Write for descriptive catalogue and prices.

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## Improved Garden Gity

## Niidlilige Pulifir

Traveling Cloth Cleaners.

Our improved Purifier has every device requisite to make it perfect, and every one in use is giving the greatest satisfaction to the users. The Cloth Cleaners are guaranteed to clean the cloth better than is done on any other purifier. Over 4000 Garden City Purifiers in use, nearly 800 of which are the Improved Machine.
The Best and now the Cheapest. Write for circulars and price list.
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$\dot{W} h i c h$ has long been acknowledged as the best made, and which has lately been further improved, making it now beyond com. petition. We make it up in the best style at short notice. Send for prices and samples.

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## over 500 machines in stccrssfol operation.

The only Dust Collector in the market which has been in steady operation over oNE YEAR, giving the best of satisfaction. It is an original macocute infringers to the full extent of the law. Bear in mind that all othernes machines have pioved to be failures, therefore take care and buy the only
phoroughly tested machine. Try it and satisty yourselves.

## FULLY GUARANTEED. NO LONGER AN EXPERIMENT.

Nofiling up the cloth. All the leading mills are adopting our machines, many having dispensed with the old dust room entirely, operating our $D$ USI CoL-
LECTORS exclusively. We refer you to any of the parties using our machines,
AN IMPORTANT PROBLTM SOLVID AT LAST,
Taking Care of the dustladen air from middlings purifiers and other machines, using air to carry off the dust, has been thoroughly met and conquered in

PRINZ DUST COLLECTOR

 Machinos of Difforont simos Built.



 Testimonials.


OHice of E. P. ALLIS \& CO., RELIANGE WORKS.


 milwauker dust collegtor mpe. co.


 steady Operation for 30 days and works satisfactorily in every way; the machine has no been in
tion with any room and Dust roomit the fan blows direct into the
of dust
from
 have it in operation in a few days.
HEzEL Milling co. Milwaukee Dust Collector Mfg. Co. Spring Valley Ohio, Oet. 12, 1882 work and would not exehange it for any machine of its elarss. We know entirely satisfled with its
Vours respect Yours respectfully, BARRETT \& son. Milwankee Dust Collector Mfg. Co. Owensboro, Ky., Sept. 29, 1882. Gentiemen:-The machine you shipped us some time ago reached us the forepart of this
week and was put in successful operation to-day, It starts off all right and we hope will continue
to work well.
Your truly,
Milwaukee Dust Collector Mig. Co.
Gentlemen:-Wo have now been runntings, Minn., Oot. 19, 1882.
Gentlemen:-Wo have now been running your Dust Collector about 10 days and are well
pleased with it. If we had room would put in more.
YOurs truly,
CHAS. ESPENSCHIED.

## COCKLE SEPARATOR MANUFACTURING COMPANY, MILWAUKEE <br> GENERAL MILL PURNTSHERS


plain cockle machine IIPRove COCKLE sERaRATors

Richardson's Dustless Wheat Separators ! Also Sole Manufacturer of BEARDSLEE S PAT. GRAIN CLEANER. We will contract to furnish entire Wheat Cleaning Machinery for mills, and guarantee
 having tried it once, and can conscien- P. S.-I have been milling now for than rated capacity, per one third more Cockle Separator Mfg. Co.
iously vouch for its good work.
ours respectully, BROW
Berrysville, inN \& WINFREY. seenanything t.
Perrysville, Ind., Nov. 24, 1881. As an Oat Separator it is No. 1, and apolis. Sirs:-The combined machine I bought for Cockle it cannot be beat. I can take of you has been running about three it without wasting any of the small
weeks. It certainly does all weeks. It certainly does all you claim wheat. In my opinion every mill in the Foe it, and is the most perfect you claim wheat. In my opinion every mill in the
that I have any knowledge of.


from you tor our New Era and Milwau kee Mills give us the best of satisfac kee Miils give us the best of satisfac
tion. Experienced millers having seen the work done by the machine agree With us, that it cainnot be beat. You are erence, and to any party calling a retWe will ha pleased to show the machine
in operation, Yours truly Yours truly,

NEW ERA MILLING CO.

## a PORTABLE ELECTHIC LIGHTER

Scientific American, New York, Dec. 16, 188s.
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 thirty -five years' expererienany, etc. We have had
Patents obtained throuph us are noticed
TIFIC AMERICAN. This large and sice




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 ADJUSTABLE WHILE IN MOTION. Nearly 1,000 of these Machines in Jse. eureka manf'g co., Rock falls, Ill., U. S. a.

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 manufacturers of the world-renowned eureka grain cleaning machinery and speclalties herewtith illustrated. oceupipes but Hitle ghaee does itw work in an
 GENUINE DUFOUR AND


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 Uaboe.
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## J. F. RT円DEMGD,

 Millwright and Mill Furnisher,
## Patentee and general Agent for

## REDFIELD'S COMBINED ELEVATOR \& PURIFIER.

And the Champion Wheat Cleaning Machinery.
Large stock of Du Four's Bolting Cloth on hand, which we sell lower than can be purchased elsewhere. Cloths made up to order and guaranteed to fit, and be of the best material and made in the most workman-like manner.

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J. $\mathrm{H} . \mathrm{REDFIELD}$, Salem, Ind

## 

## FLOUR BRANDS  | LETTERS |
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 Sants Fe R. R Good local market for flour, and plarke de-
mand for millestuftis. No oller mill within ten milis and
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operated Gates gives more pailer
Ior the water used and
longer that whan unt
lost ooger than any other wurb las
Large shop whth improved tool
for makiog this wheel
chinery Illustrated Pampha-
and Catalogue with prices sent
free by burnham bros.
[Please mention this paper when
you write us.].


MILW A UKEE, APRIL. 1883.


## CRANSON'S SILVER CREEK ROLLER BUCKWHEAT

 SHUCKER.The manufacture of Buck wheat flour is rapidly assuming a place of great importance, but to successfully carry it on, purity and quantity of product must be secured, while economy in carrying out the flouring process is essen tial to render its undertaking remunerative tical miller of forty years experience, and who has made the manufacture of buckwhea lour an especial study, conceived the ide that rollers were preferable to stones for cer ain steps in the process of its manufacture and after long experience succeeded in producing the Silver Creek Roller Buckwheat Shucker, which by actual service in more han five hundred mills in the United State nd Canada, has proved itself to be the most perfect machine of its class, and in inviting your careful investigation of its merits we beg ar fact purity and value of the flour made by the use of this machine, has in many cases quadrupled the business of those using it, and given hem a profit of twenty-five cents per bushel ver the old method of manufacture. During he past year more than $5,000,000$ bushels of Buckwheat have been treated upon thes plaint or dissatisfaction, but with innumera ble expressions of satisfaction and praise The shucks are so perfectly removed that only two screens and one small suction fan are required for a suitable separation of the meats from the shucks. We have, at great expense, evised suitable machinery for making our ron rolls surpass in durability, sand stones, ron or emery plates. No time is required balance, tram, pick, face or furrow ou olls, as all stone devices require. Our Improved machine is so perfectly balanced and carefully adjusted in all its parts that no trouble or annoyance is occasioned the miller in operating it. It runs very light, less power be ing required than any smutter having capa city for treating the same amount of grain More than five hundred Silver Creek Roller Shuckers are in use giving in every case perfect satisfaction."
We cheerfully advise all millers in need o bnckwheat machinery to address Messrs, G. S. Cranson \& Son, Silver Creek, N. Y., for terms and further particulars. The accom panying illustration will give the reader good idea of the machine.

## ABOUT BILLS OF LADING.

The importance of having through bills of lading made out properly is plainly indicated by the following letter from a large London flour importing house to one of the heaviest milling fir.ns in Milwaukee
Dear Sirs: We wish to call your attention
to the fact that most through to the fact that most through bills of lading are made out in such a way that we have short deliveries, damages, etc To give in-stance-We have a bill of lading before us headed as follows:
"The Red Line Transit Co. and the out-
side steamer side steamer , from New York"; and another, "The Great Central Route Blue Line and the Monarch Line Steamship. firm or company mentioned in case of any claim, and in the second, instead of "Monarch Line, S. S.," the company owning the "Monarch Line" should be mentioned; which is the Royal Exchange Shipping Company, Wimited
in respect to claims, that we hope in future you will always have the name of some reyou will always have the name of some re-
sponsible party inserted in all your bills of lading.

Yours truly,
The following letter has been handed to us for publication by Messrs. E. Sanderson Co., of Milwaukee :
To the Minnesota State Millers' Association, in Convention:
Gentlemen :-We desire to call your at-
ention to a matter in which all of us are
more or less individually interested, viz: The orced upon shippers by the forms of bills of ading now used by nearly all transportation ines doing an export business.
We believe a united and vigorous effort on in obtaining from all transportation would resul ies a uniform bill of lading, the conditions of which would be assented to by, and binding upon all parties thereto; and not like the present, which contain conditions that have
been declared illegal, and others that are manifestly unjust to the shipper, by the ac

Among the
the following:
1st, The condition, "wherein the transpor dation companies claim exemption fiom damage by detention or delay while in tran no bill of lading ought to no bill of lat
bill of lading which seeks to hold liable only
4th. In case the property would be obliged go by the route indicated in the bill of more advantageous averages, but so secure the transportation companies are allowed to send by any route they may elect, the insur-
ance companies will confine themselves to nce companies will confine themselves to the haza
The transportation companies may claim the contingency of shipping by "other claines" is a remote one, it is, however, a risk, and one the shipper should not be called upon to Withi
Within the last two years, we have had two cases wherein the property was thus diverted
on one of which there was a marine loss on one of which there was a marine loss
the English adjusters, very properly, decided hat the insurance certificate, as it read, wa not liable, and refused to pay. We trust your convention will give this matter the consideration its importance demands, and take such action as you may plained of. We would suggest evis com ment of a committee, who will investigate

particular carrier in whose possession the lance occurs. This would seem, at first able the different companies in the line to protect themselves from each other, but on way or transportation company to have irreponsible or mythical connections, against which there is no recourse if any damage occurs while in their control or possession.
If we are not mistaken, it has been decided hat the railway or transportation company issuing a bill of lading is the responsible party, ond there is no necessity for inserting such condition, which only forces the shipper at great expense to maintain suits against foreign companies, who plead they do not know the shipper, but contracted with the Railway Company, from which they received the property.
In the case of Bruce \& Wilson, Glasgow the defense took very strong grounds that the above conditions were a complete waiver to heir liability in the premises.
3d. However, the most dangerous surrender of our rights, and one, too, that many
shippers undoubtedly overlook, is the condishippers undoubtedly overlook, is the condition which allows property to be carried by any route or line the transportation company in, and parts of the property may be carried or forwarded by different means or routes transportation;" others read, "and liberty to shi by any other steamship or steamship line.
Others again agree "to ship by steamship of equal rate of insurance to that named,",
in the bill of lading-this concession however, the bill of lading-this concession however few make, and it is an important question to
be considered in this connection, whether this condition, afterwards inserted, does no vitiate the insurance? It can be readily seen that to be properly insured under such a bil of lading the certificate should read, "by ers." These condit ons but few or steam companies will entertain, and if insurunce companies will entertain, and if they do will
charge an extra rate, which results ina higher rate of insurance, and also limits the shippe in the choice of insurance companies.
and report at the next annual meeting of the Yours truly . Sanderson \& Co.

What the secretary of the illinols mil LERS' ASSOCIATION HAS TO SAY TO ILINOIS MILLERS.
$\qquad$ :
about time gain a confidential chat we should have again a confidential chat on the situation. you might think that the whole thing had gone to sleep, but let me assure you the AsThe Dench field awake.
The Denchfield suit will be decided by the United States Supreme Court this spring yet and the defeat of it is a certainty, because the all the re-issues of patents very scrutinizing fraud similar to the Cochrane iniquity is now almost an impossibility, thanks to the glor ous fight the Association made against it. The Downton process patented case will be decided by the nited Sa es Supreme Cour make very little difference to the mem will of the Association, as we have a contract with Mr. Downton which insures to the mem bers only nominal penalties for infringment. A serious row is threatened on account of cutive committee of the Never, the sub-exe is now arranging with the leading manufac urers, for heavy bonds with unquestionabl good security, that all the purchases of such machines shall be defended out of the proceeds of these bonds; the more machine hese concerns may sell the higher additional bonds they obligate themselves to furnish.
It may take four or six weeks yet before all the details are worked out, meanwhile wo advise all members to refuse payment fo hese machines unless they get unquestiona ble good security for a clear title.
Let me entreat the Association to use or machinery of any description. Buy purchasing mill good, responsible dealers, even though you may have to pay a few dollars more.

There are a number of irresponsible firms spinging up all over the country, manufac uring and selling all kinds of mill machinery egardess of he rights of patent owners. I hey will, most assuredly, get themselves int trouble before long, and most assuredly th Association will not, and cannot, defend suit arising out of such carelesscess. Please pay There is an instin
There is an instinctive feeling all over the and one patents on Roller Mills will get the milling fraternity into trouble without end The Executive Committee has been - canning the horizon for a good while, and the policy
of the Association will be to make common of the Association will be to make common cau'e with anyone who is a bonafide possess-
or of "bed-rock" patents affecting Roller Mills. The so-called Ganz patents, controlled by parties in Budad-Pesth, have, within the pas ew weeks, been bought up by parties in this country, who think they have more than cold mine or two. You may rest perfectly casy with the assurance that the Executive
Committee of the National Association lay awake of nights watching all these manceu vres, and that to trap will be sprung on th Association. If any man proves himself to have a real good thing, we will call him brother, and lock arms with him; if he only dignity. There are other matters and our ents engrossing our attention. We will not enlarge on them now. If they should be-
enter come troublesome it will be time enough then to bother you with them. with a Nationa Association is now arranging with a patent law firm to watch all new pat ents ground out by the patent office from
week to week, which might affect the milling interest, and in this way we hope to be con stautly posted. At the same time several Congressmen are working, at our instigation to get a law passed by which an innocent purchaser will be protected from blackmail, and we have the assur..nce, by a prominent memwet the requis ite majority in either one or the other House during the last three or four years.
To keep all this machinery in good work-
lng order it takes dollars and cents lng order it takes dollars and cents.
The National Associa ion, assembled at
Cleveland last January, urdered an assessCleveland last January, wrdered an assess-
ment of $\$ 10$ per run, being equal to 35 barrels capacity in 24 hours; half of the assessment, or $\$ 5$ per run, payable this month, the your earliest opportunity, $\$ 5$ for every 35 barrels of your capacity per 24 hours.
During the absence of C. H. Seybt (secre-
tary and treasurer) in Eure please remit to and correspond with Henry Schurmann, assistant secretary, German-

Highland, Ill., Mareh 20th, 1883. Treas.

## a WORD about milwaukee cement.

Milwaukee Cemfnt is now conceded to be the best natural hydraulic cement in the American market. In uniformity of manufacture, reliability and ultimate strength, there is no superior cement made from the natural rock, in this country or Europe. The works are among the largest, most modern and most complete for the perfect manufacture of hydraulic cement of this class in any part of the world. Its patrons include the national government, many of the state governments, the largest railway companies and many of the most expert engineers and archilects of the United States. Of the large quantity shipped by the company the past year not one barrel was rejects $d$ because of inferior qual ty. The capacity of the works is now nearly half a million barrels per annum.

We acknowledge with pleasure a delightful visit from D. G. Tepper, Esq., now editor of the Millers' Journal of New York. Mr. Tepper was formely editor of the Millers' Gazette London, and became thoroughly acquainted with the trade on the other side. He has how aver, we believe, made up his mind to settle own here permanently, and be "one of us." He is now visiting various points in the West o become personally acquainted with those ngaged in the industry he helps to repre sent journalistically.

## THE UNITED STATES MILLER.

## United States Miller. <br> published monthly


si.50 per year in in advanacee

## MILWAUKEE, APRIL, 1883.

anouncement

| nar-Wm. Dunham, Edilor of "The Miller," 69 Mark Lane, and Hrmby f. Grlig \& Co., 449 Strand, London, England are authorized to receive subscriptions for the UNITED statbs Mileke. |  |
| :---: | :---: |
|  |  |
|  | oblige the publishers and manufact ing therein, by placing it in their can be seen by those parties seeking tion as it may contain. We shall be fied to receive :communications for from Consuls or Consular Agents ev we believe that such letters will be rea est, and will be highly appreciated. |

## annual meeting ajof the wisconsin state

 miller's association.Secretary's Office,
ankee, March, 27,1883
Milwaukee, March, 27, 1883 . The Annual Meeting of the Wisconsin
State Miller's Association will be held in the State Miller's Association will be held in the
parlors of the Plankinton House, Milwaukee Tuesday, April 10th, at 2 o'clock, p. m., for the purpose of electing officers for the ensuing year, and transacting such other business a may be brought before the meeting.
A full attendance is desired.
s. H. Seam rans, Sec'y.

## minnesota millers' association.

## To the Member

Gentlemen: You are hereby notified hat a special meeting of this Association will be held at the Nicollet House, in Minneapolis, on Tuesday, the 10th day of April, A. D. 1883, at 10 o'clock in the forenoon of said day Business of importance made necessary by the action of the executive committee of the Millers' National Association, held at Cleveand, O., Jan. 31, 1883, will come before us, Also the election of officers of this Association, as well as all other business that would have properly been considered at our annual
meeting in December last (had not that meeting been adjourned,) will be considered and disposed of. Hence a full attendance is both desirable and important.
E. V. White, Chairman Ex. Com
W. P. Brown, Pres. Minn, State

Minneapolis, March 19, 1883.

## WHEAT AND FLOUR EXPORTS.

The following figures are condensed from official sources. During the month of February 1883, there were exported $5,666,035$ bushels of wheat, worth $\$ 6,491,026$, and 902 633 barrels of flour, worth $\$ 5,368,136$. In
February 1882, there were exported 5,318 , 183 bushels of wheat, valued at $\$ 6,222,841$, and 526,499 barrels of flour, valued at $\$ 3,117,854$. The total value of exports of grain and flour for eight months ending, Feb. 28, 1883, wa $\$ 149,431,142$, against $\$ 135,296,632$, durin corresponding time in 1882.

## dangerous practices.

F. B. Allen in the Locomotive says: When a boiler gives signs of distress, by unusual leaking, or by other well-known indications, disturbance be put out of service until it can be thoroughly examined by a competent inspector and the nature of the defect determined. The average water tender puts a heavy feed on the boiler and gets a ladder with which he may climb up and watch the
spread of the leak. In opening the flue spread of the leak. In opening the flue
doors in the setting, to afford him the necessary view, unwittingly, no doubt, he premits a stream of cold air to sweep the boiler bottom, which adds another important element to its destruction, and perhaps his own. We
would as soon think of entering a powder magazine with a lighted cigar as to do either of these things at the time or under the circumstances we have described.
[From the Milling World.]
PERTY IN MILL POND IC

## by myron bly.

The question of the legal ownership of ice on mill ponds must be an especially important one to mill owners of every description, because nearly all the leading cases involving adjudication of the right of property in ice refer to disputed rights in mill ponds. When ice began to assume a commercial value the
courts were soon called upon to decide concourts were soon called upon to decide con-
flicts over its ownership. But the question was new; the judges had no English precedents to guide them, because there had never been any necessity of deciding the question been any necessity of deciding the question
in England. At first there was a good deal of groping about and stumbling, but the decisions have now approached an approximate uniformity. The reasoning of the opinions, however, is very contrary and diverse. It would have been better for the courts in this case to have followed the course of the distinguished Lord Chancellor, who declined on general principles to give reasons for his degeneral principles to give reasons for his de-
cisions, stating that the latter were usually cisions, stating that the latter were usually
right, but his reasons were apt to be wrong. Some of the conclusions which have been reached are as follows
New York-There can be no difference as o the rights of a riparian owner growing
Illinois-Manifestly different considerati apply to water in a running stream when in liquid state and when frozen.
Indiana and Illinois-When water has congealed and become attached to the soil, like any other accretion thereto, it becomes a part of the realty. It is real property.
Michigan-Ice is personal property. It is only a portion of the running water become fixed by freezing, and draws nothing from the and, and gets no more support from it than floating log.
Connecticut-The miller may be injured by the removal of ice, because the water sup-
ply is limited in the winter time, and ice often liquifies during winter thaws and becomes available, and it also retards deeper freezing and a further lessening of the water.
Massachusetts-The cutting and carrying away of any quantity of ice would not inflict injury by diminishing the quantity of water which would come to the mill. It must be cut in the winter. It melts in the early spring
and goes to form the spring floods when there and goes to form the spring floods when there a surplusage of water. When a dy seamuch water in the pond as though no ice had ver been cut.
Notwithstanding this diverse reasoning, here is but little diversity in the decisions. The first New York case, to be sure, bluntly held that as the water of a running siream could never become the property of a riparian owner, even though he owned both banks, therefore the ice could never become his property so that he could sell or dispose of it. This was put upon the theory that the riparian owner had no right to direct the water, the use of the flowing water. All this was upset by a later decision in the same state,
holding that the water might be diverted for holding that the water might be diverted for domestic purposes and for stock, and in fact not impair the beneficial enjoyment of the stream by those below, and having a property in the water to this extent, the riparian owne had, therefore, an absolute property in the ice.
This right of property in the ice possessed by he riparian owner, is now perfectly established, whatever the reasons the courts have advanced for it. The same rule applies generally o streams that are navigable. There may be exceptions in the case of navigable streams, however, but as millers are not, as a rule in-
terested in such waters, it will be sufficient to say that the exceptions might arise in these states which do not adopt the common law
rule that the title of the riparian owner ex ends to the middle of the stream whereve the tide does not ebb and flow, but hold, on the contrary, that if the stream is navigable, might be held that the right to cut ice vested in the public at large, if access to it could be obtained without trespassing on the shore. The legal ownership of ice, on mill ponds,
then, may be briefly stated in the following manner:
If the mill owner possesses title to the bed of the pond, or if he has acquired by purchase, or by prescriptive use, the legal right to flow he land, the ice which forms on it is his ow property.
He may
He may cut it himself or sell it to others and itis not necessary that he should own th
flow it. It will be seen that he who ponds
waters is recognized as having a waters is recognized as having a special prop-
erty in them. Without this recognition, if miller did not own the bed of the pond, bu simply had a right to flow, the ice might be the property of those who held the title to the bed. It has been distinctly decided that where one grants to a miller the right to flow simply and reserves the fee, he nevertheless part with his right to the ice. It has not been s clearly decided that where the right to flow has been acquired by prescription or long continued use, the holder of the fee loses his right to the ice. But this must inevitably be the case. Prescription implies that a grant has been made. Moreover, it has decided that where the right to flow land has been acquired by prescription, the mill owner ha an interest in the ice which entitles him to have it remain on the pond, and he can preely others catting it. If his is so, then it y a question between the miller and the ver riparian owner, and the latter canno revent the cutting of the ice by the miller The whole subject is a very interesting one uncertainty, but at the present time the rules laid down above may be relied upon as cor rect.
(Transiated for The Unitrd Statres Milier. MENT OF
DUSTRY.
According to Pliny, the invention of mill ing is accredited to Ceres, but a Spartan legend accords this honor to one Myles, Lelegecian. The fact that one of Zeus' names is Myleus, "the miller," furnishes incontest able evidence for the great antiquity of the process for making grain into flour. In Egyptian wall paintings there occur every where mortars and sieves, the only imple ments in use by the ancients for makin flour. The Indians and Nubians pulverized the grain by grinding it between two stone and this method finnally gave rise to the em
ployment of millstones. Moses and Homer already mention mills with two stones. Thes early millstones, however, were very small, as shown by those found at Abbeville, which are only about 28 centimeters in diameter They are still in use in the Orient and in China. Also in Pompei millstones and whole mills have been discovered, but the stone are larger. The lower stone, on a conica projection faced with iron, carries the upper reason which resembles an hour-glass, by exes meeting in the center. The first mills driven by water power are described by Vitruvius and, since that time, they hav been adopted all over the world. For reasons,
which we have mentioned in a previous article, the milling industry remained stationary for centuries, and it was reserved for America, to give the first impetus toward improved methods in milling
As early as the commencement of this century, there were a number of mills estab lished in Pennsylvania and on the Mississippi far superior to the old German mills. In Europe nothing was known of these new methods, employed among the American millers, as far back as 1781 , since the firs
successful steam mill was established in Lon don, in the year 1784 . In France, however no steam mill was built until 1826. In Ger many there were, in 1825 , mills operated by steam in several places.
At first it was generally supposed that an extensive flouring mill could only be carried on successfully by the use of steam, but this opinion has since been proved erroneous, and many large establishments now depend entirely on water for their power.
The next great improvement was reached by the introduction of a better material for stones, which brings us to the time of the prevalence of French Buhr-stones from La
Ferte and the general introduction of American apparatus.
The first attempt to use rollers for milling purposes is said to have been made by Hel. enberger of Rohrschach, some time between 1820 and 1823. A mechanic by the name of Bollinger improved this roller-mill, which consisted of three corrugated rollers, two of which were placed side by side and the third below these. They made respectively 30 , 40 and 48 revolutions and had consequently differential speed, so that the grain was not only crushed, but ground. A von Mueller of Warsaw, also invented a roller-mill, which is said to have been still better than Helfenerger's. A large number of mills on the oller system were erected in 1834, by Engineer Sulzbacher, in which the rollers were
arranged in three pairs placed horizontally
above each other in such a manner, that the
middle pair, and from these on the lowest pair. The rollers ran with a speed of $350-$ 450 revolutions. In Mayence and Milan, hese rollers were made of cast iron with flutes of steel, arranged so that they could be removed when worn out. It was, already a hat time, conceded that better results could e obtained by the use of rollers for milling, ut, nevertheless, in all the places, where ollers have been employed in the thirties, such as Mayence, Leipsic, Munich etc., they were afterwards discarded, and their place again supplied with stones, because the poor quality of the costly materials, out of which rollers were made, caused them to wear out ery quickly, a calamity which then appeared atal to the otherwise promising innovation. First with the unexpected and great improvements in the manufacture of iron, and especially steel was it possible to obtain a material for mill rollers, which answered all requirements, and from the time when it became possible to produce cast steel of excelent quality at a comparatively low price we may date the firm establishment of the oller-mill system.
Finally Wegmann found a new roller maerial in porcelain and, at the International Exhibition of Vienna, in 1873, showed that he had reached remarkable results with his rollers in Naples. He thereupon commenced making experiments for this purpose, in Budapest, and there his system was adopted by the large firm of Ganz \& Co , but modified 0 as to employ rollers manufactured by heir peculiar process of hard casting, instead of porcelain. This firm have taken a pro minent part in the entire revolution of the milling industry and development of the world-renowned Austro-Hungarian system of milling.
From Europe the rollers were introduced into America, and the first rollers were brought to this country by Oexle from Budapest. With usual enterprise, however, Ame ican industry at once, seized upon the manufacture of rollers, and it is not to be denied that the results obtained here in their production, within the last two years, have been so favorable that the millers of Austria-Hungary, who until recently were acknowledged s the leaders of the world in gigantic milling on scientific principles, have commenced looking for their laurels in alarm. In milling as well as in all other branches of human in dustry, America is and will continue to be a ormidable rival of the old world.-Die MuellerStube, (Vienna.)

## the efficiency of modern turbines.

by robert h. thurston.

## rom the Presidents Anuual Address beforet can societes of sle echanical Engineers.

The mechanical engineer has open to him 8 his exclusive province one departmen which is as yet only partially developed in practice though well advanced in theory. Ire er to that of hydro-mechanics, and especially he utilization of water power. Although oneo he earliest opened by the old Greek engineers it has been one of the latest developed. Archi medes, Ctesibus and Hero were familiar with the principles of fluid pressure ; Torricelli, Pascal, Newton and Bernouilli developed the fundamental principles of hydro-dynamics; Du Buat, D'Aubuisson, Prony, Eytelwin, and above all others, Darcy, supplied experiment 1 data; but it has been reserved for our own generation to apply the knowledge so early acquired to the production of efficient hy draulic engines. But a few years ago the verical water-wheel, as constructed by Fairbairn or moderate and for high falls, and the underbot wheel of Poncelet, were the standard wheels in all countries, notwithstanding their cumbrous size, their slow movement, and the great cost involved both in their own construction and in that of their machinery o transmission. Their efficiency was thought high, although rarely exceeding 75 per cent. These wheels have had their day, and noth ing is likely to occur to save the whole class from ultimate disuse. The turbine-introduced in an effective form by Fourneyon a half-century ago, and especially in the late forms of Fontaine, Henschel, Jonval, Schiele and others abroad, and by Boyden and his successors in the United States-has become the only water-motor in general use. This small, cheap, quick-running wheel has completely displaced all the older forms, whether overshot, undershot, or breast wheels. The three principal types-parallel, inward flow, and outward flow-are all in use and
doing good work. In Europe, they are all made by good builders, as here; but the tendency seems to be, in the United States at least, to introduce most generally another
and downward How wheel-as illustrated in $\mid$ hour. Each bushel of coal would therefore She went by the meeting point at a mile and the wheel built by Risdon. In efficiency, raise about $5,500,000$ pounds through one notwithstanding the comparative neglect of these motors by scientific investigators, there has been a steady and important gain during
late years. The improvements which bave been felt out by makers, working often in the dark-for few builders claim to understand the principles of their art, and no two.even ever agree in their statements of the princi ples underlying their practice-have resulted in a gradual elevation of the standard, until, to-day, a wheel which, under favorable circumstances, cannot exhibit an efficiency of 80
per cent., must drop into the background. I per cent., must drop into the background. I
have been asked to certify a trial, giving, as claimed, 95 per cent.; but that figure could, I am sure, only be attained by chance, if at all, when all conditions conspired in its favor. But wheels are, I have no doubt, doing work It may be said that Boyden did as well a generation ago. True, but only with large wheels, built as carefully as the chronometer is made, and fitted with polished buckets and diffusers and tested under conditions purposely made the best possible. To-day, our builders of turbines give their wheels such exact propor-
tions, and take such care in the ordinary work of the foundry, that they obtain these high figures from wheels almost directly from the sand. So far has this change gone, that
our theory of the turbine, as modified by our theory of the turbine, as modified by
friction, requires careful revision. Accepting the older coefficients for friction and losses of energy, it will probably sometimes be made to appear from experimental trials that the wheels of our best makers are a trifle better
than perfect. It would seem from sent me that friction in a well-formed whee becomes partly a means of transfer of energy from water to wheel, and that the loss of effihas been supposed. In some of the later wheels losses of energy due to eddies occuring within the flowing mass have been reduced to such an extent as to considerably improve their performance. In the regulation of the turbine an excellence has been attained that is thoroughly satisfactory in some cased, and
the best wheels have been found to give an efficiency at half and three-quarters gate, nearly equal to the best at full gate. As the efficiency at part gate is often more importmeans a vitally important gain.

## history of the steam engine.

The history of the "growth of the steam engine," as told by Prof. Channing Whitaker in a recent lecture delivered before the Rhode quite an interesting one. According to Prof Whitaker the steam engine existed as a toy from 200 years before the Christian era until about 1690, or for nearly 2000 years. How much earlier it was used as a toy is not known. A useful steam pumping engine was introduced at Raglan Castle, in England, not much later than 1628. The steam engine became a useful machine because it was found capable in the hands of Savery, Newcomen and Watt, in England, in draining the rich mines of Cornwall and other districts. The inventions of both Savery and Newcomen were preceded by those of Denys and Papin, who invented a method of raising water not by means of steam, but by means of air. Thomas
Newcomen, an iron founder, gave himself Newcomen, an iron founder, gave himself
over early to the idea of supplanting the air pump with an invention of his own. His plan was: To fill a closed vessel of sufficient strength with steam of the atmospheric pressure, and afterwards by condensing the steam to cause a vacuum to be formed in the chamber into which the water would flow through a communicating pipe from the well beneath because of the atmospheric pressure uponits surface. During the same period Capt. Savery, a wealthy gentleman, became interested in the same kind of an invention. He devised and patented, in 1698, an invention for raising water by steam. He also published a treatise called the "Miners' Friend," in which he called the attention of owners of submerged mines to his new' invention. This new engine of Savery's delivered water at a hight of nineteen feet above the surface
of a well and madeseven and a fourth strokes of a well and madeseven and a fourth strokes per minute, each stroke filling a receiver 2
feet in diameter and 7 feet high to a height of six feet. The work done was the raising of eighteen and three;fourths cubic feet of water per stroke through a height of nineteen feet, which was equivalent to raising 136 cubic feet per minute to the same height. The consumption of coal was 3,200 pounds in twenty-four hours, or about one and threefourths bushels of eighty-four pounds per

## oot. This is less than one-fifteenth part of he work performed by a modern pumping

 ngine.About the year of 1712 Thomas Newcomen, ronmonger, and John Cawley, glazier (whose hames are associated as the makers of the hrst engine that ever worked a pump,) put up an engine at Wolverhampton which acted
successfully. The progress made was very rapid and it is recorded that in the year 1737 there was a pumping engine of the Newcomen each 7 incherking a succession of pumps, feet apart and making six feet stroke at the rate of fifteen per minute, whereby water was pumped from cistern to cistern through-
out the whole length of a shaft 267 feet deep hy steam at or near the atmospheric pressure well practically successful, but it was not thoroughly well designed and the next important im provement came when Smeaton, a skilful engineer and designer, improved the propor Newcomen's design. In 1775 Smeaton erected an improved Newcomen engine at the Chase-Water mine in Cornwall. This had a cylinder 6 feet in diameter, with a 9 -foo
stroke, and was capable of producing 76 horse power. It is curious to note that the growth of the steam engine has reduced its size so far that a high-speed engine which enormous engine of Smeaton's did would have a cylinder only 9 inches in diameter and 16 inches stroke, instead of 72 inches in diameter and 108 inches stroke; or, to state of the cylinder in which the power is produced would be only 1-216 part of that of th comen engine. Smeaton's engine was th largest in existence at the time of its con struction. It worked successfully for a few y ears and was then altered by James Wat
to his improved system. In 1765 Watt began to repair a model of a Newcomen engin belonging to the natural philosophy class in the University of Glasgow. This led to a series of improvements which have mad son ever introduced more or more important Watt id ed the double-acting steam engine, in which ed the double-acting steam engine, in which
the steam acts on each side of the piston al ternately

The concluding remarks of Prof. Whitake
re concerning modern engines, and espe

## cially those built in this country

how they play the piano in new orleans
"I was loafing around the streets last night," said Jim Nelson, one of the oldest locomotiv engineers running into New Orleans, "and as I had nothing to do I dropped into a concert
and heard a slick-looking Frenchman play a piano in a way that made me feel all over in spots. As soon as he sat down on the stool I understood the machine he was running. H tapped the keys away up at one end, just as i they were gauges and he wanted to see if he had water enough. Then he looked up as if carrying, and the next moment he pulled open carrying, and the next moment he pulled open
the throttle and sailed out on the main line as if he was a half an hour late.
"You could hear her thunder over culverts and bridges, and getting faster and faster until the fellow rocked about in his seat like
a cradle. Somehow I thought it was old ' 36 pulling a passenger train, and getting out of the way of a 'special.' The fellow worked the keys on the middle division like lightning and then flew along the north end of the line until the drivers went around like a buzz saw and I got excited. About the time I was fix the dampers under the machine wide open, pulled the throttle away back in the tender and Jerusalem, jumpers ! how he did run. I couldn't stand it any longer, and yelled to him that she was 'pounding' on the left side, and if he wasn't careful he'd drop his ash pan.

But he didn't hear. No one heard me Everything was flying and whizzing. Tele graph poles on the side of the track looked
like a row of corn stalks, the trees appeared like a row of corn stalks, the trees appeared
to be a mud bank, and all the time the exhaust of the old machine sounded like the hum of a bumble bee. I tried to yell out, bu my tongue wouldn't move. He went around
curves like a bullet, slipped an eccentric, blew out his soft plug, went down grades fifty feet to the mile, and not a confounded brake set.
half a minute, and calling for more steam. I knew the game was up.
"Sure enough, dead ahead of us was the headlight of the 'special.' In a daze I heard a crash as they struck, and I saw the cars shivered to atoms, people mashed, mangled nd bleeding, and gasping for water. Theard he deep keys away down on thessor struck of the southern division, and then I came to my senses. There he was at a dead stand-still, my senses. There he was at a dead stand-still,
with the door of the fire box of the machine with the door of the fire box of the machine open, wiping the perspiration off his face, and
bowing at the people before him. If I live to bowing at the people before him. If I live to ride that Frenchman gave me on a piano."

## Wheat possibilities in the far north

In an article published a good many years go, by a leading writer on agricultural mat ters, he makes this statement: The natural and permanent wheat region of the country lies between latitude 33 deg . and 43 deg. the United States, according to this authority, lies between a line drawn through southern Arkansas on the South, and northen Iowa on
the North. But actual experience soon demnstrate the actual experience soon dimi was much above this; indeed, the line has gradually been pushed poleward, until to-day it reaches nearly to the Arctic circle. The conditions necessary for the development of studied by scientific men, and the laws which govern its growth are now well understood. hom 100 to 150 days from the plant requires the seed to the harvesting of the crop. From the time of heading out until maturity, the verage period in the United States is from fifty to sixty days, and in England from fifty dry weather and sunshine.
The fact has beèn àscertained, also, that he average temperature during the summer months must not fall below 60 degress Fahrenheit, or during the average period of its
growth below 56 degress. If this tempera ture is not attained the grain will not ripen and the crop is a failure. In the far northern latitudes of the American continent, nature in wondrously kind to the farmer. Way up north to the system of rivers which flow into peraturctic Ocean, the conditions of the temSummer comes on all at once, and from the time the seeds sprouts until it is matured here is hardly a moment's cessation of heat growth. The transfor mation from cold to here is one of the marvels of the coun-
The days are immoderately long, the wilight shadows being prolonged to 10 or 11 night. In consequenee, wheat will madure in about 100 days and barley in 90 , or,
it will be seen, in a much less period of time that in the United Statis. At Cumberland House, latitude 53 deg .57 min ., on the Saskatchewan River, in data which we have, wheat sown May 8, ripened and was cut the hast of August, the mean average tempera latitude 54 deg .30 min ., wheat matured in about the same period. At Fort Francis, in he Rainy Lake District, latitude 48 deg. 36 fin., wust. From Prince Albert, on the noth fork of the Saskatchewan, we received last year a number of samples of be autiful wheat grown at that place. But this locality is near by compared with that still further to the
northwest where this grain is grown. At Forth Vermillion, latitude 58 deg .24 min . all kinds of garden stuff are grown. Barley own on May 8 ripens in early August, and wheat in a little longer period.
At Fort Chipweayan, at the entrance of Lake Athabasca, latitude 58 deg ., 42 min . from a report to the Canadian Governmen tion, we learn that wheat ripens every year without failure, and that he actually saw and handled samples weighing 68 pounds to the bushel. But Fort Simpson, 61 deg. north Bay Company's post. Barley ripens there every year, and wheat-so says the factor of the post-four years out of five. Fort Laird, itled to credit, not only wheat and barley being grown there regularly, but garden vegetables as well. The factor at this post says "that nearly every year in longitude 148 degrees west, and under the Artic circle, bar ey is sown and matures." A number of samples of wheat from these high latitudes
were sent to the Chamber of Commerce of
St. Paul by the United States Consul at Winsipeg a year ago this winter, and through the kindness of the secretary of the Chamber they were placed in our hands for experiment. Samples were also received dill Bay Company and the Church Missionary Society at that post. All the samples were hard and at that post. All the samples were hard and
dark colored, denoting a large proportion of gluten. They grew vigorously and matured early, as do all the northern wheats brought south.
So it seems there are almost limitable wheat fields to the north of us yet unnoticed. Competent authority estimates the area of this
section, embracing Manitoba, Saskatchewan ection, embracing Manitoba, Saskatchewan and Peace River countries, at about 200,000 , 000 acrep, nearly one-half of which is arable land, the other portion being suitable for pasturage. Whether the district will ever be settled or not depends on the "grit," if we may use the word, of the Canadians.
The Hudson Bay Company has had posts established all over British North America for a great many years, whic
people can and do live there.
The Commissioner referred to above, who made a thorough exploration of the district ays that he was on the Peace River, which lows into the Arctic Ocean, all through the ord of the month was "warm sunshine west wind, balmy atmosphere, and skies of the brightest blue." Even as late as Oct. 15, the thermometer was 48 degrees at daylight and 61 degrees at noon in the shade; and, within the foothills of the Rocky Mountains, he pick ed three species of flowers as late as the 26th of the month. Capt. Butler, in his "Wild North Land," speaks of the whole hillside at St. Johns being blue with anemones as early as April 22. More remarkable still is the statement that at a station on the BatRiver, Indian the tributaries of the Peac River, Indian corn has been successfully
grown for several years in succession is evident that there are yet untold possibilifies and opportunities in the domain of agri culture on the American continent.

## Cure for sciatica.-A correspondent,

 writing to London Vanity Fair, says: "A cure for neuralgia and sciatica-and, as I am told, unfailing one-is too valuable not to be with distinction in the war with who served was once laid up in a small village in France with a severe attack of sciatica. It so hap pened that at that time a tinman was being employed in the house where he lodged, and that this tinman, having been himself a sol dier, took an interest in the officer's case and gave him the cure, which, in this in and which I am immediately and forever, any rate so simple as to be worth a trial. Take a moderate sized potato, rather large than small, and boil it in one quart of water Foment the part affected, with the water in which the potato has been boiled, as hot as it can be borne, at night before going to bed; fected part as a poultice. Wear this all and in the morning heat the water night, and in the morning heat the water, which hould have been preserved over again, and again foment the part with it as hot as can ed with for several days. It occasionally quires to be continued for as much as two or time it has never yet failed to ber or longerThe editor of the New Genesee Farmer has lately witnessed an experiment of driving He He says through a pine board, entered about one inch, and then doubled down under the hammer;
but on dipping the points of the other six or eight nails into lard, every one was driven home without the least difficulty. Carpenters who are engaged in repairing old buildings sometimes carry a small lump of lard or tallow for this purpose on one of their boots or shoes.
The Lancet says: "It is high time that atention was directed to the subject of narcotics generally, and the use of chloral and bromide of potassium in particular. Incal-
culable injury is being done, and public opinion is being grievously misled by the tolerance given to the use of 'sleeping draughts, falsely so-called. In regard to this matter and that of the reckless use of hypodermic injections of morphia, the profession should seek to form a deliberate judgment, and gravey deliver itself. At the present moment we are under a heavy responsibility, which it is idle to deny and vain to disown."

## THE UNITED S'IATES MILLER.

United States Miller. E. HARRISON CAWKER, Editor.

## miwavkes, wia






## MILWAUKEE, APRIL, 1883

We respect fully request our readers, when hhey write to persons or firms adrertising in
this paper, to mention that their advertisement was seen in the Unitrd STares Mllekr. You
will thereby oblige not only this paper, but the advertisers

## Flour Mill Directory.

Cumgris American FLLOR MuLL Dirgctory for 1882 ,
was completed, ready for delivery February 1 , 1882 .



 Has; Montain
Horkphrire, 1922

 The directory is printed from new Burgeois type on
heavy tinted paper and is substantially bound. It makes
 pacity of barrels of four per day of 24 hours are given
wherever obtained which is in thousand of instances This work is indispensible to all business men desiring to reach the American Milling Trade.
vent post paid to any addrexs. Rememit by registerect letter. pastomitce money order or draft on Chicago or New York,
matd payale to the order of E . Harrison Cawker, pub.
The Louis B. Fiechter Manufacturing Co., of Minneapolis, has become incorporated with a capital stock of $\$ 50,000$.

The Milwaukee Dust Collector Mfg. Co, report business to be exceedingly good. Th
are running their works to full capacity.
The Flour and Grain and Produce E changes at Pittsburgh, Pa. have consolidated and it is thought that the results will be highly beneficial to the trade.

We had a pleasant letter from R. L. Downton, and Tom. Miller, Jr., of St. Louis, the never better with them, than at the present time.

Wenborne, Esq., publisher of The Milling World, The Lumber World and the American Tanner, paid us a short visit, March
26. Bro. Wenborne reports everything O. K. all along the line.
Duli-duller-dullest is what millers all through the North-west say in regard to business at the present writing. It also seems
probable, for a variety of reasons, that busiprobable, for a variety of reasons, that busi-
ness will not be particularly good again for millers before May 1st.

The most powerful telescopè ever built is now being constructed for the Russian Government by an American firm at Cambridgeport, Mass. The object glass is 30 inches in Struve, has recently arrived in this country to test it.

## C. B. Shove Esq., Secretary of the Miller's

 \& Manufacturers Ins. Co., of Minneapolis, made us a brief call March 6th. He reports his company to be in excellent condition and doing a prosperous business. The risks ofthe Company are principally on flour, saw the Company are principally on four, saw
and planing mills, and machine shops and factories.

## We have received from the publishers

 Messrs. Harper \& Brothers of New York, "Haswell's Engineers' and Mechanics' Pocket Book" by Chas. H. Haswell, C. E., It con-tains a mass of information in a very condenstains a mass of information in a very condens-
ed shape on the following subjects; weights and measures; rules of arithmetic; weight of materials; latitude and longitude; cables and
anchors; specific gravities; mensuration; me-
chanic; friction; ærostatics; hydravlics, hydrodynamics, dynamics, gravitation; animal
strength, limes, mortar and cements; wheels, strength, limes, mortar and cements; wheels,
heat, water, gunnery, sewers, combustion heat, water, gunnery, sewers, combustion,
steam and steam engines, dimension steamers, mills etc., and many other sub jects too numerous to mention. The price of the work is $\$ 3.00$. It is a standard work

According to Census Bulletin No. 304, the highest value of annual product, is awarded oo the "Iron \& Steel" industry amounting to $\$ 551,543,109$; next in order comes "Flour \&
Grist mill products" valued at $\$ 505,185,712$. So according to official figures we can say, that the "Flouring Industry" is second only mportance to any in the country.
A couple of changes in names of Milwankee mills, have been made recently. The
Milwaukee Milling Co's Mill is now called "The Jupiter Mill" and the former "New Era Mill" is now called the "North-Western Mill." The former is operated by Stern \&
Wohlrab, and the latter by F. Schlesinger

## Th

Milwaukee Dust Collector, Co., d serve great praise from all millers for the course they have taken to protect millers using their patented machinery. They have offered to file a bond with the Secretary of the $\$ 50,000$, to protect millers from all suits for damage for purchasing and using the well known Dust Collector.

Sunday, March 25, 1883, Timothy O. How of Wisconsin, Post Master General of the United States, died at Kenosha, Wis. The distinguished dead served the people of Wisconsin as Judge and United States Senator for
a long term of years in a most creditabl a long term of years in a most creditable
manner, and "died in the harness" as the manner, and "died in the harness" as the ment departments, full of honors and full years.
Capt. E. W. Pride, of Neenah, Wis., the Wisconsin representative of the Jno. T. Noye Manufacturing Co., called on us March 29. He reports business good. He says there is not a miller in Wisconsin so conservative but important alterations in his mill. The "very Methusalehs" amongst the millers have acknowledged that the millstone must go, and advise the "boys" to put them in.
The Century Magazine for April is full beau'iful illustrations and entert ining lette press. The cultured American finds it indis pensible. The April number concludes the tion the numerous articles contained in this number, but will s y that he that hath missed reading "The Capitol at Washington," by hook," by Barnet Phillips, has missed a rare intellectual treat.
The Case Manufacturing Co., of Colum bus, 0 ., inform us that they have been building a Centrifugal Reel for six months past, which they have been putting in all the mills they are building and changing over, and that it has proved itself to be one of the very best They have not yet advertised their marke gal or sought to put it generally berrifumilling public, yet they have filled a larg miling public, yet they have filled a large
number of unsolicited orders, the results from number of unsolicited orders, the results from
which are so satisfactory that they intend to add it to their line of specialties. They state that one order includes seventeen of their
centrifugals for one mill, six for another, \&c.

## HOW BUSINESS MEN ARE MADE

The readers of The United States Miller make the best flour in the world, and are intelligent business men. Many of them have
we presume, acquired their business knowledge mostly by experience, and have found it a slow and costly way. They know and appreciate the value of improvements in pathy with progress in general. They will therefore be interested in improvements in institution devoted exclusively to busines institution devoled exclusively to busines and graduates, are among our readers, and will personal knowledge and experience Spencerian Business College makes su perior business men, by methods much shorter, cheaper and safer than the old one systematically the perfected results of prac-
tical business experience by the most direct and practical means. Its students get in a skill than they could gain in years by experience alone. Upon a sound theoretical basis it carries on a system of business prac operations and methods

## Further informations. <br> Further information can be obtained by addressing the principal of the college, R. C

The Mechanical Ners
peak "put its foot in it." In a has, so to ber it reproduces a page from "Al Ahram" (The Pyramids,) published in the Arabic language, in Alexandria. American citizens, the majority of whom are of course well laxity of morals displayed in this extract which smirches the hitherto clean pages o the Mechanical News. The articles therein entitled "The Trip of the Ass to the Bone Yard," and "A Night among the Palm Trees" are absolutely shocking
The editor of the News should either plead most humble apology to his readers for a mis-application of editorial enterprise.

## THE "BISMARCK MILL."

We translate the following from the March number of the Oesterr. Ungar. Mueller of Vien na, Austria:
The Case Manufacturing Company of Colum-
bus, O ., have recently brought bus, O., have recently brought out a newly invented roller-mill, which they have given the
name of the "Bismarck Mill." This shows that the name of the great German states man is recognized even in America as posses sing peculiar advantages for making success The advons known.
The advantages of this mill, which is pro-
vided with two pairs of rollers,
lows: $A$ strong and well-proportioned iron fram without any wood whatever, exceptionally long bearings of Babbitt metal, a si nple and
convenient apparatus for regulating the rolconvenient apparatus for regulating the rol ellent arrangement of the pulleys, occupy ing only a small space, positive feed, comparatively low price, and withal unsurpassed A machine, that qualilly and quantity. A machine, that fultills all that the manu acturers thus claim for it, cannot fail to push
ts way into general use among the American millers by its own merits.

RECENT milling patents. The following milling patents were issuan
United States Patent Office, Feb. 27, 1883 . Grinding-mill, Daniel C. Stover, Freeport, Ill.
Wind-mill, Geo. L. Stearns, Grand Haven, Mich. Wind-mill, Geo. L. Stearns, Grand Haven, Mich.
The followiog patents were issued March 6, 1883 Dust-collector,- A ssignor to Geo. T. Smith Middling Purifier Co., of Jackson, Mich.
Milustone paint-staff, Martin W.
Centrifugal-machine, Mohain W. Leonhardt, Sedalia, Mo.

## Denmark

Disintegrati milling patents were issued March, 13, 1883 . Flour-boul, Henry A. Graeter, Wooster, O.

Centrifugal-machine, Michael Wauner, St. Louis, Mo The following patents were isued Mereb 20 Mill.disk dress, Louis Gathmann, Chicago, Ill. Grinding-mill, Robert McCully, Philadelphia, Centrifugal reel, John J. Walterhouse, Vincennes, The following patents were issued Marc
Grinding-mill-John Beall, Decatur, mi. Grinding-mill-John Bean, Decatur, IIl.
Turbine Wheel-Nathan P. Burnham, York Disintegrating machine--Silas Dodson, New York, Grain puritier and separator-Carl P. Gramke, Stettin Prussia, Germany.
Cockle-machine-John Lucas, Hastings, Minn. Marmon Co. of Indianapolis, Ind. Marmon Co. of Indianapolis, Ind
Automatic grain-measure - John
McLean Co. Il
Water-wheel go
burg. Wis.
Grain-elevato
Bolting-reel-E
ville, Texas.

## Foreign trade circulars.

Under date of March 15 Messrs. Harris Bros. \& Co., 6 Crosby Square, London, writes:

 and disappotntng. are fairly active. Oats continue fat
Under date of March 14, Anton Kufeke, Under date of


From the Weekly Market edition of The Miller (London) bearing date March 19, we
quote as follows:
Farmers' deliveries are now small, but com-
pare well with those of the past three years, pare well with those of the past three years,
and when the differences are allowed between the returns of the 150 towns and 187 towns, the supply remains a qood one, 152,000 qrs.
of home-grown wheat in the midst of spring of home-grown wheat in the midst of spring
seeding. The English average price, 42 s . 6 d ., eeding. The English
The current American shipments are fair.
 and the visible supply goes on augmenting,
contrary to the usual progress from. winter to spring. This country's imports for the week were
flour.

## 

The question is now asked, would any other lass interest besides that of milling remain manufacture, such as the weekly import of nearly 200,000 sacks of flour constitutes? in Parliament, whilst millongly represented in Parliament, whilst millers appear to have simple fact of English millers being shouldered out of their mills by foreign supplies of flour that is not cheaper to the public than would be home manufactured flour. At the present time the business in flour is really 6d. per sack reduced in freign samples are glish make being difficult to move of Enprices asked.
Messrs. Dunlop Brothers, of Glasgow cotland, writes under date of March 14, 1883, as follows:
Trade during the past week has been lifeArrivals of wheat, flour, and oats are large; of other articles light.
The attendance at to-day's market was meagre, and the business transacted was trifling. Wheat was at least 3d. per boll
cheaper, while sellers of flour would have submitted to a reduction of 6 d . to 9 d , per sack to effect sales. Maize was 6 d . per 280
lbs. lower on the week; soft mixed being obIbs. lower on the week; soft mixed being ob-
tainable at 17-6. Other articles unchanged. Weather cold and wintry; heavy sleety showers falling
Litrell's Living Age. The numbers of the Living Age for the weeks ending Feb. 17th and 24th contain Sir Archibald Aliso's Autobiography, Quarterly; Charity in
the Early Church, London Quarterly: Panislamism and the Caliphate, and England, France and Madagascar, Contemporary; Thomas Charlyle, Macmillan; sketches in the Malay Penisula, Leisure Hour; Anthony 'Trollope, Good
Words; Dawn of the spring, St. Jamess; The Sponge Words; Dawn of the Spring, St. James's; The Sponge
Trade of the Bahamas, oul, Paint and Drug Reporter; Escapes and Imprisonments of Latude; with instalments of "A Singular Case," "For Himself Alone," and Selec. tions of Poetry.
For fifty-two numbers of sixty-four large pages each (ory
 one of the Agerican \&4,0 monthlies or weeklies any
The Living Age for
Bos yert, both postpaid.
Bittell \& Co.,


## elevator heads and fires.

by h. b. horton, in "american miller."
It is a fact, well known to underwriters, that three-fourths of flour mill fires are night burnings, or occur when the mill is not running. There is nearly, if not quite, as great a percentage of them for which the cause is reported as "unknown." Usually these myserious fir s are attributed to incendiarism, as being the easiest way to explain what appears to be otherwise unexplainable; but, unless it can be shown that millers are more dishonest than other classes of business men, or are more likely to have desperate enemies who single them out for fiery vengeance, incendiarism should not be credited with a large proportion of mill fires than of those occur ing in other business establishments, and some reasonable cause must be given for the
many fires which develop when mills are losed and the origin of which seems shroud ed in mystery. Spontanenus combustion i undoubtedly accountable for a large share of these burnings, and when one sees so many
mills, where cleanliness is little regarded, the

wonder is that so few burn from this cause rather than that so
Aside from spontaneous combustion-the workings of rats or mice with matches, or from defective heating apparatus, it is difficult to imagine how an honest fire can be de-
veloped in an idle mill, unless it originated while the mill was in operation and was smouldering in concealment when the mil was shut down. Hence it is to the place,
where a spark may be deposited and live escaping observation for any length of time, that special attention and care should be given. There is no spot in a mill where this is more likely to occur and probably none where it does oftener happen than in the elevator head Yet, until very recently, few millers have ap preciated

In late years great improvements have been made in nearly all classes of mill machinery, not only with the view of bettering the quality of products, but to safety in operation; but little or no change has been made in elevator heads to render them more secure,
and millwrights as a rule are opposed to any change that may be suggested, ridiculing the idea that the old style used for generations past has any element of danger. Still the strut board is placed within an inch, or two inches at most, from the pulley, and in a horizontal position. The inclosure thus formed seon fills with dust from the material elevated, in many cases packing so hard as to form a friction rubber for the pulley. The shaft settles and the pulley grinds upon the strut board or the buckets clog and the belt held, with immense friction on the revolving pulley, ignites just such an accident. The fire so started will smoulder, as it will in "punk," for hours, giving out so little smoke or smell as not to attract attention, until it eats its way through the box to the air. Then comes the catastrophe. Another mill loss is recorded with the usual announcement that the cause is "unknown," or that it was probably the act of an incendiary.

The moral of all this is evident. A change in the mode of constructing elevator heads happen. The strut board should be placed so it would be impossible for the pulley to settle upon it, and inclined to such an angle toward the down-leg as would make it selfclearing after the manner shown in the ascompanying cut. If the inner surface of the board were shellacked and smoothly sandpapered it would be better still. If there be no accumulation of stuff under the pulley to hold a smouldering spark, no friction less than that which would ignite the wood work, can do any material harm. If the wood be fired it must be when the mill is in operation, and when it would probably be early discovered under cirsumstances admitting a possibility of saving the property before serious damage occurred.

The jinspectors of the Millers' National Ins Co. have done much to call attention to the danger of concealed fire in the ordinary ele vat or head, and many millers in their field operations, have adopted the style of head represented in the cut. I am confident that were it generally in use, there would be a great decrease in the number of flour mill fires and especially in that class of mysterious burnings which make mill risks so unsatisfactory to the underwriters and effects so unfavorably the reputation of those millers who are unfortunate enough to have losses resulting from them.
indian versus american wheat.

From Hon
States to
MLLLER.]
The an
The annual production of wheat in British ndia has of late years increased, until it now reaches about 240 million bushels,* and the export for the last five years has been a
follows:-
$\qquad$ $\begin{array}{llllll}18777-78 & 1878.79 & 1879-80 & 1880-81 & 18811-82 \\ 12,170,85 & 2,170,631 & 4312,418 & 14.012,291 & 37,135,481\end{array}$
of which Great Britain and France have taken the following quantities:

## 

Assuming that 28 million bushels are held for seed, there will be left a home supply of 175 million bushels; how much of this is actually consumed, and how much stored away in reserve, it is impossible to ascertain; but it is well known that the quantity held in reserve is very large and usually estimated, with other bread-stuffs, sufficient for one whole two or three years' accumulated surplus to make up such reserve
The total area devoted to wheat each year is now a little over 20 million acres, of which 7 million acres are in the Province of Punjab $6 \frac{1}{2}$ million in the Northwestern Provinces and Oudh, 3 million in the Central, and $1 \frac{1}{2}$ million in Bombay, 1 million in Bengal, and the re mainder divided among the Provinces of Berar, Sindh, Madras, Ajmere, Mysore and British Burmah in the relative order named The best average yield is obtained in the
Punjab, where it is estimated at $13 \frac{1}{2}$ bushels Punjab, where it is estinated at $13 \frac{1}{2}$ bushel per acre, and in the Northwestern Province
at $11^{\frac{2}{3}}$ bushels; the general average is abou 12 bushels per acre, though by high cultiva ion and use of irrigation and manure, instan ces are not uncommon of a yield as high a 25 and even 30 bushels per acre.
The latitude has but little influence on the wheat crop in India compared with differ ences in soil and mode of cultivation; the crop requires a great deal of moisture, hence ous methods are employed for that purpose the one destined to become a leading factor in the production of wheat is that of canal irr gation, which is now receiving the special at
tention of the general and local Governments tention of the general and local Governments, and important works are being made and
projected for an extensive system of canal irrigation. One of these, the "Sirhind" canal in the Punjab, has just been completed; i was built mainly by prison labor, is 502 miles long, and will irrigate 780,000 acres through 2,500 miles of minor channels.
The wheat is sown in the autumn and har vested in March or April; it is usually sown in drills or rows, and weeded like garden stuff, and in quantities not much larger tha garden patches in the United States, bul the agricultural population numbers nearly 200
millions, and it is the aggregate of innumer able little units which in agriculture, as in every thing else in India; brings the country into importance, and this fact is so closely interwoven with the whole social, industria and legal network of India, that it bears a strong influence even upon the future ques tion of Indian versus American wheat.
The Indian agriculturist "Ryot" can in no sense be compared to the American farmer tenant on hard conditions, and is by custom and bigotry almosta fixture on the particular spot of land where he was born; his farming is done on a very small scale and according o old methods, to which he clings with relig ous veneration; his wants are very few, and he endures poverty and even hunger with patience; he cultivates his patch of 5 to 15
acres on shares for the landed proprietor,
*Nors.-There are as yet no complete agricultural statistics for India, and the figures given in this report, ex cept those relatiog to exports, are based partly upon loca returus, but mostly upon ofticial estimates.- It is hoped
however, that for the objects in view they will be foun however, that for the objects in view they will be fou
quite sufficeut.-They are given in round numbers for th sake of conventence.
'zemindar," who holds under rental to the government, and the better half of his gross income generally goes to the zemindar, the priest ("brahmin") and the usurer, in the and if he can net 10 cents a day by his hard and hopeless labor, that will suffice for the home is mus wants of his household. Hi a pair of small bullocks, a few cows, calves earthen pots, in all worth about fifty dollars, and his implements and tools are of the rud ent kind, such as his ancestors used a thous progress under Britioh rule, and finds hi progress under Britioh rule, and finds hi wants increasing, and at the same time better
outlets for his produce and more recompense outlets for his produce and more recompense
for his labor and on the whole, is so inde pendent on 10 cents a day, that he will eat o store his wheat rather than sell it below certain price. Of course he does not employ machinery in farming, but ploughs his land with a crooked piece of iron-pointed wood,
harrows it with an implement resembling harrows it with an implement resembling common ladder laid flat on the ground and
dragged by the little bullocks crossways ove the field; he sows by hand, reaps with a rude sickle, carries the sheaves home on his back or in the bullock cart, threshes them with grain, and cleans it by hand-winnowing. Under these conditions the ryot can affor o sell his wheat at the nearest market place if within a day's journey of his home, for 50 to 60 cents per bushel; but when it does not bring that price, or very near it, he consumes
his small supply or stores it in a hole under ground until a more favorable time shal come, and when it comes, he sells very shor and uses millet and inferior grains for hi family subsistence, so that a great elasticity in the amount of surplus is constantly kept up by the countless hosts of the ryots themselves. And this same course will necessarily be pursued in the main for a long time to come the agricultural classes is such that it wil take generations to make any material change among them. Then again, the cutting up of the land into small patches to suit the rap idly increasing population and for irrigation the want of strength in draughtanimals poverty of strength in drag anima poverty of the people, and other reasons,
make it impossible to farm on a make it impossible to farm on a larger scale
and to use machinery;* but even if all these and to use machinery;* but even if all these objections were removed, the present cost of
labor is too low even for the successful comlabor is too low even for the successful com-
petition of farm machinery, and it may be regarded as certain that the cost of wheat as now produced is at, or near, the very lowest minimum, and when it does not bring 50 cents home in lieu of other bread-stuffs and the wheat area will be temporarily diminished. QUality.
There are a great many varieties of wheat produced in India, and they have become more or less intermixed, though efforts are
being made to separate and select the best or being made to separate and select the best o
those most suitable for the European market These have been divided into four principa groups, viz:-

1. The soft white wheat of a bright straw color and a white floury fracture. This variety is most suitable for the London market, and is in great demand by English millers on account of $i$
2. The hard white wheat, with a brittle grain of a flinty or ricey appearance. This brings a higher price in Italy for the manufac ure of macaroni than in London
3. The soft, red wheat, which differs from he soft white only by the reddish color of the skin and a smaller berry; it is also very suitable for the English market.
4. The hard, red wheat which is of a dark brown color, translucent in appearance, with a smooth and glass-like fracture. It stands lowest in the London market.
Compared by English standard in quality and value to American wheat, select lots of first group have been found equal to the best Californian and Oregon, but the average best rade is between No. 1 and No. 2 Milwaukee groups are as follows:

The standard of all the groups is being grad
ually raised by more care in separating vari-
*Nors.-The ouly exception would be in favor of a light
heap hand-fanning mill, and that only because the grait dannot be properly cleaned and separated by present meth ods for the Euglish market; and here is a good opportu-
nity for some American manfuacturers, the English fanning mills sent here for trial hasing proved too heavy and ex pensive.

CARDIEN CITY
1st Break Machine

BRUSH SCALPER

## ASPIRATOR.

To Millers Operating Buhr Mills.
We guarantee to improve the grade of our flour by the use of our 1st BEEAK machire and brush scalper. Putting in these machines will necessitate no other changes in the present arrangements in your mills.

## To Millers Operating Roller

 Mills.By the use of our 1st brear macilire and BROSB scalpar you can positively. remove all seam impurities and germs after the first break, thereby obtaining better results.
Write for descriptive catalogue and prices.

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## Improved Garden Gity

## Niililing Purifier

## Traveling Cloth Cleaners.

Our improved Purifier has every deice requisite to make it perfect, and every one in use is giving the greatest satisfaction to the users. The Cloth Cleaners are guaranteed to clean the cloth better than is done on any other purifier. Over 4000 Garden City Purifiers in use, nearly 800 of which are the Improved Machine.
The Best and now the Cheapest. Write for circulars and price list.
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## BODMER

## BOLTING CLOTH

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

## THE UNITED STATES MILLER.

eties, more thorough cleaning and the use o better seed.

The facilities for handling and transporting grain are very poor compared to the United States; there are no grain elevators and no facilities for shipping in bulk, but all grain must be put in bags, handled and carted by manual labor. The cost of ocean freight depends upon the fluctuations of the general steamship carrying trade, and varies so con-
siderably that exporters can make no definite calculations ahead, but are obliged to watch their opportunities from week to week and
from day to day. Nearly all the wheat exported goes through in steamers via. Sue Canal, and the time required for transit to London is, from Calcutta, 35 to 40 days, from Bombay 28 to 33 days, and from Kurrachee 30 to 35 days. While the wheat is exposed to the air during the inland transit and stor age at the sea-port, it is liable to serious damage by the weevil, an insect germinating in the grain itself under the influence of heat but when stored under ground it will keep in good condition for years, and even in aship's
hold it is comparatively safe during the time required for transit.
The money exchange market between Lon don and India is constantly fluctuating, which causes another serious drawback to the export trade. The cost of inland freight, so far as the railroads extend, is fixed by Governmen nd not liable to any material fluctuations. Trunk lines are already in operation throug ral branch lines have been built, while other are being constructed or projected; but compared to the principal wheat districts in the United States, Indian railroads are few and very slow. A very important line, the "Indu Valley," has lately been completed, and brings the Punjab in direct communication with the sea at Kurrachee, which is destined to become an important sea-port for the exportation of wheat. The following table gives the cost of tricts to the sea-port:
From Punjab to Kurraches
Average distance 800 miles. freight per bushel 25 cents.
From N. W. Provinces and Oudh to Calcutta.
 Average distance 460 miles, freight per bushel, 16 cents.
From Province t tocty of Bombyy
Average distance 150 miles, freight per bushel, 8 cents
To this cost must be added the charges of the middle-men at the inland bazar, which will average 5 cents per bushel, and the cost of bagging, shipping and commission to the
Exporter at the sea-port, 8 cents more; ditto insurance and landing charges in London, 5 cents; and ocean freight, which averages from Calcutta to London 30 cents, and from Bombay and Kurrachee 25 cents. Thus it will be seen that the actual cost of Indian standard wheat from the Punjab, N. W. Provnces and Oudh, where two-thirds of the wheat per bushel laid down in London, and while the wheat from the other provinces is somewhat cheaper, on account of the shorter distance to th
in quality.

## 


Tne total area of India under British administration is 904,000 square miles, and that of the native states 575,000 square miles, but the latter area is not dealt with in this report.
The following table gives the area in each of the four principal wheat producing provinces, with the proportion of cultivated, culturable and unculturable areas, so far as can be ascertained

##  <br>  <br> 

from which it appears that in those four provinces alone there are nearly 88,000 square miles or 56 million acres virgin land, the larg er portion of which can be made suitable for
the cultivation of wheat. It should be rememthe cultivation of wheat. Itshould be remem-
bered, however, that this land is overgrown bered, however, that this land is overgrown
with jungle, and the process of clearing is very slow and expensive, and that nearly all of it requires irrigation.
In order to facilitate the development of the wheat resources, and to assist the wheat export trade, the Government of India is pursuing a policy of encouragement, which has already resulted in better facilities of transit to the sea-board by the construction of new railways, and in reduction of freight; it has
diffusing knowledge and instruction in the cultivation of wheat and the improvement
of the soil; constructing canals for irrigation and transportation, and in many other ways giving moral and material aid to this great cause, in the hope that India may ultimately become the granary of Great Britain.
When all these facts are summarized it w e found:-
That India can produce an average quality of wheat at as low cost to the producer as th nost favored locality in the United States.
That she can now supply the European market with about 40 million bushels annually, and possesses facilities for increasing the supply to an almost unlimited extent, owing o the great elasticity of the home consumption and to the vast amount of land awaiting cultivation.
That in quality, cheapness of transportation facilities for handling, safety against damage during transit, and stability of money exchange, the American wheat, especially that rom the new North West, has such advan lages that there need be no serious apprehen sion on account of Indian competition at le gitimate prices; but that in order to main ain this advantage, it is absolutely necessary
that America should keep pace with India in the efforts to reduce and maintain freights t the lowest possible minimum
On the other hand, it is an indisputable fac hat Indian wheat has already become, and will continue to be, a very important factor in the grain markets of Europe, and a check
against high prices, brought about either by against high prices, brought about either by cial means.
And finally, that upon the basis of a fair verage crop throughout the world, the Amer can farmer will have to prepare himself to reduce the cost of production to the lowest minimum, and be content with small profits, or else wheat growing in India may be stimulated to such an extent that subsequent com etition would become extremely formidable.

## ROLLER MILLS. <br> by theodore voss. [London.] their pressure and lever arrangeme (Continued from March number.)

Steel pressure springs do not deserve to be o largely employed in roller mills as they are at present. They often vary in temper, and consequently do not produce the same pressure on each side. The continuous variations of tension to which they must be ways impossible to know the exact amount f pressure which they exert. Weights, on he other hand, never change their influence; it is easy by their means to produce the
same pressure on each side of a roller mill, and it is not difficult to graduate this pressure ccording to the nature of the material treated. With regard to the proportions of $a ; b$; $c_{1}$ and $c_{2}$ : in accordance with different values of $p$ we can draw some further interesting conclusions hy means of equation (3), viz:

## $p\left(b c_{\mathrm{t}}-a c_{2}\right)=2 G(a+b) d$

proper proportions of $a$ and $b$ for $p=150$. $200 ; 300$ and 400 respectively, we should find as follows by choosing $a+b=100 a+p=150$; $G=100 ; a+b=100 ; d=80 ; c_{1}+a=220 ;$
$c_{2}+b=220 ; c_{1}+c_{2}+a+b=440 ; c_{1}+c_{2}=$

## $\begin{aligned} \mathrm{i} & =194.242 \\ & =145.7575\end{aligned}$

$a=25.7575$
$b=74.2425$
$P_{2}=P_{1}=170.395$
For $p=200$ we should find
$188.1818 ; c_{2}=151.8182 ; a=31.8182 ;$ $b=68.1818$ and $P_{2}=P_{\mathrm{x}} 220.76 \mathrm{lbs}$,
For $p=300$ we should find
$c_{1}=182.12125 ; c_{2}=157.87875 ; a=37.87875$; $b=62.12125 ; P_{2}=P_{\mathrm{r}}=234.251 \mathrm{lbs}$, and finally for $p=400$
$=179.0309 ; c_{2}=160.9091 ; a=40.9091$
$b=59.0909 ; P_{2}=P_{1}=429.125 \mathrm{lbs}$.
Thus it will be seen that by slightly alterequality between top and bottom pressury equality between top and bottom pressure stant pressure $p$, adapted for the material to be reated. It is manifestly wrong to employ the same proportions of lever $a b$ for the different rollers. The crushing pressure of breale rolls and smooth rolls differs widely, according to the material passing through them, and the machines must be constructed accordingly.
Many more interesting illustrations of the influence of the roller weight and the lever proportions, on the crushing pressure of such "three-high" rollers might be given, but those mentioned are sufficient to prove that it is impossible to graduate the pressure without . $=220 ; c_{1}+c_{2}+a+b=440 ; c_{1}+c_{2}=$

## constant pressure does the bottom become equal to the top pressure.

Every niller, however, who has had experience with roller mills, knows that it is not only necessary that these pressures should be equal, but also that they must be graduated. Such graduation of pressure is easily attainable in horizontal roller mills, where both roller pairs are independent, and also in "two-high" roller mills, in fact everywhere where the roller pairs are independent, but in all "three-high" roller mills, where the bottom roller is connected by levers or springs with the top roller, such graduation creates nequalities of pressure and cannot therefore ablan without serious disadvantages,
Another great disadvantage of all threehe middle roll between top and bottom As soon as the bottom feed is momentarily greater than the top feed, the middle roll will be pressed upwards, and as soon as the top feed becomes greater, it will drop down gain. The shaft of the middle roll always had (and always must have) sufficient play in its bearing for these vacillations; and as the bottom and top feed are never quite equal, the middle roll will be continually changing its position between the top and bottom roller.
Not only the middle roll vibrates but als play in its bearing. As can be has som play in its bearing. As can be seen from
fig. 4, whenever there is a slight decresse op feed, either on one side or the other, the top roll is drawn downwards by its own weight and thus the distance between the roller surfaces is continually changing.
A uniform effect on the feed is therefore well mand obtained and it is a fact that allow much less vibration, would show better work than three-high rollers. It is a curious fact that no American manufacturers make three-high roller mills; they all make horizontal roller mills in which each pair of rol ers has its independent pressure adjustmen


The importance of arranging rollers so th in no case can they approach beyond a certain minimal distance, has not as yet received the attention which it deserves, and with reerence to figs. 2, 3 and 4, it may be said that wherever the necessary crushing pressure is obtained by the action of springs or weights is always sufficient freedom in that there always sufficient freedom in the bearings oo allow the roller shaft to vibrate. These vibrations cause all these rolls to come into
occasional contact, and that is the reason why they must be opened when running without feed. If in these roller mills, the rollers should really not touch, there would be n

If however in two-high roller mills (see fig 4,) the top roll had sufficient weight to supply the necessary crushing pressure, no pressure against the bearing would be required, the top shaft would then lie at the bottom of the top bearing and as the bottom roll is also kept rolls, when their minimal distance is once adjusted, cannot approach beyond this disstance. Therefore, even if slight irregularities in the feed should occur, the rollers can not come into contact and no undue compression can take place. Such rolls therefore, do not require any levers or springs.
The weight of the top roll would be, so to ay, carried by the feed, and therefore very Nhe friction would be produced in the top bearings so that only the friction of the bottom bearings would have to be overcome.
It has been lately said by an advocate of three-high rollers, that anti-friction rings do not achieve the purpose for which they are intended, in fact the effect of such anti-friction rings was compared with the cold rol-
necessity to open them, when without feed


In the same manner it may be also said that frictions rolls fail to achieve the purpose for which they are intended. Friction rolls would of course reduce the friction to some extent, if they were running, but the practical
difficulty is to keep them rity of friction rolls, especially those which rity of friction rolls, especially those which
work in the bearings, soon become irregular work in the bearings, soon become irregular
on their surface; they therefore stand still, and they then offer a very insufficient bearing surface.


Such anti-friction appliances always make the roller mills very complicated and as their advantages are, to say the least, doubtful, it seems that ordinary well greased bearings are preferable, especially if they are sufficiently long to present a large bearing surface. Having thus investigated the lever arrangement of some roller mills and the pressure required for different milling products, I come to the conclusion that levers and pressure springs should be entirely avoided; the necessary crushing pressure ought to be produced direct by the weight of the top roll (in twohigh rollers) instead of indirectly by pressing the bearings against the roller shafts.-From The Millers' Gazette (London.)
(concludrd.)
O. J. Bollinger, of York

## Bollinger, of York, Pa, the well-

 known manufacturer of water-wheels says in a recent communication about "Setting Turbines." I will not attempt in this limited paragraph to give directions in detail how to set wheels, or to show the many ways in which they can be applied to drive machinery, because the location has so much to do with the subject that it is only after an examination or survey of the situation has been made that this can be done (asit should be) to the best advantage, but will give a few leading points, viz: As a rule, make the size of penstock in the clear equal to twice the diameter of the wheel (proper;) larger is no harm, but seldom necessary. The most economical way to set a wheel at the bottom of the fall, (as it is usually termed,) is to frame a square (size of which I give to parties ordering wheels) in bottom of penstock to form the hole over which the wheel is set. This square should be of the same depth of timber as the other bottom timbers, and should be made perfectly air-tight, and arranged so 0 dip, say one to two inches into the backwater when at the lowest point to which it ning. This arrangement has two advantages. First-The penstock will become dry if the water is shut out. Second-It saves from six to eight inches in deepening the pit to get the requisite amount of room for the escape of tail water. But it must not be forgotten that if there are any air leaks between the wheel and the tail water, all the fall between the two is lost and does not act on the wheel. A more sure, but not cheaper, way, is to lay the top of the penstock sills as low as the surface of tail water, then after the bottom planks are put down the penstock will still be dry when the water is shut out. But this plan will require six to eight inches more depth of pit than the first, but there need be no apprehension about loss of head with proper vent under the penstock for the escape of tail water and sufficient capacityof flume to supply water to the wheel. If of flume to supply water to the wheel. If
said flume consists of a single pipe it should in no case be of a less inside diameter than ed to sumply; of the wheel which it is intended to supply; and if this flume, or pipe, is of
considerable length, or if there are short turns, or elbows, it should be considerably larger.

## COST OF WHEAT CARRIAGE PER BUSHEL.

The cost per bushel for sending wheat from the great centres of production and distribution to the leading markets of Europe, has been elaborately compared and tabulated as follows, by Mr. R. Meyer, in the Austrian Monthly of Social Science and Political Economy:

 ,


# OUR SYSTEM 

Of Gradual Reduction consists in making the earlier Breaks on the "Case Breaks." The best in the world for the purpose. The following reductions are made on our 4-Roller belted Mill "Bismarck," which has the most simple, plain and thorough adjustments ever applied to a Roller Mill, one of the chief features of which is the

accomplished through our Automatic Feed Box, patented, the ONLY AUTOMATIC FEED in use on Rolls. We make different lines of these machines for small, medium and large Mills. The Miller pays only for the capacity wanted, from 1 bbl. an hour upward. The strongest guarantee given in every case. Can refer to scores of Millers using our full system whose flour is up to the "top-most notch." Write for information. No trouble to answer letters.

# The Case Middlings Purifier 



Still maintains its popularity in all sections of the country. An Iowa Miller writes to-day: "I would like other Millers to know what a grand Purifier I have." "It is doing most splendid work." "The Case is the best Purifier on the market." \&cc. This and hundreds of others similar in spite of the most bitter and unrelenting opposition ever encountered by any machine in any age or any country. The methods of one of our competitors, if made public, would disgrace the commercial records of the Fejee Islands. It would be too tame to call it Bull-dozing, co-ersing, intimidating or the like. It has meant more than these. But the vicious power of a tyranizing monopoly, damaging alike to Millers and Manufacturers, has been broken. Fair dealing backed by the best Purifier in the world has done it, and we feel it through every nerve of our business, that we are gaining and they are loosing friends. If you want the KING OF PURIFIERS buy the CASE and fear not. We are able to protect you. Don't believe a lie.

## CASE MFG. CO.,

## TheRoller Buckwheat Shucker





## bine has been

THOROUGHLY TESTED,
Largest Yield of Flour


 G. S. CRANSON \& SON, silver Creek, $\mathbf{N} . \mathbf{x}$.
Waterons Engine Works Co., Brantford, Ont. agents and mprs. for canada

## 5300

'Triumph' Power Corn Shellers in use.

PAIGE MANUFACTURING CO.,


# JAMES LEFFEL'S IMPROVED WATER WHEEL, <br> Fine Iew Pamphlet for 1882. 

 The "OLD RELLABLE" with Improvements, making it the Most PerfootTurbine now in use, comprising the Largest and the Smailest Wheels, un-
 JAMES L파FTTㅏ \& CO., Springfield, Ohic. and 110 Liberty St., Now Yoric City. [Mention this paper when you write to us.]
RICHMOND MANUFACTURING CO.

LOCKPORT, N. Y.
RICHMOND'S CELEBRATED
Smut Machines,
Brush Machines, Grain Separators, and Bran Dusters.
Nearly Two Hundred of thene Machines are now in operHou in the elty of Minneapous, Minn., alone, and more than sixty in the eity of Milwaukee, Wis. They are also oxtonWheory used in many other nections, both on Winter and spring
Wher
 $\xlongequal{\text { [Mention this paper when you write.] }}$

FROM 1-4 to 10,000 LBS. WEIGHT. True $\frac{6}{}$ pattern, sound and solid, of unequaled strength, toughness and
 Gearing of till kindes, Shoes, Dies, Hammer-Heads, Cross Heads, for Loce-
15,000 Crank shanti and 10,000 Gear Wheels of this steel now running
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CHESTER STEEL CASTINGS CO.,
$\underset{\substack{\text { Worke, CHESTER, PA. } \\ \text { inentlon this paper }}}{ }$ $\qquad$

## J. H. RwDFImLD,

Millwright and Mill Furnisher,

## redaicid's combirg blevator \& purifier

## And the Champion Wheat Cleaning Machinery

Large stock of Du Four's Bolting Cloth on hand, which we sell lower than can be purchased elsewhere. Cloths made up to order and guaranteed to fit, and be of the best material, and made in the most workman-like manner.

Send for catalogue and price list. It will pay you.
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above
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Buckwheat Refiners \& Portable Mills.



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## HARRIS-CORLISS ENGINE.

## -BUILT BY-

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

Built under their original patents until their expiration. Improvements since added: "STIOP MOTION ON REGULATOR," prevents engine from runtour stuffing bexperp "RECESSED VALVE SEATS" patents), dispenses with shoulders on seats, and remedying a troublesome defect in the wearing of gines, "BABBITT \& HARRIS' PISTON PACKING" (two patents). "DRIPCOLLECTING DEVICES" (one patent). Also in "General Construction" and "Superior Workmanship."
The BEST and MOST WORKMANLIKE form of the Corliss Engine now in the market, subntially buill, of the best materials, and in both Condensing and Non-Condensing forms. The Condensing Engine will save from 25 to 35 per cent. of fuel, or add a alike amount to the
ower and
ond

 The ONLY WORKS where this engine can be obtained are at PROVIDENEE, $\mathbf{B}$.
and parties being lioensed.

## WM. A. HARRIS, Proprietor.

[Mention this paper when you write to as.]

## HEIE MIITATEERES

 MUTUAL INSURANCE COMPANY
## OF WISCONSIN

is now issuing Policies ot Insurance on all approved applications received so far. The Company has now sufficient members to allow it to increase the risks on any one Mill from $\$ 1.000$ to $\$ 3.000$.

All matters relating to Insurance should be addressed to JOHN SOHUETTE, Sec., Manitowoc, Wis.

## THE UNITED STATES MILLER.

## current matters interesting to millers.

## The United States Miller Reporter interviews Sec-

 retary Seamans.Our reporter, desiring to learn something of interest to millers, recently called on Sec retary Seamans of the Millers' National Association, and the following interview was the result:
Reporter-Mr. Seamans, if you are not too busy, I would like to get a few points that may be of interest to the readers of the United States Miller.
Sec'y Seamans-Well sir: you are welcome to any information I can give you, provided you send me proof of the article before it is published. I have been grossly misrepre-
sented by some of the reporters for the daily sented by some of the reporters for the daily
press, and am getting rather chary of inter-viewers-the milling papers generally, are an exception, however.
R.-The MilLer will be pleased to accede to your wishes and endeavor to report you regarding the machine wanted for compressing bran?
S.-I have received something over 80 letters, besides several personal applicationssome with plans, others making inquiries-
quite a number report that they are at work quite a number report that they are at work
upon a machine that will be a success. One party says he has a machine "cost $\$ 100$, pack
one to two tons per hour, and filling a:l our one to two tons per hour, and filling a:l our
requirements." Here is a letter, quite a curiosity. I have no objections to your reading the letter, (if you can); the sketch is very
simple-but you'll have to get a Polack to in-simple-but you'll have to get a Polack to in-$R$.-From the what do you consider the prospect for a successful machine.
S.-Very favorable
$R$.-Do you mean to say that you believe a successful machine will be produced answering the requirements of your circular letter?
S.-Practically, yes. Our committee, while S:-Practically, yes. Our committee, while
in Chicago, last week, visited a machine and in Chicago, last week, visited a machine and
saw it working, that compresses dry bran more densely than we require it at the rate of three or four tons per hour; but for machine is too cumbersome and costly why it cannot be modified very materially to answer for steam mills, or for water mills, by using compressed air.
R.- I notice some of the papprs are disposed to ridicule the offer of $\$ 1,000$ for such
a machine as too small. a machine as too small.
S.-Yes, they seem to have "gone off halfcocked" with the idea that this amount was to buy the machine or invention outright; the fact is a less sum would have answered being to direct attention to what was wanted -and it will be produced without doubt; and this is the true way to get desirable improvements. ;R.-If you succeed in bringing out a successful machine, the Cleveland Convention
will not have been in vain. S.-The Cleveland Convention was a success in more ways than one. Never has there been a time when millers looked so carefully into the title of the machinery they
desired to purchase, and never have I received desired to purchase, and never have I received
so many letters desiring information on this subject-particularly about rolls, centrifugals and dust collectors. In fact, the necessity was never before so imperative; infringements seem to stare you in the face on every hand.
R.-What reply do you generally make? S.- It depends on circumstances; but gen-
rally "To buy only of parties who are willerally "To buy only of parties who are will-
ing to secure them in their purchases." ing to secure them in their purchases."
$R$.-Is it a fact, as I have heard it reported, that some manufacturers have agreed to put a bond with the Association to protect their customers?
S.-Yes. One party has agreed to put up such a bond with a member of the Sub-Ex. Committee as trustee, for such a purpose.
$R$.-Will you give me the name of the party?
S.-No sir. Not until the matter is consum-mated-the bond executed and delivered; then it will be published and a circular letter sent to every member of the Association-
R.-Which will give their machines a boom.
$R$.-Which will give their machines a boom.
S.-Undoubtedly.
R.-Why would not this be a good scheme for others to adopt?
S.-It would, if they are clear in their title to $R$.-By the way, have you seen the "MiM Stone" for March ?
S.-I am not a subscriber to that paper, and am not a honored as a D. H.
R.-Well, I brought along a copy, thinking,
to look through, inasmuch as they seem to have devoted consid
art for your benefit.
S.-Yes, particularly the art; such art is no argument-however it's a good illustration, though the driver is ran $(c) k$ and the ass before the wagon is very ran $(c) k$. The roller mill on the wagon looks like one built by the backers
of the "Mill-Stone" with all of Allis' patented improvements. I suppose this fellow has got down into the Hoop-Pole district of Indiana, hoping to fool that old miller at the door by selling him a machine covered by patents belonging to everybody but the manufacturer of those machines; and perhaps Allis sent im notice of infringement, and perhaps he "went" for that salesman, and probably that is the reason why a manufacturer of rolls
was up here from Indiana with his attorney, o see Allis \& Co., last week to "arrange things;" and perhaps you'll give my compliments to the "Mill-Stone," and say that the
effort reminds me of the butter made in the western country at a very early day, when the cows fed in leek pastures,-it smells very like it.

## R.-

patents.
S.-Yes. I see, too, he intimates George Harding is receiving $\$ 6,000$ a year and expenses looking after the Denchfield matter. That intimation he kaows to be untrue, unworthy a publisher claiming to supply facts to sensi-
ble readers. In regard to the Mechwart or ble readers. In regard to the Mechwart or
Ganz patents, I stated this in my report at Cleveland: "I am informed that we may expect ere long to be met by a 'bed rock' patent ed iron rolls. If this proves true, and my authority for the information is good, who is to defend it? It certainly ought not to fall upon the 2,500 capacity now represented in
our association, while the 20,000 outside will our association, while
While my "authority" put it in much tronger language than I made use of, and being an extensive miller, interested in no
way, directly or indirectly, with the building of mill machinery, and coming to me just prior to the meeting of the convention, I presented it before that body, as it was my duty to do. While I may not have the faith of my informer in the validity of the claim, and while I have since found he was mistaken in regard exist that some one will have to take up its defense. Who is that some one that is to be? Let the Mill-Stone answer. It is not necessary to "lash in outsiders." I think their day of re-
tribution is not far distant, and I am willing they should have the full enjoyment of it. R.-Do you believe the Consolidated Co. mean business, as outlined in their letter to the convention?
S.--I know but little outside of Wisconsin as to their intentions or what they are doing; in this State they are collecting royalties at the rate of $\$ 100$ a machine and have been for
18 months. R.-This
suppose.
S.-Oh no. If an outsider hasn't a licensed machine, brush or no brush, they cover it just the same with some of their legion of patents; or pretend to.
$\boldsymbol{R}$.-Do they trouble any of the members of your Association?
S.-Not unless they refused to accept the 9 compromise.
$R$.-Do they carry out the agreement with the Association, giving a reduction to members buying purifiers?
S.-So far as I know they have done so in every instance, where the members ordered direct. I am promised a statement of how much this discount amounts to, and am assured that the amount will astonish me.
$\boldsymbol{R}$.-I would like to ask one question in egard to what was meant by "impending litigation" referred to in the call for the Convention at Cleveland? I notice one of the milling papers mentioned that it was the matter of the G. T. Smith Middlings Purifier Co., refered to in their letter read before the Conven-
tion. Was that a fact? tion. Was that a fact?
S.-No sir. I nev
S.-No sir. I never saw or heard of that
letter till the evening before letter till the evening before the Convention met. We've nothing to do with the G. T. Smith Middlings Purifier Co., except to buy purifiers of them at the discount agreed upon. The "impending" matter was not in a quently remains as it did prior to the meet ing. It is one of those cases, like many others that have been before the Committee their lips are sealed and it would not do to how their hands till the proper time comes.
$\boldsymbol{R}$.-And that's why they call you a "Star Chamber Committee."
S.-I suppose so; but they forgot to mention that each State annually elects a member o the Executive Committee, and the Executive
Committee annually elects the Sub-Executive Committee annually elects the Sub-Executive
Committee; its the easiest thing in the world to have a new Sub-Committee every year, if desired.
$R$-When do the State Associations have their annual meetings?
S.-Minnesota, Missouri and Wisconsin, and I think Illinois, on the 2d Tuesday in April, which is the 10th this year.
$R$.-Who will be the next President of the National Association?
S.-Give it up. Mr. Bain deslares he will not take it again, and I am sure means what he says; C. H. Seybt would make a good one, but I don't think he would serve. W. P.
Brown, of Red Wing, I believe would suit everybody, and he takes great interest in the success of the Association. We have plenty of good "timber," so I don't think we will

NEWS
The City Mills a

## The Cas, Mfig. C

8. Litzenberger \&Co.'s mill at La Fayette, Ind., burned

Kelly Rekd \& 80,000 ; insurance $\$ 20,000$
Kelly Rekd \& Co.'s flouring mill at Elg
March 28. Loss $\$ 25,000$; insurance $\$ 15,000$.
GEo. O. Baker \& Co., Selma, Ala., have or
and rolls from the Case Mfg. Co., Columbus,
The Case Mfg. Co. Columbus, O., are furnishing E. H. The Case Mff, Co., Columbus, o., have sold to Geo. F THE Case Mig. Co., Columbus, o., have furnished Messhs. ZIRkins \& Nonth have recently purchased The Case Mfg. Co. Columbus, O., are furnishing The Case Mfg. Co., Columbus, O., are furnishing J.
Roberts Eaton, Rapids, Mich., with some new machiner Mr. J. C. WARren of Wauwautosa, Wis., recently put in
eight pairs of Allis rolls, all in in Gray's noiseless belt frames. D. H. Tyler of Mosherville, Mich., has ordered of The
Jno. T. Noye Mfg. Co. of Buffalo, N. Y., one pair of Stevens Golls.
Gooln \& Shaw, New Windsor, Ill., will start up their
mill in a few days on the Case system, of gradual reducmill in
ThE Case Mtg. Co., Columbus, O., are furnishing John
Brinks Jr., Amelia C. H., Va., with a line of new machin
nery.
stout Mills \& Temple, Dayton, O., for Livingston roller
mills.
PutNam Bros., Wilmot, O., have recently ordered Liv-
ingston roller mills, from Stout Mills \& Temple, ingston roller mills, from Stout Mills \& Temple, Dayton,
Ohio. The Case Mfg. Co., Columbus, 0. , have furnished B.
Savage \& Son, Alton, Iowa, with some nery. up on the Case system of gradual reduction, with splendid results.
Gro. L. Hays, Piketon, O., started up his mill a few days
ago, on the Case system of gradual reduction, with splendid results.
THE works of the Sandwich Mfg. Co. of Sandwich, III.,
were recently damaged by fire to the extent of $\$ 18,000$ were recently
No insurance
Mbssrs. Edw. P. AlLis \& Co. of Milwaukee, Wis., recent-
y sold Mr. H. Greer of Decorah, Iowa, belt roller mill.
Mr. Alex. Ault, Bellaire, O., has purchased a Gray's
noiseless belt roller mill, of Messrs. Edw. P. Allis. of Milwaukee, Wis
Ggo. Heilman \& Co., Evansville, Ind., have just ordered
of stout Mills \& Temple, Dayton, O., three double sets of
D. B. Sears Sons, Rock Island, Ill., have given their
order to Stout Mills \& Temple, Dayton, O., for additiona Livingston rolls.
Hanawalit \& Co., Tipton, Mo., have lately started up
heir mill on the Case gradual reduction splendid results.
MEssRs. EdW, P. AlLis \& Co. of Milwaukee, Wis., re-
cently sold the Rolla Mill Co. of Rolla, Mo., a Gray's noise ess belt roller mill.
Thos. Bradroad \& Co. of Cincinnati, 0 ., have placed an order with The Jno. T. Noye Mfg Co., Buffalo, N.
Y., for Stevens rolls.
The Renick Mill Co. of Renick, Mo., have been improv-
ng their mill by addiug an outfit of Allis rolls in Gray noiseless belt frames.
Owzn Evans, Limerick Station, Pa., has placed an
order with The Jno. T. Noye Mg. Co., Buffalo, N. Y., for one pair of Stevens rolls.
Mgssss. EDw. P. AlLis \& Co. of Milwaukee, recently sold
Messrs. Burroughs \& Pierson of Flint Messrs. Burroughs \& Pi
noiseless belt roller mill.
Mmsss. J. B Stewart \& Coo., of Buda, Ill, has put in an
Allis' noiseless belt roller mill, from Messes. Edw P. Allis $\$$ Co., of Milwaukee, Wis.
The Case Mfg. Co. Columbus, O., have taken the con-
ract of C. Harvey wilber, Saline Co., for a line of machnery of their manufacture.
Kansas City Miling Co., Kansas City, Mo., have just
siven their order to Stout Mills \& Temple, Dayton, O., for wo pairs Livingston rolls.
Msssrs. J. Q Halteman \& Co. of St Louis, recently or d. Allis \& Co., Milwaukee, Wis.

Mrssrs. Hrazod \& Roberts of Racine, Wis, recently P. Allis \& Co. of Millwaukee, Wis.

Jas. K. HURIN of Cincinnati, O., after having used
ulis rolls for some time, has shown his appreciatis
Allis rolls for some time, has shown his appreciation or
these rolls by again placing his order with Messs. Edw.
P. Allix \& Co. ne Milwarkee, Wis., for twent-eight pairs
of the celebrated Allis rolls, all in Gray's noiseless frames, for his new mill at Cincinnati.
Mr. T. Trenchard of Fairton, N. J., recently purchased
Gray's noiseless belt roller mill from Messra. Edw. P . Allis \& Co., Millwaukee, Wis.
GAPF, Gent \& Thomas, Columbus, Ind., have left their
order with Stout Mills \& Temple, Dayton, 0 . for six pait order with Stout Mills \& Temple, Dayton, O., for six pair
Livingston rolls, for first break,
The Hudnuts, of Terre Haute, Ind., have purchased
wo pair more of Allis rolls, in Gray's noiseless belt two pair more of Allis rolls,
frames, for their hominy mill.
Mrssrs. Dunlop McCance, of Richmond, Va, recently
purchased a Gray's noiseless belt roller mill, from Messrs. Edw. P. Allis \& Co., Milwaukee, Wis. MessRs. A. J. Knoblock \& Co. of Bremen, Ind., has
purchased a Gray's noiseless belt roller mill from Messrs. Edw. P. Allis \& Co., Milwaukee, Wis.
J. W. Smith of Blooner J. W. SMITH of Bloomer, Wis., has recently purchased a
No. 2 tour-break machinue erom Messrs. Edw. P. Allis \& Co.,
Reliance Works M Reliance Works, Milwaukee, Wis.
Messes. Edw. P. AlLiss \& Co. of Milwaukee, lately re-
ceived an order trom Messrs. Hicks \& Cooper of Canton, O., for a Gray's uoiseless belt roller mill.
THE Lanier Mill Co. of Nashville, Tenn., recently placed their order with Messrs. Edw. P. Allis \& Co. of Milwaukee, Wis,, for a Gray's noiseless belt roller mill.
Messrs. Edw. P. Allis \& Co
MessRs. Edw. P. Allis \& Co., Milwaukee, Wis., recently
sold Mr. G. Ziebold, of Rose Bud, Ill., eighteen pairs of
Mgssrs. Fries \& Minnet Bros., of Saline, Mich., recentMgssRs. Fries \& Minnet Bros., of Saline, Mich., recent-
1y purchased a Giray's noistess belt roller mill, from
Messss. Edw. P. Allis \& Co., of Milwaukee, Wis. Mrssrs. Willy \& Co., of Appelton, Wis., have put in two
pairs of Allis rolls, in Gray's noiseless belt frames, from pairs of Allis rolls, in Gray's noiseless beett frames, from
Messrs. Edw. P. Allis \& Co., of Milwaukee, Wis. MsssRs. Knoebel Bros. of Belleville, Ill, lately pur-
chased two pairs of Allis' rolls, in Gray's noiseless frames, ftom Mr. Edw. P. Allis \& Co., of Milwaukee, Wis. Mr. D. Hamil, of Newton, Kans., has put in two pairs
of Alis rolls, in Gray's noiseless belt frame, recently from
Messrs. Edw. P. Allis \& Co, Milw Messrs. Edw. P. Allis \& Co., Milwaukee, Wis.
Frank Dentler, of Parkville, Mich Frank Dentler, of Parkville, Mich., has placed an order
with The Jno. T. Noye Mfg. Co., of Buffalo, N. Y., for a full line of the celebrated stevens roller mills.
HEinol.D, Rodenbaugh \& Co., Lancaster, N. Y., have
ordered of The Jno. T. Noye Mfg. Co., of Buffalo, N. Y., one Stevens roller mill, for grinding middlings.
H. s. Snavely, Junction, Lancaster Co., Pa., have placed H. 8. Snavely, Junction, Lancaster Co., Pa., have placed
an order with The Jno. T. Noye Mfg. Co., Buffalo, N. Y., for one stevens roller mil, for germ crushing.
The Case Mfg. Co, Columbus, o., have the order of
McKinnon \& Co, Concordia, Kans., for one first break maMcKinnon \& Co, Concordia, Kans., for one first
chine and scalping reel, making 3 separations. Mrssss. Bdw. P. Allis \& Co., of Milwaukee, Wis., recent-
Iy sold Messrs. H. Nunnemacher, \& Co., of same place another of their Gray's noiseless belt roller mills. Mr. JNo. Crek of Detroit, Mich., has improved his mill
and added a Gray's noiseless belt roller mill purchased Mr. L. B. Brillhart, of Kendallville, Ind., lately put in
Gray's noiseless belt roller mill, from Messrs. Edw. P. a Gray's noiseless belt roller mill, from Messrs. Edw.
Allis \& Co., of the Reliance Works, Milwaukee, Wis. Crowalle \& Hill, of Carthage, Mo., are putting in rolls,
and for that purpose have lodged with The Jno. T. Noye
Mfg. Co., Mfg . Co., an order for four double Stevens roller mills.
M EssRs. Edw. P. Allis
 two pairs of Allis rolls, in Gray's noiseless belt frames.
Trs Cockle Separator Mfg. Co. recently placed their order with Messrs. Edw. P. Allis \& Co. of Milwaukee, Wis.,
or six pairs of Allis rolls in Gray's noiseless belt frames. Mr. H. Julius Klingler, of Butler, Pa., recently pur-
chased four pair of Allis' rolls, in Gray's noiseless belt Irames, from Mr. Edw. P. Allis \& Co., Milwaukee, Wis. MEssss. Edw. P. Allis \& Co., of Milwaukee, Wis., re-
centiy received an order from Messrs. Wolf \& Hamaker. Messes EDw P A A Co of Milwaike, Wis, Messss. Edw. P. ALLIs \& Co. of Milwankee, Wis,. recent-
ly filled an order for forty pairs of Allis rolls in G ray's noiseless belt trames from Mr. Ferd. Schumacher, of Akron, O. Messss. FATH, EWALD \& Co. of St. Louis, Mo., recently purchased twelve pairs of Alls rons in Gray's noiseless
belt frames, from Messrs. Edw. P. Allis \& Co., Milwaukee
Wis. Messss. Edw. P. Allis \& Co. of Milwaukee, Wis., recently filled an order from Messrs. Richards \& Butler of In-
dianapolis, Ind., for six pairs of Allis rolls in Gray's noiseless frames.
Mr. Rustiv of Evansville, Ind., recently ordered 22 pairs of Allis rolls in Gray's noiseless belt frames from
Messsrs. Edw. P. Allis \& Co. of the Reliance Works at MilMesssrs. Edw. P. Allis \& Co. of the Reliance Works at Mil-
waukee, Wis. Wм. Notвoнm of Delafield, Wis., has just given Capt.
c. W. Pride his order for a full line of Rounds' sectional oller mills manufactured by The Jno. T. Noye $\mathbf{Y} \mathrm{fg}$. Co. of Buffilo, N Y
Mr. A. Eis
Mr. A. Eisenmayer of Trenton, Ill, through Messrs. J.
Q. Halteman \& Co. of St. Louis, has placed his Q. Halteman \& Co. of St. Louis, has placed his order. with
Edw P. Alis \&Co. of Milwankee, Wis, for Gray's noiseless EdW P. Aliis \&Co
belt roller mill.
MEssrs. Shellabarger \& Griswold of Topeka, Kas.,
Mately put in another Gray's noiseless belt roller mill in heir mill at Topeka; same was from Messrs. Edw. P. Allis Co., Milwaukee, Wis.
y placed their order with Messrs. Edw. P, Allis ice y placed their order with Messrs. Edw. P. Allis \& Co.
Milwaukee, wis., for a Gray's noiseless belt roller mill or one of their customers.
MkssRs. Richards \& But
MassRs. RICHARDS \& BUTLER of Indianapolis, Ind., have
placed their order with Messrs. Edw ps placed their order with Messrs. Edw. P. Allis \& Co. of
Milwaukee, for fourteen pairs of Allis Rolls in Gray's Messs frames for mills that they are furnishing.
M sssRs. EDw. P. ALLis \& Co. of Milwaukee, Wis., recent.
y took the contraet for furnishing Mr. J. O. Kendall's mill, t Hartford, Wis. The mill when completed will contain twelve pairs of Allis rolls in Gray's noiseless belt frames.
Mkssis EDw. P. ALLIs \& Co. of Milwaukee, recently MEssss EDw. P. ALLLs \& Co. of M. Spillman's mill at Bryautsville, Ky,., and are puttug in two break machines
nd six pairs of the celebrated Allis rolls in Gray's noise. and six pairs
lees frames.
Gko. A. Mix, Oregon, Ill, has recently remodeled his
mill and placed his order with Messrs. Edw. P. Allis \& Co mill and placed his order with Messrs. Edw. P. Allis \& Co.
for the machinery, which included two of their No. 1 sieve reduetion machines and four pairs of Allis rolls in Gray's noiseless belt frames.
Msss Rs. Edw. P. Allis \& Co. of the Reliance Works
Milwaukee, Wis., have secured the contract for building Milwaukee, Wis, have secured the contract for building
and furnishing the new mill of Messrs. J. W. Kauffman, machines, and thirty-six parin two No 1 less belt frames, together with-all the other necessary ma-
ehinery for a mill of 600 barrels capacity.

THE UNITED STATES MILLER.

Brnson \& Spurling, Union, Iowa, have added one 9x18
smooth roll, with patent automatic feed, from the Case
Mf. Co., Columbus, O . Mfg . Co., Columbus,
S. G. Fogus, Reno, Nevada, has placed his order throngh
Wm. E. Catlin \& Co., with the Case Mig. Co., of Colum-

Surth Hill \& Co., Quincy, Ill., have oritered from the
Case Mfg. Co., a line of break machines, for the mill they are building at Chillicothe, Mo.
J. B. Isett, Spruce Creek, Pa., is putting in one "Little
Giant" break machine and scalping reel, making three separations, from the Case Mfg.
Crover $\&$ Ben
Croven \& Bro. at Erie, Pa., have given way to the roller
boom and will put in ten pairs of Stevens rolls, to be fur
nighed nished by the John T. Noye Mfg. Co., Buffalo, N. Y. Shuler \& Co. of Minneapolis, Minn., have lodged a
order woth The Jno. T. Noye Mfg. Co., for a Rounds ec
tional roller mill for Martin Martins, Merillan, Wis. The JNo. T. Noye Mrg. Co. have booked an order for a
threebreak Noye improved concentrated roller mill, with
steven three-break Noye improved concentrated roller mill, with
Stevens rolls, and twelve pairs of line rolls for the Pacific
coasst. Coleman \& Hahn, Homer, O ., have now been running
their mill on the Case system of gradual reduction, for about
state.
AN additional telegraphic order from the Pacific coas Noye Mfg. Co. of Buffalo, N. Y., will see that they go for-
ward. Thr Case Mfg. Co., Columbus, O., have the contract of
Wm. Deubel Co., Ypsilanti, Mich., for breaks, rolls, puri fiers, ete
system.
The Case Mfg. Co., Columbus, O ., have the order
Thos. Bradford $\&$ Co., Cincinnati, O chines, to go in one of the numerous mills, they are
building. MkssRs. Hutton, Harris \& Co., Auburn, Ill., have re-
cently put in an Allis roller outtitit in Gray's noiseless
belt frames, from Messrs, Edw. Mr. L. V. Rathbun, of Rochester, N. Y., has lately pur-
chased two pairs of porcelain rolls, in Gray's noiseless belt frames, from Messrs. Edw. P. Allis \& Co., Milwaukee,
Wis. MrssRs. Becker \& Underwood, ot Dixon, Ill, have or-
dered two more paits of Allis' rolls, in in ray's noiseless belt
frame, from Messrs. Edw. P. Allis \& Co Mr. J. Weber Adams, of Cedarville, Ill, recently or
dered ten pairs of Allis' rolls, in Gray's dered ten pairs of Allis' rolls, in Gray's noiseless belt
frames, from Messrs. Edw. P. Allis 'd Co., of Milwaukee, Mrssis. Goodlander, Mill \& Elevator Co., of Ft. Scott,
Kans., lately purchased another Gray's noiseless belt
roller mill, of Messrs. Edw. P. Allis \& Co., Milwaukee, For the new mill now being buill at Pendleton, Oreg.,
there has been placed with The pattern.
Messg. Edw. P. Allis \& Co., of the Reliance Works,
Milwaukee, Wis., recently sold Messrs, Marrow Athensville, III., two pairs of Allis rolls, in Gray's noiseless
beit frames. MrssRs. Edw. P. Allis \& Co., of Milwaukee, Wis., are
placing eighteen pairs of Allis' rolls, in Gray's noiseles belt frames, in the mill of Messrs. Valier \& Speis, at
Marine, Il . mill and has put in eight pairs of Allis romods, in Gray's
moiseless frames, from the Reliance Works, of Edw. P The Case Mfg. Co., Columbus, O ., have taken the contract of Mast Troyer \& Co., Buena Vista, o., for breaks,
rolls, purifiers, scalping chests, etc., for a full gradual reThe Saxony Mills, at St. Louis, Mo., recently placed
their order with Messrs. Edw. P. Alis \& Co., of the Re. liance Works, Milwaukee, Wis.,. for twenty-four pairs of
Allis, in Gray's noiseless belt frames. MessRR. Chisholm Bros. \& Gunn, of Minneapolis, Minn.
recently placed an order with Messrs. Edw. P. Allis \& Co of the Reliance Works, Milwaukee, Wiss, for eight pairs The Slater Mill Co., of Blanchester, Ohio., have
placed their order with Messrs. Edw. P. Alls \& Co placed their order with Messrs. Edw. P. Allis \& Co.,
Milwaukee, Wis., for ten pairs of Allis rolls, in Gray's no
seless beett frames, for mills that they are furnishing. M. C. Elienmayer, of Summerfield, Ill., has recently ting in of four pairs of Allis rolls, in Gray's noiseless belt
frames, from Messrs. Edw. P. Allis \& Co. of Milwaukee, Stout Mills \& Temple, Dayton, O., have just sold to the
Cuyahoga Forge and Iron Co. Cuyahoga Foll Cuyahoga Forge and Iron Co, Cuyahoga Falls, O., a
Gilbert combined mill for breaks, Livingston finishing
rolls, bolting chests, and all necessary machinery, for a

Mrssis. Willford \& Northway, the extensive mill fur nishers of Minneapoliss Minn., lately placed their order
with Messrs. Edw. P. Allis \&Co., Reliance Works, Mil
waukee, Wis, waukee, Wis, for four pairs of Allis' rolls, in Gray's noise-
less belt frames. Mrssrs. Edw. P. Allis \& Co., of the Reliance Works,
Milwaukee, Wis., have an order from Mr. J. C. Smith, Milwaukee, Wis., have an order from Mr. J. C. Smith,
Mankato, Minn., for two of their new four-break ma-
chines, also some of their celebrated Allis' rolls for mills, he is remodeling.
Mrssrs. Edw. P. Allis \& Co., of the Rellance Work
Milwaukee, Wis., have taken the contract for remodelin he mill of Messrs. Harris \& Co., at Greencastle, Ind The noiseless belt frames.

M EssR8. Sinker \& Davis, of Indianapolis, Ind., recently placed their order with Messrs. Edw. P. Allis \& Co., of
Milwaukee, Wis,, for four pairs of the celebrated Allis roils, in Gray's noiseless belt
furnishing at Ruchville, Ind.
The Brass Foundry \& Machine Works, of Ft. Wayne, Allis \& Co., of the Reliance Works, Milwaukee, Wis nine pairs of Allis rolls in Gray's noiseless belt frames, for

MessRs. Edw. P. Allis \& Co., of Milwaukee, Wis., have ecently received an order from the Great Western Mfg. Co., of Leavenworth, Kans, for eighteen pairs of Allis rolls, in Gray's noiseless belt frames, for mills, that they are
furnishing. The Great Western Mfg. Co, are doing large buainess in this line, and are using the celebrated Allis roll, exelusively.

M Essers. Edw. P. Allis \& Co., of Milwaukee, Wis., recent
ly sold Messrs. E. Sanderson \& Co., of same place, font roller mill frames.
Messrs Edw. P. Allis \& Co., of Milwaukee, Wis., latel old The Muskegon City Mill Co, of Muskegon, Mich mill at that place.
Thr Hudnuts of Terre Haute, Ind, recently purchass three more pairs of Allis rolls, in Gray's noiselees bel
frames, from Messrs. Edw. P. Allis \& Co., Milwauke The Garden City Mill Furnishing Co., of Chicago, IIl. recently placed an order with Messrs. Edw. P. Allis \& Co
of Milwaukee, Wis., for a line of the celebrated Allig' rolls or mwaukee, Wis., for a line of the celebrated Allis' rolls,
for a mill they are furnishing. Messrs. Edw. P. Allis \& Co., of Milwaukee, Wis., re
cently received an order for two pairs of Allis rolls, in Gray's noiseless belt frames, from Messrs. Matthews Bros.
for their mill at Anamosa, Iowa. for their mill at Anamosa, Iowa. Messes. Edw. P. Allis \& Co., of Milwaukee, Wis., re
cently furnished Mesgrs. E. Sanderson \& Co cently furnished Messrs. E. Sanderson \& Co., of same
place, six more pairs of the celebrated noiseless frames.
Mrssss. Dow. Gilman \& Hancock, of Davenport Iow
recently purchased four pairs of noiseless belt frames, from Messrs. Edw. P. Allis \& Co., The Richmond City Mill Works, of Richmond, Ind have placed their order with Messrs. Edw. P. Allis \& C
of Milwaukee, Wis, for two pairs of Allig' rolls is of Milwaukee, Wis, for two pairs of Allis' rolls, in Gray'
no:seless belt frame.
M Rssrs. Edw. P. Allis \& Co., of Milwaukee, Wis, recent
ly filled an order from Messrs. W. D. Washburn \& Co., or Minneapolis, Minn., for twa more pairs of Allis' rolls, in Mrssrs. Edw. P. Allis \& Co., of Milwaukee, Wis,, cently shipped twelve pairs of their celebrated Allis' rolls
to their branch house, 318 Pine st, San Francisco, Cal, to their branch house, 318
for mills on the Pacific Coast.
M kssers. Gunn, Scott \& Co , of Minneapolis, Minn., have lately ordered of Messrs. Edw. P. Allis \& Co., of Milwau
kee, Wis., four pairs of Allis' rolls, in Gray's noiseless
belt frames, for their mill Nor Nordyke "Larmon Co., Indianapolis, Ind., have or-
dered one "Little Giant" break machine, from the Case
Mfg. Co., Columbus, O., for one of the many mills they are erecting.
O. . S. Strpard of Medina, O. , has tumbled to the roller
bon boom and placed an order with The Joo. T. Noye Mfg. Co.
Buffalo, N. Y. for six pairs of Stevens rolls, with the usua recent improvements.
ThE Cave Mfg. Co., Columbus, O., have taken the con
tract of H . T. Pendleton, Wentzville, Mo., for breaks, roll purifiers, scalping, chest etc., for a full gradual reduction mill on the Case system.
vere accident March 10. While setting up a roller mill a Muskegon, Mich., his arm got caught in some moving Roors \& Co., Cincinnati, 0 ., after running two "Little
Giant" break machines, for some time have ordered the third one, for their mill at Lawrenceburg, Ind., from the
Case Mfg. Co., Columbus, O. Shulere \& Co. of Minneapolis, Minn., have ordered for
R. L. Frazee of Frazee City, Minn., two additional pairs of Stevens rolls, from The Jno. T. Noye, Mfg Co. of Buffalo,
N. Y., the sole manulacturers. R. G. Shuler \& Co , the popular and reliable mill build
ers of Minneapolis, Minn., have instructed Noye Mfg. Co., Buffalo, N. Y., to ship Johnson Bros.
New Richmond, Ind., one pair Stevens rolls R. G. Shuler \& Co. of Minneapolis, Minn., have cap.
tured an order from R. L. Frazee, of Frazee City, Minn. for a full line of ten pairs of Stevens rolls. The Jno.
Noye Mfg. Co., of Buffalo, N. Y. will furuish them. B. F. GUMP of Chicago, Ill, the resident agent of the
Stevens roller mills at that point, has instructed The Jnc.
T. Noye Mfg. Co. of Buffile N, Y, Wavering, Quincy, Il., eight pairs of these popular rolls. CHAs. Heuber, of St. Louis, Mo., the lively representa.
tive of the Stevens roller mills in the state of nlinois and
Missouri, Missouri, has ordered two pair of these rolls of The Jno.
T. Noye Mfg. Co., for Smith, Hill, \& Co., of Quincy. Ill The "Diamond" and "Bluff" flouring mills, belonging
to the Red Wing Milling Co., of Red Wing Min destroyed by fire, Sunday March 4 , The Wing, Minn., wer mated at $\$ 200,000$, with insurance principally in foreign W. H. Wakeford, the traveling agent for The Jno. T
Noye Mig. Co., Buffalo, N, Y, Noye Mfg. Co., Buffalo, N. Y., have captured an order
from V. H. Crisman, Brouckville, N. Y., for a Noye con-
centrated roller mill, and separate rolls for germ and bran. All will be of Stevens pattern.
 of the recently invented and destined to be N. Y., for or Rounds sectional roller mill together with rolls for germ G. H. \& A. s. Hotaling, of Baldwinsvilie, N. Y., have
ordered additional Stevens roller mills of the Jno. T. Noye ordered adaitional stevens roller mills of the Jno. T. Noye
Mfg, Co, of Buffalo, N. Y.
G. M. Beach, of Builino, Calumet Co., Wis., has placed
an order with The Jno. T. Noye Mfg. Co, through E. W. an order with The Jno. T. Noye Mfg. Co, through E, W.
Pride, for a Rounds sectional roller mill. J. F. Hilbert, of Creve, Mo., has ordered of The Jno.
Noye Mig. Co., one single and two double stevens Noye
mills.
Jos. Wagner \& Co of San Francisco, Cal., the Pacffic
Coast representatives of the Stevens roller mill sent in an order to The Jno. T. Noye Mfy. Co., for forty-
two double mills, complete, to fill a contract recently obB. F. Gump.
B. F. Gump, the Chicago mill furnisher, has taken the
contract for building a mill for Gillbert $e$, va, Wis., and has placed an order with The Jno. T. Noy Mfg. Co., of Buffalo, N. Y. for twelve pairs of Stevens roll
or the same. Gump will do a creditable job, and no mit

Wm. H. C. Kemp, whose mills recently burned at will msport, Md., has determined to rebuild and has placed
an order with The Jno. T. Noye Mfg. Co., for a full line n order with The Jno. T. Noye Mfg.
of Stevens roller mills, to go in the same
C. J. Coggin, of Portland, Ia., has ordered of The Jno
. Noye Mfg. Co., of Buffalo, N. Y., a Rounds sectiona T. Noye Mf,
roller mill.

Thz Case Mfg. Co. Columbus, O., have been awarded
the contract of E. 'T. Noel, Nashville, T. T. olls, purifiers, etc., for a 300 bbl. gradual reduetion mill, the Case system.
ShuLer \& Co., of Minneapolis, Minn., have ordered
Rounds sectional roller mill, ofter for a mill they are buildilig of The Jno. T. Noye Mfg. Co.
F. H. Bacon, Esq. of Vermillion, O., have determine The Jno. T. Noye My. Co. of Buffalo, N. Y., for eight pait
of stevens rolls, with the necessary improvements. of stevens rolls, with the necessary improvements. Miliss \& Son of Frankfort, Ky., have deter nined to put
in rolls and have placed an order with The Jno. T. No in rolls and have placed an order with The Jno. T. Noy
Mfg. Co., Buffalo, N. Y., for nine pairs of stevens rolls to
 ments.
E.W Pridr, the popular agent at Nienah, Wis, has bag ged an order for a full line (six pai,s) of Stevens rolle
mills to go into the mill of John Basemann, Rib Falls Marathon Co, Wis. The Jno. T. Noye Mfg. Co. of Buffalo
N. $\mathbf{Y}$., will fill the order. B. F. GUXP of Chicago, IIl., the popular mill furnisher
and re-ident agent for the stevens and re-Ident agent for the Stevens rolls, has placed an
order with The Jo. T. Noye Mfg. Co., of Buffaln, N. Y.
for a pair of Stevens rolls for middlings, for a pair of Stevens rolls for middling
of Kendall \& Smith at Lincoln, Neb.
G. M. Eckrrt \& Co., Darmstadt. IIL, has lodged an orde
with The Jno. T. Noye Mrg. with The Jno. T. Noye Mfg. Co. of Buffalo, N. Y.. for seven
pairs of the famous stevens rolls. Chas. Huber, the St pairs of the famous Stevens rolls. Chas. Huber, the St
Louis, Mo., milling expert, took the order and will super
vies vise the placing of the rolls in position.
E. W. Pride of Neenah, Wis., has captured an order for
a three-break Rounds sectional roller pill tional parrs of Stevens rolls to be placed in the mill
Edw Edw. Hermann, Marathon City, Wis. The Jno. T. Noy Mfg. Co. of Buffalo, N. Y., will fill the order.
ShuLer \& Co of
Shuler \& Co. of Minneapolis, Minn., report a lively in
crease in their business. They have recently accepted an order on the part of The Jno. T. Noye Mfg. Co of Buffalo the mill of Chas. Jenny at Monticello, Minn.
The mill of D. R. Sparks \& Co., (everybody knows Sparks)
of Alton, Ill., is to be enlarged, and The Jno. T Noye Mis. of Alton, Ill., is to be enlarged, and The Jno. T Noye Mrg.
Co of Buffalo, N. Y., have the order for eight pairs Co of Buffalo, N. Y., have the order for eight pairs or
Steveus rolls for the purpose. This ifm was amongst the country
The Case Mfg. Co. Columbus, O. some months ago fur
nished J. Pitt Felt, Emporium, Pa., with Giant" break machine, and one set double rons; he was
so well pleased with the working of these machines, that he has now placed his order with the same company for The Case Manufacturing Co. of Columbus, O., have jus completed the Castalia Flouring Mill, near Sandusky,
This mill has a capacity of 200 barrels per day, Case break machines, purifiers and other special machinery made by the Case Co.. used by the milling company, give
the best of satistaction. CAsE machinery has an excellent reputation in all sections of the conntry, and many of the of it. For small mills also it is claimed that the Case Sys

For some time it has been known that the Mt. Vernon contemplation the erection at that place of a full fledged
all roller mill including all the all roller mill including all the most recent and modern
improvements. Notice was given to such firms in this country as woul.
handle such a work to prepare and submit plans speed fications and programmes. It was stipulated that the
price should not govern or influence the decision, but that the geueral excellence of the plans \&c., as to locatio economical arrangement and the perfection attained in
the programme should be the ensis naturally be inferred that such unusual, though not un wise conditions would bring out the best and most com-
petent mill building talent in the country, and it did. were gotten together in this country. After many
days of waiting on the part days of waiting on the part of the bidders and careful
study on the part of the Company,assisted by experts, the contract was finally awarded to The Jno. T. Noye Mfg.
Co., of Buffalo, N. Y. The plans show a Co., of Buffalo, N. Y. The plans show a capacity of two work in its various stages being done on rolls. In the complement of machinery is included a $16 \times 30$ Cummer Engine, two $22 \times 46$ boilers with pumps, \&c., \&ce.,
oring water up from the Ohio River, eight double stevens roller mills, three centrifugal flour dressing ma-
chines, six Smith purifiers, bran dusters. packers, dust catchers \&c. \&c., for a mill of this capacity. The Noye
Co., are to be congratulated on the success, they have
attained and so well merited in An Event For The Soutr. Nashville, Tenn., is to
have a new full-fledged roller mill, "with all the latestim provements;" this has been in contemplation for son to it to fond out if possible what plan to adopt. Wher machines and system to employ, \&c. The proprietor The contractor, who is putting in all the work under up to the best, is Mr. G. A. Weber, of the same city, whos name is a guarantee for good work, and good results, cinnati Millers Exposition, to decide upon the merits he different competing systems, represented there. Th machines, and system to be employed, are those of the nade a very thorough study of the present state of the ed milling centers, and allowing himself ample time to avestigate the merits of the different machines and their arious claims to superiority, before finally deciding nto requisition to this end. It is expected tho brough will be in full blast in time for the new crop, and its start ing aed operation will be watched with more than usual

Interest, by numerous of the dusty fraternity, both Norths
and South. Every modern idea will be introdured to make it a modern ideal mill. Large purifying cal acity will be employed and the centrifugal reel willtake an mportant part in the bolting. These machines, as well Company The mill is to have ample capacity for 300 bble, in 24 hours. This is a step in the advan
cannot but prove to be well taken.

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tinisher, for nearly two years, and are
time know whereof we speak. We time and know whereof we speak. We
would not think of doing without it, would not think of doing without it, per D. G. THOMAS. per hour through them, one thixd more Cockle Separator Mfg. Co. having tried it once, and can conscien- $\quad$. S.-I have been milling now for than rated capacity, and are not using Gentlemen:-The Beardslee's Grain
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