

### The United States miller. Volume 7 1879

Milwaukee, Wisconsin: [s.n.], 1879

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Volume 7.—No. 1.

#### MILWAUKEE, MAY, 1879.

Terms : \$1,00 a Year in Advance Single Copies, 10 Cents.

#### GRAIN.

#### Peculiarities in its Normal and Manufactured State.

An Investigation Under the Microscope-Showing the Adulterations and Natural Evils to which It has been Subjected.

A COMPLETE INVESTIGATION OF THE SUBJECT BY ONE OF THE LEADING CHEMISTS OF EUROPE.

Flour in General-Wheat Flour-Rye Flour -Barley Meal-Oat Meal-Indian Corn-Rice Meal.

[Translated from the German of Dr. Herman Klencke expressly for the UNITED STATES MILLER,—cuts repro-duced by our special engraver from the original.]

[CONTINUED FROM APRIL NUMBER.]

Robine has proposed another method which is based upon the quality of acetic acid, when diluted with water to dissolve the gluten and albuminate substances which are to be found in flour, without producing a change in the starch meal. The greater or lesser specific weight which the solution of the gluten and albumen in the diluted acetic acid acquires is the criterion by which the gluten and then through this the quality of the flour can be judged of. The specific weight will be the greater the more of gluten and albumen are dissolved, consequently the better the flour is. For this purpose Robine has invented an areometer, which he has called "Appreciateur des farines," or flour-tester. . The mode of its application is very simple and easy. The instrument is a scale, the graduated tube of which is so divided that each degree indicates the amount of gluten in good flour which would be necessary for a loaf of wheat-bread weighing 2 kg. For this purpose the diluted acetic acid is at first prepared by pouring so much acetic acid in distilled water, so that when it is put into a glass cylinder of suitable height and the meal-tester is let down into it, the latter sinks down to 93 deg. If the acidulous liquid is heated to 15 deg. C., the flour is stirred in for every 31.25 kcm, of this diluted acetic acid 4 g. of flour. We will make this proportion plainer by a description of the experiment itself.

If the flour is supposed to be very good, 24 g. (of poorer flour 32 g.) must be taken. Suppose now that we have taken 24 g. of good wheat flour which we wish to examine; we have then 6 times 4 g., and must accordingly take 6 x 31.25 kcm., consequently 187.5 of the acetic acid diluted as before prescribed. The flour is put into a mortar of porcelain and softly grated; the acid is added, and the mass is stirred for about 10 minutes, so that the gluten will dissolve; then the solution is poured into a glass that is placed in water heated to 15 deg. C. After the course of an hour, during which time it is left to settle, a sediment of starch and particles of bran has been formed; the milky liquid covering it is carefully poured off, and now the instrument is lowered into it. The degree to which it will sink shows the number of times 2 kg. of wheat bread which a certain amount (here 159' kg. are assumed) of good flour must yield. Usually the result deviates between 101-104 deg., or just as many loaves of bread of the assumed weight of 2 kg. If this liquid is saturated with the bicarbonate of natron, the acetic acid separates from the gluten; the latter appears floating on the surface, and it may be gathered on a linen cloth, washed out with cold water, and thus obtained pure. Wheat flour has also been discovered that betrayed small admixtures of metallic copper, even of lead, bismuth, etc., from the use of which painter's colic has resulted. Whether these metals have found their way into the flour in the grain warehouse, in mills, or on vessels during transportation, has not been definitely ascertained. If there is reason to fear the

presence of an admixture of this kind, a portion of it may be burnt in a skillet of porcelain, brought in contact with nitric acid and then examined with reagents such as have been before mentioned in other cases. (Ammonia, for instance, will produce a white sediment from lead, and a bluish one from copper; potash produces similar coloring.) If the presence of any metal in flour is suspected, a test recommended by Duflos and Hirsch must be made. A portion of the flour is taken, stirred with distilled water to a thin mixture, and poured into a glass funnel which is closed below with a cork; then the dish wherein the mixture was made is rinsed with water, and the thin mass is again stirred in the funnel with a glass tube. At the end of about half an hour, by cautique lifting of the cork, a small portion of the sediment which has formed itself is allowed to run into a goblet which is half filled with good sulphurated hydrogen water. If the mixture turns gray, brown, or even black, it may be definitely concluded that the flour contains either lead or bismuth. This experiment may be further continued, especially to find out whether the

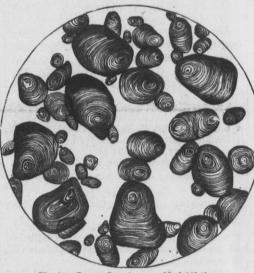


Fig. 14.—Potato Starch, magnified 240 times.

much chemical skill to be of use to the public in general. When the presence of the metal has been ascertained by the above-named simple process, it will be sufficient to guard against the use of such flour. To ascertain whether wheat flour is good and unadulterated, Ure advised to take its specific weight as a criterion since the admixture of inferior kinds of starch which occurs but too frequently causes a difference in weight, as, for instance, a vessel which holds exactly ½ kg. of wheat flour will hold 4 kg. when filled with potato starch. This test is certainly of value, when by the weighing of vessels of equal size filled with different kinds of starch and flour an empirical scale is found of the specific weight of each kind, if at the same time the more or less damp or dry condition of the flour is critically examined and taken into consideration. Ure also recommends to try a chemical experiment with flour. Nitric acid gives to pure, unadulterated wheat flour a fine orange color, which is not the case with starch and potato meal. Muriatic acid changes the color of pure wheat flour into a deep purple, but dissolves potato starch to a light-colored slimy liquid, which may be decomposed by alkali. Potato starch also absorbs less water than good flour, since it itself contains much water. We will try to make more accurate and true modes of experiments feasible for the public in general. The fraudulent adulteration of wheat flour for the purpose of gain is so manifold and frequent, that it is well worth the while to submit the matter to an exhaustive examination; and we may here, besides the experience of the French, English, and German, use our original or comparative experiments as a basis to our judgment. Flour is either adulterated to conceal the poorer quality or in times of high grain prices, seemingly similar substances of less value are

added to the good flour, so as to obtain the quantity and weight by these less valuable admixtures, and it is just the great importance of flour as the most indispensable nutriment which even in times of high prices the poor must procure, whatever may be its cost, which not only renders this unfortunately so extensive adulteration of flour doubly culpable, but has also induced expert chemists and microscopists to detect the adulterations by certain processes and experiments. Although we have here in a more narrow sense chosen wheat flour as the object of our investigation, yet we must preface that the adulterations and examinations which follow may also apply to other kinds of flour, especially to rye flour; and in order to prevent repetition thereafter, we will refer to the means of examination and methods applied to wheat flour. Flour is adulterated by organic and inorganic substances. Let us first consider the former. A very common admixture of wheat flour is potato starch, especially since this substance changes neither the whiteness, the odor, nor taste of the flour. Yet wheat flour which has been mixed with it has the quality of absorbing by far less water metal is lead or bismuth, but it requires too than pure flour, and thus when of equal weight

with the pure flour, will produce less bread than the latter. According to Boland's experiments, an admixture of but 25 per cent of potato starch renders the flour unfit for the preparation of bread, and it is not advisable to add more than from 8 to 10 per cent if it should be desirable to use it for the purpose of economy. Countless means and methods have been proposed to discover the presence of potato starch in wheat flour. To name a few only proposed by noted men, we mention suggestions of Chevallier and Henry, to scatter a pinch of the suspected flour on a piece of black paper, and examine either with the naked eye or with the microscope whether it shows bright spots. Chevallier and Bois de Loury recommend the blue coloring of the flour with iodine vapor, which will always have an immediate and strong effect upon the potato starch.

Legrip has invented a peculiar instrument which he called the "similametes." Morin experimented by the different effects produced by sulphuric acid and muriatic acid upon pure and adulterated flour. Dupin and Dubec inferred from the differences in the color produced by nitric acid and nitrate of mercury, as well as from the difference in the specific weight. Blodriguez distilled dry flour and observed whether it would then react on acids or not. Cavalie examined and compared the different colorings which he produced on a quantity of flour by alcoholic tincture of iodine which contained acetic acid, after he had dissolved the flour in a definite quantity of cali and alcohol of 34 deg., etc.

But all of these experiments are not only cumbrous, even difficult and presupposing much practice in chemical experiments, but also inaccurate and insufficient. Let us, therefore, confine ourselves to such means of examination which will yield a definite result, and which we can recommend from experience. The most decisive answer as to whether potato starch is contained in flour or not is given in the first place by the microscope. The starch particles of the potato can easily be distinguished by the eye from those of wheat. They are larger, of a peculiar pear-shape, and marked with scaly lines surrounding a center which generally lies in the narrower part. If the fllustration of pure wheat flour, given in fig. 11, is compared with the picture of potato starch given in fig. 14, magnified 240 times in length, the examining eye cannot long be in doubt. The mixture and adulteration of wheat flour with other less valuable grain and legume flours is most readily disclosed by the micro-

[To be continued.]

The Merchants' Exchange, of St. Louis, has 1,290 members.

#### MILLERS' NATIONAL ASSOCIATION.

#### Sixth Annual Convention, at Chicago, Ill., May 13, 1879.

ORDER OF BUSINESS.

1st. Opening of the Convention at 11 o'clock a. m.

2d. Report of the Committee on Creden-

3d. Proceedings of last Convention.

4th. Enrollment of members.

5th. Official report.

6th. Call of Standing Committees and filling vacancies.

7th. Appointment of Committee on Nomination of Officers.

8th.—Reports of Standing Committees: 1st. -State Organization. 2d-Transportation. 3d.—Insurance. 4th.—Grading and Inspection. 5th.-Patents. 6th.-Milling and Improved Methods. 7th .- Mill Machinery. 8th. -Grain for Milling. 9th.-Brands and Trade Marks. 10th.-Miller's School or College.

9th. Reports from Special Committees. 10th. General business.

11th. Report of Committee on Nominations, and election of officers for the ensuing

#### STANDING COMMITTEES.

1. State Organizations.-C. A. Seybt, Highland, Ill., Chairman; F. B. Mills, Minneapolis, Minn.; W. B. McActee, Baltimore, Md.; J. J. Snouffer, Cedar Rapids, Iowa; H. H. Emery, Indianapolis, Ind.

2. Transportation .- Edwin Sanderson, Milwaukee, Wis., Chairman; H. S. Osborne, Quincy, Ill.; C. A. Pillsbury, Minneapolis, Minn.; O. W. Baldwin, Ottawa, Kan.; J. A. DeWar, Kansas City, Mo.

3. Insurance.-H. A. Hayden, Jackson, Mich., Chairman; D. R. Sparks, Alton, Ill., F. L. Hubbard, Minneapolis, Minn.; J. R. Serrin, Ladora, Iowa; F. Schumacher, Akron,

4. Grading and Inspection .- L. M. Norton, Chicago, Ill., Chairman; E. Goddard, St. Louis, Mo.; R. L. Thompson, Terre Haute, Ind.; C. W. Seebach, -, Minn.; P. H. McGill, Baltimore, Md.

5. Patents .- Alex. H. Smith, St. Louis Mo., Chairman; S. H. Seamans, Milwaukee, Wis.; J. A. Christian, Minneapolis, Minn.; J. D. Hays, Detroit, Mich.; J. A. Hinds, Rochester, N. Y.

6. Milling and Improved Methods. - Joseph F. Gent, Columbus, Ind., Chairman; -, Minn.; E. F. Krieder, Jacksonville, Ill.: Homer Baldwin, Youngstown, Ohio; J. B. A. Kern, Milwaukee, Wis.

7. Mill Machinery .- David Gibson, Indianapolis, Ind., Chairman; Henry Stanley, St. Louis, Mo.; D. E. Roberts, Maysville, Ky.; W. Underwood, Dixon, Ill.; Chas. Miner, Wilkesbarre, Pa.

8. Grain for Milling .- W. P. Brown, Red Wing., Minn., Chairman; Jas. Gordon, Sparta, Ill.; Robert Colton, Bellefontaine, Ohio; Geo. Motley, Rochester, N. Y.; A. Ames, Fort Atkinson, Iowa.

9. Brands and Trade Marks .- Robert Tyson, Baltimore, Md.; Chairman; Philip Haxall, Richmond, Va.; J. G. Jenkins, Oswego, N. Y.; Fredk. Woodard, Staunton, Ill.; W. F. Cahill, Minneapolis, Minn.

10. Millers' School or College .- F. Chamberlain, Albany, N. Y., Chairman; J. B. Ficklen, Fredricksburg, Va.; John Earl, Schoolcraft, Mich.; Geo. J. Plant, St. Louis, Mo.; C. Manegold, Milwaukee, Wis.

11. General Reference.-Nicholas Elles, Evansville, Ind., Chairman; C. S. Baker, Red Wing, Minn.; W. Hayden, Tecumseh, Mich.; -Dow, Davenport, Iowa; August Guye, St. Genevieve, Mo.

12. Oredentials.-D. B. Merrill, Kalamazoo, Mich. Chairman; Jno. Crangle, Mo, H. L. Halliday, Cairo, Ill.; F. Schoch, Selinsgrove, Pa.; C. D. Smith, Lincoln, Neb.; Frank Little, Sec'y, Kalamazoo, Mich.

### UNITED STATES MILLER.

#### E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY. OFFICE, 62 GRAND OPERA HOUSE, MILWAUKEE, WIS. All Drafts and Post-Office Money Officer must be made payable to E. Harrison Cawker.

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

#### MILWAUKEE, MAY, 1879.

THE Minneapolis millers have struck against a 20 per cent reduction of wages.

In our June number we shall present our readers with a technical article on "Under Runners," with illustrations.

THE term of subscription paid for by many of our subscribers expired with our April number. We hereby call their attention to it, and hope they will soon remit for another year.

MARRIED—On Tuesday, March 25th, at the residence of the bride's parents, in Quincy, Mich., by the Rev. W. Foulks, Mr. H. Herbert Emery, of Indianapolis, Ind., to Miss Hattie D. Pease, of Quincy, Mich.

We congratulate Bro. Emery of the Millstone, and wish him and his bride a long and happy

ONE THOUSAND car-loads of grain-over 450,000 bushels—will be shipped from St. Louis to New York for export to Europe early in May via the Wabash & Toledo, Lake Shore & Michigan Southern and New York Central Railroads. Special rates have been obtained.

RODNEY MASON, Esq., the Great Mogul of the Patent Ring, has again wrestled with the United States Patent Office, and it has concieved and brought forth the Stoll reissue. 'Squire Rodney says his hopes are revived, and "he will abide with the brethren until the end."

THE UNITED STATES MILLER has the largest circulation of any milling journal published in America, and was the first milling journal started in America entirely independent of connection of interest with some machine or mill-furnishing establishment.

THE Stoll reissue, which we mentioned in our April number, does appear to amount to something upon investigation. As the meeting of the National Millers' Association is so near at hand, and as that matter will be thoroughly investigated at that time, we defer all remarks thereon.

THE Consolidated Middlings Purifier Company have brought suits against the Joseph Lacroix Middlings Purifier Co., of Indianapolis, Ind., and Messrs. Collins & Gathmann, of Chicago, Ill., for infringement of their patents. It is said that similar suits will be commenced against other purifier manufacturers.

COL. COLLINS is happy. The Consolidated Middlings Purifier Company have sued his firm-Messrs. Collins & Gathmann-for infringement of their patents. He declares that his appetite has not been so good before for years. Now, this patent business is getting interesting. Its better than-well, even a walking match, and lasts ever so much longer.

WE hope all who receive sample copies of the UNITED STATES MILLER will favor us with hearing next fall. As their case cannot be their early subscription. The pricelar per year-is a mere trifle, and ensures you a first-class paper containing a great quantity of matter of direct interest to your trade. Do not delay, but send your order now. Enterprising, go-ahead millers cannot afford to be without the current milling literature of the

It has been rumored that Hon. George Bain, President of the Millers' National Association, and Frank Little, Secretary, will not be candidates for re-election. Secretary Seamans, of the Wisconsin Association, has been favorably spoken of for the position. He is certainly as active and efficient a worker in the interests of the milling fraternity as can be found, and in case his name should be brought before the Convention as a candidate, he will undoubtedly meet with a handsome support. If there is to be a change, we should be pleased to see Wisconsin carry off a portion of the honors.

R. G. DUN & Co.'s Commercial Agency Report for the quarter ending March 31st, shows that during that time there were in the United States 2,524 failures, with liabilities amounting to \$43,112,665, against 3,355 failures and \$82,078,826 during same months in 1878. In

Canada during the first quarter of the present year there were 634 failures with \$11,648,697 liabilities, against 555 failures with \$9,100,929 liabilities for the same period in 1878. The report shows that the number of failures in the United States have decreased over 25 per cent, while the amount of liabilities has fallen off much more in proportion. The prospects are not so flattering in Canada.

LEHMAN'S METHOD FOR TRUING MILL-STONES .- We call the attention of our readers to the advertisement of William Lehman in another column. By using his patented method he claims that there is no further use for the various patented staffs, many of which have been tried by millers all over the country. Mr. Lehman's method has been adopted in a great many mills, and cannot fail to give entire satisfaction, as it positively secures a perfectly true face, the great advantage of which is universally well known. It is true, but not generally admitted, that it is almost impossible to find a run of stones in perfectly true face. When you do find a run in perfect condition, or even approximating to it, the product therefrom will be found to be of a superior quality. It may be that the old style mill-stone will gradually pass out of use and be supplanted by rollers, but until that time comes it is a matter of the utmost importance to keep the stones true. We commend our readers to correspond with Mr. Lehman on the subject.

#### THE OFFICIAL CALL.

The followsng is the official call for the next meeting of the Millers' National As-

MILLERS' NATIONAL ASSOCIATION, PRESIDENT'S OFFICE, St. Louis, March 28, 1879.

The Sixth Annual Convention of the Millers' National Association will be held at the Grand Pacific Hotel, in the city of Chicago, May 13, 1879. All members of State Associations and individual members of the Millers' National Association in States where no State organiza-tion exists are invited to be present. The ratio of voting, as decided by the Executive Committee, will be based upon the number of runs of buhrs on which assessments have been fully paid up to the 1st inst.

As recommended by the Executive Committee, a reorganization of the Association will probably take place, and it is hoped as many members as possible will attend.

GEORGE BAIN, President. FRANK LITTLE, Secretary.

The Executive Committee are requested to meet at the Grand Pacific Hotel at 10 a. m., J. A. CHRISTIAN, Chairman.

#### A BAD YEAR FOR PATENTEES.

#### Downton vs. Yaeger Milling Company.

The above entitled case came up for hearing in the United States Court, St. Louis, Mo., April 25th, and after full consideration of all the testimony introduced, Downton's roller patent was declared invalid, as it had been anticipated. The Yaeger Milling Company and Messrs. E. P. Allis & Co., of Milwaukee, feel jubilant over the result. As matters now stand, manufacturers of rollers can go ahead and make as many and different kinds of rollers as they please without the fear of infringement before their eyes. The following letter from Henry C. Yaeger was received by Messrs. E. P. Allis & Co., April 28th:

Sr. Louis, April 26th, 1879.—Edward P. Allis & Co.: GENTLEMEN: Downton case decided in our favor. Court grants them another made any stronger. we may consider the pat ent for rolls worthless. Not a good country for patent suits.

HENRY C. YAEGER." "Yours truly,

#### ATTENTION, WISCONSIN MILLERS.

OFFICE WISCONSIN STATE MILLERS' ASSOCIATION, MELWAUKEE, April 26, 1879.

I am requested to call the attention of the members of our Association to the Annual Meeting of the MILLERS' NATIONAL AS-SOCIATION, to be held at the Grand Pacific Hotel, Chicago, Tuesday, May 13th, next. Every mill in the Association should be represented at the Chicago meeting, as it will be the most important one, in many respects, ever holden by the National Association.

The "Patent" litigations-past, present and prospective-will receive a large share of attention, and will require careful considera-

It is proposed to adopt a strong legal constitution, that will bind its members more firmly together, and enable the Association to conduct its business in such a manner that the Executive Committee will labor under no uncertainty as to the support they shall receive, financially or otherwise, as has heretofore been the case.

A State Constitution will also be devised

and recommended, which will conform to the requirements of the National Association. These are but a few of the important matters that will require your attention.

Heretofore, our Association has only been represented by a "corporal's guard." It is hoped, at this meeting, a REGIMENT will be found present from Wisconsin.

None but full paid members will be admitted to the Convention. All those that are de-linquent at the time of the meeting will be dropped from membership in the Association. If you are behind on any assessment, better pay up at once. You cannot afford to be dropped at this time. Those not now members can become so by paying \$10 membership fee, and all assessments levied since the organization of the Association.

To those who have not yet joined I would say, the Association has fought a big battle for you, and defeated the enemy, and it is but your honest duty to join us, and pay your propertion of the expenses. You have reaped the benefits. Why not pay? The Cochrane patents are dead beyond a resurrection. All threats of appeal to the Supreme Court are for "bull-dozing" purposes. Though handsomely beaten in this, the enemy are still active. Another old patent has been resurrected, reissued, and is now more formidable

than the Cochrane patent.

The Barter patent, too, is now coming to the front. New suits are being commenced, and new parties are in the field. If to fight, and fight successfully, it can only be done by united forces. If to compromise, the Association will secure terms for its members that would be impossible for individuals to obtain. In either case, the outsiders will be at the mercy of men whose greed is only governed by the size of the victim's bank account. Whatever compromise the Association may enter into, it will be in the interest of its members only. "Come in out of the wet," and don't fail to attend the Convention.

S. H. SEAMANS, Secretary.

#### RECENT PATENTS.

The following patents of interest to the milling trade were granted by the United States Patent Office March 25th, 1879:

Grain door, G. C. Banta, Kansas City, Mo. Turbine water wheel, John C. Clime, Phila-

Separator for flour mills, Isaac Morgan, Au-

gusta, Ga.

Indianapolis, Ind.

Grain elevator, F. Taggart, Brooklyn, N. Y. Cockle separator, Andrew Wemple, Chicago. Machine for separating magnetic substances from grain, Cyremus Wheeler, Auburn, N. Y. The following are the patents granted April

1st, 1879: Ventilating mill-stones, George Helfert, New

Turbine water wheel, J. Lucas, Redfield, Ia. Middlings grinding mill, Jonathan Mills, assignee to Milwaukee Middlings Mill-stone Co.,

Milwaukee, Wis. Apparatus for removing germ and fuzz from grain, S. Potts and A. Parson, Somerset, Wis. Grain separator, Wm. S. Reeder, St. Louis. Mill-stone pick, R. J. Wheatley, Duquoin, Ill. April 8th, the following patents were issued: Mill-stone exhaust apparatus, J. Q. Adams,

Mill pick, James H. Cain, Cana, N. C. Magnetic grain separator, Henry E. Cook and J. B. Thayer, River Falls, Wis Mill-stone driver, Wm. T. Duvall, George-

Wheat heater, P. B. Hunt, Avoca, Iowa. Grinding mill motor, Louis Langevin, Bue-

Diamond mill-stone dresser, Thos. McFeely, Union City, Ind.

Wind mill, J. H. Palmer, Lodi, Wis. Grain drier, P. Provost, Minneapolis, Minn. Grinding mill, Ezra Rhodes, Erie, Pa Midddlings separator, Augustus and A. N. Wolf, Allentown, Pa.

WORSHIPPING BY STEAM. - Recently a Methodist Church in Nevada expelled one of its members. He thought it the result of his pastor's spite against him, and not to be outdone in his devotions he conducts them in a rather original way. He owns a saw mill near the church. On Sunday he attaches his engine to an immense steam calliope with which he makes his instrumental music, and with the "Sweet Bye and Bye" drowns the

Courier-Journal. Special Business Notices.

voice of the neighboring parson.-Louisville

Do you need a good Saw Gummer or Saw Tooth Swage? If so write to J. W. Mixter & Co., Templeton Mass. Agents wanted.

Notice.—Owing to the death of Mr. Edward Harrison, we take this method of informing you that the business will be continued until further notice, and that all orders will receive prompt attention. Letters should be directed to the "Estate of Edward Harrison," New Haven, Ct.

IMPORTANT NOTICE TO MILLERS.—The Richmond Mill Works and Richmond Mill Furnishing Works are wholly removed to Indianapolis, Ind., with all the former patterns, tools, and machinery, and those of the firm who formerly built up and established the reputation of this house; therefore, to save delay or miscarriage, all letters intended for this concern should be addressed with care to Nordyke & Marmon Co., Indianapolis, Ind.

#### MILWAUKEE TRADE ITEMS.

Mattice & O'Neill, of this city, have ordered a new improved Corliss engine from Messrs. E. P. Allis & Co.

E. P. Allis & Co. have sold a new 12 x 36 improved Corliss engine to the Eagle Mill Co., of New Ulm, Minn.

E. P. Allis & Co. have orders for three complete mills from Oregon, -one of 6 run, one of 3 run, and one of 2 run of stone.

E. P. Allis & Co. have an order for ten more sets of porcelain rolls for parties in England, which are to be forwarded at once. The Atchison, Topeka & Santa Fe R. R. Co.

have ordered an improved Corliss engine from Messrs. Allis & Co. for their new shops at To-

Allis & Co. are building one of their improved 700-horse power compound condensing Corliss engines for J. B. A. Kern's flour mill in this city.

Mr. J. B. Alfree, of Washington, Pa., is building a mill in which he has adopted the system of the Milwaukee Middlings Mill-stone Company.

The Milwaukee Middlin's Mill-stone Company have orders from Messrs. Hibbard & Graff, of Grand Rapids, Mich., for their grinding mills.

Hildebrant & Davis, of Lu Verne, Minn., have ordered an improved Corliss engine from E. P. Allis & Co. Also the machinery for a 3-run flour mill.

E. P. Allis & Co. have taken the contract to build the 4-run mill for Hoyt & Seager, of Frontenac, Minn., including all the machinery and millwright work.

E. P. Allis & Co. have received an order from the Cedar City Mill Co. of Utah for the machinery for a complete 4-run mill, including a Victor turbine wheel.

Kirby, Mattern & Pavey, of this city, have ordered a new Corliss engine from Allis & Co. Also all the machinery for their new starch works to be erected in Milwaukee.

The Milwaukee Middlings Mill-stone Company have just started up Mr. Morris Johnson's mill at Lowell, Mich., fitted up for custom work entirely on their principle.

The Milwaukee Middlings Mill-stone Company have started up Messrs. Coleman, Jackson & Co.'s mill at Centralia, Wis., which they have been overhauling and remodeling.

Allis & Co. have sold to Henry W. Barrett & Co., of Louisville, Ky., one of their improved 18 x 42 Corliss engines, which is to take the place of a Harris-Corliss engine now in use.

E. P. Allis & Co. have received an order from L. M. Dayton, of Cincinnati, for one of their improved Corliss engines, 22 x 42. This is the second engine sold to Mr. Dayton by Allis & Co. within the past few weeks.

E. P. Allis & Co. report that they have orders on their books for over sixty sets of iron and porcelain rolls, and are not only working all the men possible in their own shops but are letting out work to try and keep up with or-

E. P. Allis & Co. have taken the contract to furnish one of their improved 18 x 42 Corliss engines with 16 x 66 steel boilers, full condensing apparatus, and all connections, to Stephen Gardner, Vermillion Mills, at Hastings, Minn. All to be finished in 60 days.

E. P. Allis & Co. have orders for 20 new Monteith threshing machines, including the horse powers and trucks. This is a trial lot, and if the inventor's anticipations are realized, from 200 to 400 will be begun at once and got ready for next year's trade.

#### Northwestern Mill Bucket Manufactory 310, 312, 314 FLORIDA STREET,



Is furnishing Mills and Eleva-tors in all portions of the Country with their super-ior BUCK ETS They are UNEQUALED for their
SHAPE, STRENGTH
AND CHEAPNESS.
Leather. Rubber,
C an vas Belting
and Bolts at lowAddress or BUCKETS

L. J. MUELLER, 197 Reed st., Milwaukee.

### B. F. GUMP.

No. 53 South Canal Street, Chicago, Illinois.

GENERAL MILL FURNISHER, COMMISSION MERCHANT.

AND CHICAGO AGENT FOR GENUINE DUFOUR & CO.

#### BOLTING CLOTHS.

I HANDLE NO OTHER BRAND. All numbers kept constantly in stock to supply the largest order at a moment's notice. Grit-Gauze Cloths equal in Mesh to 000 to number 6 inclusive always on hand.

Flour Mill Trimmings a Specialty. Such as Rubber, Leather, and Solid Wove Cotton
Belting, Elevator Buckets and Bolts, Bran Dusters,
Wire Cloth, Plated Wire Cloth, Brass Wire Cloth,
Water and Steam Gauges, Boiler Injectors, Pumps,
Packing, Smutters, Corn Shellers, Portable Mills,
&c., &c. And all necessary articles for Mills at
prices to suit the times.

Send in your orders.

marly

#### MANUFACTURE OF OATMEAL.

When the grain has been thoroughly dried, it is allowed to cool to blood heat before being shelled. The shelling stones should be of a soft but gritty nature; not too soft, however, because if they are they generally miss kutching the grain and wear into rings too soon. The English or Newcastle stone is much used, although some millers consider it rather soft. The Esopus stone of New York ought to make a very excellent sheller, while for grinding it ought to be far superior to the French burr. It makes a softer meal than the burr, but does not, of course, hold the face so long or grind as fast. There is a quarry situated somewhere in Susquehanna County, Pa., which supplies the best stone for shelling. It was in the market for awhile in 1871, but since then the quarry has been closed, and no interest is taken in getting out the stone. The proprietor has several large farms in the neighborhood and has no desire to quarry. It is purely a sharp, coarse sandstone, and will not ring, get out of face, or glaze. It is very well adapted, too, for scouring purposes, and while superior in all respects to the English or Canadian stones, it can be sold much cheaper. This class of stone is always sold by the pound, and not the size, and as the specific gravity is much less than that of the others, besides costing less for quarrying and transportation, it can be sold for nearly half the price of the other stones. The writer has seen common sandstone taken from the quarries to do as good shelling as the best Newcastle stone, the only difference being that they should be dressed or "picked" oftener. The picking is done with a bill or sharp-pointed pick and no furrows are used. The size varies from 4 to 6 feet in diameter, 41 feet being, perhaps, the best size. The number of revolutions vary, of course, with the size, being from 75 to 125 per minute. When the oats go through the sheller they

pass into a riddle, where the hull and dust or "dannagh" is blown off. The screen is made of No. 13 wire cloth. The end of the riddle where the shelled grain falls is generally covered with bagging or zinc, and it receives its motion from a crank at the end. It has a fall of from an inch to an inch and a half to a foot, according to the length. All the husks or shells pass over the riddle, and the grain drops through, where it is met with a strong current of air from the fan, and the dust is blown away into the dust room. All small grains fall at the end of the machine, and are put through again with a lighter blast from the fan. Particular care and attention must be given to the fan, as a great deal of loss is often occasioned by allowing too strong a current, and the shelling is not properly cleaned by a weak one. When the light grains or tailings are run through the second time, the stones will, of course, have to be lowered. The fans should be about two feet in diameter, and run at the rate of 300 revolutions per minute. When the grain is thoroughly separated from its shell and the dark brown dust has been blown away, it would be of considerable advantage to run the shelling lightly through a brush machine. Although the writer has never seen this done, he believes that it would clean it of quite a mass of dust, which must necessarily adhere to it, and the result would unquestionably be whiter and better meal. The shelling stone is "hung," not balanced. A three, and sometimes four-toed rynd, is used. The rynd is keyed on the spindle, and the process of hanging is gone through by the miller.

Sometimes the "gains" are not cut properly, and small pieces of thick brown paper are placed between the arms of the rynd and the stone until it is perfectly even with the spindle, which, by the way, must be properly trammed before the stone is put down. Some millers give the runner a "bosom" of a quarter of an inch at the eye, running out to nothing at the end of eight inches. In hanging the stone is turned round slowly until it is found to be perfectly level with the bed stone. A good plan in hanging the stones would be to have a patent eye by which the stone could be adjusted to the horns of the rynd by a thumb-screw. It would save much time, besides giving a more perfect adjustment. It is, of course, needless to inform the miller that in shelling the stones must be nearly the length of an oat kernel apart. The proper distance can only be found after starting up. The stones being without furrows the grain is brought to the periphery in a whirling way by the centrifugal force of the runner, somewhat retarded by its own weight, the grains

up to a certain point the better the shelling. There are always some grains not dried enough which escape and fall into the spout with the cleaned shelling. These should be guarded against, as they aid in bringing on fermentation in the meal if kept for any length of time. In order to avoid these, and also to aid in perfecting the thorough cleaning of the grain, the oats should be put through the sheller twice, care being taken to regulate the screen and draft on the fan to suit each shelling. The riddle should also be adjusted in such a way that its fall could be raised or lowered at pleasure. When careful attention is given to the shelling, and the grain is thoroughly freed from chaff and dust, then the process of grinding commences.

#### GRINDING.

There are various opinions with regard to the proper kind of stone for grinding oatmeal. Some assert that the French burr, with twenty-four furrows, is the best. Some say that it ought to have twenty-seven furrows; some claim eight, and a majority insist on not having any. The writer's opinion is that furrows can be advantageously dispensed with in French burr, while it might be well to put in about twenty-four furrows in an Esopus or soft stone. Say eight quarters, three furrows to each. (Quatrers in this connection do not mean quarters of the stone, but a style of dress, it may be well to remark.) Some recommend cracking, eight cracks to the inch, and others, the writer among them, no cracking at all, but to have the stone faced with a bill the same as the sheller.

The meal must be cut and not crushed, and therefore the style of dress which will granulate best is the one to use, and experience is teaching every day that the smooth face is the best tor this purpose. The meal should be ground perfectly cool, as otherwise it will not be sweet and will not keep so long. The grinder is hung on a three or four horned rynd, the same as the sheller. The bosom should be sunk a quarter of an inch, the same as the shelling-stone, but should run out to three or four inches of the periphery. Fourfoot stones are large enough for grinding oats, and three-foot stones can be used to advantage. A great many use a soft stone for the eye-piece where a French burr is used, which is a good plan, as it wears just about right to keep the eye sunk. An eyepiece of Esopus and a skirt of old stock French barr would make an excellent grinder, using say sixteen furrows on the burr face and eight on the Esopus up to the eye. The meal passes from the stone to the

#### SIFTER.

The sifter is generally about five or six feet long and three feet in width. It is made of punched zinc, with the holes far enough apart to allow the "seeds" to pass over. These holes are of various shapes—sometimes round and sometimes oblong, and are generally punched from the bottom side with a slight elevation on top. There are generally three sieves, placed three or four inches apart, one above the other, with the top one punched wider than the one below, and so on. The first one is for the large "seeds" to pass over, the second for the smaller "seeds" and "cutlings," which are reground, and the third separates the fine meal from other "cutlings," which are also sent to the stones again. The fan is about twelve to fourteen inches in diameter, and revolves at the rate of 200 revolutions per minute. The "seeds," when thoroughly cleaned, make good feed for animals, but when intended for domestic use to make "sowens," or "flummery" as some call it, it is not so finely cleaned. This sowens makes a very healthy and pleasant food, and is much used for children and invalids. Sowen is made in the following manner: The "seeds" is put to steep in an earthen vessel by pouring hot (not beiling) water on it. It is stirred and left for fortyeight hours, when it begins to sour. It is then strained through a cloth or sieve and boiled. When cooked it has somewhat the appearance of corn starch, but is much more palatable. Its taste is sour and pleasant, and even before boiling the liquid makes a very agreeable drink of a warm day. The sifter is shaken by a crank in the same manner as the "screen," but has only about half an inch fall to the foot. The speed must not only be regular but also the proper number of revo-lutions must be looked after, as otherwise the bolting will not be properly or evenly done.

If too slow, it will allow the "seeds" to fall through, and if too fast, some of the fine meal will be wasted. The top sieve is the longest, the lower about two feet shorter, and the middle one foot. In the manufacture of oatmeal a great degree of care must be be-stowed on the grain from the time it is first put on the kiln until it leaves the mill in meal, what retarded by its own weight, the grains ahead, those tumbling over from the rear and the still bed-stone, and the greater the feed of being spoiled.—Millers' Journal.

#### EVERYBODY READS THIS.

#### NEWS OF THE WORLD.

ITEMS GATHERED FROM CORRESPONDENTS, TELE-GRAMS AND EXCHANGES.

Louisville is to have a Board of Trade.

A. S. Cox, of Rochelle, Ill., has sold his

Eifert's mills at Rush Lake, Minn., burned April 20th.

A new mill is to be erected this season at Bird Island, Minn.

The Stacy Filler has been approved by the Minnesota grain buyers.

March 1st, 1879, there were 49,007 post-offices in the United States. An attempt was made to assassinate the Czar of Russia, April 14th.

All indications so far in Ohio and Indiana

point to good crops for 1879. There is only one miller in Congress. No wonder the old thing grinds slow.

The damage to Luck & Hathaway's mill at Oconomowoc, Wis., was only \$200.

W. M. Poole & Co., millwrights, Minneapolis, Minn., were recently burned out.

A pound of oat meal is said to possess as much nutriment as 9 pounds of ham.

The water power at Sauk Rapids, Minn., is be sold soon under a decree of Court. Caleb M. Lynch's grist and saw-mill, Frank-

ford, Delaware, burned. No insurance.

Kansas has been blessed with copious spring rains and a beautiful harvest is predicted

Property to the value of over \$500,000 was destroyed in Philadelphia April 4th, '79.

Messrs. Luck & Hathaway's mill at Oconomowoc, Wis., burned. Partially insured.

Nearly eleven million dollars worth of flour were shipped to South America last year.

A. B. McHardy succeeds A. H. McLeod in

running the flour mill in St. Johnsburg, Vt. The Archibald mill at Dundas, Minn., is packing flour in sacks for foreign shipment.

The Globe mills at Bunker Hill, Ill., have been leased to A. W. Treat, of Neoga, Illinois. W. L. Kidder, of Geneseo, Ill., has bought

an interest in the Wabash mill, Terre Haute,

Mr. Shaw, of the firm of Shaw & Willliams, millers, in East Saginaw, Mich., is

A new flour mill is to be erected in Minneapolis, Minn., on the site of the old Morrison saw-mill.

Col. I. M. Sells, of Coldwater, Mich., has sold his mill for \$18,000 and gone out of the

April 4th a great fire burned an entire business block in St. Louis, and the losses were very heavy.

May & Co.'s new flour mill at Dodge City, Kansas, will be completed in time for this year's crop.

E. & R. McGrath, millers, Hampton, N. Y., have suspended. They also have a mill at Rutland, Vt.

Wood & Kenyar, of Onawa, Iowa, are building a four-run flour mill in complete modern style.

Messrs. Bailer & Peacock succeed to the milling business of Stevens & Bailer, at Osakee, Minn.

The Michigan Central R. R. Co. will build a 600,000 bushel elevator in Detroit, Mich., this season.

Upper Egypt has suffered terribly from famine. It is reported that the worst of it, however, is past. The first mill in Wayne county, Neb., is

being built on Logan creek, by Messrs. Mc-Henry & Dennison. The "Peerless Mills," H. T. Pendleton,

proprietor, at Wentzville, Mo., are being repaired and improved.

The California Consolidated Virginia mines which were valued four years ago at \$250,-000 are now valued at \$8,000,000.

Rockford, Ill., has a tack factory which turns out a ton of tacks per day. It will not do to sit down on such a business

Mase & Co.'s grist mill at Winneconne, Wis., is to be removed to Oshkosh. It will be loaded entire on barges and transported by water.

More grain is sown in Middle Georgia this season than at any time since the war, and less cotton will be planted than for twenty years past.

The Piqua Flouring Mills, Piqua, Ohio, burned April 26th. Loss, \$30,000 to \$35,000. Partially insured. A large quantity of cribbed corn was burned.

Mr. S. T. Hayt, of Corning, N. Y., will at once rebuild the Southern Tier flouring and grist mill which was destroyed by fire on the 22d of February last.

Memphis, Tenn., is reported to be in a very filthy condition, and it is predicted that the yellow fever will break out there as soon as the weather gets very warm.

John Hawkins, a boy of 16 years of age, had his arm caught in some gearing in the

mill at Spencer, Ind., and was crushed so badly that he died soon after.

Another flouring mill is to be built at Redwood Falls, Redwood county, Minn., this summer by the Birum company. There are already three mills using the power furnished by the falls.

A great demand for American flour will come from Turkey this year. It will have to be furnished in string sacks suitable for transportation on the backs of camels and

Mr. H. Riedell, senior member of the milling firm of H. Riedell & Co., of Owatonna, Minn., died on Wednesday, the 9th inst., af-ter a week's illness. Mr. Riedell was about 66 years of age.

Kimberly, Clark & Co., of Neenah, Wis., have purchased the Conkey flouring mills, at Appleton, Wis., together with the water power—3,000 horse power—for the consideration of \$53,500.

The Minneapolis Board of Trade meets only once per month. The report for March shows a heavy increase in shipments. The shipments for March, 1876, were 596 cars, and in March, 1879, 1,336 cars.

The Minneapolis millers are satisfied with the use of magnets for removing wire and other metals from the grain before being ground. The idea is not patented, and any mill-furnisher will supply them on demand.

The Green drive-well patentees have secured another victory, this time in the U.S. Court at Indianapolis, Ind. This is the fifth U. S. Court decision in their favor, but the Minnesota farmers have concluded to fight the patent still further.

The proposed great water wheel test to be made at Holyoke, Mass., to secure the best water wheel to supply water for Minneapolis, Minn., has been abandoned, the Mayor of Minneapolis having refused to sign the contract on account of the great expense.

Messrs Woerner & Miller, of Wright City, Mo., are making extensive improvements in their mill. A new sixty-horse power engine, with a fly-wheel weighing 5,000 pounds, is being put in position, and when all the proposed changes have been made the grinding capacity will be 80 barrels of flour a day.

Olmstead Co. (Minn.) farmers are discussing the feasability of building a Grange flouring mill. Most of the flour mills built in the past few years in different parts of the West have proved failures and have passed into the hands of private owners. Such is the natural tendency of such enterprises

At a special meeting of the flour trade, at the Produce Exchange in New York, April 16, a committee was appointed to confer with the railroads coming to New York, relative to the time flour should be held by the roads after its arrival. The grain trade has established a new grade of wheat, to be known as "mixed winter."

April 7th the Milwaukee Chamber of Commerce held their annual election of officers, which resulted in the election of Michael Bodden, President; O. E. Britt and D. M. Brigham, Vice Presidents; and W. J. Langson, the present incumbent, Secretary, and Treasurer. Mr. Langson has occupied the position for many years, and there is little likelihood of any change as long as he wishes the office.

Abraham Funk, a Menonite, at Mountain Lake, Minn., has converted two prairie boulders into mill-stones, each of about the diameter of an average milk-pan, and set up his mill in a little building about four feet square. A small wind-mill furnishes power, and Mr. Funk can grind some twenty bushels of feed per day, when the wind is favorable. Cost of the whole concern exclusive of Mr. Funk's work, about fifty dollars.

A. J. Davis, of the milling firm of Davis & Fisher, Madelia, Minn., has been arrested and held to bail in the sum of \$5,000 for attempting to poison his partner. Davis was formerly a pastor of the Free Will Baptist church in Minneapolis, Minn., and has always borne an excellent reputation. It is said he gave Fisher some raisins to eat containing tracking tracking. Mr. Fisher was promptly taining strychnine. treated by a physician and is out of danger. Much excitement prevails in the little city of Madelia.

S. M. Newton, of the flouring mill firm of S. M. Newton & Co., of Chippewa Falls, Wis., and until recently President of the First National Bank, made an assignment to A. J. Haywood, March 31st. The assignment will not in any manner affect the bank or the flouring mill. Mr. Newton's assignment arose from a logging matter. Last fall he went into some very extensive logging, the fact being that the returns from the heavy outlays were not equal to the immediate demands made on him.

Mr. Joseph Winslow has lately rebuilt his flour mill in Eagle Lake, in this county, and while absent at Fergus last Monday a girl named Christina Mikkleson, who is employed by him, went into the mill to shut down the water-gate. In doing so her hair became entangled in the upright shaft that is close and, before assistance could be rendered, her scalp was entirely torn from the front part of her head. The heartrending screams of the girl attracted the attention of some men who were working near, but not in time to save her from the terrible disaster. Her sufferings are terribly severe, but it is hoped she may recover.—Fergus Falls Advocate, Minn.

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### UNITED STATES MILLER.

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#### MILWAUKEE, MAY, 1879.

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We send out monthly a large number of sample copies of THE UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. We are working our best for the milling interest of this country, and we think it no more than fair that our milling friends should nelp the cause along by liberal subscriptions. Send us One Dollar in money or stamps, and we will send THE MILLER to you for one year.

M'LEAN'S Millers' Text Book and the UNITED STATES MILLER, for one year, for \$1.25. Order now. Send money or postage stamps.

CYRENUS WHEELER, jr., of Auburn, N. Y., has taken out a patent for separating magnetic substances from grain. The claims are rather broad.

JONATHAN MILLS dropped in on us a few minutes in the early part of the month. His newly invented bran-duster is now in the

POSTAGE stamps taken in payment of subscription to the UNITED STATES MILLER and the Millers' Text Book. \$1.25 pays for both for one year.

We will send a copy of the MILLERS' TEXT BOOK, by J. M'LEAN, of Glasgow, Scotland, and the UNITED STATES MILLER, for one year, to any address in the United States or Canada, for \$1.25. Price of Text Book alone, 60 cents. Send cash or stamps.

J. W. OWEN, of Niagara Falls, N. Y., who has for 12 years successfully represented the house of Messrs. Howes, Babcock & Co., of Silver Creek, N. Y., has retired from business and settled down to enjoy the balance of his life in domestic peace and quietness.

HOPPIN, of the N. W. Miller, has been talking about some of Jonathan Mills' poetry every once in a while for the past two or three years, but don't give us any of it. Come, Al., give us a few lines. We know it will be solid-unless the germ has been extracted.

THE English Roller Patent case, entitled Wegmann v. Corcoran, Witt & Co., in which judgment was sometime since rendered in favor of the defendants, has been appealed by the plaintiff. A final determination of the suit will probably be made during the present

LOOK HERE.—Every mill-owner, miller, millwright and apprentice should have a copy of sold their flour mill to Jas. Capen & Co.

the Millers' Text Book, by J. M'Lean, of Glasgow, Scotland. Price 60 cents; or the UNITED STATES MILLER, for one year, and a copy of the Text Book for \$1.25. Postage stamps

All articles intended for exhibition at the "World's Fair," to be held in Mexico, commencing Jan. 15, 1880, will be admitted free of duty, and no charge will be made for space or storage.

HOW TO MAKE AN EMERY WHEEL .- Take a smoothly-turned wooden wheel, and cover the same with leather, devoid of grease, and coat the leather surface, a portion at a time with good glue; immediately roll the glued surface in emery spread out on a board.

JAMES H. THORP, of New#York, has taken out a patent for a grave. Truly, this patent subject is getting to be a grave business. There is one consolation in this case, however, the infringer can stand long and loud knocking by the demander of royalty for the use of his patent.

WE notice that one of our contemporaries publishes the names of millers throughout the country that give chattel mortgages. This seems a little rough on the millers. It's bad enough to have such facts published in the confidential sheets distributed to customers of commercial agencies.

Advertisers will consult their own interests by patronizing the United States Miller, which circulates almost exclusively amongst the flour milling class. It has the largest circulation of any milling paper published in America, and was the first independent milling journal started in the United States not being connected in interest with any patented machine or milling supply

THE Chicago & Alton Railroad Company has tendered George Bain, President of the National Millers' Association, a train consisting of engine, baggage-car, and four Pullmans for the conveyance of millers from the South and West to Chicago to attend the regular annual meeting of the Association in Chicago May 13th. The train will leave St. Louis Monday evening, May 12th, and all millers whose route lies through St. Louis should notify President Bain early, if they can be on hand in time to take his special train, so that ample provisions for room can be made.

TUNNELING THE DETROIT RIVER .- Mr. Vanderbilt is going actively at work to carry out the important transit improvement of tunneling the river at Detroit. Information has been received at that city to the effect that Mr. Vanderbilt has awarded the contract, and that work is to be begun immediately. The price is stated to be \$1,500,000. The tunnel will extend from Stony island to Anderson, Ont., a distance of 3,700 feet, with double arches for a double track, 18 feet high and 15 feet wide.

COL. W. L. BARNUM, Secretary of the Millers' National Insurance Company, of Chicago, spent a day or two in Milwaukee during the past month, and favored us with a call. The Colonel informs us that his company is in fine financial condition, and the business is steadily increasing. The statement made Jan. 1st, 1879, shows assets, \$388,365.76; liabilities none. Income for 1878, \$149,485.04; losses and expenditures during 1878, \$45,179.61. Jacob Barns, of Grand Rapids, Mich., is the President, and Col. W. L. Barnum, Chicago, Ill., Secretary.

A somewhat novel stratagem was recently resorted to by a Leicester, England, manufacturer during a strike. It appears that a dispute existed between his workmen and himself, in reference to the prices to be paid for riveting and finishing boys' boots. As no satisfactory arrangement could be arrived at, a strike followed, which continued for several weeks, at the expiration of which, the employer hearing that several shoemakers in the riveting branch, had, owing to the prevailing distress, been compelled to seek temporary accommodation in the workhouse, applied to the parish authorities to supply him with riveters and finishers. The guardians granted the application, and had not the dispute been eventually settled amicably, it is said they would have compelled the inmates to have accepted the work or quit the institution.

Forsythe & Co., of Spencer, Mass., have

#### A WORD TO PRACTICAL MILLERS.

We received a letter not long since from a millwright in England in which he said: "Journeymen millers do not seem to study or try to improve their knowledge of milling. They are satisfied to work along in the same old worn rut, and a new idea seldom gets into their heads unless some traveling millwright from some of the great milling centres chances to come along and tell or show them something new."

This statement is too true, and it can also be applied to a good many millers in this country, but happily there are many journeymen millers as well as owners that are enterprising, inquiring and practical men, who will study and consequently improve their minds, mills, products and the contents of their pocket-books. A practical miller should use his brains as well as his hands. He should strive to keep himself posted by procuring all good books published on the above subject of milling, and above all should read carefully and attentively the milling journals of the day. The publishers of these journals pick up an idea here and there and put it into shape and publish it. It may be crude and undeveloped, but a studious, ingenious man may sieze upon it, develop it and make some important discovery -Take the benefit of the experience of others. It is not necessary that you should have your own leg cut off to find that such an operation is painful. Make intelligent use of your brains and save manual labor. It is not disgraceful to work hard, but a man is foolish to work hard when there is no occasion for it. The question of economical milling is a very important one-we must, can and WILL be able to raise grain, make it into flour and deliver it in foreign markets cheaper than they can raise it and manufacture it themselves. This can and will be done by means of the efforts of close-thinking, ingenious millers who will invent the machinery necessary to be used to produce such a result. The science of milling has made wonderfu. strides in the past decade, and we predict that still more wonderful changes will take place in the coming one. A country miller recently said to us, "we can't compete with your city millers on the merchant work because we havn't got the machinery, and if we had we couldn't get a miller capable of running it without paying a very high salary." It is true in a great measure. There is a demand for thoroughly posted millers, and it is only once in a while that you find such out of employment. To the young men just beginning to learn the trade we would especially commend them to bear these foregoing remarks in mind. Study the science you are trying to learn. Learn all that has been learned and try to learn more. Experiment when necessary, but learn from the experiments of others when possible. Read some or all of the current milling literature of the day, and our word for it, the result will in the end be satisfaction with yourself and money in your pocket.

#### HARRIS-CORLISS ENGINES.

Wm. A. Harris, of Providence, R. I., manufacturer of the well-known Harris-Corliss engines is now making his annual trip to the West to visit those who contemplate putting in new engines in their flour mills or other manufacturing establishments. The merits claimed for these engines are summed pp as follows by Mr. Harris:

Stock and material the best of their respective kinds forgings mered wrought iron (do not use cast shafts.) Cylinders of hard, strong and fine iron. Piston rods of homogenous steel. Valve stems and other bronze castings of pure ingot copper and tin. Large bearings and wearing surfaces all substantially arranged to take up lost motion occasioned by wear. Ample lubricating arrangements for the lubricating of all bearings, and in the case of flour mills, stoping to oil crank, pin and crosshead wrist is entirely avoided. Ample port openings, thereby insuring full boiler pressure on the piston and a free exhaust without back pressure. Regularity of speed under varying loads and steam pressure. No part of the regulating medium operates through stuffing boxes or in any manner is an actuating medium of the valve motion, or enters the steam chest and thereby be out of sight of the engineer, and subject to the corrosive action of steam and oil. Stop-motion on regulator, which effectually stops the engine, preventing it from running away whenever the regulator by any means fails to perform its office. An arrangement of drip-collecting devices, en-abling the engineer of neat habits to keep his engine and engine-room floor clean. Accessibility of all its parts—a distinctive feature, and praised by engineers. Patent vacuum dash pots, insuring immediate and sure closing of valves, and enabling the engine to run at any desired speed. Babbitt & Harris'

patent piston packing has been proved to be the best now in use. Patent self-packing valve stems, dispensing with stuffing boxes and the labor and use of packing. Recessed valve seats, preventing shoulders being worn on them. (This is a serious defect in other Corliss engines.) All the small parts are made to guages, and carried in stock. My engines at remote distances can be repaired as soon as Express Co. can pattern with a darkly soon as Express Co. can return with a duplicate piece. Send order by telegraph for duplicate parts. And, to sum up all the fore-going advantages, economy of fuel, repairs, oil, wear of engine and boilers, reduction of boiler pressure, and in fact all that relates to the economical production of steam power.

Mr. Harris addresses a circular, of which the following is a copy, to mill-owners throughout the West:

PROVIDENCE, R. I., April 1st, 1879 .- Gentlemen: I intend making an extended trip through Ohio, Indiana, Kentucky, Illinois, Missouri, Kansas, Iowa, Wisconsin, Minne-sota, Nebraska and Michigan, and shall visit those manufacturers from whom I get a response to this circular.

I have located many of my engines in the above States, and would refer parties to those whose names appear in the list of testimonials published in my last catalogue.

My correspondence, also, has been quite extensive with those who have seen my engines in operation, and I now propose to visit not only those with whom I have corresponded recently, but all who desire to confer in detail with me on the above subject, making estimates, and furnishing drawings for the same.

With this object in view, parties meaning business may send particulars to my address, Providence, R. I., where it will be forwarded to me on the read, as I shall keep myself in daily telegraphic communication with my office. Before ordering elsewhere, await my arrival, and confer with me in person, as my experience in locating and determining size of engine required will be of the greatest benefit to you, and no doubt save you money.

Do not fear that there will not be time enough to fill your order, as I am able with large facilities and many engines always in process of construction, to fill any order in from three to five weeks. Respectfully,

WM. A. HARRIS.

#### IMPORTANT NOTICE.

TO THE PARTY RECEIVING THIS PAPER WHO IS NOT ALREADY A PAID SUBSCRIBER.

We hereby extend to you a cordial invitation to become a subscriber to the UNITED STATES MILLER. We shall endeavor to make it of the greatest possible use and benefit to the milling fraternity, and no mill should be without it. The best talent that we can obtain in this and other countries will contribute to its columns, which will also be enriched by carefully translated articles on subjects of interest to the craft. Subscription price, \$1. Enclose money or stamps in an envelope, seal carefully, and send at our risk. By return mail you will receive a receipt therefor. Address

THE UNITED STATES MILLER, Milwaukee, Wis.

SEVERAL commercial travelers were lately discussing the condition of trade, while seated around the stove in a hotel. Several complained that collections were unusually slow. "I have no trouble in making collections," said a stranger. "What house do you travel for ?" asked some one. "Uncle Sam's," he replied. He was a Government revenue collector.

In another column we publish a translation of the report of the manufacturing and financial business of some of the leading Hungarian mills. A careful study of this report and the evident profits of milling on the Hungarian system will be of service to our merchant millers who are contemplating changes. The pure Hungarian system will probably never be satisfactorily tried in this country, but a modified system seems to have many admirers.

#### Cut This Out.

### "United States Miller" Subscription Blank.

We hope the milling friends of the UNITED-STATES MILLER will be as liberal to it as it has been in the past, and will be toward them in the future. Subscription price, one year \$1,

We shall be pleased to have an early response

to this. Fill out the blank below, enclose with money in an envelope, seal carefully and send at our risk. A receipt will be sent by return mail. Address all communications to the

UNITED STATES MILLER, Milwaukee, Wis.

Editor	of	the Uni	TED	STA	TES	MILLE	R, Mil-
waukee,	Wis.	.—Sir:	Se	end	one	copy	of the
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#### ABOUT STEAM BOILERS.

[CONTINUED.]

A boiler 24 feet long, 42 inches in diameter, with two flues, exploded. It was stated at the investigation that only 50 lbs. of steam was being used. The original thickness of the iron was only 3-16 inch. At the point of rupture the iron was corroded to the thinness of paper. No person was hurt, but the building was badly damaged. The diagram, figure 8, represents the appearance of the boiler after the explosion.

It is reasonable to suppose that if the boiler had been thoroughly inspected, the defect would have been discovered, and the accident prevented. There are steam users who fail to appreciate the advantages of thorough inspection. A "certificate," if secured at a very low rate, is all that is wanted.

The following report of a boiler explosion from a special agent of the Hartford Steam Boiler Inspection and Insurance Co., of Hartford, Conn., who visited the scene, will be read with interest:

"The boiler was of the locomotive type-a variety used in the oil regions of Pennsylvania—having a narrow base to the fire-box and a tapering waist; base, 26 inches wide by 4

Fig. 9.

feet 4 inches long; fire-box, 20 inches wide |

by 3 feet 10 inches long; front, 4 feet high by

3 feet wide at axis; dome, 22 inches diameter,

by 30 inches high, measured from crown of

shell; length over all, about 12 feet; diameter

of barrel, 30 inches, containing 28 tubes 3

inches diameter by about 8 feet long; thick-

ness of shell, dome, and fire-box, 1-inch iron;

tube-sheets, 5-16. The boiler was located in

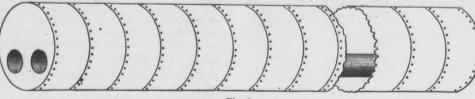
an open field some distance from the works,

and covered by a shed; it was used to furnish

steam for a small pumping-engine in a large

stay-bolts and braces, which were scattered in all directions. The barrel of the boiler containing the tubes was thrown end over end, nearly in a line of its axis when in position, a distance of about two hundred feet, the tubes left bare by the tearing off of the waist, plunging into the ground, whence it bounded some distance further near the place where the taper-sheets that formed the waist had alighted.

provided with a "stop-valve," that is, valves so situated that either boiler can be shut off when not in use. The danger here is that when the idle boiler is put into use the attendant will forget or neglect to open the stopvalve, and, there being no outlet to the one safety-valve, the pressure increases until the surrounding metal is unable to resist the internal pressure, and an explosion occurs. Boilers should never be set in this way unless each



"Most of the other parts were strewn in a | curved line to the left, each piece going further until the most remote and largest landed about 1,500 feet to the left. The crown and sides of the furnace were composed of one sheet, which seems to have been flattened down upon the grate-bars, then turned once over upon the ash-heap, with its fire side up, and the fusible plug in perfect order in the

middle of the sheet. "A part of the tube-sheet, with half the

> wrought-iron basesill attached, was dropped upon the tool-box of the diggers. The front of the shell, with the front of the firebox attached, was thrown about 600 feet in a direction nearly opposite to that taken by the barrel.

"Nothing remained to mark the spot where the boiler stood except the grate-bars, which were forced into the ground that formed

the floor of the ash-pit.

"The boiler was nearly new, and fitted with a common lever safety-valve and three guagecocks. Fire-box was stayed to shell by screw stays, spaced about 5% inches apart and headed over inside and outside. About 20 of those that supported the furnace-crown were attached in the same way to the 24-inch circle of the shell enclosed between the flange-rivets of the

"The whole load upon a 24-inch circle of the center of the crown-sheet, at 120 pounds per square inch (a pressure that the safetyvalve, with the weight at the end of the lever,

even allowing it to be in working order, would have permitted), was 54,000 pounds or 27 tons. The body of the safety-valve was tapped to receive the steam-pipe from the boiler, also the steam-pipe to the engine and the escape-pipe from the

space above the valve, in the usual manner. The wings of the valve fit nicely into the chamber, and the tendency of the long steampipe, perhaps not properly supported or twisted out of its natural easy position, acting as a long lever on this valve body, is to distort the parts and pinch the wings so that no ordinary force would more the valve from its seat. It is said that this boiler had been worked at a pressure of 130 pounds, which would probably be quite sufficient to weaken this weak part of ling-wood and scattered over several acres of | the boiler, and the disaster may have occurred ground. The boiler was torn into 12 prin- from want of strength to sustain such a load cipal fragments, besides small pieces of plate, any longer. The pump, which was located

> a considerable distance from the shed, may have stopped from accumulation of (water) condensed steam in the steam-chest. The steam would rise until the weakest part let go, and with an inoperative safety-valve no warning would be sounded to rouse the drowsy attendants." The wreck is shown in fig. 10.

A very dangerous method of setting and connecting boilers is that where two boilers are provided with only one safety valve, and yet each boiler is boiler is provided with its own safety-valve, located on the shell of the boiler. We have known of several serious accidents arising from this style of fitting: A case occured during the past year. The owners of the boilers were substantial men, and had no adequate idea of the responsibility wnich they incurred. Their attention was called to the danger, and they evidently intended to give it early attention, but failed to do so, and a serious disaster followed. Fig. 11 shows the original condi-

tion of the boilers. It appears that for some reason one boiler had been shut off, and the steam gauge between the boilers removed for repairs. The boiler was fired up, and a destructive explosion occurred. Fortunately no lives were lost. There are many boilers through the country

set in this way, and serious accidents have occurred and will occur so long as this practice is followed. Portions of the boiler were thrown from 300 to 700 feet. Figs. 12, 13, and 14 will show the manner in which the iron was torn. Fig. 12 represents the top of the steam drum. Fig. 13, rear end of left-hand boiler, which was thrown some 225 feet. Fig. 14, front end of left-hand boiler.

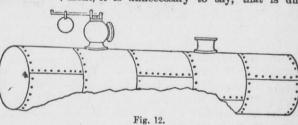
The dangers incident to the use of steam can in a great measure be removed if steam users will study the matter more carefully. It is always economical to surround boilers with intelligent care and management; to have them set on correct principles, with all attachments and appliances properly located, so that especially every safety appliance shall perform its functions freely and unobstructed.

#### WESTERN MILLING AND COGNATE INTERESTS.

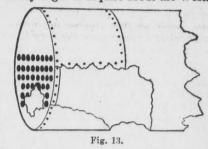
The flour milling industry of the Northwest has made wonderful progress during the last twenty-five years, having proceeded parri-passu with the transfer of the wheat belt from the Gennessee, Ohio and Wabash Valleys to the upper Mississppi Valley. Twenty-five or thirty years ago the heart of the milling interests in this country may be said to have been in Northern New York, when Gennessee flour, made of the choice wheat grown in that section, with the old Haxall and Gallego brands of Virginia, was regarded by consumers as the ne plus ultra of bread material. But the Gennessee flour of to-day does not hold the supremacy that it did a quarter of a century ago. So far as the grain is concerned, our New York millers are, of course, on an equality with their Northwestern competitors, but the latter seem to have outstripped the former in devising new methods and improvements in the inversion of wheat into flour. What is called new process milling was, we believe, first adopted in the Northwest, and the manufacture of improved mill machinery has become one of the most important industries of that section. The millers of other sections, however, have not been slow in discovering the excellence of the product of the leading Northwestern mills, or of the methods of its production, and the consequence is a general improvement in the grades of flour over those of former times. A quarter of a century ago, or more, the exports of breadstuffs consisted almost wholly of flour because of its relative cheapness, and the off-fall it yields for stockfeeding purposes, the latter being a matter of no small consideration in a country like Great Britain, whose limited agricultural area does not admit of an adequate production of stock provender. Of late, however, the proportion of flour to wheat exports has increased, a fact believed to be due to the improvement in the grades of the former and the reduced cost of conversion of which we have spoken, together with the system of through shipments by rail and steamship to Europe and elsewhere, at comparatively low transportation charges. From late statistics, it appears

Northwestern States-Illinois, Wisconsin. Iowa and Minnesota, -at the present time is nearly three times as large as it was eighteen years ago, the aggregate number in 1878 having been 3,600 against 1,338 in 1860. Latterly a considerable portion of the flour exported has been in sacks, because, presumably, of its relatively smaller cost to the consumer. Not many years ago most of the little oat meal then used in this country was imported from Great Britain and Canada, but mills for the production of this nutritious food have sprung up in various parts of the country, and their product has become an important item in the list of exports.

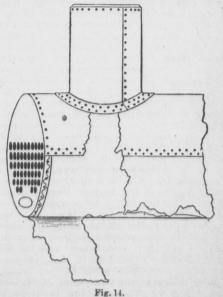
In this connection, it is of interest to note that a variety of collateral manufacturing industries have followed in the wake of the growth of the flouring mill interest in the West and Northwest, such as cotton, woolen, bagging, agricultural machinery, and other factories, this class of products not long since having been drawn almost wholly from the older States. It is, indeed, difficult for the residents of the Eastern States, who have not had occular demonstrations of the fact to realize the wonderful industrial development of the upper Mississippi Valley that has taken place within twenty-five years,—a develop-ment, it is unnecessary to say, that is due



more to our system of railways than to all other agencies combined. But great as has been this development, it promises to be even more marvelous in the future than in the past, judging from the movement of population from the East to West, which for 1878 is computed to have been not less than 600,000. Of this number Nebraska received 100,000, Minnesota 50,000, and Kansas over 100,000. Dull business in the old States is the cause of this hegira of population, as it was of all movements of the kind. People who are out of employment and have saved a little money, naturally begin to inquire about the West. If

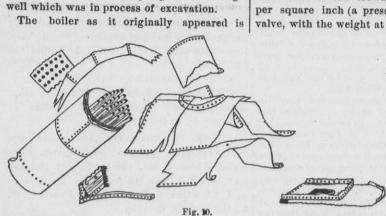


they can get a small farm, a degree of independence is assured, if they do not make much money. The West has been settled by immigration within half a century. A fact of more than ordinary significance is the remarkably large sales of new land for actual settlement reaching last year 14,000,000 acres, mostly to native born citizens. The Government sales were not quite 8,000,000 acres; the remainder was made up of railroad sales, and large sales by some of the States of land ceded by the Federal Government. Of the whole number of immigrants to the United States last year, more than one-half went



South and West. This work of reclaiming the waste places of our broad domain, and making them to blossom as the rose, is one of the most hopeful indications of the time, the beneficient effects of which will make themselves more and more manifest as the years roll on .- N. Y. Shipping List.

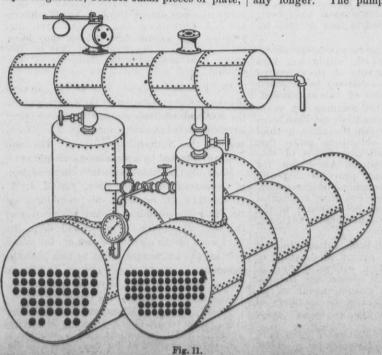
The failure of Albert H. Smith, miller, that the number of flour mills in four of the Lockport, N. Y., is announced.



shown by fig. 9.

"When the accident occurred-Sunday, about 3 A. M .- two men were in or near the shed; one was instantly killed, and his body thrown a distance of 120 feet from the shed; the other, who acted as engineer, was thrown a considerable distance and fatally injured. He died the following Wednesday morning. He said he had started the injector to feed water into the boiler when 'she blew up.'

"The shed was literally reduced into kind-



#### MINNESOTA MILLERS.

A Large Meeting of the Fraternity Assembled in Minneapolis.

A State Organization Completed and Strong Articles of Agreement Entered Into.

The Minneapolis Millers Spread a Banquet at the Nicollet, to which the Visitors are Invited.

A very important meeting of the State Millers' Association was held in Minneapolis April 8th. The Covention assembled at 10:30 A. M., in the gentlemens' parlors of the Nicollet House. About forty members were present, among the number the follow-

E. L. Baker, Red Wing; W. P. Brown, Red Wing; T. C. McClure, St. Cloud; John M. Cole, Rochester; Geo. F. Strait, Shakopee; H. Williams, LaCrosse; W. H. Officer, Austin; S. C. White, Hokah; N. P. Clarke, St. Cloud; A. Sceback, Red Wing; H. Hammond, LeGrand, Iowa; W. W. Engle, Austin; Harry Miller, Winona; A. L. Sackett, St. Peter; Gordon E. Cole, Faribault; J. J. Snauffer, Cedar Rapids; Frank Nicolin, Jordan; S. W. Mears, Hastings; S. D. Foss, Jordan; J. A. Christian, Minneapolis; C. A. Pillsbury, Minneapolis; W. D. Hale Minneapolis; W. F. Cahill, Minneapolis; S. S. Brown, Minneapolis; Loren Fletcher, Minneapolis; D. R. Barber, Minneapolis; E. V. White, Minneapolis; C. T. Hobart, Minneapolis; F. B. Mills, Minneapolis; W. H. Dunwoody, Minneapolis; F. S. Hinkle, Minneapolis; W. H. Hinkle, Minneapolis; Leonard Day, Minneapolis; H. E. Newton, Minneapolis; John Crosby, Minneapolis; D. M. Syme, Minneapolis.

The Secretary, Mr. F. B. Mills, submitted

his report, which was as follows: Mr. President and Gentlemen: At our last meeting, held Nov. 13, 1878, there were reported to you ninety-four members, embracing 526 run of stone. Since that date there has been paid into the treasury from old members assessments on twenty-three run, leaving eighty-six on which the first assessment of \$25 was paid still delinquent on the last one of \$15. In the meantime there have been new members received owning thirty-nine run, while old members have added to their original numbers thirty-five, on which the last assessment only has been paid, making our present membership number 105 firms, operating 622 run of stone not including ing 623 run of stone, not including any of those who have not yet paid their last assessment. This is undoubtedly the best showing that can be made by any State represented in the National Association, and our Minnesota millers are well worthy the commendations they have received for the faithful manner in thich they have stood by their executive committee and paid their assessments. Still, I fully believe that in the number of individuat millers represented and amount of real benefit it is capable of affording, our associabeing it is capable of affording, our associa-tion is still far behind that what we ought to make it. We are now just on the eve of a great victory that is well worth many times the labor and money it has cost, the result of which will be to save not only in this State but every State in the Union thousands of And too much praise cannot be given to the faithful men who have stood in the front of the battle and steadily, amid many discouragements, with a grevious lack of both material and moral support from those on whom they had a right to rely for both, have resisted every suggestion to compromise, at times taking upon themselves heavy financial responsibilities and at much personal inconvenience, steadily pushed forward, until the present grand victory has crowned their labors. This however is but one of several transfer of the control of the labors. This, however, is but one of several similar claims, only to be squarely met by combined effort through thorough organiza-tion. The purpose of defending ourselves against unjust claims, though an important one, and the one that has thus far almost entirely engaged our attention as it seemed the most directly to appeal to the pocket, is far from fulfilling the objects for which the association was organized, which were broadly declared to be for the mutual improvement, benefit, information and protection of its members, and in these respects we must frankly confess that many of the State associations are far in advance of our own. The first thing undoubtedly to be done that our association may be of the highest benefit to us, of which it is capable, is to reorganize upon a thoroughly sound and legal basis—a matter fully set forth in the call. fully set forth in the official call for this meeting, and the accompanying address from the national executive committee, and at this point I would say that I am in the receipt of communications from some of our leading country millers asking that some other basis than simply the number of run of stone be adopted for assessments, as they claim that with the improved machinery, rells, etc., adopted by the leading merchant mills, the present method gives the country and custom miller an undue proportion of the burthen. Some ask that both the rells and stone be counted, and others that the quantity of flour maximum and the basis. As the assessadopted for assessments, as they claim that manufactured be the basis. As the assessments are but a mere moiety in comparison to the benefits accruing, this point seems to me to be hardly worthy of controversy, only

that as far as possible all should be har-monious and satisfactory. When our re-or-ganization is effected there are several prominent points that should have our immediate attention. Among the first would be seed wheat. It is well known that of late years there has been a disposition among our farmers to use more or less soft varieties in hopes

to increase their yield.

The result has been in many localities to seriously deteriorate the general product for making the best grades of flour. Combined with this, we have this season another great danger to contend with. Our last year's crop was seriously injured, resulting in a large quantity of blighted and imperfect wheat. Although this wheat may sprout, and, perhaps, under favorable circumstances, bear a fairly healthy stock, yet it is universally conceded by all seedmen that the more healthy and better the seed sown the more assured a bountiful harvest. If the fullest development of a plant of any description is desired, the heat rine ned and most perfect seed is selected. best ripened and most perfect seed is selected, and by following this course for a series of years the most remarkable results have been attained; while we well know that by following the opposite course the reverse would be inevitable, and the finest fruit or flower become worthless. Again, the simple changing of the seed from one locality to another often proves of the greatest advantage, and I fully believe that it would abundantly pay every miller in the State to use his utmost influence to have the farmers in his locality secure the best seed attainable, acting as agent for them, securing good No. 1 wheat from the Northern Pacific or elsewhere and exchanging with them on reasonable terms, thereby in a measure assuring himself a better product to grind the coming season. The soft varieties can only be rooted out by a discrimination in price and determined and combined efforts of millers and dealers. Another matter that would seem worthy of attention is insurance, embracing means of protection against danger from fire, dust explosions, etc. Several of the State associations have already done something in this direction-enough to demonstrate its practicability as at least a great help to carry this burden. A committee was appointed at our semi-annual meeting, May 8, 1878, but probably owing to their whole attention being engaged on patent cases then pressing, they have failed to report.

With the aid of Behrn's patent exhaust for arresting all dust from the mill-stone, and the improved dust rooms invented by Gov. Washburn for arresting the dust from the purifiers or some similar devices, there is no good reason why our mills should not be kept clean and free from dust and the measure of risk largely reduced. The close communionism formerly exhibited among our millers is happily passing away and there can be no doubt that a more free and open discussion of new machinery, contemplated improvements, methods of milling, etc., by our wide-awake and energetic millers will not only save much unnecessary expenditure, but do much to enhance the value of our product and place Minnesota flour where it belongs-the leading flour

of the world.

For the remaining object of our organization, the information of our members, our by-laws originally provided for in section seven, in which it was made the duty of the Secretary, in connection with other officers of the association, to gather all information obtainable in relation to crops, stocks of grain and millers' products, and other matters of general interest, to be published in the form of a private circular for distribution among members. I need not say this has been thus far almost a dead letter in our association, the entire attention of its officers being absorbed in the defense of claims against its members. There is no doubt, however, that with the hearty co-operation of all, our membership statistics might be obtained that would be of great advantage to all.

But I have already extended this report much beyond its original intent, and thanking you for your forbearance, I would respectfully ask for these and kindred topics your careful consideration.

F. B. MILLS, Sec'y.

A committee of three consisting of Messrs. C. A. Pillsbury, E. L. Baker, and E. V. White was appointed to call the attention of the Department of Agriculture to sending seed wheat to this State.

Mr. Christian moved that the Stillwater mill of Isaac Staples be admitted to full membership upon payment of \$25 per run.

Messrs. Syme & Co., Russell, Heinline & Co., and S. C. White & Bro., were admitted on the same terms.

Mr. Pillsbury moved that all millers who have paid \$15 only, shall be assessed \$10 per run additional, and shall then be admitted into full membership with all the privileges thereto appertaining, including equal interest in all funds on hand.

THE ARTICLES OF AGREEMENT.

The millers then proceeded with the consideration of the articles of agreement for a new and legal organization. As finally adopted the articles are as follows, and as the association is the first of the State associations to meet, they are of particular importance. Similar articles are to be considered and will probably be adopted in other States, to complete an organization of which the National shall be the central government:

The undersigned, millers engaged in the manufacture of flour and meal in the State of Minnesota, hereby associate ourselves to-

gether as the "Minnesota Millers' State Association," for the purpose of mutual benefit and protection in their said business. And they do, each by his signature hereto affixed, agree to be severally bound by these articles of agreement:

1. The officers of this association shall be a President, two Vice Presidents, and a Secretary and Treasurer. The last two offices may be held by the same person. There shall be an executive committee, composed of three members in all, the President of the association being ex-officio a member of the commit-tee. All these officers shall be elected at the annual meeting of the association for the term of one year and shall serve until their successors are duly elected.

2. The annual meeting of the association shall be held on the second Tuesday in April, and special meetings may be called at any time by the President or executive committee.

3. The members of this association shall also be members of the Millers' National Association, and the Secretary of this association is hereby authorized to enroll the names of the undersigned as members of the said

National Association.

4. It shall be the duty of the executive committee of this association to cause any claim for infringement of patents in milling processes or machinery, hereafter made, against any member in good standing of this association, to be duly investigated, and if advised that such claim is invalid, they may in their discretion cause the same to be defended by the association. fended by the association, and may employ such professional or other assistance as they may deem necessary. The executive committee is also authorized to arrange with the owners of meritorious and valid patented improvements for reasonable terms for the use of the same by members of this association. Provided, That all the action by the executive committee of this association in reference to patent claims shall be in harmony with and subject to the action of the executive committee of the National Millers' Association, and the assessment by the National Millers' Association upon its members, for any year within the limits hereinafter agreed to be paid, shall be first collected by the executive committee of this association from the members of this association for the said National Association before any assessment is made for the benefit of this association alone for that year.

5. Each of the undersigned hereby agrees to pay on demand the amount of any assessment made by the executive committee of this association, or by the National Millers' Association for the promotion of mutual protection or for the common benefit in any manner deemed advisable by said committees, or either of them, not exceeding in any one year, for all purposes, including both the State and National Associations, the sum of \$15 for each run of buhrs, or its equivalent in capacity of other machinery as the executive compilities may determine which the untive committee may determine, which the undersigned may operate upon wheat or its products. Provided, That no assessment shall be made by the executive committee of this (State) association, in any one year, for purposes of this association, until the amount of Association shall have been paid.

6. The assessments so authorized may be made in amounts, and at times, within the limits hereinbefore fixed, to be determined by the executive committees of this association and of the National Association in their discretion, and each committee may apply funds so received to any lawful purpose of mutual protection or common benefit in its discretion, and the members of the executive committee of this (State) association, as constituted at any time, are hereby empowered, as trustees of an express trust, to sue for and recover in their own names all assessments made upon

their own names all assessments made upon the undersigned, whether for this or the National Association.

7. The defense of any patent suit by this association or the National Association, as above provided, shall be managed and di-rected by the executive committee of the as-sociation by whom the defense is made; and no settlement or compromise of such suit shall be made except upon terms accepted by such committee for the benefit of all members of such association who may use the devices or processes in contro so sued and defended, who shall settle or compromise his case without the consent of the executive committee having the same charge, shall refund to the association, at whose expense the defense shall have been made, all sums expended in that defense by such association.

8. Any member failing to pav assessments, made as herein authorized, within ten days after demand, may, on vote of the executive committee of this association, be removed from the list of members of this association.

9. This agreement shall continue ten years and in case any of the undersigned shall leave the milling business within that time, he shall be released from his obligations under this agreement on paying all assessments of this association and the National Association for association and the National Association for the year then pending, provided that any member, on leaving the milling business, may, with the consent of the executive committee of this association, cause his successor in the milling business to be substituted in his membership herein.

10. No member shall be hereafter admitted into this association, except as provided in the last preceding section, without paying in the full amount of all assessments thereto-fore paid by the then existing members, including the amounts paid by the members of the State Millers' Association, as heretofore organized.

organized.

Provided, That all mills which have been running only since the 1st of January, 1879,

may be admitted on application upon paymay be admitted on application upon payment of \$25 per run, and mills which may hereafter be built shall be admitted, provided they make application for such admission within three months after they shall have been put in operation, and no assessment shall be made against them for the current year of their admission to membership in the association. in the association.

#### OTHER MATTERS.

It was ordered that the Secretary send to each member of the association the articles agreed upon, together with the report of the meeting, with request that they sign the same or give him power to enroll them as members of the association.

The President was authorized to appoint a committee to draft by-laws for the government of the association.

The names of the present officers were read, and Mr. Fletcher moved that the Secretary be authorized to cast the vote of the association for the present officers, to be the officers for another year.

Mr. J. A. Christian desired to be relieved from the duties of chairman of the executive committee, but the members would not ac-

Mr. Cahill raised the point that the association could not elect officers because there were no members of the association until the articles of agreement were signed.

The point was ruled not to be well taken and the officers were re-elected with the proviso that the first three members of the old executive committee be the members of the executive committee for the ensuing year. The officers are as follows: President, W. P. Brown, Red Wing; Vice President, C. A. White, Hokah; Secretary, F. B. Mills, Minneapolis; treasurer, J. A. Christian, Minneapolis. Executive committee—J. A. Christian, Minneapolis; E. L. Baker, Red Wing; W. H. Dunwoody, Minneapolis.

The President was made ex-officio a member of the executive committee.

The Secretary was allowed \$300 for his services during the past year, and the executive committee were authorized to fix his compensation in the future.

The President was authorized to appoint a delegation of five to attend the National Convention which convenes in Chicago on the 13th of May.

The association at 2 o'clock adjourned to take dinner in a body at the Nicollet upon the invitation of the Minneapolis millers.

After two hours to food for mind and body the gentlemen rose and adjourned to the parlors where they were again called to order for

COMMITTEE ON BY-LAWS.

The President appointed the following committee to draft by-laws: F. S. Hinkle, L. Fletcher, C. T. Hobart.

DELEGATES TO THE NATIONAL CONVENTION. The President appointed as delegates to the National Convention, which meets at Chicago on the 13th of May, the following gentlemen: J. A. Christian, E. L. Baker, L. Fletcher, T. C. McClure, D. Bronson.

Mr. Fletcher, on behalf of the Millers' Association of Minnesota, offered the following, which was adopted by a rising vote:

WHEREAS, This convention has learned with indignation of the disgraceful action of certain members of the Missouri association during the hearing of the Cochrane suits at

St. Louis; therefore,

Resolved, That the conduct of those parties in thus surrendering on the threshold of victory, and at a time when they must have supposed that such action on their part would prejudice the Court and jeopardize the interest of their associates, deserves and should receive the condemnation of the entire milling fraternity throughout the country.

Resolved, That the hearty thanks of this association are due to Gov. C. C. Washburn and J. A. Christian & Co., for the firm, unyielding and gallant fight which they have made, not only in our behalf, but that of the entire flour manufacturing industry of the country.

Mr. Fletcher moved a vote of sincere thanks of the association to the attorneys for the able and efficient manner in which they have conducted the suits, for this association and for the National association. The motion was adopted by a unanimous rising vote,

Mr. J. A. Christian spoke in commendation of the success of Messrs. Alex. Smith, J. A. Hinds and S. H. Seamans, his associates on the executive committee, in the prosecution of the suit. Mr. Smith, he said, had done the hard work of the committee and of the association, and he thought it due to him that the association should pass a vote of special thanks to him for his ability, energy and en-

thusiasm in the matter. He therefore Moved, That the Minnesota State Millers' Association tender their thanks to Mr. Alexander H. Smith for his services in the Cochrane patent cases, and for his efforts to secure a strong legal organization, State and National.

Mr. D. Syme suggested that Mr. Seamans be included in the resolution, but other members, while admitting Mr. Seamans' ability, said he had not had the opportunity to do the hard work which devolved upon Mr. Smith, and therefore the exclusive vote of thanks to the last named gentleman. While there was no intention to reflect on other members of the committee, it was deemed right and proper that a vote of thanks be given Mr. Smith for the extent and value of his services.

#### THE MEMBERS.

Before the adjournment, which was effected about five o'clock Tuesday evening, April 8th, the following firms had signed the articles of agreement published above:

Gardner & Mairs, Hastings; Washburn Crosby, & Co., W. H. Hinkle & Co., G. W. Goodrich & Co., S. S. Brown & Co., Hobart, Shuler & Co., Pratt & Baird, Crocker, Fisk & Co., D. R. Barber & Son, Minneapolis, Minn.; Walcott Mill Company, Northfield; Mazeppa Mill Company, Mazeppa; Foss, Wells & Co., Jordan; Townsend & Proctor, Stillwater; Mills & Houlton, Elk River; Kimball & Beedy Forest City; LaGrange Mill Company, Red Wing; Croswell & Syme, Long Lake; Eagle & Co., Austin, Minn.; White Bros., Hokah; Miller & Ellsworth, Minnesota City; Cannon River Manufacturing Company, Faribault:, Sackett & Fay, St. Peter; Geo. F. Strait & Co., Shakopee; B. D. Sprague, Rushford; White & Beynon, Lanesboro; White, Nash & Co., Lanesboro; White, Beynon & Co., Medford; Benjamin Taylor, Red Wing; Red Wing Mill Company, Red Wing; W. H. Officer, Austin.

A number of the millers had left for home by early trains before the articles were ready for signature. Therefore the meagre representation thus far. The Secretary will send the articles to all the millers in the State for signature, and the organization in all probability will start out with a full representation of the six hundred run in the State.

#### THE FLOUR INDUSTRY IN BUDAPEST, HUNGARY.

[Translated from the Pester-Lloyd Journal for the UNITED STATES MILLER.]

In regard to the technicalities of milling we will mention first of all that in the course of the past year a safe and well established method of constructing the frames of rollers has become established, tried and approved by practice and reduced to a systematic mode of operation.

The occurrence of smut and blast in this year's wheat more than ever required a radical improvement of the mechanism of machines for cleaning it. The great majority of the mills of Budapest and the provinces felt induced to reconstruct their apparatus for cleaning the grain. An unavoidable series of the different operations necessary for cleaning the wheat was universally adopted. The grain-cleaning machines with ventilation, introduced by Adolph Fischer, met with the most satisfactory results. By this machine the dust when once loosened by powerful friction is, as may well be conceived, carried away directly by the current of air, until the wheat is clean and free from dust. The machines formerly used did indeed partially loosen the dust, but did not immediately remove it, and as a result of this it adhered to the wheat again to a great extent and soiled it anew, so that in running out of the machine only the dust that had accidentally remained loose could be separated from the wheat.

The points of sprouts and barb in wheat were apparently well removed with the old machines by means of tin graters, sawblades, stones, etc., but the husk of the kernel was scratched, damaged and soiled by the dust. The wheat cleaned by the older machines showed a dark color while wheat cleaned by means of the most modern machines, is marked by a bright color, and consequently furnishes pure and whiter coarse meals. The use of rollers has been more extensively introduced. Rough-grindis done to-day exclusively by furrowed (fluted) hard-cast rollers with differential velocity, provided according to the kind of work with finer or coarser furrows. The socalled cutting-machines are disappearing gradually; it appears that the troublesome repairing of them and the interruption thereby occasioned, as well as the reduced value of the cut-up bran are driving them out of use. The grinding of the greats (coarse middlings) are done partly by furrowed, but mostly still by the smooth, hard-cast rollers;

hard-cast rollers with a slight differential velocity. The rollers for the latter operations have been essentially improved by Mechwart, manager of Ganz' Mill Building Works, by means of a construction which enables considerable saving of power, and makes a pressure of the rollers practicable of a degree heretofore inadmisible. Experience has taught that it is most advantageous to let the groats pass through the rollers only once, the fine middlings twice, however, before being subjected to a bolting process. In bolting the groats that have passed through the rollers, only a small quantity of inferior flour is separated, the fine middlings, however, will then furnish from 50 to 75 per cent of the very best flour. The springs of these rollers for grinding (construction by Mechwart) which cause the pressure have stood the test perfectly in regard to durability as well as to efficiency.

The grinding out of the finest dust and of the bran is done by means of stones, which in mills of this country also have been pro vided lately with ventilation, so as to prevent the hot-grinding and the injurious formation of paste in the cylinders, etc.

The centrifugal bolting machines are gradually being introduced, but mostly in mills where the reels have to be put up in a limited space, but also where on account of want of room a separate detacher for the roller apparatus cannot be used. The consumption of bolting cloth for the covering of bolting machines is pretty nearly equal to that of reels of ordinary construction.

The middlings purifying machines Charles Haggenmacher still maintain their superiority and are in use in all establishments of Budapest and of the province, and the demand for them from foreign millers is greater than ever.

We can thus state with satisfaction that the Hungarian process of milling has reached a degree of perfection heretofore unheard of, and the impulse given by millers of this country has carried its influence over the whole continent and Great Britain; yes, that even in transatlantic countries the attention of millers has been called to the Hungarian process of milling and that they sent numerous representatives here to study it. Next to this pleasing fact we can also state that the merits of our machine building are already acknowledged in large circles in foreign countries, and we owe to them quite an extensive export of milling machinery.

Germany, Switzerland, Russia and England have become important and regular buyers of Hungarian rollers of Ganz & Co., and even for America orders were effected in the course of the last year.

It has become the conviction that in milling the introduction of the use of rollers especially is no longer an experiment but has become a necessity. It is, perhaps, saying too much to ascribe the brilliant success of our mills in the last four years exclusively to this new method of grinding, but it is nevertheless a fact worthy of consideration that the milling business in all countries where the innovation has not yet spread, or only to a very little extent, is constantly in a languid state, while it is just the introduction of the system of grinding with rollers that coincides with the immense success of our steam-mill establishment.

The annual grain-market in this city has this year been even less attended than in the preceding years, and the institution is still in a languishing state without coming to an

The millers' day connected therewith had no special subjects for deliberation and the management of the connection and communication between the several mills was left to its standing committees.

In the price of coal and insurance, and in the relation with laborers, no important changes have taken place, and especially in regard to the latter subject we can point with satisfaction to the fact that contrary to Germany, no socialistic tendency or agitation has shown itself among our laborers.

As a consequence of the brilliant results obtained in the last few years a decided change in the public opinion has taken place, and to the pessimism of the period after the great commercial crisis a boundless optimism has followed, and in consequence enlargements of establishments as well as the erection of new mills are again planned. But here cool reflection should exert its influence and the experiences of the previous period of stagnation and hard times should serve as a lesson how fickle and changeable the opinion about the value of mill-shares is, and it the grinding of the fine middlings by smooth, should be considered especially that an ex-

tension of the milling business, as long as the means of keeping a large supply of cereals in the place are not furnished us by entrepots (grain-warehouses), may bring dangerous, sudden increase in the price of the grain not warranted by circumstances in general, so that when these new establishments are really built, the fact should serve as a further stimulus for the realization of the so long and so fruitlessly agitated project of 'entrepots' (grain-warehouses.)

The pension-fund for mill-employes which had long been talked of has at length been sanctioned in principle, and after the perfection of mathematical details of the project which are just now under consideration, it will become an established fact, so that the future of the mill-employes is just as well secured as the domestic industry of milling itself has Phoenix-like arisen from the general decline of industry and become sound, and in consequence of the last successful years so well provided with reserves, that it as well as its stock-holders may look forward to the natural and doubtless by occasionally re-occurring periods of stagnation with calmness, the more so since to the safe financial sitation and the experienced corps of employes, an able management is joined by men tried in the school of misfortunes and influenced neither by pessimism nor by optimism.

#### OUR PENNSYLVANIA LETTER.

[From our special correspondent.]

PHILADELPHIA, Pa., April 12, 1879.—The opposition to the Cochrane patent claim, which has become so united and manifest among the millers and flour operators of the Western States, has spread to the flour milling fraternity of the East, and the expressions of sympathy with and support to the opponents of the claim are decidedly great upon the part of the millers and various State associations. The magnitude of the interest at stake is fully recognized by all who use mill machinery, and this is the chief reason why there is so much opposition to the unscrupulous scheme and its

The prominent flour manufacturers of Pennsylvania are particularly up in arms against the patent claims, and, to assist in the battle against the would-be monopolists, the State Millers' Association, through the Secretary, A. Z. Schoch, has subscribed \$150, and P. A. & S. Small, of York, have added \$500 more, to push the war against the patent right monopolists, and to secure membership in the Millers' National Association. The milling fraternity is almost a unit for a vigorous fight against the movement inaugurated by the Cochrane people, and the intelligence comes from all parts of the East of organized and powerful opposition to them and their claims, which are considered to be illegal in every respect.

The flour interest of Pennsylvania, New York, New Jersey, and other Eastern States, appears to be enjoying its usual prosperity. The merchant millers are still vigorously competing in a friendly spirit for the export trade, and several prominent flouring establishments have sent large consignments to European and South American ports within the past few weeks. The Messrs. Small, the great representative flour manufacturers of York, York county, this State, have been, for some time past, shipping vast quantities of their excellent made flour to South America via lines of steamships and sailing vessels from Baltimore, Md. The article manufactured and exported by the Messrs. Small stands A No. 1 in the South American markets.

Philadelphia millers all report excellent transactions this season, so far, and now that the season's trade has fairly opened, the fraternity look forward to a still greater activity in their business, although, of course, with corresponding profits. The old-established firms of Morgan & Alley, Germantown road and Second street, and E. H. Graham & Co. (Progress Steam Flour Mills), 2,136 Market street, report the trade to be in a reasonably fair condition, and say that the situation must improve as the season advances.

The exportation of unmanufactured breadstuffs from this port, while now being very large, is steadily on the increase. The elevators of the Pennsylvania Railroad and Philadelphia and Reading Railroad Companies are kept busily running day and night in loading the steamships destined to foreign places. The latter company have, within the past few days, been doing an extraordinary business in shipping grain, which fully illustrates to what a remarkable extent the staple commodity of America is used in European countries.

Thinking that the grain shipping operations may not prove uninteresting reading to your Jorine, and Mary Ann Alecia.

patrons, the UNITED STATES MILLER correspondent has visited Port Richmond, the centre of the business of the Philadelphia and Reading Railroad Company, to obtain the facts relative to the grain movement. Midway of the company's coal wharves, where 100,000 tons of "black diamonds" are lying, are two piers, designated as No. 13 north and No. 13 south, entirely devoted to the shipments of grain. They have a capacity of 80,000 bushels a day, and at times they are employed to their fullest capacity, working day and night.

Immense consignments of the various cereals are coming in from the Western States. the bulk of which finds a quick and immediate market in European countries. As an old Pennsylvania grain-grower very truthfully says: "We Americans feed not only the natives of this country, but just about one-half of the people on the other side of the ocean," and no one is more willing to reiterate this statement than yours truly,

THE DUSTY MILLER.

#### IS POOR WHEAT GOOD FOR SEED?

The above is a question that comes from nearly every quarter of the State. I will answer the question by giving a few kinds of seed wheat and results, and you can draw your own conclusions. Seed wheat should be classed the same as wheat is graded-No. 1 and so on. No. 1 seed is a variety of wheat that is pure, free from all foul seed, cut before it is shattered any, well cured, stacked or put under cover without rain; threshed with a flail or tramped out with horses on a threshing floor; cleaned twice with a fanning mill, the last time with a coarse screen that will let through all the small and medium sized wheat; the balance of the wheat will be strictly No. 1 seed wheat; will never deteriorate or run out as long as it is kept up to the high standard described; and in the hands of industrious farmers can be improved in quality of wheat and yield per acre. With such wheat, half the usual amount per acre will be sufficient.

No. 2 seed is such as has been usually sown in this State since its first settlement, just as it came from the machine, with the exception of once cleaning, and then sown in quantities per acre, in proportion to the quality of the seed. I have repeatedly examined this class of wheat with a magnifying glass, and invariably found the largest and best wheat broken, cracked or injured from threshing, and would not grow; and also a portion of the medium sized wheat, while the small wheat was seldom injured. This class of wheat can never produce a full crop of wheat. A field of wheat from this class of seed, when ripe, will represent the kind of seed sown better than words can express. A small portion of the standing grain will be of good height, large heads, and well filled with large kernels, provided the season is good. The balance of the standing grain will present every height, from six inches up to within a few inches from the tallest; the heads, quantity and size of wheat corresponding with the stock on which it grew. In wheat of this kind there is a loss of yield per acre, a loss in paying threshing bill, a loss in grade when sold, and if not bought very low, a loss to the mill that grinds it.

No. 3 seed is wheat that has been killed with the rust. If secured without rain and well screened, it usually makes better seed than No. 2

No. 4 seed is wheat badly bleached, repeatedly wet and dried, or threshed wet. Such wheat will often grow, but is very weak and should not be sown.

A large portiou of wheat grown in this and adjoining States last season, will not grow; nevertheless there is in nearly every bushel from five quarts to a half bushel of No. 2 seed, and will make about as good seed as has usually been sown; should be separated as much as possible from the poor wheat, as much of this will grow, but can never make wheat that will be worth cutting, and will only burden the ground to the detriment of the good wheat. I know there are many that will say it is all bosh to be so very particular about seed. They will tell you they have raised from 25 to 30 bushels per acre with poor seed. If good seed had been sown they would probably have got 35 or 40 bushels per acre. - Correspondence Minneapolis Tribune.

There are ten girls in a Pennsylvania millers family whose "Christian" names are these: Emma Angelina Adlet, Lovinia Serena Cornelia, Alice Ellen Amanda, Torvilla Susanna Corilla, Francina Telara Cencillia, Perlinia, Sibylla Agnes, Christiana Effibulia Eliza, Annie Olivia Virginia. Ida Cora

#### THE COCHRANE PATENT.

Highly Interesting Review of the True Inwardness of the Great Suit.

How the Supreme Court Came to Allow the Original Case to Slip Through.

The Points of the Recent Decision and the Probable Feature of the Case.

THE BOTTOM FACTS, AS RELATED BY "GATH" FOR THE CINCINNATI ENQUIRER.

You have probably not seen a clear account of the great upsetting just given by George Harding to the great milling monopoly, with its headquarters in Ohio and the District of Columbia. This came off in the Circuit Court of the United States west of the Mississippi river, and the decision was only given March 17th. The monopoly took the name of "The American Middlings Purifier Company," and had sued John A. Christian, of Minnesota, and the Atlantic Middling Company, of St. Louis, for alleged infringement of patent. The infringement essentially consisted in atmospheric bolting of flour middlings. I despair of making this plain to you, except in the way of conversation. Let me put to the lawyer, therefore, some questions.

"What is a grain of wheat?"

"A grain of wheat is a berry with a soft floury mass in the center and harder coatings. The center gives fifty per cent of the superfine flour, and is divided into numerous cells, divided by gluten, starch and cementing matter. The problem of grinding consists in separating the interior mass from the coatings, which constitute the bran, and pulverizing it. The hull ought to be pulverized as little as possible, while the interior mass is well pulverized, because when you come to bolt the flour you want the bran to be in larger particles and not to go through the cloth. Now, winter wheat, which has a rough wooden husk, is easily separated; but the spring wheat further north has a brittle hull, which pulverizes almost like the flour itself. Consequently, the Minnesota flour was specked, while the St. Louis grain ground much better and the flour brought a higher price. The present law-suit arose from the introduction of French machines into Minnesota by which they. reground the middlings and produced even a better article than St. Louis.

"How do you define middlings?"

"Our definition in that respect came down from Oliver Evans, who ground flour on the Brandywine fifty years ago, and wrote about it. After your flour has gone through the mill-stones, you want to sift it (or bolt it), which is done by a bolting cloth attached to a reel; the cloth has a progressively coarser mesh, and the meal or coarse-ground wheat, lying on the cloth, sends the finest flour through the top, and as the flour mass goes onward, it drops coarser; the coarse part is again taken up to the head of the cloth and sent onward a second time. Now, there is something left after this double bolting, and it retains the name of meal. The finest of this meal is called 'middlings'; the next coarser quality is called 'shipstuff,' and the third quality is called 'shorts' and 'bran.' Now, you must see, that as machinery advanced and our wheat increased in quantity, it became desirable to hasten the old fashioned slow bolting operation. It was generally believed that atmospheric pressure would do it. The Americans and the French both set to work at this.

AMERICANS AT STEAM-BOLTING.

"Which was the American patent that drew most attention?"

"It was called the Cogswell & McKiernan patent, and was granted June 12, 1860. A blast of air was introduced into a hollow shaft surrounded by a zinc box perforated with small holes. The air escaping went up a crooked chimney, whose elbows formed eddies and let the flour fall back into the reel-chest. This patent was sold to William F. Cochrane, and in the summer of 1861 he put up a mill on that patent near Springfield, Ohio, for the Warder family. Some trouble occurred, and after many improvements and corrections the whole thing was laid aside, somewhere about 1863. It died right there and for ten years not a 'ghost of it lingered around. Yet that patent became the basis of the greatest milling business of our times."

"How was that ?

"It was accomplished through the surrender and reissue of the patent, taking advantage of the Patent Office at Washington. This was not done until the French machines had re-

volutionized wheat grinding in Minnesota. About 1860 they introduced spring wheat into Minnesota, and the crop increased rapidly, until it was nearly 3,000,000 bushels in 1863, and more than 33,000,000 bushels in 1877. Yet the brittle hull of the Minnesota wheat would get into the flour and could not be bolted out by the old process. Consequently, though richer in gluten than the St. Louis flour, it held an inferior place in the market, and was used by bakers only, not by families. In that condition of things a Frenchman named Le Croix, who knew about the system of grinding spring wheat in France, told his neighbors, the great millers around Minneapolis, to try the French machines. Consequently, Mr. George H. Christian sent out to France and imported what is called the Cabanese machines, first patented in April, 1856. After about one year's experiments with these machines in his mill and constructing others like them, Mr. Christian fully established the character of Minnesota flour in 1871. It was done by what is called the middlings purifying process. It brought from one to two dollars more in the Eastern markets, and one dollar a barrel more than the St. Louis flour. The effect was immense, when it suddenly occurred to some sharp fellows that the old Cogswell & Cochrane patent should be revived and a good thing

SETTING UP A PATENT JOB.

"Who were the persons interested in this performance?"

"Mr. William Warder and Mr. Rodney Mason, in 1873 and 1874, entered into an understanding to obtain the greater part of the interest in the old Cochrane patent, and then reissue it so as to cover the new process. Middlings had never been ground into superfine flour here. Cochrane readily agreed to give one-half his interest to Mason-which was onefourth of the entire patent-for obtaining the reissue and prosecuting suits under the reissue. The thing was then so worthless that William Warder had got a fourth of it for nothing. These three men-Cochrane, Mason and Warder-slipped off to Washington city, and associated with them three lawyers-Peck, Phillips and Walter Cox-and two men of means-John O. Evans and J. Van Buskirk. These latter persons furnished \$6,000 to carry on the litigation. The patentees at once brought suit against a miller at Georgetown, D. C., under their new patent. The miller, Welch, had been the first to tell them that purified middlings could be manufactured, and he is suspected of being in with them. Their suit was pressed, and before it was decided the interested parties resolved to carry it right up to the Supreme Court on printed briefs. They got a verdict in their favor."

"How did they get a verdict?"

"By an ex parte affilavit of the first inventor, Cogswell, he testifying that Cochrane was the real inventor of the air-blast and ventilator. The Supreme Court thus misled, decided that the old Cogswell & McKiernan patent did not interfere with Cochrane's reissue. They also seemed to establish the fact that this Cochrane invention antedated this French patent. The fact is, that on both points the Court was misled."

"Well, what next?"

"The owners of the reissued patent not only collected their royalties with impunity all over the country, but went back for years and demanded payment for whatever flour had been ground by the middlings purifying sys Now, the French invention was an entirely different thing. It was a vibrating sieve, inclined, and as it rose and fell at the sides produced a current of air which passed upward through the meshes of the sieve. The French had used this vibrating hand-sieve for a long time, but Cabanese put machinery to it. The St. Louis millers no sooner saw the Minnesota wheat excelling theirs than they made improvements. They adopted the French system of putting their millstones further apart so as not to crush so much of the husk nor kill the life of the flour. They also developed the glutinous properties of their own flour by a successive grinding, modifying the faces of the millstones and reducing their speed. Consequently, their re-ground middlings produced better flour than they had ever had.'

TINKERING UP A TUMBLE.

"Did the American patentees make any changes in their apparatus to meet the description of the Cabanese machinery?"

"They tried to reconstruct it in the summer of 1877, and had some of the features of the French invention, but it was of no account. The additions they put on bore no reference to their reissued patent. Indeed, the American inventors and millers knew nothing what-

ever about regrinding and rebolting their middlings."

"The counsel who argued this case introduced before the Court working models not only of the Cabanese machines and the 'Cochrane machine, but also of the Gove Farina machine. He made the whole process clear as day to the Court, and so annoyed the opposing counsel that he referred to the fact that a set of banded robbers had grouped together to fight a poor inventor! Harding replied that the opposite counsel had availed himself of their working models, and that not a cent had been spent except to get up the exhibits, diagrams and models."

TRACING OF A MECHANICAL SNAKE.

"Did he argue the point about the invalidity of reissue?'

"Very ably; he showed that by the act of 1870 the introduction of new matter is expressly forbidden in the issue, and altering the drawings annexed to an original patent is also expressly forbidden. Both these provisions were violated. Parts of the original patent by Cochrane were omitted. He first claimed that the bolting was only aided by a strong blast. In the next patent he speaks of the process of purification as wholly independent of any blast operation. He adds the words: 'Reducing the meal by subjection to the combined operations of screening and blowing, and afterward regrinding and bolting and purified middlings.' He pever knew anything about middlings before. Mr. Harding also took up the confusion of terms as to middlings, meal, bran, etc., produced by the corresponding terms in France, which led to a close overhauling of the dictionary. Old Oliver Evans reappearred from the grave to verify the advocate. He showed that such reissued patents, when amended, had been set aside in such prominent cases as the Fiber Disintegrating Company, the Hat Body patent and Sat Liquor patent. In the case of the Giant Powder Company, the Supreme Court ruled that the abuse to be provided against was the temptation to amend a patent so as to cover improvements which might have been invented by others after its issue. The damages claimed from the millers were so immense that the conspirators proposed voluntarily and cheekily to limit them by compromise or even by special law."

Mr. Harding closed his argument with the following words: "Can a man give such a patent to the public as Cochrane did in patent 37,317, and then reissue it in the new form in which it is reissued in 5,841, and hold the whole milling trade of this country subject to it? If that can be done, it may be right, and if your honors say so it will be right. But, may it please your honors, many, many will think it hardly in accordance with the advance of civilization and progress of laws in this, this last quarter of the nineteenth

century."

OBTUSENESS OF THE SUPREME COURT.

"How did the Supreme Court allow such a

case to slip through?"

"It was very shrewdly worked. Such lawyers as Walter Cox, now a Judge of the Federal District Court, and the son of ex-Judge Peck, of the Court of Claims, and Rodney Mason, a patent lawyer, the son of General Mason, of Springfield, were let into the patent, expecting that they would socially influence the Court. It is also believed that the case against the Georgetown millers was got up and poorly defended on purpose by an obscure lawyer named Cady. In short, the Supreme Court now knows that this patent was reissued and test case made in order to get their instant favorable decision."

"What way had the Supreme Court of correcting such an error as that?"

"As soon as their attention was fully brought to the case by the public indignation and by the lawyers, they granted a 'commission,' which they seldom do, and never like to do, empowering any Circuit Judge to try another case of the same kind, and then let an appeal come up to them de novo, that is, as if there had not been a previous trial."

"The happy patentees then set to work to get money out of the big mill of Washburn & Christian. They admit having obtained \$60,000 in all as compromised royalties from the millers, with which they conducted the litigation. They came from Minneapolis down to St. Louis and struck the millers there. Mr. E. O. Stanard, formerly a member of Congress, and a big miller, was weak enough to pay them, notwithstanding the general agreement of the St. Louis millers to resist. He was expelled from the millers' association. The case was then brought to trial on behalf of both the Minneapolis and St. Louis millers before Judge Dillon, sitting on the bench,

with associates Nelson and Treat, at St. Louis-George Harding, who probably got an immense fee, went into Court, as I have said, with his working models, exhibited large diagrams, baked bread in the presence of the Court, and made this matter as plain as day."

FUTURE OF THE CASE.

"Is it to be tried again?"

"The Cochrane patentees say that they mean to carry it up to the Supreme Court; that their only weak point is about the reissue of the patent, and that they will have stronger counsel than before. You can imagine how much the millers have saved when you conceive the enormous number of barrels of flour ground in this country and the infinite mass of middlings, hitherto refused and used for horse-feed, which, by the amended methods, become superfine flour."

"What were the points of the decision?" "All the Judges concurred. Judge Dillon boiled his conclusions down in these words: 'The idea of Mr. Cochrane was the use of the blast in the reels as an aid in the mere process. of bolting, with the view of obtaining an in creased quantity of choice flour, and not for the production of purified middlings. The reissued patent having been expanded to embrace a claim for purifying middlings, when no such process was described, suggested or claimed in the original patent, is void."

Judge Nelson expressed the same idea in these words: "The actual invention of Cochrane has been enlarged by the addition of new matter in the reissue, so that when the two patents are compared, the extension is apparent. This new patent is not for the same invention secured and embraced in the original letters patent."

Judge Treat at length discussed the two methods and said of the case already decided against Welch by the Supreme Court, "If an appeal is taken that Court will have before it in this suit the large amount of new evidence introduced; in the light of which it can determine for itself whether it will review its former opinion or not." GATH.

#### AUSTRALIAN WHEAT STACKS AT CALTOWIE. . Since the large extension of agricultural

operations in South Australia, by the opening up of the Northern Areas, a new feature has appeared in those settlements—immense stacks of bags of wheat awaiting transport to a market. Reference is made to such stacks in Harcus' Book, and an engraving is given of a very large one at Messrs. Duffield & Co.'s millat Gawler. A similar one has been built at Messrs. Siekmann & Moule's Caltowie wheat store. This little township has, from the first settlement of the farmers in the surrounding districts, been one of the most important centres of the wheat trade. Messrs. Siekmann & Moule opened a branch of their business in Caltowie at an early period in its history, about the year 1873, and have purchased immense quantities of grain from the farmers, to whom they offered great facilities for its conversion. The past season has been a very busy one in this township; the crops in the neighboring hundreds of Belalie, Mananarie, Black Rock, and Yongala having been rather above the average. Most of the produce found its way to Caltowie. All the principal firms in the wheat trade were there represented, but we are creditably informed that Messrs. Siekmann & Moule did the lion's share of the business. This was, we believe, owing to the great popularity of the firm amongst the northern farmers, many of whom had been assisted and befriended by them. This firm, whose central establishment was at Saddleworth, had wheat agencies also established at Crystal Brook, Gladstone, Jamestown, Tarcowie, Yatina, Yarcowie, Farrel's Flat and Manoora, and probably a million bushels of wheat altogether passed through their hands in the season. Owing to the deficient means afforded by the railway for carrying away the produce, large quantities accumulated along the line, and Messrs. Siekmann & Moule, after availing themselves of every inch of ground allotted to them at the railway station, were compelled to build several large stacks of bagged wheat on their own premises, about 200 yards from the line. Their celebrated stack of 35,000 bags attracted the attention of His Excellency, Sir W. Jervois, when he visited Caltowie. The removal of another large stack has been nearly completed, Messrs. Seikmann & Moule having gone to the expense of having a line of rails laid for 23 chains from the railway station to the stack to facilitate its removal.—Adelaide News, Australia.

Elihu Burritt, of New Britain, Conn., com-monly known as the "Learned Blacksmith,"

[Translated from the Oesterreichisch-Ungarische Mueller for April for the United States Miller.]

The annual meeting of the five mill-associations in Hungary was held last month, and from the reports submitted, we clip the following concerning the status of the same:

I. The "Pest Millers' and Bakers' Association." The board of directors say in their report: The mills were only 237 days in operation during which time 228,053.23 kilograms\* of wheat and 4,576.18 kgr. of corn, altogether 232,629.41 kgr. of grain, were ground, producing 225,808.12 kgr. different mill products. The profit thereof amounted to 134,187.47 florins†, and adding to this amount the net balance of the year 1877, 175,107 florins, it will make a total net income of 135,938.54 florins. The board of directors moved to distribute of this amount 135,000 florins as a dividend, so that the 10th coupon, due on June, 1, 1879, could be redeemed on April 1, for 45 florins, and the balance of 938.54 florins be credited to the profit account for the year 1879. The board of directors, taking in due consideration that the production is insufficient, although the mill was running without interruption and there being only one steam mill, stoppages are unavoidable-therefore recommend the erection of a second mill, according to the rules of the association. The cost of erection of this mill, including all machinery and water supply for two boilers will be about 50,000 florins, and the board of directors recommend the issue of 2,000 shares of 900 florins each, of which number only 1;500 should be issued at present. The preference of the purchase of the new shares is reserved to the holder of the old ones to such an extent that the proprietor of two old ones is only entitled to acquire one of the new issue. The last 500 shares would only be sold if necessity should demand it, in which case the board of directors would like to be empowered to sell them for the benefit of the association. The five installments of 40 florins each, must be paid between April 1st and August 1st, and the right to preference expires on April 14th. In case the erection of the mill should require more capital as calculation is made on, the amount necessary shall be taken from the cash on hand. After discussing the report and reviewing the balance sheet, the meeting approved of the proposed dividend, and also voted for the erection of the new mill according to the plans, etc., submitted by the board of directors.

II. The "Concordia Steam Mill Association, of Budapest." A synopsis of the report of the board of directors shows that like in 1877, in the following year, the fore part especially, the financial and political prospects were so uncertain that the greatest discretion and caution was necessary. As it was unavoidable to adopt the latest technical inventions in our line of business, we were compelled to remodel our mills to a great extent, and to rebuild almost entirely our grist-mills. On this account we could only work to our fullest extent during the latter part of the year, and the 513,632 mtzgr. (about 898,856 bushels) of wheat ground, resulted in 496,253 mtzgr. (864,442 bushels) of mill products.

We realized, as will be shown by the balance sheet, 303,821.39 florins. We move to deduct therefrom 136,500 florins for wear and tear of the buildings, machinery, implements, duplicate parts of them and outstanding accounts, and the remaining 167,821.29 florins should be divided and expended as follows: Three per cent or 5,019.63 florins to the credit of the reserve fund; 10 per cent or 16,732.13 florins for salary of the board of directors and committee of inspection; 4 per cent or 6,692.85 florins for salary of the general manager and other officers; dividend for 2,300 shares at 60 florins per share, 138,000 florins; total, 166,444.61 florins. The surplus, 876.78 florins, and the balance of profit from the year 1877, 2,377.13 florins, total 3,253.91 florins, should be credited to the new profit and loss account. The dividend will be paid on and after April 1st.

III. The "Elizabeth Steam Mill Association at Budapest." The board of directors say in their report: During last year 290,732 mtzgr. of wheat was ground, being 82,237 mtzgr. more than in the year 1877. The net profit, as shown by the balance sheet and approved of by the committee on inspection, amounts to 138,943.28 florins after deducting all expenses. The board of directors recommended that instead of the usual 5 per cent, 20,841.48 florins or 15 per cent be added to

the reserve fund, and 16 per cent or 22,230.88 florins be paid for salary for the board of directors and other officers; adding to the balance of 95,870.92 florins the surplus for the year 1877, or 2,597.43 florins, the total amount of net profits is increased to 98,468.35 florins. Of this sum 90,000 florins should be paid out as dividends, and the balance, 8,468.35 florins should be credited to the profit and loss account. This will increase the reserve fund to 107,435.70 florins, and the dividend for each share, 30 florins, will be paid on and after April 1st.

IV. The "The Pesther Victoria Steam Mill Association at Budapest." The board of directors say in their report, after expressing congratulations to the society for the success and enormous profits realized during the last year: You are all well aware of the hardships our enterprise was subjected to and that our beginning was not successful in any way. Our business was declared a humbug, but how different is it to-day. The home steam mill industry has conquered all prejudices, her product is recognized as the best in the world and every Hungarian speaks with pride of his home mills, which are considered as examples for every mill in the world. 37,814,277 kgr. of wheat were ground and 36,678,851 kgr. of mill products obtained therefrom.

According to the accompanying balance sheet, the net profit for the year 1878 is 327,-130.06 florins. This extraordinary gratifying the openings by the adjustment of the annular result induces the board of directors to recommend that the reserve fund be again increased to a considerable amount, so that our enterprise is secured against misfortunes unforseen, which may befall the commercial world.

The board of directors recommend, therefore, that instead of the usual 5 per cent, 50,797.31 florins be added to the reserve fund, so that it is raised, according to § 58 of the Statutes, to the maximal sum of 200,000 florins; also that 50,000 florins be allowed and set aside for the creation of a special reserve fund, and 38,955.61 florins for salary of the board of directors and other officers, so that after deducting this whole amount from the net profit and adding to the latter the balance of the year 1877 or 3,019.71 florins, a dividend of 72 florins on each share of stock, or 16 florins to each preferred share, should be paid on and after April 1. The board of directors further recommend that from the balance, 7,096.85 florins, 1,000 florins be given to the benevolent fund, and 300 florins to the Budapest Academy of Commerce, and the balance, 5,796.85 florins, entered up as net profit for the year 1879.

The recommendations were accepted, and the purchase of a piece of land containing 15,120 square feet, adjoining the mill ground was approved.

V. The "First Open-Pest Steam Mill Association." Assets: Buildings and real es- | valve, and the gases of an anthracite coal or tate, 635,831.78 florins; machinery, 355,932.40 florins; tools and implements, 26,054.37 florins; horses and wagons, 11,938.80 florins; bags, 58,457.17 florins; wheat on hand, 288,-427.24 florins; flour, 435,836.40 florins; checks, 125 florins; notes, 70,014.64 florins; foreign exchanges, 322,556 florins; C. O. D. account, 10,725.37 florins; cash on hand, 10,764.03 florins; barrels, 735 florins; bolting cloth, 647.75 florins; insurance, 31,467.96 florins; expenses of different shops, 2,364.39 florins; coal, 660 florins; office expenses, 157.50 florins; expense of teaming, 2,781.01 florins; stock on hand, 14,191.78 florins; repairs of furniture, 101 florins; insurance of the mill at Ofen, 33,119.86 florins; current expenses, 280.88 florins; expenses of the different shops, 2,260.72 florins; stock on hand, 3,193.56 florins; fuel account, 174 florins; sundry debtors (current accounts, 505,884.80 florins, due from bankers 384,996.86 florins), 890,851.16 florins; total, 3,210,649.52 florins. Liabilities: Capital, 1,000,000 florins; preferred stock interest account, 58.13 florins; outstanding bills, loss account, 52,003.19 florins; reserve fund, 200,000 florins; dividend account, 935 florins; workingmens' benevolent account, 5,976.96 floring; workingmens' bond account, 138.55 florins; endorsements, 794,823.60 florins; dividend reserve account, 198,730.56 florins; sundry creditors, 917,488.12 florins; profit and loss account (balance January, 1878, 9,668.84 florins, net profit in the year 1878, 809,226.57 florins), 811,895.41 florins; total, 3,910,649.59 florins.

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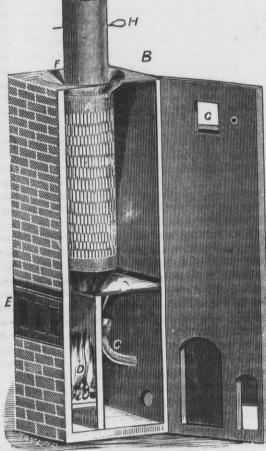
A NOVEL INVENTION.

Schroll's Improved Grain Dryer-Patented July 18, 1876.

This apparatus has a drying capacity of from 500 to 5,000 bushels per day, at an expense of one-half cent per bushel. It can be adjusted to dry the grain without damaging the germinating qualities of the same.

The construction of Schroll's improved grain dryer is consonant with natural principles. It is simple and durable, easy to control, and gives satisfaction in every respect.

The accompanying engraving shows an internal view, represented as if one side of the surrounding wall was suspended on hinges and thrown open. B is the upper plate, and F a funnel-shaped opening in the same, to the bottom of which is attached a perforated iron cylinder, A. This cylinder, A, has a conical bottom end, which empties into the discharge pipe, C, and to the upper part of which is arranged an annular valve with openings for regulating the discharge passage for the grain. A second perforated iron cylinder of reduced diameter is placed internally and concentrically within the cylinder, A, the upper end of which is connected to the smoke-stack, which carries off the gases and vapor. The space between both cylinders is continuously kept loaded with grain from above, which grain will be discharged from below proportionately to



Schroll's Improved Grain Dryer.

coke fire will find an outlet only through the perforations in the cylinders and through the sheet of grain between both cylinders, whereby the moisture of the grain is evaporated.

For grain to be ground in the mill, the annular valve is adjusted for a slow discharge, when the grain is retained in the apparatus for a longer period, and thereby made thoroughly dry, while grain to be used for planting is passed quicker through the apparatus.

Air-holes, E G, are arranged in the wall, which can be closed, and by means of which the degree of heat in the apparatus can be regulated by admitting more or less air.

This apparatus can be connected with an elevator for drying the grain before it is stored in the bins, and therefore it offers great advantages to brewers, maltsters, and millers.

The cost of drying grain in this apparatus does not amount to quite one-half a cent per bushel, and the grain is not damaged therein for seeding. It is also well adapted for the manufacture of oat-meal, and for drying shipping corn.

A Schroll dryer is erected in the mill of Messrs. Jiencke & Co., southwest corner of Kinzie and Green streets, in Chicago, where it can be seen in successful operation, and the above-named gentlemen will give any desired information regarding said apparatus, and will furnish samples of grain cured in the same to applicants from distant localities, by mail.

For further information apply to or address Carl Schroll, care of C. Schotte, 24 and 26 South Canal street, Chicago, Ill.

The residence of A. C. Pasfrey, miller, at Richland Centre, Wis., was badly damaged by fire April 17th.

#### THE SUPPLY OF BREADSTUFFS.

The rainfall in California during March has assured the wheat crop in that State, which though not the largest in its history, gives promise of being the best in respect to quali-

During the week ending March 21, two wheat laden ships sailed from ports of call in the United Kingdom for Havre, France.

The spring sowing of wheat in the United Kingdom has been completed, and it is now estimated that the breadth of land under wheat, fall and spring sowing, will be found to be 500,000 acres less than was planted last

From the 13th to the 19th of March there were 25 wheat laden ships passed the Dardanelles: Comprising 2 for the United Kingdom, 14 for Marseilles, 2 for other ports of France, 2 for Holland, 2 for Adriatic and the Mediterranean, 1 for Malta and 1 for Gib-

The winter in the region round about the Azov Sea has been unusually mild, and navigation has opened a month earlier than usual; most of the ports being opened in March, when they have usually remained closed till after the middle of April. It is not expected that any large supply of wheat will be obtained from Azov during the remainder of the crop year.

The stock of wheat at Odessa the last of March was about 1,200,000 bus. vs. nearly 8,000,000 on Jan 1, 1879.

Wheat and flour on passage for the Continent:

The imports of wheat into France during the week ended March 28, including arrivals at Marseilles, Havre, Bordeaux and Nantes, aggregate 87,000 qrs, vs. 79,450 qrs the previous week.

The imports of wheat into Marseilles for the week ended March 22, '79, were 385,600 bus, and the stock in docks was 1,840,000 bus. There was a fairly active demand for Switzerland, although the milling inquiry was light, but was expected soon to show an improvement.

Advices from Calcutta under date of Feb. 28, '79, report nothing doing in wheat, with a probability that the wheat crop, so far as a surplus for export is concerned, will be a failure. The shipments from Calcutta for the United Kingdom from Jan. 1 to Feb. 26, 1879, had been 1,137 tons, vs. 7,708 tons for the corresponding period in 1878.

The exports of cereals from the North Russian Baltic ports of Riga for five years:

	1875. Qrs.	1876. Qrs.	1877. Qrs.	1878. Qrs.
Wheat Oats Rye	;36,700 1,078,960 608,000			30,800 2,739,100 1,450,600
Total	1,723,600 13,778,800	2,202,700 17,621,600		.4,220,500

Akherman is destitute of stocks and grain. At Nicopol there is barely 100,000 tschetwerts (600,000 bus). From the banks of the Dneiper no supplies of importance are expected till the incoming of the new crop, but on the other hand, large quantities may come forward from Besserabia and Podelia, provided there shall be no obstacles thrown in the way of rail transportation. On the whole, the estimate of the receipts at Odessa from reserves still back, and likely to arrive, of all the cereals is 1,800,000 qrs, equal to 14,400,000

The weather in Germany during the third week in March continued unfavorable for the growing winter wheat, caused by heavy snow and rain, followed by frost.

At Konigsberg, Germany, on the 18th ult., the weather was wintry, and the receipts of cereals small. There are twenty-five large steamers loading with grain at Pillau, mostly for the Continent, and their loading being completed, there will be very little stock left of grain. The reports at Konigsberg from the interior of Russia indicate that there are still good stocks of grain gathered there, but how much will come to Konigsberg for shipment is undetermined for the moment. Something will depend upon the corn duties that are threatened to be imposed by the German Parliament. Should duties be imposed it is expected that shipments of Russian grain will be made through Russian Baltic ports instead of Konigsberg, as has been the case for several years.

Kendall's grain warehouse and contents burned in St. Charles, Minn., April 8th. Will

<sup>\*1</sup> kilogram equals 2.2046"pounds. †1 florin equals 2 marks, 1 mark equals 23 cents.

#### ROLLER MILLING \*

This work, as the author tells us in his preface, was originally intended as an article for Die Muchle. It is in fact, as far as the subject is concerned, a reproduction of a lecture delivered by him some time since before the general assembly of the Society of Millers of Saxony, on the process of milling with rollers. When the author came to commit his lecture to paper, however, he found that he had not treated the subject so thoroughly as its importance demanded, and in the process of elaboration, finding that the work had grown upon his hands to an extent which rendered it unsuited to the columns of a newspsper, he at length determined that it should take the form in which it now appears. It is a cleverly written pamphlet, consisting of about 90 octavo pages, and as the author is himself a mill-owner and a practical milller, his opinions are entitled to some considera-

The employment of roller mills in the manufacture of flour is, he tells us, a subject of the deepest interest to every miller. Little heeded some years since, it has now become a cardinal question of the progress that is being made in milling industry. It is not merely a question of the employment of rollers for crushing grain with a view to preparing it for the further process of grinding with mill-stones; it is a question of employing them in the manufacture of flour instead of millstones, of performing every milling process with rollers only (not chilled iron, but porcelain), and arranging our mills accordingly. The author evidently expects that an immense impulse will be given to milling by his innovation, inasmuch as the "machinery will be less costly, the power required will be much smaller, the service simpler, the quantity of flour obtained larger and of infinitely better quality, and generally the task of milling will be executed with much greater completeness." A power capable of thus revolutionizing a whole industry is therefore a thing not to be despised; on the contrary, it behoves us to examine carefully the grounds on which opinions so confidently expressed are based.

Before we proceed to the consideration of the views enunciated by the author respecting the comparative merits of mill-stones and porcelain rollers for the manufacture of flour, it will be necessary to state what his opinions are in reference to the summa ratio of milling generally. This done, we shall show how, according to him, mill-stones have failed, and must necessarily fail, to accomplish the object for which they are intended; we shall point out his objection to chilled iron rollers; and, lastly, we shall show how, in his opinion, the defects of both these systems are to be remedied by the employment of porcelain rollers

As regards its capacity for being separated, grain is very unequal and opposes an unequal resistance to the forces employed for reducing it. In general, the outer integument possesses greater firmness than the inward substance. It is difficult to separate it by tearing on account of its toughness, difficult to break it because it is more pliable, and to crush it because it is more extendable than the kernel, which in respect to these qualities only differs from it by its greater or less brittleness. It follows, therefore, that by employing the same force for reducing both, the inner substance is easier and sooner separated than the husk, the parts of the lateverything connected therewith ter, and capable of offering greater resistance, remain larger than the parts of the kernel, and may be separated accordingly. Herein lies the principle of all milling. With this separation of the pulverized grain according to the greater or less resistance of which it is capable, there is no corresponding separation as regards nutritive value. On the other hand, in the separation of the inner substance as flour from the rind in which it is enveloped, and from the adhering germ as bran, there is at the same time a separation of those parts if a direction which is decisive as regards requirements of food, in the way in which it affects the palate. This inner kernel and the flour obtained from it is more agreeable to the palate when unmixed with bran. The problem of milling, therefore, consists in producing flour perfectly free from bran, and, on account of its value, to obtain as much of it as the grain will yield; in a word, to procure branless flour and flourless bran, the former for the enjoyment of man, on account

\* Roller Milling: An essay on the manufacture of flour, and on the latest improvements in Milling, by H. Sellnick, Dr. Ph., with eight engravings on wood-Leipsic, Moritz Shaefer, 1878.

of its flavor, and the latter as fodder for the cattle employed in his service. This is the best use that can be made of any nourishment that may be contained in bran. In exchange for this our domestic animals render us valuable services; moreover, they provide us with meat, and a host of other things which are more savory and more digestible than the bran which, indigestible for us. but nourishing for them, we give them in ex-

This, then, is the goal which we are reminded every miller should strive to attain: THE PRODUCTION OF BRANLESS FLOUR AND FLOURLESS BRAN.

The above, as the reader will perceive, fully coincides with the views expressed by Herr Pappenheim, in that section of his work wherein he treats of "The problem of the milling of the age."

The reduction of grain is the disconnecting of the several elements of which it is composed, and imparting to each a separate existence, which can only be done by the exercise of force with the view of overcoming the resistance offered by it. When this is sufficient the connection is destroyed. Pressure can do this, but if more pressure be employed than is necessary, the connection instead of being dissolved is more firmly cemented. Pressure, therefore, must have its limits. But the author tells us that something more than pressure is needed. Another force must be brought into operation, a force which draws the disconnected parts away from each other, a movement which he calls impulsion (Verschiebung). To these two forces a third must be added, which will carry the several portions of the grain forward, in order that one grain may give place to another grain in continued succession. In these three forces we have all the conditions requisite for grinding. Each of them has separate functions to perform, and in order that they may not come into collision, each movement must be entirely independent of the other. Pressure must do more than destroy the connection between the several parts; impulsion must do more than is necessary to the dispersion of the several disconnected parts, and the forwarding movement must perform its functions without exercising any influence on the principle of grinding generally. A collision of these several objects may take place when one of these movements cannot be regulated, and is, for instance, stronger than is necessary, regard being had to the nature of the grain, or when two objects are sought to be attained by one and the same move-

From the co-operation and collision of movements, of pressing and gliding surfaces which are employed in grinding, the evil may arise which every miller should be careful to avoid-the generation of heat. He must guard against friction, because friction generates heat. Nevertheless, all friction does not do this. So long as the friction is not stronger, and the force employed is not greater than is necessary for the impulsion of the several parts, no heat will be generated. This happens when there is a superfluity of motion and force, and increases in proportion as the friction is uninterrupted. Friction arises from duration of contact, and increases in the same proportion as the pressure increases.

By paying attention to these physical laws we are enabled to regulate friction and avoid heat. Friction is interrupted by doing away with the contact. Two bodies are never in contact when a third is between them. This third body is, for the working surfaces, the flour material itself, for the interruption of the contact between this and the surface, the

We have now to examine what form these principles take in the means of grinding furnished respectively by mill-stones annd roll-

"In the employment of mill-stones," the author tells us, "in the arrangement of the sets, there is no independent regulation of the forces necessary for the grinding of the grain, consequently the operation of the mill-stones is very irregular and unequal, and the liability to the effect of friction is very great." He attributes this to the circumstance that the revolution of the millstone supplies the same movement for more than one of the three forces above mentioned. and further, that the capacity of adhesion of the mill-stones (sharpness) does not last. Impulsion is exercised by a centrifugal motion which is unequal, and which, by increasing towards the periphery, tends to overstep the bounds of the force requisite therefor. In addition to this, since the capacity of adhesion engendered by the sharpness alters during the grinding, whilst the revolving speed remains the same, the flour-producing limits are continually being changed. They may and must end with periphery; nevertheless, with each degree of the increasing capacity of adhesion they endeavor to pass beyond it. The right thing to do would be to lessen the speed of the stones in the same proportion; but this is impossible, because the supply of material for grinding depends upon the same motion; it would cease to enter, and the supply would be cut off. miller, therefore, strives to make up for the want of capacity of adhesion by increased pressure. But that has its limits; for pressure, although it may assist adhesion, cannot supply its place.

Mill-stones, we are told, are ill-adapted also for dealing tenderly with the husk, which along with everything else that offers more resistance than the floury kernel, they grind into bran. The preservation of the husk depends upon its not sticking and being held so fast as to get torn by the diverging motion of impulsion. The latter happens all the more ruthlessly in case it sticks; the quicker the motion, the more quickly and violently it must be torn away. If the capacity of adhesion of the stones were regular and the impulsion more uniform, there would be no difficulty in dealing gently with the husk, but in proportion as the motion of the surfaces of the mill-stones increased towards the periphery, the possibility of this happening is lost, and it gets torn.

That friction and consequent heat should arise from a superfluity of motion, and pressure, is not to be wondered at. Heat increases in proportion to the pressure. The pressure can, of course, be regulated by stopping, which is a costly operation; but what about the contact? The grain and its several parts are laid hold of and separated not once, but in continual succession; the contact, therefore, lasts a long time, and friction and heat find every encouragement. It is sought to interrupt the duration of the contact in millstones by the expedient of grooves, but the object is not attained. So long as it was a question of mere grinding, without regard to the separation of flour and bran, to the preservation of its nutritive properties, to capacity for baking and flavor, mill-stones were unquestionably the best means for grinding, and where nothing more is required, they are so still. They leave nothing to be desired in the way of simplicity of arrangement, they do a large quantity of work in a comparatively short space of time, facilitate a ready sale without making any large demands on the intelligence of the laborer; but from the moment that a demand sets in for better and more nutritious bread, the miller who grinds with mill-stones has a position to maintain which is difficult in proportion to the demand that is made upon him for finer, whiter, and purer flour.

To this effect is the indictment which the author in the work under consideration prefers against mill-stones, and against those evils, from which there is no escape, he sees no remedy except in their entire abandonment as implements for the manufacture of flour, and the general substitution of porcelain rollers in their stead; that is, if we attach any value to the possession of a fine, white, pure, and easily digestible article of food. cannot do better than reproduce what he urges on this subject in his own words:

"If we would solve this problem by means of rollers, in their construction roller mills must posess the following qualities: The pressure which is to act upon the material to be ground must be capable of being regulated in proportion to its firmness, independent of every other consideration; there must be at the same time a regular movement of impulsion, equally independent of any other object, and this impulsion must be continually supported by an uniform capacity of adhesion in the surface of the roller. In order to be able to grind fine flour, the rollers must run so close to each other that nothing can pass between them without being ground.

"These conditions are fulfilled neither by roller mills with chilled iron rollers, nor yet by the earlier porcelain roller mills, but they are amply provided for by the newest construction of Wegmann's porcelain roller mills with differential speed.

"Every movement of this roller, which resembles the former one only in outward appearance, is executed by means of wheels. The wheels which drive the two rollers working together are of different sizes, so that the speed of the outer roller which, as is known, can be pressed by a lever, is less than that of the roller, which is fixed. The rollers themselves are made of porcelain, but are no longer smooth and polished, but ground.

"In consequence of these arrangements, the driving of the rollers is independent of the pressure. The latter is used only for operating upon the flour, and for this purpose, by tightening or relaxing the springs, it can be regulated at pleasure, even to stopping altogether. The unequal speed of the rollers, caused by the different sizes of the wheels, causes not an irregular, but a regular movement of impulsion on the surface of the rollers, the effect of which is likewise independent of pressure and of every other movement. But above all, the requisite capacity of adhesion of the surface of the rollers, for the impulsion, as also their close fit, is guaranteed by the qualities and the working of the porcelain which Wegmann uses.

"When we abandon the principle of absolute pressure in rollers-as is actually the casewhen we admit the favorable operation of differential speed in the grinding of grain, and accept the principle of impulsion, it is impossible to ignore the preliminary condition of adhesion, and in this case we must have regard to the material of which rollers are made. It is no longer sufficient that it be hard enough, that it is capable of sustaining an immoderate pressure; it must possess the property of being able to hold; it must no longer be smooth and polished. The grain must be laid hold of and held firmly, in order that it may actually follow both directions presented by differential speed. Smooth, highly polished rollers with differential speed, act like smooth calendars; they glide over firmly pressed flour and stop up the pores.

"The quality of adhesion is possessed by no material in the same degree as porcelain, the most perfect of all ceramic products. porcelain, the so-called cuit, presents a dull, velvety surface, and in this state it is an incomparable material for milling with rollers. In this state it possesses the capacity of adhesion which enables it to act upon the smallest particles of flour, and to separate them. It presents a continual inheritent sharpness, which no art can give to any other material in equal fine-

ness and regularity.

"It cannot be maintained," the author says. "that porcelain rollers do less work than chilled iron rollers. They have shown, whereever they have been rightly employed in the process of milling, that they are capable of doing at least as much. The question whether chilled iron rollers, in consequence of their tendency to oxidize, and especially on account of their continual exudation of carbon, do not color the flour has not been decided by a comparison with the flour ground by porcelain rollers, but as far as durability goes they are certainly inferior. It may be that the fixing of porcelain rollers on the iron axis has not hitherto been such as to be sufficiently depended upon. For this reason, as also because the bushes are liable to get heated, consequence of which both the axis and the core stretch to such an extent that the porcelain roller breaks in two, there have been frequent and loud complaints. With the present advanced resources of mechanical science, it cannot be doubted that these defects will soon be overcome." And in a footnote he adds: "The coloring with cast-iron rollers and also with chilled iron rollers, may proceed from two causes. By oxidization the surface of the rollers may be covered with rust, or they may exude carbon. We know that cast-iron is never free from carbon; it exudes as graphite through the pores and gives a blue tinge to the flour. We are often We are often deceived by this blue appearance in judging of the whiteness of flour. It is easily distinguished when tested by the so-called Pekar process, when we compare the flours with each other, wet. But the easiest method of convincing ourselves of this coloring is by wiping with a clean cloth rollers which have stood for some hours—it will be found to be graphite gray."

Herr Pappenheim, in his new work on milling, to which we have already referred, observes: "Whilst we are writing this, we are occupied with a new method of milling, which is destined to displace a great many things; at any rate it will do away with mill-stones for grinding corn." This observation refers, no doubt, to the porcelain roller mills, in favor of which the author expresses such enthusiastic admiration. Time alone will determine whether the expectations of the one or the vaticinations of the other are based on any sure and lasting foundation. We have lived long enough to see a great many illusions dispelled in our time, hopes frustrated, expectations disappointed, and prophecies falsified; but we have also seen changes at least as great as that now under consideration, which after having been pronounced impracticable by men eminent in science, have nevertheless become realities. In matters where great events are involved, modest diffidence may be excused, uncompromising negation in the case of objects, the realization of which presupposes no infringement of any of the laws of nature is unpardonable folly. We do now, as we have often done before, await the result. Meanwhile we take leave of the author, in the certain conviction that in case his most sanguine expectations are realized, though individuals may suffer, mankind will

be benefited.

### Situations Wanted, etc.

Millers, Engineers, Mechanics, etc., wanting situa-tions, or mill-owners or manufacturers wanting em-ployes, can have their cards inserted under this head for 50 cents per insertion, cash with order.

SITUATION WANTED—By a young man of experience as oiler in a flour mill or factory. Best of reference furnished. Address C. L. B., care of flour store, 1505 Franklin ave., Chicago.

SITUATION WANTED—I have had two years practical experience in a good flour mill, and want a situation where I can finish learning the trade. I can furnish first-class reference. Address GEO. P. WANDER, 512 Spring st., Buffalo, N. Y.

WANTED—Situation as head or assistant miller in some first-class firm. Twenty years' experience in steam and water mills. Speak German and English. Salary an after consideration. Address ap\* LOUIS HALLER, Hicksville, O.

WANTED—A situation as mechanical draughtsman by a graduate civil engineer who has had thorough ex-perience in marine and stationary enging work and gen-eral mill machinery. Good references furnished. Ad-dress C. E., Box 381, Bay City, Mich.

WANTED-Permanent situation by a miller of 18 years' experience, 12 years in the Northwest; understands "New Process;" am industrious, honest, and capable, and have a family; a place where there are good schools desired; can farnish references. Address C. C. A., care United States Miller.

WANTED-A first-class foreman to take charge of a stone shop; must be perfectly competent to superintend building and finishing buhr stone. Best references required, and none but experienced men having acted as foremen need apply. A good chance for the right man. Address F. J. S., care United States Miller. aptf

WANTED—Millers out of employment and preprietors of mills to act as agents for the sale of the Ashland Patent Adjustable Sack Holder; one of the best selling articles out. Exclusive territory given. Sample sent to those who wish agency or to use on the receipt of \$1.50. Address

L. JEFF. SPRENGLE, ap2t

Ashland, Ohio.

WANTED—A situation as Oatmeal Miller by a thoroughly practical, competent man, soler and steady; understands all the different grades for home and foreign markets; the drying and handling of oats in all its details; has had a long experience and can come well recommended. Address "Oatmeal Miller," care of United States Miller, Milwaukee, Wis.

SITUATION WANTED—By a young man, who has had four years' experience in the milling business. Being part owner of the Neely Mills, Columbia, Tenn., he has had the management of those mills, keeping the books, superintending the grinding, and doing some traveling for the mills. The firm of which he is a member have just leased out the mill and property for a term of years, and he wishes to engage with a medium-sized mill in any capacity. Can take charge of, and successfully run, a 2 or 3 run mill, attending to the stone dressing, grinding, and anything else necessary to do. Has had a good business education, and can furnish the best of references as to honesty, energy, and social standing. Address

E. O. NEELY, Box 137, mytf

#### For Sale or Exchange.

Advertisements under this head \$2 per insertion, cash with order.

FOR NALS—A grain elevator in the best grain-growing s ction of Kansas. County seat. Splendid business. Address ap\* LOUIS C. WITHAUP, Clyde, Kansas.

FOR SALE—Steam power saw mill for sale chean, and on reasonable terms. Mill is in good location, and is doing a good business. Satisfactory reasons will be given for selling. Calron, or address.

SMITH & TUCKER, Cawker City, Kan.

FOR SALE-Custom and merchant mill; steam power; three run of buhrs; the mill has a good run of custom and the flour a good reputation; mill is situated in a fine wheat country and at the junction of three railroads; satisfactory reasons given for wishing to sell. For particulars address Box 106, Altamont, Effingham county, Ill.

FOR SALE—A flouring mill, saw mill and 265 acres of land; 55 acres improved at a price to suit the times for one-half cash; balance long time. The water power is unsurpassed; two run of burrs with necessary machinery. Mill thoroughly repaired last season. Good wheat country. Situated at Orange, Juneau Co., Wis., on the M. & St. P. R. R. Address J. G. EVANS, mrlt Orange, Juneau Co., Wis.

work salk—A grist mill with two run of stone, on one of the best and clearest water powers in the country. Two houses—one a hotel—barns, sheds, hog pen, ten lots with fine fruit trees, in the village of Bird, Oceana Co., Mich. The whole can be had for the give away price of \$4,500, or one-half for \$2,500. Being in other business the subscriber feels compelled to sell. Address at once, J. PALMITER, mr\* Hart, Oceana Co., Mich.

FOR NALE—A good custom and merchant mill, three stories high, built of stone, with three run of burrs; good water power, close to railroad. Also two dwelling houses and all necessary outer buildings, all covered with slate. The mill has all been rebuilt, with middlings purifier and all necessary machinery. The mill is now running day and might. Good grain country. This property is a splendid home and business, and will be sold very cheap.

For particulars call on or address E. G. GLLBERT, feb\*

Raubsville, Northampton Co., Pa.

bolts in perfect order and doing a good business. Waterpower has 14 feet fall, fed by large lake. No ice or floods to contend with. The mill makes good flour and there is plenty of grain in the vicinity. The mill lot contains 4% acres in the town with two dwelling houses, large barn and shed. With the mill will be sold 80 acres of timber land one mile from town. Terms: \$2,000 cash down, and balance in store goods or on five years time. Address for full particulars, WM. SKINNER, feblt Mount Morris, Waushara Co., Wis.

#### GRATIOT'S

Patented March 5, 1878.



of HEAVY COPPER THROUGHOUT; and standing 175 ths. Hydraulic Pressure. The ONLY Heater that EVENLY heats EACH and EVERY grain of wheat; and draws the moisture from the berry to the outside or bran; thereby THOROUGHLY TOUGHENING THE BRAN ON THE HARD. EST or DRIEST Spring or Winter Wheat,

The ONLY Heater made

Send for descriptive circular. GRATIOT BROS., Platteville, Wis.

For Sale or Exchange.

Advertisements under this head \$2 per insertion, cash with order.

FOR SALE—Two-run steam mill; best run of custom in the county; two houses and barn. Pays 10 per cent on \$8,000. Cheap for cash, or half cash.

JNO. F. McGUIRE.

Clinton, Iowa.

FOR SALE—A flouring mill, saw mill, and 265 acres of land on the M. & St. Paul R. R. Plenty of wheat and a splendid water power. Haif cash, balance long time. Address J. G. EVANS, Orange, Wis. my\*

machine, made by Griscom & Co., with McFeeley Furrowing Attachment, Letter D. Has been in use but a short time and is as good as new. Will be sold cheap for cash. Address H. B. SHEARS, mytf Oconomwoc, Wis.

FOR SALE—The entire machinery of a 4-run 4-ft stone, new process flouring mill, that cost \$50,000, now offered for \$5,000; 16x32 engines, 2 tubular boilers, No. 7 Stillwell heater, all new, not run over 3 months. This is a rare bargain.

W. MORRILL.

my\*

124 Dearborn st., Chicago.

FOR SALE—The machinery and fixtures, including boiler and 30-horse power engine, and lease of building of Eureka feed mill, 224 E. Lake St., all in good running order; good location; trade already established. Will be sold at a great sacrifice.

T. H. FOSTER, assignee, my\*

156 Washington st., Chicago.

FOR SALE—Flouring-Mill—Steam-power, four run of stone; main building, frame, 30x60, 2% stories, with brick basement; brick engine-room, 20x30; building and machinery new; new process; complete in all respects; located in a flourishing town in western Iowa, at junction of three railroads; fuel cheap, doing a good business. Will sell a half interest or whole. Address, MAYNE & KEY, my\*

Council Bluffs, Iowa.

WANTED-To buy or rent a mill, by a practical miller thoroughly versed in merchant and grist work. Talks both English and German, and can give best of references. Address, S. KAMERER, nr\*

Fountain City, Buffalo Co., Wis,

WANTED—A good steam flouring mill at Cawker City, Kansas. The location is exceptionally good. The best of wheat and other grains produced in great abundance. The investment will surely make heavy returns. The Atchison, Cawker City & Denver Railroad will be completed to this point on or before June 1st, 1879. Parties desiring to secure a good location may address for any further information,

EDMUND O. GARRETT,

feblt Cawker City, Mitchell Co., Kan.

FOR SALE OR RENT—One of the best steam flouring mills in the State Four stories, brick and stone, slate roof, four run of burrs. Adapted to new process. Everything new. Best wheat region of the State. Fuel cheap, water plentiful. Near depot and has side track, cooper shep, wagon and stock yards. Pleasant town of 2,000 inbabitants. Satisfactory reason given—neither of us know anything whatever about milling. Terms easy. Fine bargain. Address C. H. HEARD & SON, feb\* McLeansboro, Ill.

FOR SALE—Flour and Saw Mill—One-half interest in a first-class three-run Steam Flour and Saw Mill. The saw mill is a double rotary, with gang edger, cut-off and bolt saws and shingle machine. It has been built but 18 months, and is in as good a wheat country as there is in the State. My object in selling is to have eash in hand to put in a good country store in connection with mill. Would prefer to seh to a miller or a man that is well posted in store business who can command from \$6,000 to \$7,000 and furnish good reference. I will guarantee good margin to the trade. Address all communications to

A. J. FULLERTON.

Bonduel, Snawano Co., Wis.

FOR SALE—Best Mill in Southern Pennsylvania—This mill, situated in a small village within f ur miles of Broad Top coal fields, was recently rebuilt with all modern improvements and is in good repair. Mill is on a nover-failing stream, with 30 feet head and is propelled by two turbine wheels. Has three run of burrs and one run of choppers. Building is frame, 42 by 50, and four stories high. Machinery is suited for making either merchant or custom work. Belonging to the mill are a good saw mill, 180 acres of farm land, 100 acres of valuable bark-timber land, three dwellings and a storeroom. The owner of the above property will also sell three separate tracts of good bark and fine timber land, containing 400, 289 and 72 acres. For further particulars call on or address,

MILSON BERGSTRESSER,

feb\*

FOR SALE OR RENT—A five-run steam mill, located at Manchester, St. Louis Co., Mo., eighteen miles west of the city of St. Louis. It is located in a neverfailing wheat country and is supplied directly by thes farmers at reasonable figures. The mill has been run profitably for the past sixteen years. Was rebuilt on a thorough and convenient plan six years ago. Good reasons for wishing to sell or rent. Mill is running to its full capacity and is doing a good business. No competition, no railroads. All of the offal sold at the mill, and a large trade established for the flour. Will be sold to parties having part cash; long time given for remainder at a reasonable rate of interest, or will rent on reasonable terms. Address or call on the proprietor,

JACOB SCHREINER,

Manchester, Mo.

FOR SALE—A four-run steam flouring mill, all in first-class running order. Three 3½ foot burrs for wheat and one 3½ foot chopping burr, one Eureka wheat cleaner and a Eureka smutter, Garden City middlings purifier, Excelsior bran duster, Eureka flour packer and all other machinery necessary to complete a first-class mill. Two 28-flue boilers, 65-horse power engine. Stilwell heater. Frame building and seven desirable town lots belonging to the property. Side track of A, T. & S. railroad close by the mill, which is located in the city of Sterling, Rice Co., Kansas, in the midst of the best wheat district in the Arkansas valley. The parties owning the mill are not practical millers, and are engaged in other business. They will sell the property low and on easy terms. Address LANDIS & HOLLINGER, feb\*

Sterling, Rice Co., Kan.

FOR SALE—We offer for sale the steam merchant flouring mill located at Peterson, Fillmore county, Minn., one of the finest wheat growing counties in the State. The mill is situated on the Southern Minnesota railroad, with side track to the door of the mill, thus giving the best of facilities for grinding wheat in transit. This road is being rapidly extended westward into the best wheat growing section in the Northwest, so that the facilities for obtaining choice milling wheat are growing better each year. This mill was built in 1876; is 40 x 60 feet; three and one-half stories high above the basement. Contains eight run of burrs, with all the modern machinery; brick boiler and engine rooms, practically fire-proof, adjoining the mill 30 x 40 feet; two boilers and 22 x 34 inch aut-off engine built by us. The mill has a capacity of 160 barrels per day, and has a well established trade, the flour commanding the highest price in the market. This property will be sold cheap as we have ne use for it. For further particulars inquire of FILER, STOWELL & CO., mrtf Cream City Iron Works, Milwaukee, Wis.

FOR SALE—A Texas flour mill and land; a rare bargain. I offer my steam flouring mill at Trinity Mills, a depot 16 miles from Dallss, Texas, and on the Dallas & Witchits Railroad, for sale at a great sacrifice. The mill has three run of stone, two for wheat and one for corn. It has a capacity of 100 barrels per 24 hours; fine tubular boiler and good but old style engine; stories driven by beveled gear; mill built four years ago and cost over \$9,000. With the mill I will sell 420 acres or more of land, on which n ar the mill are two dwellings of four rooms cach and a large store-house; about 50 acres of superior prairie soil for field crops, fruit and vegetables; the balance is in timber and will afford perpetual fuel for the mill and fine pasturage. It is located on the Elm Fork of Trinity River, and is exceedingly fertile. I will sell the whole to a CASH purchaser for \$15 per acro—not more than the value of the land. There is plenty of wheat raised in the county. Satisfactory reasons for selling. Address immediately, aptf DR. ROY B. SCOTT, Trinity Mills, Texas.

### WHITE LEAD WORKS.

We grind as aspecialty a Strictly Pure Colored Lead in paste form (not liquid paints), and put up in 25,50 and 100-lb. kegs. By actual test we have demonstrated colors ground into Lead makes a more permanent and fast in color. As to durability it has no superior. We place a guarantee label on each package of 95 per cent. lead, and not over 5 per cent. coloring matter.

### J. E. Patton & Co.,

WHITE LEAD, COLORS AND VARNISHES.

Sample of colors sent by mail on application.

#### All Patent Staffs Superceded!

#### A GREAT

### Milling Invention

SUCCESS ATTAINED AT LAST.

To Mill Owners: I have invented, and secured by for Truing the Granding Surfaces of Mill-Stones. Having been practically engaged in the milling and mill-stone business for over 30 years I have learned the great value of having a perfectly true face on grinding stones, and during the past 10 years I have expended a great deal of time and money in making my invention and securing my patent. The very foundation of successful milling is in the proper treatment and use of the mill-stone. A true face will make even, uniform flour and a large percentage of middlings, while an uneven stone will cause uneven grinding and poor flour, which no purifier or system of bolting will rectify. With a true face on the mill-stone the miller can set his irons right, can tram the spindle right, can get the level right, and not half the work in dressing will be necessary. This is a matter of the

#### UTMOST IMPORTANCE TO MILLERS,

And I respectfully call your attention to it, and invite correspondence.

I have just sold rights for mills to the following well-knewn mill owners, to any of whom I refer you:

thave just sold rights for mills to the following winewn mill owners, to any of whom I refer you:

Nunnemacher & Co. Milwaukee, Wis.
Gerlach & Dittmarsch, Milwaukee, Wis.
Huntingdon & Koch, Barton, Wis.
Smith & Co., Grafton, Wis.
Volker & Jonas, Saukville, Wis.
Geo. Guettler, Thiensville, Wis.
Milwaukee Milling Co., Milwaukee, Wis.
Orville Hathaway, Oconomowoc, Wis.
F. Miller & Co. (2 mills), Watertown Wis.
Barnes & Hodson, Janesville, Wis.
Coman & Morrison, Fox Lake, Wis.
E. R. Hoyt & Son. Beaver Dam, Wis.
H. G. Mathews, Brandon, Wis.
Filer, Stowell & Co., Milwaukee, Wis.
Schauble & Vallansch, Fredonia, Wis.
Wm. Albrecht & Co., Neiburg, Wis.
Wehausen & Co., Cedarburg, Wis.
Bodendoerfer & Zaun, Cedarburg, Wis.
Chas. G. Deisner, Pewaukee, Wis.
M. Held, Jr., Sullivan Mills, Jefferson Co., Wis.
G. Schnekenbuhl, Palmyra, Wis.
I also refer to the following practical millers and

G. Schnekenbuhl, Palmyra, Wis.

I also refer to the following practical millers and millwrights: John Weber, Fredonia, Wis.; Ed. De Haas, Chas. Horn, Fred. Hall, H. R. Taylor, Geo. Richmond, Friedr. Mueller, Wm. Arnold, Geo. Bautz, Joseph Phillips, Geo. Henkel, L. Holz, Wm. Kuecker, E. Hainke, Carl Gaudlitz, Fred. Kuecker, Henry Kuecker, Wm. Schmidt, Milwaukee, Wis.; John Lawson, John Flail, Grafton, Wis.; Jacob Schaefer, C. Schaefer, Milwaukee, Wis.; Wm. Simon, G. A. Clakowsky, Thiensville, Ozaukee Co., Wis.; H. Foote, J. Greene, Watertown, Wis.; Chas. Bachmann, Brandon, Wis.; B. Brendemuehl, John Dedrich, E. Hilgen, Fred. Kuhn, Cedarburg, Wis.

I have placed my price for RIGHTS for mills at an extremely low figure considering the value of my invention, so as to bring it within the reach of all. For further information and correspondence address

722 Fourth St., Milwaukee, Wis.

#### BOOKS.

Roper's Practical Hand-Books for Engineers and Owners of Steam Engines and Boilers.

Hand-Book of Land and Marine Engines..... Hand-Book of the Locomotive ... Hand-Book of Modern Steam Fire Engines................. 3 50 Catechism of Steam Engines...... 2 00 Use and Abuse of the Steam Boiler ......

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Warranted the best in the world. The only Reel that will dust Middlings perfectly. BOLTING CHESTS of any capacity at prices

to suit the times. DUFOUR & CO.'S BOLTING CLOTH.

Superior Wheat Scouring and Brush Machines. General Mill Furnishings.

CHARLES B. SLATER & CO., Blanchester, Ohio.

#### Bennett's Patent Elevator Bucket. Made from one piece of Metal.



CHEAPEST AND STRONGEST

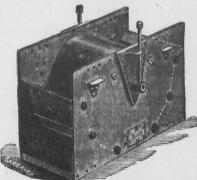
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Manufactured Made of either plain or galvanized iron. Send for Cir-culars and Price List to

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### SPECIALTIES

# The Rivet Bucket Co. ESTABLISHED 1874,



The Safety Iron Elevator Boot.



The Rivet (Corn) Bucket. 25,000 in Use.

RIVETBUCKET

THE RIVET BUCKET

(For Grain.)

200,000 in Use.

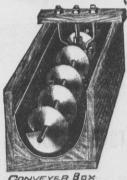
THE RIVET (Mill) Bucket.

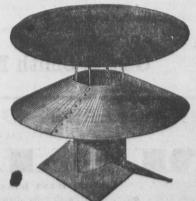
250.000 in Use.

THE CORRUGATED **Belt Bolt** 



This is the Strongest, Most Durable and Efficient ever produced. 25,000 Lineal Feet in Use.





The Safety Ventilator.

Rids the mill of dust by the natural draught. These goods of extraordinary merit and cheap-ness, together with all Mill and Warehouse Fur-nishings, sold by

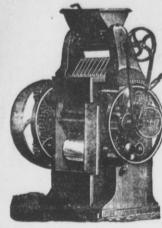
N. HAWKINS & CO., Supply House,

224 Washington St., Chicago. Send for Lists and Prices of needed articles.



VIENNA EXHIBITION, 1873, Awarded Diploma of Honor.

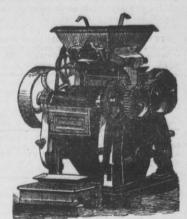
PARIS EXHIBITION, 1878, Awarded 2 Gold Medals and 1 Silver Medal.



### GANZ & CO.'S

# Iron Foundry and Manufacturing Association,

Buda-Pesth, Hungary, or Ratibor, Germany.



We take this method of recommending to the American milling public our PATENT ROLLER MILLS with chilled cast iron rollers, for crushing and grinding wheat, which have met with such eminent success in Europe. The mill-owners of Buda-Pesth, as well as the prominent millers of Austro-Hungary, and a large number in Southern Germany, Switzerland and England, have provided for their mills the celebrated GANZ ROLLER MILLS, which are about to supplant entirely grinding on mill-stones, their working being more perfect, producing more white flour, requiring less power than the best mill-stone, and wanting no repairs excepting to occasionally replace a hearing. We have introduced into the art of milling these Roller Mills with chilled cast iron rollers, and from 1874 to January, 1879, we have delivered in the different European countries, Africa and the United States of America about 2,100 mills, and all work satisfactorily. Our crushing mills may now be regarded as absolutely necessary for every well-furnished modern mill, and this is proven by the numerous testimonials at hand. Our grinding mills are remarkable for their absolute discharge bearings, by means of the newly-devised Anti-Friction Pressure Rings. These Rings allow a very high pressure, and hence assure the performance of a great deal of work, avoiding all waste of power caused in other machines by friction in the bearings.

Out of numerous testimonials at hand we select the following

Out of numerous testimonials at hand we select the following:

Buda-Pesth. March 28, 1878.—To Messrs. Ganz & Co., Foundry and Engineering Co., Limited, Buda-Pesth: Complying with your request to communicate to you my experience with your Raller material, I have pleasure in stating that I consider it, i. e., your generally well-famed chilled iron, as the best within my experience, and its adoption has satisfied me in every respect, so that I do not hesitate to assert, by introducing it on a large scale, you have rendered a considerable service to the milling art. Your material is equally well adapted for rough grinding, softening or grinding. Owing to its great hardness I cannot characterize it otherwise than indestructible. The grooved cracking rollers have demonstrated this hardness, as also a toughness, of your castings in a manner which astonishes all who know the rapid wear of cutting edges used in the treatment of grain. Your smooth rollers, once properly ground, preserve their complete cylindrical form, and do not require any repair for a period which even now cannot be estimated. They acquire, soon after being put to work, a finely-gritted surface texture, eminently adapted for grinding as well as for drawing down the meal, a condition which they preserve without change. It is quite superfluous to prove that there can be absolutely no question of discoloring unless with reference to new rollers, to which some remnants of oil, emery or other matter may yet adhere. The flour produced by your Chilled-Iron Rollers is very lively and has remarkable baking qualities. While stating the above to the best of my conviction in answer to your inquiry, I seize with pleasure this opportunity to express to you my thorough approbation, not only of your roller mills constitutes such an essential step in advance as compared to the rough grinding with stones, that they cannot fail to win their way into every well-built mill, working on the high or half-high grinding system. For the purposes of reduction to flour you have l

(signed) C. HAGGENMACHER, Director of the First Ofen-Pesth Steam Mills.

TIVOLI KUNSTMURHLE, Munich, April 5, 1878.—To Messrs. Ganz & Co., Engineers, Buda-Pesth—Dear Sirs: In reply to your esteemed of March 28, we have pleasure in testifying to our satisfaction with the Chilled-Iron Rollers

BUDA-PESTH, July 16, 1877.—Messrs. Ganz & Co., Buda-Pesth—Gentlemen: The most satisfactory results which, on testing the different Wheat-breaking Machines, we obtained from your Fluted Rollers, induced us to adopt your system and, in consequence, we already provided our mill with a great number of your Breaking-Rollers. In consideration of the experience derived from use of these Rollers we beg to point out as particular advantages of your Wheat-breaking System that extremely little flour is produced, provided the rollers are used as directed, that your Rollers most satisfactorily detach the Semolina from the Bran, and thoroughly separate the Germ-Particles, and finally that they are of an astonishing durability, and that it requires no skilled labor to manage them. Moreover it must be stated that your system suits perfectly well any process of Breaking-Wheat. It affords us so much more pleasure to give you the above account, as we are inclined to think that by the construction of these Rollers you have achieved an essential progress in the milling industry. Yours truly,

PESTER WALZMUEHL-GESELLSCHAFT. Riedle, m. p. Burchart, m. p. Buda-Pesth, July 11, 1878.—Messrs. Ganz & Co., Engineers, Buda-Pesth—Dear Sirs: Having had occasion to try your newly patented Roller mills with others, known until now,! I feel induced, regarding their excellent qualities, to give orders for furnishing me the Roller mills to be erected in my two mills. These Roller mills are to be recommended by their construction, surpassing all known until now, and especially for their remarkable capacity, doing mucb work with little power. Believe us, gentlemen, Yours truly, HEINR. HAGGENMACHER.

supplied to us by you. We have now had both smooth and fluted Rollers in use for the last two years, and have not found any appreciable wear in the smooth Rollers. With reference to the work and capacity we can but report favorably. The Flour produced by them is lively, and not killed as has been stated in some quarters, while its baking properties are first rate. Referring to the lately supplied fluted Rollers, Mechwart's Patent, grooved on the new method, they work admirably and are especially to be recommended for mellow wheats. Recapitulating, your Roller material is as tough as it is hard, and therefore in every way adapted for the purpose it is intended. We remain,

Tivoli Kunstmuehle, A. MUELLER.

Branders A. Adler, Bohemia, February 13, 1879.—Messrs. Ganz & Co., Buda-Pesth—Gents: I give you my best thanks for your delivering to me your well-made and well-working machines, as well as for those 2 machines you delivered me last year. I have no objection to your publishing this. Yours faithfully, G. HANNAK, Civil Engineer and Mill-owner.

'GANZ & CO., Buda-Pesth, Hungary,

Cable Address "GANZ, Kaiserbad."

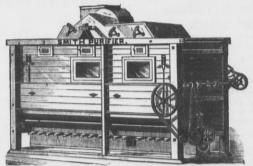
Address all communications t

Or GANZ & CO. Ratibor, Germany.

# The Geo. T. Smith IMPROVED MIDDLINGS PURIFIER.

SIMPLE, DURABLE, ECONOMICAL,

AND REQUIRES BUT LITTLE POWER.



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A large number are in use in the successful New Process Mills of this country. We manufacture eight sizes, adapted to the smallest or largest mills. Our prices range from \$225 to \$600, and cover a license under all of the patents owned by the Consolidated Middlings Purifier Company.

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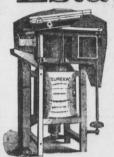
Geo. T. Smith Middlings Purifier Co.,

JOHN C. HIGGINS,

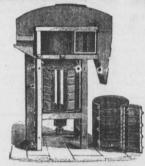
All work fully guaranteed. Responsible parties can have 30 to 60 days' trial on my new work, also on dressing where the Steel is of good quality, and has not been destroyed by working; and if not superior to any work produced in this country, there will be no charge for the same. A stronger warranty is unnecessary for any

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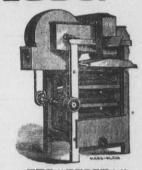
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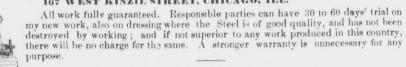
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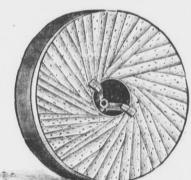


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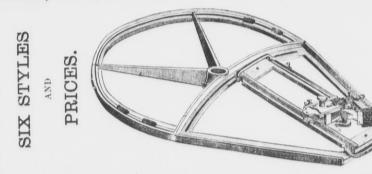
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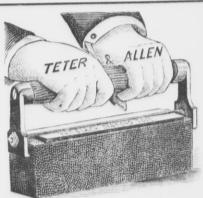
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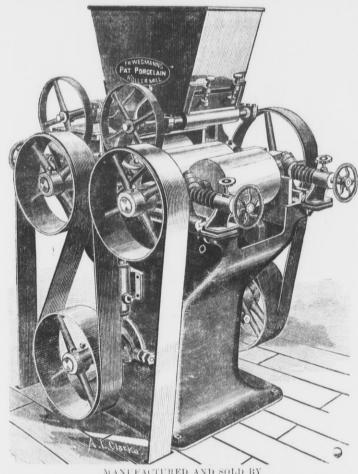
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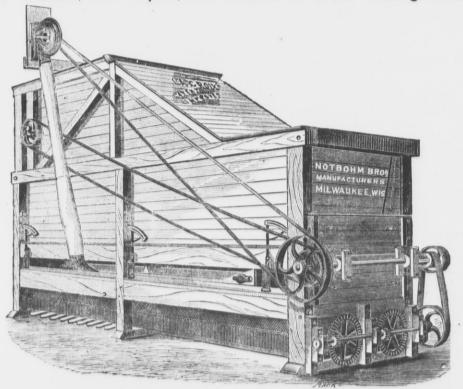


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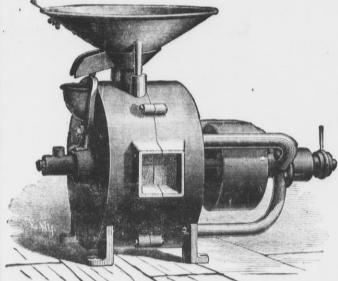
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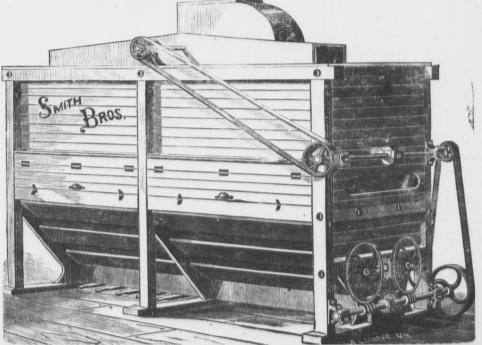
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### BROTHERS,

Millwrights, and Manufacturers of the Improved



### Milwaukee Middlings Purifier,

Mill Furnishers and Builders, Shafting, Gearing and Repairing, Overhauling and General

#### Under-Runner Mills.

Editor United States Miller:

Under-runner mills should, I think, be constructed on a somewhat different plan from those now ordinarily in use, and I would suggest an arrangement something as follows:

Let the spindle be long enough to reach above the upper stone and have a bearing in a fixed bridge-tree. Then have a bearing below the hurst, immediately under the runner, which will guide the spindle and take away the spring from the belt or gear, said bearing to be movable and adjustable by set screws. This will give three bearings to the spindle (including the step at the lower end) all three outside of the stones. Make the driver with three wings inserted in the lower side of the runner. This will give a substantial and rigid connection to the spindle and the runner will retain its position and uniform motion because it is never taken off from the spindle. The upper or fixed stone should be firmly set in a wooden box or iron frame casing, said frame having four bearings regulated by set screws so that it can be adjusted to make the face parallel with the face of the runner. In taking it up for dressing the bridgetree with the upper bearing is removed and the stone turned over on its hinges like a trap

The accompanying cut will illustrate my idea. A is the upper stone fastened in a frame; said frame swings over with the stone in position in P. The stone is secured to the frame by bolts, as shown in the drawing.

B is the under stone or runner; A are the burr stones; C is a flat stone of any kind that is solid, fitted and fastened in the iron hoop which surrounds the runner, in which is fitted a three-winged driver C, and fastened therein about the same way as the bail is fastened in other mill-stones.

D are two stout irons with bolts, bored out to fit the upperpart of the spindle, and fastened to the spindle after the runner rests on the spindle, and then the two ends get fastened in the burrs as the driver below.

E is the mill-spindle where the driver is fitted on, as drawing shows it.

F is the bridge-tree above the upper stone where the spindle is secured in a box.

G is another box, in or below the hurst frame, to secure the spindle against the spring originating from the driving belt or gear below, and so keeping the spindle steady and said box is regulated by set screws.

H is a side view of the iron frame which incloses the curb, and has on each corner the bearings for the top stone frame, where said frame is fastened and regulated up or down by means of set screws. D is a bolt in a slot hole through the iron frame; a nut is sunk in the upper stone frame to receive said bolt, and thereby preventing any unsteadiness of the bridge-tree above.

K is a view of the front side of the iron frame.

L is a top view of the upper stone frame, with the stone, the bridge-tree and the bearing for spindle.

M is a top view of the iron frame with curb and stone in place.

N shows how the iron frame is fastened to-

The runner must be balanced on the spindle before it is put in place. I use two iron flanges, each one fits the spindle, in which are three holes for bolts, which reach through the eye of the stone; set the stone upright put the spindle in the driver, take on each side the flange, fasten them with the bolts, and lay the spindle with the stone on two iron rails, one on each side of the stone, and close to the stone, high enough so that the stone turns free above the floor, and then dress off from the underside, till the stone is balanced.

This is my idea about the under runner-mill. I will furnish the patterns for castings, and

will answer any question relating to this sys- | tem, if any one feels interested in it.

F. E. KLOPFLEISCH, Yours truly, 657 short st., Milwaukee, Wis.

High Milling, or the Austrian System of Grinding.

(From Professor Kick's new work on Milling.)

High Milling-or, as it is also called, Vienna, Austrian, Hungarian, Parague, or Saxony milling-is that method of grinding wheat which, by a gradual reduction of the grains of wheat, aims at producing the largest quantity of middlings, which, being cleaned, reground, and again cleaned, &c., and consequently gradually reduced, is finally manufactured into

Schrot. After this product has passed through | the sieves, the different sorts are graded according to their size, consequently all those branny particles, which are of equal fineness with the flour mingle with the flour, and those of the same size as the so-called Dunst, with the Dunst, &c. It is scarcely possible to separate from the flour the equally fine branny particles; this is done, however, as far as the middlings and Dunst are concerned, by means of middlings purifiers.

The question now is, of which parts of the grain of wheat does the several products consist? The flour obtained from the first grinding (Schroten) will be better, in other words, will contain fewer branny particles than that

the purifying machine, in which they are gradually reduced. In many places they neither purify the middlings nor the Schrot. If during the perliminary grinding (Hochschroten) germs get loosened from the grain, they get knocked off especially during the first grinding, and arrive in proportion to their size, for the most part uninjured, among the coarse middlings, to which they impart, by their yellow color, a speckled, yellow appearance. The product of the perliminary grinding is separated, and the middlings and Iner middlings purified. The following synoposis will show the customory methad of manipulation. The products of the perliminary grinding are distributed as follows through the

bolting cylinder :-Fine parts.

Middlings, \* No. 3, 4, 0, 5.

Middlings, No. 2, 1, 0, and

Dunst.

Flour.

Medium parts.

Medium parts.

Modlings, No. 2, 1, 0, and

coarse middlings. For the middlings eylinder. For the silk or flour cylin-der and divided into Coarse middlings for further grind-ing. For the purifying machine.

Clean coarser middlings, or so-called Schrot.

For the coarser middlings purifier, thence back to stone for second coarse grinding.

\*It may be useful here to state that in the Austrian flour mills they give to the finest flour No. 00, and to the coarsest No. 6. In the middlings, on the contrary, No. 5 is the finest and No. 0 the coarsest. In many mills No. 6 middlings is the same as what is called Dunst.

It is exceedingly difficult, nay, even impossible, to give to non-practical men anything like a clear idea of the nature and appearance of the various milling products either by description or illustration. The only way in which he can become acquainted with them is by seeing them in a well conducted mill, where high milling is practiced.

The first rough grinding is followed by a second, the second by a third and the third by fourth, but the number of these is not in all mills alike. We must not imagine, however, that in these successive divisions or breaking up of the grain, that in the perliminary grinding (Hochschroten) the grain is broken in two, and by the first grinding (Schroten) it is broken into four pieces, &c.; on the contrary, the division when the stones are rightly placed, is so managed that at each successive operotion the several parts gradually loose their polyhedrous or spherical shape, and assume a lamelliferous form. In the first, second and third rough grindings, the greater part of the grain is consequently reduced to flour and middlings, and the material which undergoes fourth grinding has become so far triturated that no coarse middlings can be got from it, but only dust mixed with numerous particles of outer husk. Along with these we obtain flour as well as coarse and fine husk. are scaly particles consisting of gluten, and the cuticle of the germ and the grain, to which a perceptible number of starch sells adhere. In many mills these scaly particles are called stripes, in fact those remaining after the fourth and fifth grinding, white stripes; and after once more grinding black stripes. The fine and coarse roughs are in many mills ground together, in others separately. The former go also by the name of Haspan. By ground roughs and ground Haspan, we understand those scaly parts which, by their repeated passage through the stones, are freed from the particles of flour adhering to them, which serve as fodder for cattle and horses, and are distinguished by the general name of bran.

UNDER-RUNNER MILLS.

flour. This system of grinding, which origi- | obtained by the operation of Hochschroten nated in Vienna, produces the most beautiful, and the whitest, and generally the finest kinds of flour, in proportionately larger quantities. In the Austrian system of grinding, the stones are placed at such a distance from each other that the first time the grain passes through them it is only slightly rubbed and broken. In this operation the beard and parts of the cuticle would be rubbed off, if this was not done before by the hulling machine. This operation is called ending (Spitzen), or, in case the stones grind more coarsely (Hochschroten), inasmuch as in this coarse grinding the grain is broken along the entire length of the furrows, so that the produce therefrom is mixed with flour, branny particles, and germ that have been scraped off. The products are separated by sieves, and the result is dark flour, poor bran, and coarse, middlings. The latter product is passed through stones placed more closely together, and is subjected to the first grinding, that is to say, it is further broken, and we obtain particles varying in size, flour, dunst (which is analogous to flour),

above described, but it will nevertheless contain a great number, seeing that the stone exercises a breaking action upon the grain, and more or less reduces the cuticle.

Dunst and fine middlings are mostly composed of small fragments of the flour substance, and in the process of breaking fall from the inner as well as from the innermost part of the grain, and become polluted by the admixture of branny particles of equal fineness. If these are removed by the middlings purifier, we obtain pure middlings, which in consesequence of being derived from the innermost part of the grain, are called core-middlings (Kerngriese), or, because they are used for making the finest flours, Auszugmehle and Auszugriese.

The coarser middlings (Auflæsungen), and the still coarser Schrot, are fragments which, the larger they are, the more certain are they to be overlaid with portions of the layer of gluten, of the skin of the germ and the grain, and are, consequently, of a much darker size, flour, dunst (which is analogous to flour), color than pure middlings. The coarse middlings, and a still coarser commodity called dlings and the coarser Schrot are put through

Morris & Worrell, of Pekin, Ill., are putting in new buhrs, purifiers, cleaning machines and bolts, for New process work. Nordyke & Marmon Co., of Indianapolis, Ind., furnish the machinery.

The mill at Glenwood, Iowa, operated by Nic Girard, is having two new run of buhrs, and necessary machinery for new process, furnished by Nordyke & Marmon Co., of Indianapolis, Ind.

#### UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY. OFFICE, 62 GRAND OPERA HOUSE, MILWAUKEE, WIS. All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker. Bills for advertising will be sent monthly unless other-wise agreed upon.

#### MILWAUKEE, JUNE, 1879.

We send out monthly a large number of sample copies of THE UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. We are working our best for the milling interest of this country, and we think it no more than fair that our milling friends should help the cause along by liberal subscriptions. Send us One Dollar in money or stamps, and we will send THE MILLER to you for one year.

#### Now She Grinds.

"A bill has been filed by Edw. P. Allis on the 31st ult., in the United States Circuit Court for the Eastern District of Wisconsin, against Seamans & Stevens-owners of the Empire Flouring Mills at Milwaukee. S. H. Seamans, as a member of the Executive Committee, joined in a report to the Millers' Convention at Chicago, to which attention is called in the columns of this paper, giving notice that members who did not purchase or use rolls made or licensed under Downton's Patent, would not be defended by the Association. Mr. Allis, who holds an assignment of Downton's Patent, has now commenced a suit for an injunction, and laying his damages at \$25,-000, because Messrs. Seamans & Stevens are using the Downton Process without having first obtained license from him as assignee of R. L. Downton.

"Bills, we understand, are now being prepared against other members of the Executive Committee and Millers' National Convention who have purchased from Downton or others, and Mr. Allis seems to be determined, in view of the action of the Executive Committee at the late Convention, to make it rather lively for all who propose to ignore his rights as assignee."

THE Milwaukee Middlings Millstone Co. are now preparing plans for a 50-run mill on the South Side in Milwaukee

CHAS. HERMAN, Good Hope, Milwaukee Co., is going to rebuild his mill. Smith Bros. are getting out plans for same.

M'LEAN'S Millers' Text Book and the UNITED STATES MILLER, for one year, for \$1.25. Order now. Send money or postage stamps.

N. LUDINGTON & Co., Escanaba, Mich., are putting in their sawmill a 66-inch Leffel water wheel. Smith Bros. millwrights, are doing

MESSRS. SCHRANDENBACH & Son, of Okauchee, Wis., have purchased a 20-inch middlings mills from the Milwaukee Middlings Millstone Co.

THE term of subscription paid for by many of our subscribers expired with our April number. We hereby call their attention to it, and hope they will soon remit for another year

MR. JAMES M. LYON, of Singapore, India, has been corresponding with the Milwaukee Middlings Millstone Co. in regard to furnishing a mill, and will in all probability close a contract for a complete outfit.

We will send a copy of the MILLERS' TEXT BOOK, by J. M'LEAN, of Glasgow, Scotland, and the UNITED STATES MILLER, for one year, to any address in the United States or Canada, for \$1.25. Price of Text Book alone, 60 cents. Send cash or stamps.

THE UNITED STATES MILLER has the largest circulation of any milling journal published in America, and was the first milling journal started in America entirely independent of connection of interest with some machine or mill-furnishing establishment.

THE Milwaukee Middlings Millstone Co. are receiving a great number of inquiries from Europe, and especially from Germany, in regard to their system of milling, which seems to be attracting the attention of millers all over the world.

#### WISCONSIN MILLERS.

Proceedings of the Sixth Semi-Annual Convention.

Held at the Newhall House, Milwaukee, June 4th, 1879.

The Convention was called to order at 2:30 p. m., by President Sanderson, who remarked that the small attendance was no doubt owing to the very recent session of the National Association at Chicago. But he thought those present could doubtless do as much work and do it as well as though there were more of

As the minutes of the previous meeting had been published they were dispensed with.

The Treasurer read his report, which showed that the receipts during the last six months were \$3,437.80; the disbursements \$2,724.90; the balance on hand, \$717.84; the amount due from the National Association, \$1,700, and the total amount of assets, \$2,417.84. Upon motion of Mr. Schuette, of Manitowoc, the report was accepted and adopted.

The following report was then read by the Secretary:

Mr. President: Since my report in December last, we have only added 161 runs of stone to our membership. On our assessment, levied June 11, '78, there are fully paid up 4031 run of stone, but on the 5th there has been paid only upon 3771 run. Of these delinquent we can reasonably expect payment on 20 run more, the balance will probably drop out for inability to pay. Our last assessment was only \$5 per run to meet an urgent demand of the Executive Committee of the National Association for money to finish off the great Cochrane suit at St. Louis. This would not have been necessary had all the States met their assessments promptly. We are now in advance to the National Association \$1,700. Our assessments for the coming year will not exceed \$10 per run for all purposes, and after this year we can reasonably expect that \$5 per run will be entirely sufficient. And it is hoped, and we have certainly good reasons to expect, that hereafter our expenses for litigation will be comparatively light. The great Cochrane fraud is buried beyond hope of resurrection, and the very favorable arrangements made by the Executive Committee of the National Association has put it within the power of every one who infringes the claims of the Barter, Smith (mechanical and process) and Stoll patents, to get rid of them at a sum only 1-10 of what was originally claimed on any one of these claims, and the great inducement for the committee to entertain a proposition looking to a settlement of all these claims in a lump was the fact that, if they could compromise them at a sum which they (the committee) were willing to offer, it would be for the best interests of the Association to consummate such an arrangement, and by so doing would soon see the end of all litigation, and the law department of our Association might be abolished with all its evils and attendant expenses. As a member of the Executive Committee of the National Association, I would say that the committee were unanimous in the decision after a thorough, and I may say tedious, investigation of the whole case. The committee were all "fighting" men (if I may use this term) and being, by the reason of the recent success, in a position to dictate satisfactory terms, were not inclined to accept only such terms as, in their judgment, were just and equitable, and as a copy of these terms have been sent to every member, he can best judge whether they are satisfactory to himself or not. I would add, however, that while the negotiations were pending, and before a vote was taken in the committee to make or accept any proposition looking to a compromise, your Secretary called a meeting of Wisconsin members attending the convention, including the President, a majority of your Executive Committee, and a number of the members of the Association, when it was resolved to abide by such action as your Secretary deemed best to take, looking toward a settlement of the claims named, and upon the basis mentioned in the confidential circular sent you, and I feel assured that there is not one member of this Association but would decide, could he have gone through this investigation with the committee and had all the facts placed before him, that the committee had acted wisely.

There remains now the "Denchfield suction claims," to be contested, which we are sanguine will be beaten as signally as the Coch-

compromise asked by the owners of this claim (the patent for which has now expired) is more per run of stone than it has cost to fight and beat the Cochrane claims of \$6,000 per run, and to fight and settle all the claims of G. T. Smith, Barter, Stoll and Downton combined, yet there are millers who say they gain nothing by joining an Association,-but their time is coming. Only members of the Association, or who may become such prior to July 15th, can avail themselves of the benefits of the settlement made by the National Millers' Association. After that date they must settle upon such terms as the ring may dictate, and I can give them good assurance that they may expect to help make up "that little sum," which the ring expected to get out of the Association and failed. At the same time I would urge upon the members of the Association to meet the terms in the confidential circular before the time mentioned therein expires, for after that time they may be obliged to make another bargain that will not be nearly as satisfactory. The Executive Committee also accepted a proposition from R. L. Downton for his "process patent," by which the Patent Office has granted him the right, unjustly we think, to the use of rolls upon certain products of new process milling, known as tailings. This proposition does not affect any one until he has established his claim by a decision before the Court. These claims are now in litigation at St. Louis; also in this city between Downton and E. P. Allis & Co., in regard to the validity of an assignment from Downton to Allis & Co. So long as this was a contest between the parties in interest, the millers could look on complacently, and see that the suit was fairly contested, and no compromise effected, by which the rights of the millers might be jeopardised. But Allis & Co., instead of waiting the decision of their suit now before the Court, have forfeited the sympathy of the milling fraternity by launching out and bringing suits against the millers on a claim yet to be established, and which is already being contested. As every case brought in this way has thus far failed, we may reasonably expect this will fail also. There is another patent, recently re-issued

known as the "Barker"-which is intended to cover the use of the graded sieve in combination with the sectional draught in a purifier. As this is a matter of little importance to the successful working of a purifier, it is of little consequence except for bull-dozing purposes.

Our action at the last meeting in regard to the unjust discrimination in the rate of freight on mill-feed, by reason of it being put in a different classification and paying a higher rate, had the desired effect, and it was placed back in some class with wheat and like pro ducts, and pays the same rate of freight.

The most important business before you at this meeting is the adoption of a binding and legal constitution, which shall be uniform with that of other States, and in conformity to that adopted by the National Convention at its late session in Chicago. Respectfully sub-S. H. SEAMANS, Sec'y.

Some discussion followed in relation to the value of the roller patents and Downton's claims, during which Secretary Seamans read a communication from Messrs. E. P. Allis & Co., in reference to the action of the Executive Committee, at Chicago, on that point, and claiming that whatever value there might be to the Downton Patent it was vested in them. President Sanderson remarked that he did not believe the Downton Patent was worth a cent, any way, no matter who owned it, and, as far as he was concerned, he should never pay a cent of royalty or license to any one.

On motion of Mr. Schuette, the communicaof Messrs. E. P. Allis & Co. was received and placed on file.

In answer to Mr. Kimberly, Secretary Seamans stated that the Geo. T. Smith Co. claims, settled for by the Executive Committee, only covered machines using the specified combination of wind blast (or suction), vibrating sieve and brush under the sieve. There were several machines that did not infringe this combination.

The convention then proceeded to consider the new constitution proposed for adoption. This constitution which is identical with that adopted by the Minnesota Association was read by the Secretary, and upon motion of Mr. Schuette was adopted by a unanimous vote.

Mr. Sanderson moved that the formation of the State Associations had been the means of saving the millers of the country millions of dollars. If it had not been for the State and National Associations it would have cost an immense sum to settle the claims already made against them. He trusted the attention and interest rane. When I state to you that the amount of heretofore shown in the State organization

would not flag, but increase. The Association should elect good officers in whom they had confidence, and then assist them by harmonious and united action. He urged the members present to talk the matter of Association up with their neighbors that all might enjoy the great benefits to be derived from it.

On motion of Mr. Sanderson, the thanks of the Association were tendered to the proprietors of the Newhall House for the use of their

The Secretary stated that Theodore Conkey, of Appleton, Vice-President of the Association had, upon retiring from the milling business, tendered his formal resignation.

The resignation was accepted, and Mr. S. R. Willey, of Appleton, was elected to fill the

No further business coming before the convention, on motion the Association adjourned

THE Milwaukee Middlings Millstone Co. have an order for mills from Pesth, Hungary.

Willis' Point, Texas, it having a new process mill in process of erection. The proprietors, Messrs. Cain & Dickard, bought the machinery of Nordyke & Marmon Co., of Indianapolis, Ind.

Hiram Watters, M. E., of Akron, O., is at Mankato, Minn., giving his personal attention to the completion of a twelve-run mill, which is being built by Hulbert & Paige, of Painesville, O., for R. D. Hubbard & Co.

Advertisers will consult their own interests by patronizing the UNITED STATES MILLER, which circulates almost exclusively amongst the flour milling class. It has the largest circulation of any milling paper published in America, and was the first independent milling journal started in the United States not being connected in interest with any patented machine or milling supply

WE hope all who receive sample copies of the United States Miller will favor us with their early subscription. The price-one dollar per year-is a mere trifle, and ensures you a first-class paper containing a great quantity of matter of direct interest to your trade. Do not delay, but send your order now. Enterprising, go-ahead millers cannot afford to be without the current milling literature of the

The following mill furnishing firms use Walker's belt tightener for operating millstone and machinery belts in mills which they fit up: John T. Noye & Sons, Buffalo, N. Y .: Munson Bros., Utica, N. Y.; M. Deal & Co., Bucyrus, Ohio; and C. B. Slater & Co., Blanchester, Ohio. The well established reputation of these firms is a sufficient guarantee for the excellence of any machinery they may adopt, especially when, as in this case, they use the goods of other parties, though they have the choice of other kinds which they can manufacture themselves.

#### IMPORTANT NOTICE.

TO THE PARTY RECEIVING THIS PAPER WHO IS NOT ALREADY A PAID SUBSCRIBER.

We hereby extend to you a cordial invitation to become a subscriber to the UNITED STATES MILLER. We shall endeavor to make it of the greatest possible use and benefit to the milling fraternity, and no mill should be without it. The best talent that we can obtain in this and other countries will contribute to its columns, which will also be enriched by carefully translated articles on subjects of interest to the craft. Subscription price, \$1. Enclose money or stamps in an envelope, seal carefully, and send at our risk. By return mail you will receive a receipt therefor. Address

THE UNITED STATES MILLER, Milwaukee, Wis.

#### Special Business Notices.

Do you need a good Saw Gummer or Saw Tooth Swage? If so write to J. W. Mixter & Co., Templeton Mass. Agents wanted.

NOTICE.—Owing to the death of Mr. Edward Harrison, we take this method of informing you that the business will be continued until further notice, and that all orders will receive prompt attention. Letters should be directed to the "Estate of Edward Harrison," New Haven, Ct.

IMPORTANT NOTICE TO MILLERS.—The Richmond Mill Works and Richmond Mill Furnishing Works are wholly removed to Indianapolis, Ind., with all the former patterns, tools, and machinery, and those of the firm who formerly built up and established the reputation of this house; therefore, to save delay or miscarriage, all letters intended for this concern should be addressed with care to Nordyke & Marmon Co., Indianapolis, Ind.

Special Notice.—We desire to make known to the millers of the United States that we have secured license under the Barker and Sherburne patents, and by purchase, have secured exclusive right to the Palmer & Plamondon patent, and are thus in position to fully guarantee our customers against prosecution in the use of the Garden City Purifier.

je COLLINS & GATHMANN, Chicago, Ill.

#### GENERAL NOTES.

THE Milwaukee Middlings Millstone Co. have sent several mills to Grand Rapids, Mich.,

THE Milwaukee Middlings Millstone Co. have a contract for a 10-run mill at Leavenworth, Kansas.

THE Milwaukee Middlings Millstone Co. are furnishing a complete outfit for a 6-run mill at Washington, Pa.

THE Milwaukee Middlings Millstone Co. have shipped a number of mills to St. Louis during the past month.

THE Schlitz Brewing Co., of Milwaukee, have ordered a 22x48 ft. Reynold's Corliss engine, of Ewd. P. Allis & Co.

MESSRS. C. H. BROWN & Son, of Dakota city, have purchased a 16-inch mill from the Milwaukee Middlings Millstone Co.

MR. JOHN WILLIAMS' mill at Logansville, Wis., furnished by the Milwaukee Middlings Millstone Co., started up last week.

THE Milwaukee Middlings Millstone Co. have contracted to build a 4-run mill for Mr. W. H. Delamater at Baldwin, Mich.

Mr. F. W. Stock's 12-run mill at Hillsdale, Mich., furnished by the Milwaukee Middlings Millstone Co., will start up this week.

EWD. P. ALLIS & Co. have the contract for the new mill at Fronteuar, Minn., being built by Messrs. Hoyt & Seagar, of St. Paul.

CAWKER City, Kansas, is going to have a flour mill, and the Milwaukee Middlings Millstone Co. have the contract to furnish it.

THE Milwaukee Middlings Millstone Co. have sold a 16-inch middlings mill to the John F. Smith Iron Works, at Ironton, Wis.

MESSRS. S. H. BRADLEY & Co., of Mendon, Ill., have purchased a number of mills from the Milwaukee Middlings Millstone Co. during the past month.

THE Milwaukee Middlings Millstone Co. are so crowded with work that their shops are running day and night and the business constantly increasing.

THE Milwaukee Milling Co. are contemplating enlarging their mill to twice its present capacity. The Milwaukee Middlings Millstone Co. will have the contract.

EWD. P. ALLIS & Co., are receiving a great many orders for their wheat granulators, which, with their smooth porcelain rolls, are being put into nearly all the first mills of the Northwest.

EWD. P. ALLIS & Co., of Milwaukee, shipped, on the 26th of last month, 25 of their patent belt movement porcelain roller machines to London, England, and have orders for many more.

The flouring mill of C. Link's Sons, near Paris, Ill., was totally destroyed by an incendiary fire, May 16th. Loss, \$14,000, with no insurance. It is said that the firm intend to rebuild in Paris.

A serious break occurred recently in White & Son's mill dam at Renville, Minn., a piece forty feet long by nine feet deep being washed out. The neighbors turned out and helped repair the damage.

THE works of Ewd. P. Allis & Co. are running day and night, employing over 400 men. They have orders for fifteen of their Corliss engines and over 100 roller machines, besides a large amount of mill work.

The following flour shipments were made from Duluth by vessels clearing last Sunday evening: The Asia, for Sarnia, 2,035 barrels; the Japan, for Buffalo, 4,100 barrels; the Quebec, for Sarnia, 1,000 barrels.

Mr. M. T. Boult, Battle Creek, Mich., has contracted with Messrs. Hulbert & Paige, Painesville, O., for a new process five-run water mill for the Riverside Mill Co., which will be located at Appleton, Wis., during the present season.

Messrs. Colton Bros., of Bellefontaine, O. (one of whom is Secretary of the Ohio Millers' Association), are building a fine four-run new process mill. Their mill furnisher and designer is the Nordyke & Marmon Co., Indianapolis, Ind.

C. A. WHITE & Co., of La Crosse, Wis., have contracted with Edw. P. Allis & Co., of Milwaukee, Wis., for their new gradual reduction mill. This mill will be very complete, and embraces much of the Hungarian system. Allis & Co. made the plan and are to furnish the entire work, including porcelain rolls, a Reynold's improved corliss engine and all the machinery and mill-wright work.

A New Flour, Grain, and Bolting Cloth Inspector.

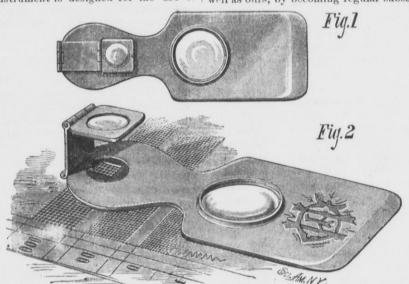
The acompanying engraving represents a convenient little instrument, which the inventor, Mr. H. J. Deal, calls the Board of Trade flour, grain, and bolting cloth inspector. It consists of an ivory spatula, in the center of which is mounted a fine lens of sufficient power to detect anything irregular in the flour or grain. When not in use, the cloth glass, which is hinged to the handle of the spatula, is folded down, as shown in Fig. 1. When it is desired to use it, it is unfolded and brought over the oposite side of the handle, as represented in Fig. 2. The length of the link which supports the glass is equivalent to the focus of the lens, so that no adjustment will be required. The square aperture in the handle below the lens is equivalent to one-sixteenth of a square inch, or one-fourth of an inch on each side. When the handle is placed over the bolting cloth the number of its meshes may be readily counted and its quality inspected.

In using the larger lens, the flour or other substance to be examined is first smoothed with the ivory spatula; the lens is then held at a suitable distance.

The instrument is designed for the use of

missioner under the law to prescribe such a requirement. Acting-Commissioner Doolittle decided that the position taken by the Examiner was correct, and that the patent could not issue until Rule 91 had been complied with, inasmuch as that rule had been made for the express protection of the American public, in order to give them the free use of an invention patented here as soon as the monopoly of the same (previously obtained in a foreign country) had there expired. Upon receiving the decision of the Acting-Commissioner, the applicant appealed to the Secretary of the Interior, who sustained the position taken by the Examiner and Acting-Commissioner, and pointed out both the necessity and justice of Rule 91, in order to protect American citizens, showing that it discriminated in favor of no class of inventors as against another. These three concurrent decisions may be taken as settling this point. American Miller.

This number of the United States Miller is increased in size to 20 pages. Ten thousand copies will be mailed to all sections of the country. Those who receive sample copies will, we think, consult their own interests as well as ours, by becoming regular subscribers.



NEW FLOUR, GRAIN AND BOLTING CLOTH INSPECTOR,

have occasion to inspect grain, flour, or any similar substance.

This invention was lately patented by Mr. Henry J. Deal, who may be addressed at 35 Union Square, New York, or at Bucyrus, O.

A FLOUR mill at Baalzen, Saxony, has been destroyed by an explosion of flour dust.

THE Miller and Baker's Journal is the name of a new paper just issued in Budapest, Hun-

MESSRS. POOLE & HUNT, of Baltimore, have just issued the neatest and handsomest catalogue we have seen this long while.

FOURTEEN wheat cargoes have arrived during the past week, and about twenty-five are due to arrive during the coming week.

EWD. P. ALLIS & Co. report large orders from Cleveland, Baltimore, Richmond, Va., and New York, for their porcelain rolls.

THE demand for American flour abroad is rapidly increasing. This soon will have a decidedly perceptible effect on the business of English and French millers.

"OFF with the old love, and on with the new," says the jolly miller, as he buys a bundle of export flour sacks instead of his accustomed load of barrels, as heretofore.

DECISION IN THE TOUFFLIN PATENT CASE.— The Secretary of the Interior has just given a final decision in the case of the application of Jean B. Toufflin for letters patent for improvement in apparatus for reducing grain, etc. (Toufflin's Disintegrator) filed October 15, 1878. In this application, the Examiner in the Patent Office found that a patent for fifteen years had been granted in France, December 17, 1877, numbered 121,659, and an English patent for fourteen years, Feb. 9, 1878, sealed July 30, 1878, to a person of the same name with applicant, and for the same invention. Thereupon the Examiner required the applicant to comply with Rule 91, which prescribes that an "Applicant whose invention has been patented abroad should state the fact that a foreign patent has actually been obtained, giving its date, and if there be more than one, the date of each." Though this rule seems one with which any reasonable person would be willing to comply with, the applicant refused to do so, denying the power of the Com-

the Board of Trade, millers, and others who | The price, one dollar per year, is nothing compared to the value of such a paper in your

#### The Compromise.

Of course, the most interesting thing accomplished at the late Milling Convention was the compromise of patent suits. As the terms upon which the compromise were made are secret to all save those members of the Association who are pecuniarily interested, it is impossible to state whether they are favorable or not. It is is presumable, however, that they are. There was a long and hot discussion of the compromise question before the Sub-Executive Committee, and it was only after mature deliberation and the advice of Lawyer Harding that the terms were accepted. The action of the Committee has been criticised severely by many millers, but there is no doubt but what they did the best they could under the circumstances.

FOR some reason the Grain Cleaner criticises President Geo. Bain and Jos. Gent of the Committee on Milling at the late convention. He calls the first "frivolous" and the last "impolite." Now this is too bad. These gentlemen ought to go up to Moline and take lessons of the amiable editor of the Grain Cleaner. Perhaps, however, he would have looked at things differently, if it had not been for the shortcake ride." If there was anything mean about Gent, he got rid of it during that never-to-be-forgotten steamboat excursion.

THE millers of Kentucky organized a State Association May 21st. W. N. Potts, of Richmond, was elected President, and L. H. Notnogel, of Lexington, Secretary.

MR. ISAAC D. HALLOCK, JR., of Poughkeepsie, N. Y., proprietor of the "East Mills," is remodeling and repairing his mill for the New Process. It will be the first complete New Process mill in Dutchess Co., and has a firstclass never-failing water power to start with.

MESSRS. COLLINS & GATHMANN now license their machine under the Smith, Stoll and Barker patents. These gentlemen have always had the interests of their patrons at heart, and they have taken such steps as might protect them in the use of the Garden City Purifier under any and all contingencies.

WE have the pleasure to inform our readers that Mr. Adolf Fischer, of Budapest, Hungary, one of the leading authorities on milling subjects in Europe, will favor the UNIPED STATES MILLER with a series of letters. We hope to be able to publish the first of the ser-

Rules of the Milwaukee Chamber of Commerce for the Inspection of Grain.

WHEAT.

SPRING WHEAT.

No. 1 Spring Wheat-Must be sound, well cleaned, weighing not less than fifty-eight pounds to the measured bushel.

Extra No. 1 Spring Wheat-Shall be composed of plump, sound, well cleaned spring wheat, bright in color, and weighing not less than sixty pounds to the measured bushel.

No. 1 Hard Spring Wheat-Shall be composed mostly of the hard varieties of spring wheat, which must be sound, well cleaned, and weigh not less than fifty-eight pounds to the measured bushel. No. 2 Spring Wheat-Must be sound and reason-

ably clean, and weigh not less than fifty-six pounds to the measured bushel.

No. 3 Spring Wheat-Shall comprise all wheat fit for warehousing, weighing not less than fifty-four pounds to the measured bushel.

No. 4 Spring Wheat-To be fit for warehousing, otherwise unfit for the higher grades, weighing not less than fifty-one pounds to the measured bushel.

Rejected-Shall comprise all wheat fit for warehousing, but too low in weight, or otherwise unfit to pass as No. 4.

WINTER WHEAT.

No. 1 White Winter-To be sound, well cleaned, reasonably plump, and composed of the white

No 1 Red Winter-To be sound, well cleaned, reasonably plump, and composed of the red varie-

No. 2 Red Winter-To be sound, reasonably clean, and composed of the red varieties.

No. 1 Winter—To be sound, well cleaned, reasonably plump, and composed of mixed white and red winter.

No. 2 Winter-To be sound, reasonably clean, and composed of white, or mixed white and red winter.

No. 8 Winter-Shall comprise all winter wheat fit for warehousing; weighing not less than fiftyfour pounds to the measured bushel; not sound enough or otherwise unfit for No. 2 of the other

Rejected Winter-Fit for warehousing, but otherwise unfit for No. 3.

Mixed Winter and Spring Wheat-In the case of a mixture of any considerable or material quantity of winter wheat with spring wheat, it shall be called mixed wheat, and graded according to the quality thereof, as provided for in the rule governing the inspection of spring wheat with reference to weight and condition.

Rice Wheat-Will in no case be inspected higher than rejected.

COARSE GRAINS.

CORN.

No. 1 Corn-Must be plump, sound, dry and well cleaned. No. 2 Corn-Must be sound, dry and reasonably

Rejected-All corn fit for warehousing that from

any cause falls below the standard of No. 2.

No. 1 Oats-Shall be white, sound, clean and free from other grain, and reasonably bright.

No. 2 Oats—To be sound and reasonably clean. No. 2 White Oats-Shall be sound, reasonably clean, reasonably free from other grain, and com-

posed mostly of white oats. Rejected Oats-Damp, unsound, dirty, or from any cause unfit for No. 2.

RYE.

No. 1 Rye-To be sound and well cleaned.

No. 2 Rye-To be sound and reasonably clean. Rejected Rye-Unsound, but fit for warehousing.

No. 1 Barley-Shall be of a bright, natural color, plump, sound, well cleaned and free from other

No. 2 Barley-Shall be sound and reasonably plump, reasonably clean, and free from other grain

good malting barley, but may be slightly stained. No. 3. Barley-Shall include all shrunken, discolored, but reasonably sound barley, and fit for malting purposes.

Rejected Barley-Shall include all barley unsound or for any cause unfit for No. 3, but fit for warehousing.

INSPECTION FEES.

The fees for inspecting grain under the foregoing rules, as established by the Chamber of Commerce, are fifteen cents per car-load, and for inspecting cargoes of grain out of the railroad elevators thirty cents per thousand bushels; and out of all other elevators and warehouses, forty cents per thousand bushels.

WHAT CONSTITUTES A CAR-LOAD OF GRAIN.

The following rule of the Milwaukee Chamber of Commerce, now in force, shows what constitutes a car-load of grain:

RULE XVIII. SEC. 1. In all sales of grain by the car-load, it shall be the rule that twenty thousand pounds shall constitute a car-load of wheat, sixteen thousand pounds a car-load of oats, eighteen thousand pounds a car load of corn, eighteen thousand pounds a car-load of rye, and sixteen thousand pounds a car-load of barley, unless otherwise agreed upon by the parties.

SUBSCRIBE for the U.S. MILLER. Only \$1 per year.

### UNITED STATES MILLER.

PUBLISHED MONTHLY. OFFICE, 62 GRAND OPERA HOUSE, MILWAUKEE, WIS. 

#### MILWAUKEE, JUNE, 1879.

THE UNITED STATES MILLER has now commenced its seventh volume, and has become universally acknowledged to be one of the most valuable milling journals in America, both for the purpose of transmitting knowledge on milling and mechanical subjects and as an advertising medium for introducing and selling all kinds of modern milling machinery. It is our aim to meet the wants of our patrons, whether manufacturers or consumers. Our editorial course will be entirely independent, and we shall do our best to give our readers the benefit of the latest important news on subjects pertaining to the objects of this paper. Our circulation and advertising patronage cover all sections of the country. We do not deal in machinery ourselves, and consequently have no "axes to grind." We cordially invite all those who have already patronized us to continue their patronage, and those who have not to try our columns. We append herewith our

ADVERTISING RATES FOR 1879.

	1 mo.	2 mos.	3 mos.	6 mos. 1	year.
One inch card Two Four Four One-half col. (8 inches) One-fourth page One-half page One page	4 00 6 00 10 00 20 00 40 00	12 00 20 00 40 00	16 50 30 00 60 00	30 00 60 001 120 002 200 004	60 00 100 00 200 00

Size of page, 12x18. Length of column, 16 inches. Width of column, 21/2 inches; 4 columns to each page. Business editorial matter per line, 30 cents. If over 50 lines, 25 cents.

Illustrations charged for in proportion to space oc-

Advertising for Millers wishing situations, or millers

wanting to engage employes, 50 cents.

MILL FOR SALE advertisements, \$2 each insertion. We have recently published a List of Names and Post-Office Addresses of the Flour-Mill Owners of the United States and Canadas, which is of great value to those who desire to communicate by circular with American millowners. The price is \$5 per copy, post paid. Cash must accompany the order.

We have also lately published a Saw and Planing Mill Directory of the United States and Canadas. Price, \$5. Subscription price to the UNITED STATES MILLER, \$1

per year. M'Lean's Millers' Text Book, which every miller should have. Price by mail, 60 cents, post paid.

Ropp's Easy Calculator, which every business man should have in his pocket or on his desk. Price by mail,

Our Job Printing Department is one of the finest in the State, and particular attention is paid to all kinds of commercial work, which we can do on the most reasonable terms. Parties desiring to publish catalogues, circulars, etc., should send for estimates.

Address all communications to the UNITED STATES MILLER. 62 Grand Opera House, Milwaukee, Wis.

Col. King, of Minneapolis, estimates the wheat crop of Minnesota for 1879 at 40,000,-000 bushels.

POSTAGE stamps taken in payment of subscription to the UNITED STATES MILLER and the Millers' Text Book. \$1.25 pays for both for one year.

MINNEAPOLIS, St. Louis and Chicago parties are experimenting yet on the bran packing question. Some American inventor will solve the problem yet.

CAWKER don't like the calling of a building 40x50 feet, square. And now, then, Cawker, what would you say in a case of that kind -Abernathey's Grain Cleaner (May.)

Comment is unnecessary. Hold us, some-

On the first day of "ye merrie month of May," our sanctum was cherished by a visit from J. S Karns, Esq., representing the wellknown house of John T. Noye & Sons, Buffalo, N. Y. Mr. Karn reports business opening out lively and predicts a generally prosperous

Ohio, manufacturers of the well known "Eclipse" and "Victor" Turbine Water wheels, have just issued a new and handsome catalogue. This firm is meeting with especially great success in introducing the VICTOR

STILWELL & BIERCE Manufacturing Co., Dayton Ohio, inform us that they have greatly reduced the price of the Eclipse wheel and their Lime Intracting Heater and Filter for 1879, and have issued new catalogues which they will take pleasure in mailing free to all parties who will apply for the same.

MAY 6th we were favored with a call by Mr. John Ernst, representative of the bolting cloth house of Henry Pestalozzi, No. 11 Dey street, New York, They deal in the original "HET ANKER" brands of bolting cloth, which is well known throughout this country for its eveness of mesh, great strength and durability.

JONATHAN MILLS' new gradual reduction machines excited great interest among the millers in Chicago lately, and they will un- (with one exception) and new ones built, so air-blast instead of the brush. Our informa-

doubtedly do their share in the expected complete revolution during the next decade. Mr. Mills has been working hard now for a long time to perfect his machines and feels confident that he has done it.

MR. S. H. SEAMANS, of Milwaukee, was duly elected Secretary and Treasurer of the Millers' National Association, and all business in their behalf should, hereafter, be addressed to him. The Association has secured an able officer, and Milwaukee has reason to feel gratified at the compliment paid to one of her citi-

SINCE the convention, Milwaukee has been visited by a great number of millers and manufacturers. The millers, most of them, visited the new mill of the Milwaukee Milling Co., and were delighted to see the workings of this novelty in milling, which has proved so wonderfully satisfactory. The Milwaukee Middlings Millstone Co. manufacture the grinding mills used, and are crowded with

THE Missouri State Millers' Association met in Chicago during the convention and reorganized their constitution to agree with that adopted by the National Association. The most important change made was that fixing the term of membership at ten years instead of making it terminable, as at present. Officers for the ensuing year were elected as follows: President, E. Goddard, St. Louis; First Vice-President, John Crangle.

THE Cockle Separator Manufacturing Co. of Milwaukee, shipped on the 25th an elegantly finished machine of very large size for exhibition in London at the coming great milling machinery show. The woodwork was of black walnut and the castings were nickel plated. It is a foregone conclusion that it will take the premium, as nothing in the way of a cockle separator has ever given half the satisfaction as those made by this company.

Among the articles on exhibition at the late Millers' Convention which attracted unusual attention was Lehman's Method of Truing Millstones and Lehman's patent Bosom Staff for Millstones. All who investigated it were surprised and pleased, and sales were numerous. None who have tried either, have found any fault, but on the contrary express their warmest approbation. It deserves the attention of all millers. We advise all to investi-

THE steamboat excursion given to the millers at the recent convention was, all in all, a most pleasant affair. "True 'tis, and pity 'tis, 'tis true" that many a jolly miller was obliged to surrender his two-dollar dinner very uncermoniously to the fishes in consequence of the terrible pitching of the boat. The music by the Chicago Quartette Club was excellent, also that by Johnny Hand's band. The Cat Opera, by the Quartette, was thoroughly amusing and drew the remark from an old dusty that he "heard that song 20 years ago on top of the woodshed."

LIKE London, Milwaukee is to have a new building to accommodate its Chamber of Commerce. The plans have not yet been thoroughly settled upon, but will undoubtedly be matured at an early day. Meanwhile the busy dealers transact their business in a commodious building on Broadway, and some extensive deals have already been made in their new quarters. Quite a number of visitors from different 'Change" watching the transactions of our "bulls and bears."

ALL the Milling Journals in the United States were represented at the late Millers' Convention, and most of them seemed to enjoy the occasion hugely. The UNITED STATES MILLER hereby returns thanks to the American Miller people for the many curtesies extended. Mr. Chisholm, especially, seemed everywhere present and doing his best to make things pleasant. The proprietors of the Deutsche Americanische Mueller, and also of the Millers' National Magazine, were attentive to the wants of all. The milling press of Chicago cannot be beaten as hospitable gentlemen.

THE MILLING INTERESTS OF MINNEAPOLIS.-Minneapolis, Minn., now holds the second place of importance in the manufacture of flour in this country, and it is probable that it will soon hold the first. In May, 1878, there were 199 runs of stone in operation, 88 of which were destroyed by the great explosion. Since then the old mills have been rebuilt

that now the mills of Minneapolis have 377 runs of stone or their equivalent. Rollers have been extensively introduced, and to a certain extent have taken the place of millstones. The total value of flour-mill property built during the past year is estimated by the Minneapolis Tribune to be worth \$1,390,-000. The Minneapolitans have every reason to feel pleased with their future prospects.

At the entrance of a restaurant in Pesth, where beautiful young ladies are employed to stand and wait, is posted a notice reading: "Gentlemen are requested to abstain from kissing the waiters on the stairs, as this is a fruitful source of breakage, and impedes the service."—Ex.

That settles it. We are going to Pesth to study up Hungarian milling,-we are going to board at that restaurant-and, by jinks, we'll have those confounded stairs removed.

#### The Becker Brush.

We respectfully call the attention of our readers to the advertisement of the wellknown Becker Brush. This brush has met with the hearty approval of hundreds of millers in all sections of the country during the past two years, and the Eureka Mfg. Co., of Rock Falls, Ill., is kept busy with orders. Write to them for prices, description, circular,

#### Attention, Wisconsin Millers.

WISCONSIN STATE MILLERS' ASSOCIATION, Secretary's Office, MILWAUKEE, May 20th, 1879. - The semi-annual meeting of the above association will be heldat the Newhall House, in this city, Wednesday, June 4, 1879, at 2 o'clock p. m., sharp. This will be a very important meeting, and a full attendance is expected. The principal business will be the adoption of a constitution, the formation of the association upon a legal basis. An opportunity will be offered those not members to join and reap the benefits of the settlements made by the Executive Committee of the National Association.

S. H. SEAMANS, Sec'y.

#### The Minneapolis Millers Beat the Insurance Companies.

The case of ex-Gov. Washburn against the Western Insurance Company, was called for trial in the United States Court, in Cincinnati, April 25th. After a trial of seven days the case went to the jury. They brought in a verdict in ten minutes in favor of the plaintiff for the full amount claimed. This was one of eight cases pending in the same Court involving the same questions of law and of fact. The plaintiff was represented by Sage & Hinkle, and the defendant by T. D. Lincoln, J. F. Follett and others. Lincoln and Follett spoke twelve hours. This litigation grew out of the fire at Minneapolis, May 3d, 1878, which resulted in the mill explosion and loss of life at that point.

#### [A Card.] The Compromise.

No similar period in our history has been so alive and active with improvements relating to flour mills as the eight years just past. The terrible prejudice against so-called new-fangled inventions has been quite overcome and many valuable changes adopted. Middlings purifiers wrought the radical change, and their use necessitated additional new systems of machinery to carry out the new process work. They were built, as is well known, in various ways to accomplish the same result. Three hundred MESSRS. STILWELL & BIERCE, of Dayton, parts of the country may be seen daily "On letters patent were issued on the different devices comprising them, but our predictions of several years since that the simple method so successful at first, viz., a machine having a sieve covered with bolting-cloth, with suction above and something to clean the cloth, would be the universal machine, have been endorsed, and it is conceded that such is the best machine. Our knowledge and experience with purifiers began with their first introduction by the late E. N. Lacroix, who at that time had a mill near ours in the southern part of Minnesota, and as we bought the patents of Lacroix, their validity and the bearing of other patents was naturally of great importance to us. We therefore spent much time and careful attention with their investigation, going through the records and everything appertaining to them at Washing-Several years since, when we were ton. building machines with revolving brushes and were compelled from the best authority we could get to concede that the patent to Geo. T. Smith covering the combination of a suction, sieve and brush was valid, and immediately ceased to build them, adopting the traveling

tion and opinion regarding Smith's patent was freely given and circulated without the solicitation of Smith, but it brought forth venom and prejudice from many deceived and unreliably informed millers, in fact so great was the feeling against us that resolutions were passed by our State Association calling us in league with Smith in same manner as they considered John Webster, of Michigan, who, it will be remembered, was appointed on the committee to investigate Smith's right by the Michigan Association, and who took the same stand we did. Our business reputation was greatly injured by such resolutions and we trust that they will be rescinded. The compromise made at Chicago by the Association which recognized Smith's patent was therefore, as will readily be seen, of the utmost importance to us, and we congratulate the Association and the Smith's Purifier Co. for it, believing that our aid in that dierction will be appreciated from both. Respectfully,

NOTBHOM BROTHERS.

THE Goodyear Rubber Co., of Milwaukee, is a branch of the largest concern of the kind in the world, and all goods are sold in Milwaukee at same prices as at manufactory. Millers and dealers can rely on getting a good article in belts, hose, or any other goods in the line, at lowest rates.

#### A Correction.

ST. LOUIS, May, 1879.—Editor United States Miller-DEAR SIR: The letter and editorial notice in your paper this month, was more an injustice to the millers than to me, creating in their minds a security which is utterly false to the facts. So far as to the case being decided against me, legally, it is false, and I never was so certain of winning as I am to-day-in fact I believe as an expert that it is entirely impossible to beat the patent. The decision of of the Court was as follows viz :-

United States Circuit Court. East District Mo., ss, at
Court April 26th, 1879. R. L. Downton complainant,
vs. Yaeger Milling Co., defendants. In Equity.
The Court not being fully advised in the premises as
to this cause, heretofore submitted, it is ordered that
arrangements therefor be had at the next term of this
Court, to which time the cause is continued. A true
copy. Attest: M. M. PRICE, Clerk,
per A. P. Delby, deputy.

I trust to your spirit of fairness to insert this in your next issue. Yours truly,

R. L. DOWNTON.

MILL MACHINERY manufacturers were present in full force at the last convention and the following list we think, comprises them all. If we have omitted any, we beg pardon:

F. M. Riegel & Co., Dayton, Ohio, Thompson's circular proof staff; Jno. A. Hafner, Pittsburg, Pa., Hafner's model mill; Reel & Seyler, Cedarville, Ill., champion middlings purifier; Thos. McFeely, Union City, Ind., diamond stone dresser; Caldwell & Watson, St. Louis, Mo., Caldwell's patent conveyor; Andrew Hunter, Chicago, Ill., Hunter's middlings purifier; Milwaukee Middlings Millstone Co, Milwaukee, Wis., Jonathan Mills' middlings mill; Geo. Oliver, Rochester, N. Y., United States bran duster; LaCroix Middlings Purifier Co., Indianapolis, Ind., LaCroix purifier; Eureka Manufacturing Co., Rock Falls, Ill., Becker brush; Collins & Gathman, Chicago, Ill., Garden City middlings purifier; A. B. Bowman, St. Louis, Mo., wheat heater; Downton's Middlings Purifier Co., St. Louis, Mo., Downton's rolls; Arthur Cropley, Georgetown, D. C., millstone driver; Three River Manufacturing Co., Three Rivers, Mich., corundum millstone dresser; Gratiot Bros., Platteville, Wis., wheat heater; Dr. Allen, New York City, grain weigher; Peninsula Stone Co., Akron, Ohio, samples of stone; Webster & Co., Chicago, Ill., elevator buckets; Jno. Orff, Fort Wayne, Ind., diamond millstone dresser; Mr. Holt, Chicago, Ill., millstone driver; Brower & Bennett, Fox Lake, Wis., elevator buckets; Arndt & Lawton, DePere, Wis., samples from bran machine; Western Electric Co., Chicago, Ill., magnets and their action on wire and other metallic substances in wheat; J. Kelner, Milwaukee, Wis., millstone driver; Hide, Leather and Belting Co. Indianapolis, Ind., belting; Empire Middlings Purifier Co., Watertown, N. Y., Empire middlings purifier; Jas. H. Weaver & Co., Chica go, Ill., flour sample envelope; Wm. Lehman Milwaukee, Wis., proof staff; Schultz & Co., St. Louis, Mo., patent fuller leather belting; H. J. Deal, Bucyrus, Ohio, wheat heater and steamer; Danford Manufacturing Co., Geneva, Ill., champion bag holder; Barnard & Leas Manufacturing Co., Moline, Ill., grain scourer; M. Deal & Co., Bucyrus, Ohio, California smutter; Cary Cooper, Oskaloosa, Iowa, currier middlings mill; H. & L. Chase, St. Louis, Mo., sacks for export use; Munson Bros., Utica N. Y., portable mill.

#### NATIONAL MILLERS.

Sixth Annual Convention of the Millers' National Association.

Held at Chicago, Ill., May 13th, 14th, and 15th, 1879---Official Report.

#### FIRST DAY-TUESDAY, MAY 12, 11 A. M.

The Convention assembled at the appointed hour, the Appellate Court room being crowded with members of the Association and others interested in the deliberations of that body. Mr. Thos. Heermans, Chairman of the Local Committee, introduced Hon. Carter Harrison, Mayor of Chicago, who greeted the Convention in the following

#### Speech of Welcome:

MR. PRESIDENT AND GENTLEMEN OF THE CON-MR. PRESIDENT AND GENTLEMEN OF THE CON-VENTION: It becomes my pleasing duty to wel-come you to the City of Chicago. We feel a deep interest in the miller and in the millers' produc-tions. Chicago sits supreme in the midst of the greatest grain-field of the world. Surrounding her are six great States, Indiana, Michigan, Illinois, Wisconsin, Minnesota and Iowa. These six States produce one-half of all the wheat grown in the whole land, more than half of all the corn, over one-third of its oats and about one-third of its bar-

Placed thus as she is, with one hand on the reaper, gathering in the grain, and the other upon the tiller of the ship which is to carry it to distant lands, she feels that she should receive the Millers Association with most cordial greeting. She tenders you her heartfelt welcome, and I, as her chief officer, offer you her free hospitalities. I can assure you that you have the best wishes of every one of her citizens.

We feel that the miller is entitled to our highest homage He has ever been one of the first and greatest promoters of civilization. In his earliest days man gathered the wild-grown seeds and acorns, days man gathered the wild-grown seeds and acorns, and ground them upon his own grinders. Then came the hand stone. As the means for pulverizing grain grew in perfection, civilization and progress grew. The plow may be called the first civilizer, but hard upon it followed the mill. Its music was first heard by the gurgling brook. Wat was its motor, and man increased in happiness.

But to-day water has given way to steam, and the mill's music is everywhere heard, and wealth has become fabulous. Steam enables the West to feed a hungry world, and you are its agents. [Great applause ] We welcome you as one of the great civilizers of the world. After all that may be said, it is abundance of food which makes mankind kindly We welcome you as one of the great civ and good. [Applause.] It is generally the hungry man who commits crime. "Defend me from you der hungry Cassius," showed how well Cæsar understood human nature.

You gentlemen have the high duty of driving off You gentlemen have the high duty of driving off hunger. And the faces now looking up into mine convince me that you will do well your part. You will stretch out your hand to the field, and will aid it and America to perform its grand duty. Chicago offers you her aid in sending your handiwork to the uttermost parts of the world. You and she will thus do more to spread our glorious republican institutions than armed armine could need the deared.

thus do more to spread our glorious republican institutions than armed armies could possibly do, and will help to strike down all tyranny. [Applause.]

Again, gentlemen, I welcome you to Chicago, and invite you to partake of all she has that is good, and I assure she has a great deal. [Laughter.] As her chief magistrate and the head of her police, I will try to protect you should any of you fall into trouble. I know, coming from small suburban towns like Cincinnati and St. Louis, you will be apt tee be tempted into some places which may be new to be tempted into some places which may be new to you. [Laughter.] Large cities offer many temptations to such villagers. [Laughter.] I only ask you to be just a little on your guard; should any of you happen to get in the wrong side of the bridewell, I do not think I will do wrong in promising to pardon you out to-morrow morning. Again gentlemen, Chicago tenders you a hearty welcome

Mr. Heermans then introduced Mr. Asa Dow, President of the Chicago Board of Trade, who spoke as follows:

Mr. President and Gentlemen of the National Mill-

ers' Association:
On behalf of the Board of Trade of the City of Chicago, I desire to make you very welcome. We recognize you as the representatives of one of the great commercial interests of this country, and also in all the land's advancements of this remarkable age, has fully kept pace. During your deliberations here we wish you every success, and promise you every aid within our power. In conclusion, gentlemen, I wish to tender you my cordial welcome to our Board of Trade and all the privileges of the

President Bain, in response, thanked the representatives of Chicago for their kindly welcome, and felt especially grateful to the Mayor, who had shown very full appreciation of the milling character. For himself and the Executive Committee, he had no doubt but what they could take care of themselves, but there were rural visitors among them to whom the Mayor's kind offer was very grateful Mr. Bain then presented his annual address.

#### PRESIDENT'S ADDRESS

GENTLEMEN:—In deciding to call the Sixth Annual Convention of the Association in Chicago, I had two objects in view. The first, that it could be the more easily attended by a larger majority of our members than if held in any other city; and, secondly, because it was here that what was termed the third Convention of the Millers' Associated the control of the Millers' sociation was held, at which meeting the plans for the Millers' National Association were perfected, and the organization completed at the First Annual Convention held four months later in St. Louis. In reading over, a few days ago, the proceedings of the Chicago meeting as published in the American Miller, I discovered that while the founders of the Associa-I discovered that while the founders of the Association fully realized what it might grow to in number and influence, they did not dream that a heavy dose of "Patent Sharks" and "Cochrane Rings" would be a necessary adjunct to success, and that without them, while our meetings would always have been very respectable, and at times "jolly" (as becomes a miller,) they would have lucked the zest that a \$36,000,000 law suit must necessarily yield to the participators in it. The Michigan millers were in a large majority at that meeting, as they had been at the other preliminary meetings, and we may

thank them, in a large measure, for our late success; for had they not under many difficulties and discouragements persisted in forming a Millers' Association, it would have been impossible for us when our troubles did come, to have organized in a way to make our victory in the Cochrane suits a sure one. At our convention in Buffalo the exorbitant demand of the American Middlings Purifier Co., their representatives there informing us that nothing less than \$6,000 per run of burrs would satisfy them for the flagrant manner in which we had been infringthe flagrant manner in which we had been infringing the Cochranc patents, and robbing an inventor, whose genius in "hind-sight," as displayed in his reisaue, completely eclipsed the "foresight" specified in his first application for a patent, were looked upon by most of us as a hugh joke. A few weeks later, however, when the United States Circuit Court of Minnesota compelled our friend Christian to enter into a \$250,000 bond, and suits were entered for from \$50,000 to \$100,000 each, and injunctions enter into a \$250,000 bond, and suits were entered for from \$50,000 to \$100,000 each, and injunctions asked against six milling firms in St Louis, and, later on, the virtual upsetting (so far as precedent was concerned) of the Deener, Cissel & Welch judgment by the United States Supreme Court, let in a little ray of sunshine; still, when we met something less than a year ago in Indianapolis, we did not feel as happy as we might have done; if we did, mest of us took a good deal of pains to conceal it I doubt if there was a single miller then present mest of us took a good deal of pains to conceal it I doubt if there was a single miller then present who was not positive of the unjustness of the claims that were being made upon us; yet, knowing that law is an "uncertain quantity" (mathematically speaking,) and that mill machinery, and the science of milling, would be of necessity unknown to Courts and Judges, and difficult of explanation to the inexperienced, very few of us but wished we were well out of it, and many weak-kneed brethren clamored for a compromise. Our Executive Committee, however, lacked neither nerve nor back-bone, and the consequence is that our cause prevailed, and those who were then the most frightened, are now those who were then the most frightened, are now the most jubilant. It is unnecessary for me to tell you of the work done by our attorneys, Messrs. Harding, Cole, Judson and Selden, or of the 1,500 printed pages of testimony taken during the pendency of the suit; or of the dozens of models prepared and operated before the Court; or of the sight days of exhaustive arguments of the two first eight days of exhaustive arguments of the two first named gentlemen; or of the valuable assistance rendered by my friend Mr. Downton; or of the critical verdict of the learned Judges, Mesars. Dillon and Treat, who, in rendering their decision displayed a better knowledge of the science of milling than half of our members possess; or of the pithy manner in which Judge Nelson disposed of the case; nor praise the promptness with which the different milling papers got the information to you—the St. Louis Miller sending out about sixty columns of reports and giving the decision to the trade in full the ports and giving the decision to the trade in full the day following its utterance; for the report of your Executive Committee will, without doubt, refer to all those matters, and I must not anticipate what will be told so much better by them. But of that committee I have a few words to say The Executive Committee I have a few words to say committee I have a few words to say The Executive Committee appointed a sub-committee, consisting of John A. Christian, of Minneapolis; Alex. H. Smith, of St. Louis; S. H. Seamans, of Milwaukee; and J. A. Hinds, of Rochester, to manage the defense of the milling suits, and well and faithfully did they execute their trust. Acting with prudence, firmness and good judgment, sparing neither their time nor their money in furtherance of the duty imposed upon them, they have earned and deserve our lasting gratitude, and I wish they would permit us in gone substantial manner, to show the appression of the appression of the suppression of th us, in some substantial manner, to show the appre-ciation we all feel for the zeal and ability they displayed in behalf of the Millers' National Associa-While many of you have come here to congratu-

While many of you have come here to congratulate and be congratulated on the results of the late suits, and as our New England brethren phrase it, "to have a good time generally," you must not forget that we have some very serious business to transact before we adjourn. The principal subject will necessarily be the matter of reorganization.

During the trial of the suits at St. Louis, the subcommittee already referred to took this matter into

committee already referred to, took this matter into consideration, and the results of their deliberations were embodied in a circular dated February 2d, a copy of which was sent to every member of the National Association. It is unnecessary for me to dilate upon the necessity of our reorganizing this Association on a strictly legal basis. Heretofore it has been simply a matter of expediency with many of our number as to their obligations to the Association and its members, and few of you can have any appreciation of the tro the Executive Committee have been compelled to endure from lack of promptness on the part of certain States and members of their associations, in responding to assessments, and such trouble enhanced by the knowledge of their inability to enforce compliance from such delinquents, who, on the other hand, would have felt terribly abused were the funds not forthcoming to defend any suits that were brought against them. Again, each State has its own constitution and bye-laws and some of them a dual organization, those having purifiers contributing to what is termed a "Defense League," the others simply pay a nominal sum to enable them to retain membership in the State associations, and yet willing and ready to be defended against any suits that might threaten them. This was all very well when members were only being sued on account of purifiers, but now that we are threatened with suits on other patents for devices in mil! machinery, and when it is proposed to incur expenses in other ways, which I will refer to later on, it is right and proper that ALL should bear their proportionate and just share of the burden. Otherwise we cannot expect our institutions to be permanent.

The third recommendation of the Executive Committee, providing that no member be admitted unless on payment of a sum equal to all past assess ments on the old members, is a little too severe in my opinion, especially when the applicant has just built a mill, or purchased an old one, the former owner of which was too stingy to join the Association. When the applicant, however, has been a mill owner during all past trouble, and through fear or other selfish motive desires membership, I would not tavor his admission unless his purse was made to suffer in the same ratio that ours had done. On this subject, however, I do not believe it will be exthis subject, however, I do not believe it will be expedient to make any arbitrary rules, but rather to invest the National Executive Committee with plenary powers to vary the initiation fees, as in their judgment will be just to the new and old members, first requiring that the applicant shall receive the indorsement of the Executive Committee of the State Association he desires to join, and submit a statement of his claims for a reduction of his fees. In this connection I would also suggest that a vote by ballot should be necessary to admit new members to State Associations, or to the National Association, from unorganized States, and that all applications should be submitted to the regular meet-

ings, the applicant meantime paying his fees and assessments, and enjoying the privileges of the Association till such vote was had, and if his application was rejected his money could be refunded him. There ought also to be some provision for the expul-sion of members other than from their non-payment of dues. Although millers as a class will compare favorably with any other class of merchants or manufacturers, yet there are black sheep in every flock, ufacturers, yet there are black sheep in every flock, and there are some men engaged in milling that I don't care about being associated with, either in a business, political or social way. While on the subject of membership, permit me also to make another suggestion. In the primary stage of this organization its membership consisted largely of manufactor is membership consisted largely of manufactors. facturers and dealers in mill machinery, but when the constitution was adopted at the first St. Louis convention they were asked to take a back seat and remain "without the pale." I was somewhat act ive in helping the millers then assembled to reachthis conclusion, and I am now convinced that I made a mistake in doing so, and now favor their admission on some basis that will be satisfactory to them and just to ourselves. Our success is neces-sarily theirs, and many of them during the "late unpleasantness," when some of our own members were backward in furnishing the funds necessary to defend the suit, not only unsolicited put their hands in their pockets, but furnished information to our attorneys materially assisting us in gaining the vic-tory. There are black sheep even among them, though, but I am willing to trust the committee to keep them out.

The fourth proposition, that all voting should be based on the number of runs of burrs represented, is an eminently fair one, and while we have had no trouble in the past in voting, there might something arise by which the minority in interest, by the force of numbers, would be enabled to carry through the Convention some proposition that might work injustice to the larger millers.

The fifth prospsition, to provide a penalty for non-payment of assessments, if adopted and rigidly enforced, as it ought to be, will certainly prevent a repetition of the troubles and annoyances the committee have been afflicted with the past year.

In many instances, members of the committees and officers of the State association were compelled, and officers of the State association were compelled, in order to keep the suits running, by paying for models, traveling expenses, witness and legal fees, etc., to advance large amounts of money. This money has been repaid to them, of course, but if it gets to be understood that your officers are to be required not only to give their time gratis, for the good of the whole body, but will also be required to furnish funds when necessary, you would find it difficult to get gentlemen to serve

Some of our members may object to the sixth recommendation, as I understand the Michigan millers, and many individual millers in other States, compromised with the owners of the Denchfield patents, but I must ask these gentlemen to bear in mind that, while the Denchfield people have not been so exorbitant in their demands as were the the Cochrane party, yet the principle was the same in both cases; and if, from fear of a lawsuit and its attendant costs and annoyances, we should compromise an unjust claim, and thereby invite the thousand and one harpies who are watching the results of these initial proceedings to prey upon us, we deserve to be bled to depletion, and compelled to resign the milling business to men of more nerve. Our attorneys, after a very careful examination, have decided that the claims made under this Denchfield patent are not valid, and with that information it is a duty we owe to ourselves and the public to fight it up to the court of last resort. Even if we could compromise for ten per cent. of what it would cost to defend the suits, I should favor the latter course, because in the end it would be the cheaper one. If the owners of the fraudulent cheaper one. If the owners of the fraudulent patents, and still more fraudulent reissues, find that we cannot be frightened by threats of a lawsuit, they will be chary of commencing one, and the sooner we convince them that such is our determination the better it will be for our purses and our temper.

The justice and utility of the seventh recommendation you will heartily indorse. Although at our first convention we stated that we were in favor of paying liberally for new inventions, although at every convention since we have reiterated the statement then made, and although there is not a piece of patented machinery in our mills that we have not paid from two to five times its first cost for, and for using which we have been sued, or are threatened with suits on, because somebody claims it infringes some obsolete former patent; yet your enemies, assignees by purchase of the fruits of some others' brains, and those whose inventive genius lies wholy in reissuing some dead device to cover some successible and the source of the could be some successions. in reissuing some dead device to cover some successful appliance (a fitting example of which is found in the Cochrane affair), have been trying to convince the public that while we are willing to avail ourselves of anything that will improve the quality of our manufactures, or enhance our "yield," that we are systematically opposed to paying for such improvements Indeed, such an assertion was made in the Scientific American, over the signature of a Washington patent lawver some two years ago, and you ington patent lawyer some two years ago, and you

all know how unjust and how undeserved it was.

Now, gentlemen, you must be aware that nearly
every month new patents are taken out on mili machinery, but it is years before any number of you have those possessing merit brought to your attention. Oftentimes, too, you or the men in your employ alight upon something that, while valuable to you, you either desire to keep the knowledge of to yourselves, or think not of value sufficient to patent, yourselves, or think not of value sufficient to patent, only to find, after the lapse of four or five years, that you have been infringing some patent issued a year or two previous, and the royalty you are then compelled to pay is a thousand-fold what the original machine would have cost, supplemented with which you have the uncomfortable reflection that you, or your employe, must have seen a description of this machine, process or device, and that the in-ventor may be thinking that you all the time intend-ed to steal the fruits of his brainwork.

The patentee also may not be in a position finanto bring his invention favorably and promptly cially to bring his invention ravorably and promptly to the attention of the milling fraternity, and the consequence is that, although his profits are large on each machine, yet the expense of disposing of them eats all these profits up, and by the time his invention commences to be appreciated his patient runs out, leaving him as poor as he was at the beginning. Now, were this association to employ some one well versed in milling and expert in patent law he could not only watch our interests in regard to past patents and reissues, advising us as to whom we owed roynot only watch our interests in regard to past patents and reissues, advising us as to whom we owed royalties for valid patents, and what invalid patents to resist, but he could also bring to our attention such patented machinery as he might deem meritorious, or at least such as in his judgment we could risk testing or experimenting with. If then we found something that was of value, he could arrange to pay for it such a sum as would be a fortune to

the inventor, but would be insignificant to the individual members of such a large organization as this. I dislike to repeat myself, but I made a a suggestion at Buffalo and again at Indianapolis in reference to your Committee on Mill Machinery testing new inventions in milling on the different classes and variations of what was a like in the different sections of the eties of wheat, raised in the different sections of the country, and if this seventh recommendation is adopted, the course suggested will be a feasible one. I know that to many of you this plan will seem Utopian, thinking that it is to your interest to keep the knowledge of such machinery and processes as you have tested and found valuable as secret as possible; but, gentlemen, you are, in my opinion, making a grave mistake, as I know many of us have found in the past three years, and if we will only be open with one another, and exchange ideas and results of experiments, we will not be confined to the United States for a market, and the light profitsthat competition on a limited market of necessity compels us to accept, but we will have a larger part of Europe and South America for our

Already John Bull is growling over the cheapness of American flour, as compared with the raw material, and the mills of England and Scotland have seen more idle days in the past six months than they have done for years before. France, too, is getting alarmed at the cheapness with which American wheat and American flour is being furnished them, and at a convention of agriculturists held at Lille, March 25th, it was acknowledged that cultivation of wheat at prices that have ruled the past year was unprofitable, and the convention recommended that it be discontinued in future, and that the cultivation of tobacco and the sugar beet be substituted for it. Immediately after our Buffalo convention that great authority on milling and markets, the organ of our British brethern, The Miller, rather severely criticised some of the remarks then made, and laughed at the idea suggested of Amercan millers pulling together, and the United States furnishing the consuming world with the manufac-tured article, instead of with the raw product of our fields. It sings a different key now, as listen to this from its issue of April 14:

"The observations made in these columns lately, "The observations made in these columns lately, as to the probable extension of mills in America, and the consequent reduced chances of working profitably our own flour mills, has been transferred to our Paris contemporary, L'Echo Agricole, which applies the conclusion to France, and intimates, we think very justly, that American competition will probably quite as seriously affect the French milling trade as that of England. As a matter of fact the enterprise of American millers has sent commissioners, in recent years to Vienna and other centers ers, in recent years, to Vienna and other centers where the finest European flour is manufactured, and means have been followed to discover all the best methods known, in order that American mills best methods known, in order that American mills may turn out superfine qualities of flour, that shall compete with the best known brands of Hungary, Germany and France. In England, at present, the bulk of the flour is rather more of a household character than of that sort which hotels and pastry cooks demand for the wants of luxurious consumers. At the same time, this season the ordinary American barrel flour also challenges the cheapest sacks of our Eastern Counties millers, and when, as in the past week, the imports amount to a bulk equal to 112,000 sacks of 280 lbs., the general importance of foreign competition can not be over-rated. Several times lately wheat has been close upon a solid advance in price, but all efforts of sell-ers have been neutralized by the heaviness of flour business and consequent discouragement of millers. At the same time our English millers have resolved not to be distanced by foreigners through the want of improved machinery, and if with the present improved methods of manufacture, home made flour shall be undersold by imported sorts, the British miller, like the British farmer, may say the issue results from the greater natural advantages under which wheat is produced abroad, rather than from want of technical skill and enterprise at home."

I claim that this Association has contributed largely to the export of flour, instead of wheat. It brought the millers of every section of the country together. It got them to droping jealousy, not only of individuals, but of cities, States and sections of country, and the information derived from such contact has been of incalculable benefit in forwarding the end for which this Association was organized—the success of American milling. As to the export business, I will refer to that later on, if time permits and your patience is not exhausted.

In the eighth recommendation of the committee

there was no intention to blame or even criticise our present Secretary or Treasurer. Both have been connected with the Association since it was first organized, and both have contributed largely to its success. Our Association, however, has now to the new large but it still can be doubled in to its success. Our Association, however, has now got to be very large, but it still can be doubled in numbers and efficiency by the employment of some gentleman to devote the whole, or at least the larger part of his time to those objects. It can not be expected that the President, or any member of the Executive Committee, can spare sufficient time to attend meetings of State associations, or to visit the principal millers of such States as are not organized nd take steps to form an association. It will also be necessasy under the proposed reorganization to keep in active communication with individual members of the different associations throughout the country, to advise them of the different negotiations, suits, etc., pending, to secure statistics and other information in regard to growing crops, markets, etc., for distribution amongst the members, and a thousand and one other things that need not be specified, but for which you can all understand the

The appointment of a patent attorney, as recommended in the ninth clause, will save millers from many a lawsuit and its attendant costs and annoyances, at what will be to each miller an insign ficant amount, besides the benefits to be derived, as I bave already explained in speaking about section seven. He could also collate and file for future use, information furnished by members, from time to time, regarding patents as they are issued.

Although the recommendations of the Executive Committee and the Constitution for the State and National As-ociations were not drawn up hurriedly or unadvisedly, yet there may be some points in them that can be improved upon, in which case I trust that every gentleman will give the subject the serious attention it deserves, and either through amendments on the floor or by suggestions to the committee assist in making them as nearly perfect

It is intended that this shall hereafter be a close corporation, and what is done at this convention will doubtless govern it for ten years to come. It he-hooves us all to be careful that every necessary point is covered, and that all that is done shall be done for the benefit of the whole of our members.

While on the first of March last our membership only included 3,250 runs of burrs, or less than one twentieth of the number in the United States, ] feel confident that before another year rolls round that number will be very largely increased. Our success in the Cochrane suit has been of immense benefit to us, and wany millers have since joined, paying up past assessments, many of them, I am convinced not from fear of future consequences, but from a desire to bear their share of the burden. A great many, I think, have been afraid to bring themselves prominently to the notice of those who were suing us, and a great many have failed to join us from motives of economy or meanness. They argue that if they should be sued for infringing any patented machine in general use among the fraternity, the National Association would be compelled to defend them, as should a decision be rendered against them in the Supreme Court, such decision could be used, as in the Cochrane case, to procure injunctions against our members. To a certain extent they are right, but hereafter they will be mistaken, as in cases where patents are declared valid our members can readily settle for a comparatively nominal sum, and the patentees will then have funds enough at command to make it warm for outsiders. Even in cases where we believe the patent to be fraudulent, it will only be believe the patent to be fraudulent, it will only be necessary for us to watch the case, see that there is no collusion between the parties, and leave the party sued to bear the whole expense of the de-

Grading and inspection is a subject that I must again urge you to take some action on. I know it has been of immense benefit to the St. Louis market, especially when the flour has been exported. Out of some 300,000 barrels and sacks of flour that have been shipped on through bills of lading from that city to Great Britain and the Continent, I have not heard of a single complaint in regard to grade, buyers there being satisfied to take the certificate of the Board of Flour Inspectors, as to quality, weight and condition. If some such system as that recommended by your committee at Buffalo was adopted, I am confident it would add at least twenty per cent to the amount of flour exported the coming season. Our flour exports the past year, as I think I have already mentioned, have been quite large—the amount shipped on through bills of lading from interior points being at least ten times as great as in any previous year. Freights, both inland and ocean, have been quite low for the past six months, and the railroads seem at last inclined to put the manufactured articles on a par, as to rates, with the raw material, and, at times, even to favor it. The only serious drawback at present on through shipments abroad is in reference to the powers given to the railroads at the seabord, in regard to per cent to the amount of flour exported the coming shipments abroad is in reference to the powers given to the railroads at the seabord, in regard to the shipment thence, regardless of the line or steamship named in the bill of lading. This has consed some trouble on the other side lately, on account of one steamer (the Zanzibar) having been Several other steamers, not belonging to the regular lines, by which the property was to go, have delivered their cargoes in bad order. This trouble has been somewhat overcome by the insertion in the insurance certificates of a clause providing "for all the liberties expressed in the bill of lading;" but even that does not entirely satisfy our customers on the other side, and the American Chamber of Commerce of Liverpool, under date of March 24, desires me to call your attention to the report of a special committee of that body, made March 18th, in reference to this matter, asking us to take some action in regard to it. This document I have referred to the committee of which Mr. Elles is chairman, and they have prepared and will submit a report on the subject. I see no reason why, with cheap fuel and large water power, cheap transportation, late improvements in the processes of milling and first-class machinery in nearly every large mill in the United States, a bushel of wheat should leave this country except in the shape of flour. While our English friends justly ridicule the proposition of one of our Pennsylvania members, who seriously suggested an export duty on wheat, they kindly furnish us a Roland for our Oliver, in British milling isterests, the taxation of American flour, while American wheat should come in duty The improvements in mill machinery have been

greater the past year than ever before; but, in my opinion, we have not begun to do what can be done. and that in the next year or two. I know of a great many large mills projected, the building of which has been deferred till experiments now being made have been fully tested.

In conclusion, gentlemen, let me hope that your deliberations will be as pleasant and profitable as they have been in the past, and that none of you will regret the time spent in attending this sixth Convention.

I must ask your kind indulgence for having occupied so much of your time, but as this is doubt-less the last occasion on which I will address you formally, and as my position as presiding officer will prevent, to a great extent, my taking part in the debates, I took the opportunity or elaborating my views on the subjects that will come before you in this opening address

The Secretary, Mr. Frank Little, then read the following communication from Mr. Charles Randolph, Secretary of the Chicago Board of Trade:

BOARD OF TRADE, SECRETARY'S OFFICE, 1 CHICAGO, May 13, 1879. }
To the Honorable, The President of the Millers' National Association in session at Chicago:

SIR:—I beg to inform you that the resolutions below have been unanimously adopted by the Board of Directors of this Association, and that I am directed to communicate the same to you with the request that you will do the Board the favor to cause them to be made known to the honorable and important assembly over which you are called to preside, to-wit:

WHEREAS, This Board is advised that the Convention of the Millers' National Association will assemble in this city on Tuesday next, May 13, therefore, as a recognition of the commercial importance of that body and the questions it may be called upon to consider, be

Resolved, That the Board of Trade extends to the delegates composing said Convention its hearty welcome to our city, and expresses the hope that the deliberations of the Convention may be productive of great benefit to the special interest involved and to the commercial advantage of the country generally.

Resolved, That the freedom of the exchange rooms of this Board is hereby tendered to the delegates of the above Convention, and that the badge designating parties as such delegates be recognized as sufficient to admit the bearer to the sessions of the Board during their stay in this city.

I am, sir, very respectfully your odedient servant, Chas. Randolph, Sec.

Mr. Little also read a letter from the State Line Steamship Company of New York City, stating that it had been understood that the next annual Con-

vention would probably be held in New York. The Company wishes to extend the Association an invitation to take a boat-ride down the harbor and bay.

Both communications were received and ordered to be placed on file.

The Chair stated that the Committee on Credentials would meet at one of the headquarters of the Illinois Millers, where members of the Association who had paid all assessments would receive badges that would admit them to all the sergions of the Convention. On motion a recess was taken until 2 o'clock.

AFTERNOON N-TUESDAY. Pursuant to the adjournment, the Convention re-

assembled at the hour appointed.

President Bain announced that he would proceed with the business of the Convention under the regular order.

Such Committees as were prepared would submit their reports

Mr. Alex. H. Smith, Chairman of the Committee on Patents, presented the following:

Report of the Committee on Patents.

Your Committee respectfully report that during the past two years the importance of the patent business affecting the milling industry has been signally proved, and the policy of united action in defense against what are honestly deemed to be unjust claims has been amply vindicated. our province to detail the history of the Butitisnot history of the litigation which has so long engaged the attention of the milling public, nor to dwell upon the brilliant success which will be remembered in milling history, but to call your attention to another and even more efficacious means of honorable self-protection which has heretofore necessarily been neglected during the exciting contest which has engrossed all our energies for two years past. Prevention is always better than cure; and while your committee recommend the continuance of the policy of united defense in the courts against patent claims which are deemed fraudulent or invalid, at the same time they take this opportunity to call your attention to the importance of united efforts to secure the amendment of the patent law so that the industries of the country may be relieved from the liabilities to unjust exactions without impairing the just protection due the inventor.

About 15,000 patents are now issued yearly, covering every branch of manufacturing industry. Hardly a process of manufacture can be worked, or a machine or tool of any kind used, which is not covered, or claimed to be covered, by one or more patents. And as the great majority of patents issued are for improvements to unknown processes or devices, the use of one process or device may require licenses from several patentees.

To a certain extent this is a necessary evil inci-dent to any patent system, but defects in the patent law, and loose and oftentimes grossly incompetent administration in the Patent Office, have aggravated these evils an hundred-fold. We might instance numerous illustrations which will come to the minds of many millers.

The milling industry is not the only one which has suffered from this burden, and during the last Congress an earnest effort was made to secure an amendment of the patent law in several particulars, including the following:

First-Fixing a definite time within which suits for infringement must be brought.

It may surprise millers to learn that under existing laws it is very doubtful whether any statute of limitation is applicable to such suits, and that the patentee may demand his profits or damages, no matter how great the lapse of time. Such a matter should not be left open to any doubt, and a clearer case for legislation can hardly be presented.

Second—Regulating the measure of recovery of damages or profits by proper restrictions to a reasonable compensation to the patentee.

This is particularly demanded where infringement,

as by millers almost universally, is innocent, and

not wanton or malicious.

Third-Taxing patents after a certain number of years, so that the owners of valuable and meritorious patents may, as in the case of all other property, contribute to the support of the Government which gives them such protection, and the worthless patents, which constitute the great ma-jority, may be wiped from the records and not remain for the sole purpose of enabling patent sharks to obtain fraudulent reissues to impose upon the

Fourth—Providing further salutary restrictions upon the granting of reissues.

Millers do not need to be informed of the importance of such an amendment.

Fifth-Giving individuals interested the right to institute and prosecute proceedings to annul a patent, on the ground that it was illegally issued, without being compelled to wait for the patentee to sue for infringement.

A bill embodying these and other points was carefully prepared by parties interested in the judicious amendment of the patent laws and by the advice of many of the leading patent lawyers of the country, and after long and careful consideration by the Patent Committees of the Senate and House of Rep. resentatives, it was unanimously reported by both for adoption. So wise and judicious were the amend-ments that they were then indorsed by the then Commissioner of Patents, and after full discussion it was passed by the Senate almost unanimously

ere appears to have been no opposition, except on the part of a few interested in perpetuating the present abuses. But when it came into the House of Representatives the session was far advanced, and, because the railroad interest had been more prominent than the other great industries in advo-cating the reforms of the bill, the foolish cry that a 'lobby' was working for it was raised, and the ses-sion closed without action upon it.

Your committee are not advised whether this or a similar bill will be presented to the Congress now in session, by the parties who were instrumental in presenting the former, but no industry is more in-terested than our own in the judicious amendment and wise administration of the patent law, and your committee is of the opinion that this Association should actively interest itself by hearty co-operation with other industries to this end, by representation before Congressional Committees and by all proper and honorable means.

ALEX. H. SMITH, Chairman, St Louis H. SEAMANS, Milwaukee

A. CHRISTIAN, Minneapolis. D. HAYES, Detroit. A. HINDS, Rochester.

Report adopted.

Mr. Gibson, of Indianapolis, said that he noticed that Senator Davis, of Illinois had tacked on a dangerous amendment to the proposed bill, and that it would well bear watching.

Mr Sparks, of Illinois, said that each man ought to constitute himself a Committee to watch over these patents. A man invented a gravel seive in the days of Meteuselah, and after years had gone by, somebody reissued it, and another reissued it, and by-and-by it blossomed out as a first class middlings purifier. He thought a sweeping amendment was needed whereby the maker or vendor alone should be held responsible for infringements of patents, and that innocent purchasers should be protected. it was the millers were swindled every day, and he for one had got tired of it.

Mr. Bradfield, of Michigan, said that they wanted honest men in the Patent-Office, at least in the Primary Examiners' Department. He instanced a case which came under his own notice, and broadly charged that money was used and put where it would do the most good. He believed that there was something rotten in Denmark.

The Chair said that, while the law now before Congress did not give them all the relief they needed, it yet acted in some measure as a protection against dishonest patents and reissues. He did not agree with Mr. Bradfield that one or two thousand dollars would sometime; go a long way in the Patent-Office, and he thought that the Primary Examiners were overworked, but not dishonest. The bill had failed principally because it was championed by the railroad interest, and the idea got out that the monopolists wanted to defraud the honest inventor.

The report of the Committee on Patents was adopted.

Mr. Fletcher, of Minnesota, moved that the Committee on Patents be requested to draft a petition to Congress embodying the views advanced, and requesting the passage of the bill. The motion pre-

Mr. Baker, of Minnesota, offered a resolution requesting the Presiden of the State Association to prepare a statement embodying the recommendations of the Committee on Patents and to forward one to each Senator and Representative. The resolution was adopted.

Mr. Nicholas Elllis, of Evansville, Ind., presented the report of the Committee on General Reference, to whom was referred a communication as follows: AMERICAN CHAMBER OF COMMERCE, }

LIVERPOOL, March 24, 1879. \{
To the President of the Millers' National Associa-

DEAR SIR: The rapid increase of business be ween the Western and Southwestern States of the United States of America and this port, much of which is done upon through bills of lading, has drawn the attention of the members of this Chamber to the forms of bills of lading now in use and the insecurity thereunder, and while no important losses have as yet come under their notice, they have seriously felt the inconvenience and loss resulting from irregularity and delay in shipments

The forms of bills of lading were referred by this Chamber to a special Committee, whose report is inclosed, and I am instructed to call your attention thereto, hoping that the suggestion therein made can be carried out. In addition, I have to ask whether it is not possible to secure some action by the Congress of the United States, so that no arrest of property shall be permissible in passing from State to State to the seaboard, and thus that an innocen holder of bills of lading may be protected in the possession of the property as represented therein against any claims that might be brought in consequence of the liabilities of shippers. of legal arrest has been notified to this Chamber upon, any bills of lading held by its members, but, as I am informed, the power of arrest exists, and can only be overcome by Congressional legislation.

This Chamber would be pleased if you will give these questions your consideration and favor them

with your opinion upon the points now raised.
Unless greater security can be given to the holders of bills of exchange with shipping documents attached than they now possess, the present confidence might speedily be changed by a single casualty, and a difficulty of negotiation of exchange arise which would be apt to curtail a business which, in its more perfect development, it appears to this Chamber will be of immense advantage to the trade of the United States and United Kingdom.

I am dear, sira, yours faithfully.
[Signed] J. A. M. J. A. MARSH, President.

Report of the Committee on Through Bills

of Lading. American Chamber of Commerce,

Liverpool, March 18, 1879. The Committee appointed by this Chamber to consider the question of through bills of lading for produce from interior points of the United States and thence to the United Kingdom, have examined the clauses upon several bills of lading in general use, and find that very extended powers of shipment at the seaboard are granted to the railroad and transportation companies, which have operated, and might operate still more seriously, to the detriment of both shippers and receivers of produce, and the inconvenience and possible loss resulting therefrom are likely to be much more seriously felt in the future, owing to the introduction into the Atlantic trade of of a great number of steamers in addition to those

better known as the regular lines.

The point upon which the question seems to rest is the clause in nearly every through bill of lading which gives the parties issuing it, or the agent at port of shipment, absolute controll of the shipment of the goods from the seaboard, regardless of the line or steamship named in the bill of lading, and thus possibly increasing the rates of insurance to be paid by consignees, and entailing upon them the responsibility of watching the arrivals of all steamship in order to recover the goods; and collowing responsibility of watching the arrivals of all steam-ships in order to recover the goods; and following this irregularity of shipment is also the irregularity of delivery, which the committee are informed fre-quently extend to several separate deliveries for one small lot, and from different lines as well as steam-

These irregularities are not only inconvenient, but some cases of loss in consequence have been brought to the notice of this committee, and complaints of delay have been substantiated which

possibly arose from the same cause and from want of collective responsibilities, which the through bill of lading is deficient in, this document being signed by the agent of the transportation or railroad com-panies and their connections, "severally and not iointly." jointly.

The committee considered that the only point opened to the Chamber is to draw the attention of the New York and some of the internal Chambers of Commerce of the United States, to the state of things now existing, and to recommend to their consideration the desirability of annulling the clause which gives the carriers power to transfer goods engaged by a particular line of steamers to any other lines or steamers without consideration of the interests of the owners of the goods.

They would also suggest the desirability of two forms of bills of lading, the one by regular lines of and the other an open bill of lading by steamer or steamers, etc., so that the shipper could make his election; and that the railroad and transportation companies should be held responsible for any loss arising in consequence of any deviation from the terms and conditions stated thereon, and for some [Signed] In consequence of any deviation from the terms and conditions stated thereon, and for any unreasonable delay in forwarding goods.

[Signed] JNO. A. MARSH, Chairman.

A. H. LEMONIUS.

WM. B. HALHED.

S. H. BROWN.

Committee of General Reference.

The Committee of General Reference reported as follows:

Your committee to whom was referred above communication from the American Chamber of Commerce Liverpool, and the report of a committee of that body, on through bills of lading, beg leave respectfully to report that they have carefully examined the matter therein complained of, and find there is some cause for the action taken by that body. They find that foreign bills of lading issued at inland points of the United States contain a clause to this effect: "With liberty to ship by any other steamship or steamship company? This we find has worked detrimentally in a few cases lately, as the large amount of goods being exported from this side has drawn here innumerable steamers, many of which are not classed as high at Lloyds as the steamers running in regular lines. The Merchants' Dispatch Transportation Co., which are the largest issuers of such bills of lading, inform us, through their foreign agent in New York, W. H. McIlhanney, Esq., (to whom we are indebted for a great deal of information), that while this clause is put in the bills of lading, yet it is seldom they take put in the bills of lading, yet it is seldom they take advantage of it, and only in cases where the property arrives immediately after the sailing of the steamer of the line by which it is intended to go, and at times when the succeeding steamer, and perhaps one or two more of the line have full carrows then engaged and instead of keeping it or cargoes then engaged, and instead of keeping it on the wharves at New York waiting for an opportunity to ship by a vessel of the specified line, take advantage of the steamer first offering, claiming that thereby they are benefiting the Western shipper by thereby they are benefiting the Western shipper by giving his property prompt dispatch, and also claiming that were they to hold the property until they could ship by the line mentioned in the bill of lading, it would work detrimentally to the interests of the Western shipper, and draw orders to the sea-board cities, instead of buying direct, as the purchaser could then depend on receiving his property within a reasonable time. The argument seems to us a good one, but, as reported by the seems to us a good one, but, as reported by the Liverpool committee, shipping by a boat inferior to the one insured would viute the insurance, unless proper notice was given the insurance company, and even then would cost a higher rate of insurance; but it also entails upon the consignees the necessity of watching the arrivals of all steamers at their ports in order to claim their property. Two remedies appear to us in regard to this matter. One is the insertion in the insurance certificates of the words, "Subject to all the liberties expressed in the bill of lading," in which case the transportation company would require to notify the shipper or the insurance companies of the different shipments he has made; and second, that following the clause referred to in bill of lading, ought to be inserted a clause something to this effect, "But such steamship shall not rate less at Lloyd's than the steamships of the line herein named."

Another matter complained of is the irregularity of delivery. We have ascertained that, as a rule, the transportation companies put a full lot on each boat, but during the past winter, when the roads were blocked with snow, and the property arrived in all sorts of shapes, there was an irregularity which could scarcely be avoided; and, this is a matter wholly belonging to the railroads, and as they will find it to their interest not to split up lots, we may teave that entirely in their own hands.

We think our friends across the water are unnecessarily alarmed in regard to bills of lading being signed by the transportation companies' agent "severally, and not jointly," they evidently believing that the "railroads" from the interior to the seaboard are not responsible collectively, which of course they are, the phrase "severally, and not jointly," refer ring to the steamship company. It has been decided by our Courts in innumerable instances that where several railroads constitute a "line" or transportation company (as, for instance, the Merchants patch Transportation Company), that any line over which the property goes is responsible for loss or damage the same as it carried on their own If a shipment of flour, for example, going by the companies mentioned, from Chicago over the Michigan Southern, Lake Shore and New York Central railroads, reached New York in a damaged condition, the New York Central would, we are confident, promptly settle the damage; but if they did not, they could be legally forced to do it After a thorough inquiry amongst all our members we do not find a single case in which there had been the slightest trouble.

As to the suggestion in the President's letter about the possibility of securing some action by Congress providing for the non-arrest of property in transit, there is no necessity for anything of the kind. The laws, we find on consultation with attorneys versed in railroad matters, are very clear as to bills of lading in the hands of innocent parties holding the property specified therein. We should respectfully suggest that the President and Secretary be authorized and instructed to act on behalf of this Association alone, or in conjunction with other mercantile bodies throughout the country, to confer with transportation companies and procure. about the possibility of securing some action by

to confer with transportation companies and procure, if possible, such action as will satisfy our friends in Great Britain. NICHOLAS ELLES, Chairman.

Mr. Gibson, of Indianapolis, said that he thought the statement that there was no such thing as arrest of property in transitu was a mistake. He had heard that a shipment of tobacco from Evansville, Ind., to Europe, was stopped and caused much trouble. He wanted the matter examined, so that no rash statements should be made.

The Chair said that he was somewhat interested in this subject, since nine-tenths of the flour which he made went abroad. He had made inquiries of railroad lawyers, and their opinion fully coincided with that expressed by the Committee. Innocent purchasers could hold as against any one.

The report of the Committee was adopted.

Mr. Gibson moved that the Chair appoint a committee of three to draft a reply to the Foreign Board, and to prepare a bill for submission to Congress, if it should be found that one was necessary, to cover the points raised. The motion prevailed, and the Chair appointed as such Committee Messrs. Gibson, of Indiana; Dunwoodie and Brown of Minnesota; Smith and Crangle, of St. Louis.

Mr. Pollock, of Vincennes, Ind., said that he believed the railroads discriminated in favor of the raw material as against the manufactured product. He had no motion to make, and simply called up

the subject.

Mr. Gibson said if there was any discrimination it was because wheat came in large blocks, and railroads were glad to make contracts for 100 or 500 cars of wheat in order to keep their rolling stock in use. Millers, on the other hand, could not contract for such large lots. The railroads also claimed that they allowed a discrimination of twenty pounds to the barrel in favor of flour.

Messrs. Wilson and Chapman, of Illinois, agreed with Mr. Pollock, and said they knew of instances in which an actual discrimination existed in favor of wheat. Mr. Bradford held similar views.

Mr. Dewar, of Kansas City, said it could not be expected that railroads would carry flour any cheaper than they would wheat. And it was reasonable also that railroads should grant more favorable terms when large amounts of freight were contracted for. Millers could do the same. They would sell 500 or 1,000 barrels of flour at a cheaper rate than they would five or fifteen barrels. He thought the remedy would be to substitute cotton bags for wooden barrels. The wooden packages amounted to one-tenth of the whole weight, and he thought that the time had come when a great change should be made in packages, and that bags should be substituted for barrels, not only for shipment to Europe, but to consuming points in the East.

The Chair fully agreed. Barrels were almost useless to the receiver, but bags could be put to a variety of purposes. There was a saving on freight amounting to one shilling (25 cents) per bbl. on shipments to Europe in favor of bags.

The subject then dropped.

The Chair called up the question of marks and brands. At the Buffalo Convention this subject had been discussed, but nothing had been done at that time. He understood that a Cincinnati man was preparing a book of brands, and he thought each member of the Association should hand fac-similies of his brands to this gentleman.

Mr. Dewar moved the appointment of a committee of five to prepare a circular to domestic purchasers of flour, asking them to formulate their views in regard to the use of bags instead of barrels. The motion prevailed, and the Chair appointed as such Committee Messrs. Dewar of Kansas City, Atkinson of Kansas, Burbridge of Illinois, Baker of Minnesota, and Pollock of Indiana.

A recess was then taken until 8 p. m.

#### EVENING SESSION-TUESDAY.

At 8:45 the Convention was called to order. Mr. Bain stepped to the front and said he would like to have Mr. Fletcher, of Minnesota, take the chair. Mr Bain's father died at Yorkville, Ills., this afternoon, and the funeral comes off to-morrow, and he had therefore to take leave of the Conventson and would return to-morrow. Meanwhile Mr. L. Fletcher, of Minnesota, would occupy the chair. If you adjourn before I return I desire to thank you for the very kind manner in which you have treated me during the past five years. I trust my successor will be treated as you have treated me. I am very sorry that this should have occurred. Mr. Fletcher took the chair, and in his call for reports of committees, Mr. David Gibson, of Indianapolis, Chairman of the Committee on Mill Machinery, requested that Mr. Stanley, of St. Louis, read the report of the committee which was as follows:

Report of the Committee on Mill Machinery. The Committee on Mill Machinery beg leave to submit the following:

The subject is so vast in its scope and details that The subject is so vast in its scope and details that it will be impracticable to give anything but the merest outlines in a report of this character. While in the last eight or nine years there has been a complete revolution and a wonderful improvement in the manufacture of flour, I believe that as far as cleaning the wheat, grinding and bolting it is concerned, there has been no material change in the general principles and construction of the machinery for performing these operations since the days of ry for performing these operations since the days of Oliver Evans; but many important changes and Oliver Evans; but many important changes and improvements in the details of each and all of

The inventive genius of the country seems to have spent a good deal of its force on this class of machinery, and the result is a large number of apparently perfect machines for this part of the work, separating all kinds of impurities from the wheat by screening, blowing and suction, and as far at this screening, the work appears to be perfect, and as this goes the work appears to be perfect, and nothing better needed than several machines now accomplish. When it comes to scouring the wheat after it has been separated from foreign matter, that appears to be a more difficult problem, and one yet not solved in a satisfactory manner, though there are several machines that come very near doing what is wanted in this direction. Scouring ma-

chines that will completely divest the wheat berry of the furze or fine hairy beards on the small end of the grain, act so harshly on the bran as to chip it and weaken it, and cause it to be ground up into such fine particles that it passes through with the wheat flour with the first bolting, and injures both the strength and color; but if we had machines so perfect as to thoroughly scour the outside of the berry without breaking the bran, then we have the crease or depression lengthwise of the berry, which always contains a large amount of dirty, dark matter, very injurious to the flour, part of which is removed by brushing and the other operations of cleaning, but as far as we know there has not yet been made any cleaning machinery that perfectly meets this difficulty, and the solution will probably come in some other method of treatment, say in what are called ending stones or breaking stones, which at once remove the furze on the end of the berry, also the germ and a part of its covering, all of which are deleterious to flour, or it may be that a new class of machines will be produced for this work. In fact, I am informed that they are now being manufactured and tested with good promise of suc-cess. If gradual reduction can be accomplished in some simple way it will check the present strong tend ency which now exists to adopt the elaborate and complicated Austro-Hungarian system, and solve the difficulty even better than ending-stones. I hope this may be so. As to grinding or granulation, great changes in detail have been adopted, but none in the general principles, as far as we know the in the general principles, as far as we know. It is seems to have been demonstrated that slower speed of burrs, less face, and more furrow, and much less quantity of work in a given time, is the better way The use of rolls for preparing parts of meal, where good and inferior parts of grain are intimately mixed together, for separation, has proved a great success, doing this class of work much better than it has been done with burrs, or in any other way. In fact, rolls have proved so successful for many purposes in granulation that they are rapidly coming into general use, and to some extent super ceding the use of burrs. The great revolution which has taken place in our milling has been made which has taken place in our milling has been made practicable by the introduction of middlings purifiers. Without these very little progress could or would have been made. With their use it has become practicable to make clean, pure, perfect flour out of the middlings that previously were made into an inferior grade, or were sold for animal food. The fact of being able to make much better flour out of middlings than from the first grinding, set all millers to work to find ways and means to turn as large a per cent. as possible of the wheat into mid-dlings. This brought about high grinding, and in hard spring wheat districts an approach to the grad-ual reduction practiced in Hungary, and to some ex-tent in Germany and Russia, and in the winter wheat districts a gradual approach is being made to something like the mouture economique, or economical system of milling practiced now, and for many years past, in France. Both these systems have produced wonderful results in Europe, and have already done so here, and with the additions and modifications which we will give to perfectly adapt them to our circumstances, the results will be much Our improved system of flour making, which has

added at least 10 per cent. to the value of every bushel of wheat grown in our country, and enables us to compete successfully with the French and Hungarians in the markets of the world and with the English and German millers at their own doors, has been brought about by the introduction of middlings purifiers, and our continued progress in this direction will make it necessary that these important machines shall not be controlled by a monopoly, but that millers shall be able to buy of any and all honest inventors and manufacturers. But to come back to the main question of mill machinery; it is not at all difficult to get good machinery for the principal parts of a mill. The difficult part after all, principal parts of a mill. The difficult part after all, is its arrangement and organization and the carrying out of details. To do this requires the owner to have a general knowledge of the business and to know what he wants. A mill constructor who know what he wants. A mill constructor who knows a good deal more than mill owners generally do, and last but not least a competent miller to run the mill, these can all be had, but they are not so very plenty as to be picked up always when you need them, and mistakes in building and running flour mills some of us know are very expensive This leads me to say that we need a new class of skill in manufacturing flour, which I regard as a fine opening for our young men and boys. A combina-tion of practical and scientific knowledge of the art of milling,—the only way I see to get this is for young men to first learn the trade in a mill and then acquire a thorough scientific knowledge of milling and mill building by a course of study in some of our schools of technology; or what may be better, at the millers' college, when established. We have now nany scientific mill constructors and very few scientific millers, while latterly scientific milling has become the most important of the two. CHAIRMAN.

The miller who has devoted his whole time to the daily routine of the necessary details of his own business which it requires, has been unable to follow the successive steps that have led to the gradual improvement that has taken place in the est arranged, and the most successfully and profitably conducted mills in the country, and although the gentlemen owning and operating those advanced mills very kindly throw open their doors for the inspection and gratification of their brother millers (and even going as far as to explain the uses and advantages of the various new machines and improved machinery in operation in their mills) who may desire to also improve their mills and their products, yet it is just a simple impossibility for any of these inquirers after the truth of mills. inquirers after the truth of milling to of these learn anything that will be of much value to them, in making those changes they desire to make, to improve the quality of their flour. They may think improve the quality of their flour. They may think they have caught an idea or two, that they can themselves put into practical operation, and they may determine to adopt it at once; immediately some very much advertised, and some very much improved machines are ordered; some carpenters, and perhaps some millwrights, are engaged, a few and perhaps some millwrights, are engaged, a few weeks are employed in getting ready, and then a stop of a week or more takes place, to get everything adjusted; the mill is again started, but alas! after all this expenditure and loss of time, it is found there is no improvement, and in some cases matters are made worse and have to be put back as before. This experiment may have cost a thousand or \$1500 Another year rolls round; some other change must be made; the same experience follows, as much time lost, as much expenditure, with no better result, and so it goes on from year to year, a great deal of vexation experienced, a great deal of money expended, and entirely fruitless of any real improvement, in the grade or quality of flour manufactured. It would be an easy matter to write an article on improved machinery, but even the most article on improved machinery, but even the most

intelligent miller, desiring to improve his mill, could not take one of these papers and base his designs upon any of them and improve his mill, and give him more satisfaction than it did before. This mat-

ter of old style, and new style milling cannot be compromised, by part one, part another; the change must be radical and thorough.

And the only thing really for the miller to do, who desires to make the change, or in other words, remodel his mill from an old to a new process mil, is to put himself into communication with one who is a thorough practical millwright, and draughts-man, and, if possible, who also combines a practical knowledge of milling, state his wishes to him, and leave the matter in his hands, and he may then rest assured, that whatever is undertaken, will be done as it should be, and the result will be a New Process Mill in every sense of the word, and the avoidance of mistakes, which the mere practical miller of forty years experience could not avoid.

D. E. ROBERTS.

In conclusion, as this subject is so important, this Committee would respectfully offer the following

resolution, to wit: Resolution, to wit:

Resolved, That the Committee on Mill Machinery to be appointed for the ensuing year be instructed to use all efforts to obtain full information concerning any valuable improvements in any branch of Milling Machinery, and report in detail to the next Convention, and that the members of this Convention are earnestly recommended to give this Committee all possible assistance by informing them of the exact result of any successful experiments that may come under their observation.

Respectfully submitted. experiments that may come under their obse Respectfully submitted,

THE COMMITTEE

The report and resolution were adopted.

Mr. J. C. Q. Burbridge, of Alton, Ill., introduced the following resolution.

Whereas, Judge Dyer, of the United States District Court of Milwaukee, has lately decided that the law for the registration of trade marks is unconstitutional, and Whereas, The milling interests of this country demand the passage, by Congress, of more stringent laws for the protection of the Miller's flour brand; therefore, Resolved, That we, the Miller's necessary and Convention, do hereby petition and recommend to Congress the passage of a law compelling every manufacturer to brand every barrel of flour shipped from his mill, the name of the firm, place of manufacture, and the date. Also that said law be so framed as to punish any person or persons that shall scratch from the head of the barrel of flour the name.

Resolved, That a Committee of five be appointed by the President, whose duty it shall be to take charge of this whole question, and frame a law for an early submission to Congress, that will carry out the foregoing resolutions.

Mr. Burbridge spoke at some length in support of

Mr. Burbridge spoke at some length in support of his resolutions. He claimed that under the present system there was no protection for honest millers, and that brands were practically worthless. Congress had power to make the distiller and tobacco manufacturers place their names upon all packages, aud to punish any man who removed the brand, and he believed it had the same power with regard to flour. Eastern buyers dictated to Western producers what brand they should put upon their barrels, and unless they got what they wanted they would not buy the flour.

Mr. N. Elles, of Indiana, thought his friend from Illinois got too much excited over this matter. The Government made the whisky and tobacco men stamp their packages simply in order to trace up the packages for the purpose of collecting the revenue. This did not apply to flour, upon which there was no tax, and he thought there was no occasion to ask for the desired legislation.

Mr. Heermans, of Chicago, agreed entirely with the last speaker, and thought it was not within the province of Congress to force millers to brand their flour any more than to compel cloth makers or cotton-spinners to mark their goods.

Mr. F. Schumacher, of Akron, O., thought the gentleman was mistaken as to the effect of Judge Dyer's decision, and reminded him that the common law protected trade-marks as heretofore.

Mr. Homer Baldwin, of Youngstown, O., thought it did not matter near so much what they put outside the barrel as what they put inside.

Mr. Sparks, of Alton, Ill, said that he had a brand, a simple letter, for which he would not take

Mr. Burbridge briefly replied, claiming that the remarks of those who had opposed his resolution only convinced him that they were offered at an opportune moment, and should be adopted by the Association.

On motion of Mr. Heermans, the resolution was laid on the table. The Convention then adjourned until 10 o'clock Wednesday morning.

#### SECOND DAY-WEDNESDAY, 10 A. M.

In accordance with Tuesday's arrangements Mr. Ed. Sanderson, of Milwaukee, was to preside over the meeting. Therefore, at 10:15 Mr. Fletcher introduced Mr. Sanderson, who said:

"Gentlemen of the Convention, at the request of Mr. Bains, your President, I consented to call this meeting to order this morning and if possible to preside over the matters that might come before it. but I find that I have some business that I cannot neglect this morning, and Mr. Fletcher has kindly consented to take my place."

Mr. Fletcher called the Convention to order. The first order of business was the report of standing committees

Mr. W. P. Brown, of Minnesota, Chairman of committee, read the following report on grain for

Report of Committee on Grain for Milling.

Your Committee on Grain for Milling would respectfully report that we have carefully the subject and find that it embraces a wide field for argument. So varied are the opinions expressed on the subject by millers in different parts of the country, that the report should be made of opinions of millers from different localities or States, as what is regarded favorable in one locality is not regarded in others. For your committee to recommend any is regarded favorable in one locality is not regarded in others. For your committee to recommend any one variety in preference to all others might seem egotistical, and we can only recommend several as among the best or most desirable for milling; trusting the importance of the subject will induce a thorough discussion by the Convention, believing such discussion will furnish more information than

any report we may make. We deem it of the greatest importance to millers everywhere to do all in their power to furnish the farmers in their locality with the best seed wheat, thus enabling them not only to change their seed, but to introduce the most desirable varieties, and to furnish it to them at as low a price as location and circumstances will permit. And we feel certain if such a course is pursued, in two or three years the improvement in quality and kind will astonish the most sanguine. We are of the opinion that, as a rule, millers do not pay as much attention to the kirds of wheat they buy to manufacture as they ought, and if they would use more caution in buying, rejecting that which damages their flour, and discrimination in price, induce the farmer to raise only the desirable varieties, the importance of using only the best kinds for flouring would be more fully realized, and each miller would bestir himself to aid and induce the farmer to procure good seed, and that, too, at as low a price as it can be pro-cured. One hindrance to this object is the shipper, cured. as he will buy anything that will pass grade, and if a farmer finds he can raise a few more bushels of a poor variety, he is apt to sow that, as he thinks it will bring him more money than to raise a desirable kind. But if millers will persist in not using the poorer qualities, they will effect such a change as will be most desirable.

W. P. Brown, Chairman.

In naming varieties most suitable for milling would suggest in winter wheat the red-bearded wheat, viz: Lancaster or Red Sea, Mediterranean, amber, straw, &c. Mr. James Gordon of Sparia, Ill., says the red-bearded wheats are the best; the white varieties they do not want, as the flour from the latter is soft, weak and yellow. He gives his preference to the Lancaster or Red Sea. Having taken a good deal of pains to introduce new varieties of seed wheat into his locality, he finds the Lancaster the best. He thinks the yield of flour is not quite so great, but the flour is stronger and whiter, and better wired to the bekend the second to the calculation. and better suited to the bakers' trade. Mr. Gordon reports it as his opinion that the soil and climate of Southern Illinois is favorable to that wheat as it makes a better flour when ground there than it does procured from other States. Millers should keep experimenting with the different vatieties, thus as certaining which is best suited to his locality, when the most desirable variety is found, make it an inducement to the farmer to raise that over any other kind. Mr. Gordon is experimenting with "hard Scotch fife," from Minnesota, as a winter wheat, and has his second crop now growing; it looks well and he thinks it will do well, also with a Canada wheat said to be midge proof, and we may hope to hear the results of his efforts at our next meeting. In the spring varieties the fife wheat is the most desirable, although "Canada club" and Lowland Scotch have good reputations. Bearded and soft varieties of spring wheat have no reputation, and millers of spring wheat do not want them. Much more could be said on this subject, but it would be only the opinion of two or three, and we earnestly hope a thorough discussion of the subject by this Association will give us the benefit of the opinion of many. Respectfully, W. P. Brown, JAMES GORDON, many. Respectfully,

Mr. Nicholas Elles, of Indiana, said that in the last year, or since this question of the proper kind of wheat had come up, they had taken a great deal of pains in introducing different kinds of wheat seed suitable to their climate and country, and best adapted to the manufacture of flour. He thought if every miller would go to a little trouble that in three year's time they would have all Mediterranean wheat in their part of the country, as that was considered the best wheat for flour. They had a great deal of Fultz wheat, and they found that it makes nice wheat flour, and have been successful in getting large yields. He urges millers to make it a business to endeavor to introduce good seeds, and thought they would not have any trouble in getting what they wanted.

Committee on Grain for Milling.

Mr. Williams, of Minnesota, suggested that the millers should urge farmers to make the change gradually.

Mr. Sparks, of Illinois, said they had their ups and downs in his vicinity. They had lately introduced Fultz wheat. He said it was very deceptive, very beautiful to look upon, and every farmer was pleased with the yield he got, but after a trial the millers had been convinced it was not the wheat they wanted. The middlings are too yellow and the patent flour would hardly pass as nice flour. He approved of advising farmers to sow seed wheat of every variety.

Mr. Baker, of Minnesota, asked if they had ever tried Theiss wheat from which the celebrated Hungarian flour is made. He was on a visit to the Old Country recently, and to his mind the flour from said wheat is superior to any produced in this country. The quotations on Hungarian flour range in excess of our Patent Flour in the Liverpool markets It takes its name from the River Theiss. It is of a dark amber color. He was perfectly ignorant of the value of winter wheat, not being a winter wheat miller, and, further, having the good fortune not to be early educated as a miller. [Laughter.] He brought some of this Hungarian wheat home with him, and if it succeeds in standing the climate of Minnesota he would be pleased to report at some future time to the milling fraternity. The climate where it is grown in Hungary is very similar to Wisconsin, Iowa, and possibly Southern Minnesota.

Mr. Gordon, of Illinois, looked upon the matter as very interesting. If the miller does not get good wheat he cannot expect to make good flour. He thought the millers should encourage farmers to raise various kinds of wheat. The farmers in his part of the country were willing to try new wheat. In 1875 he renewed the old Lancaster wheat. The Lancaster and Mediterranean, he said, were two different kinds of wheat. He imported the same year Mediterranean wheat from Delaware. They named it Red Sea wheat in his county on account of its color. The same year he imported a wheat from Ohio, from his friend, Taylor, of Londonville, who calls it amber. It is a kind of wheat similar

to Lancaster and makes excellent flour. He was also experimenting in Scotch Fife wheat. It is considered the best wheat for making flour they

Mr. Colton, of Ohio, said that in his vicinity they could not induce farmers to raise the kind of wheat they (the millers) wanted. They wanted to raise wheat they could make the most profit on.

Mr. Atkinson, of Kansas, said the Fultz wheat had taken precedence of all wheat in his State for the present. It sells well and yields well, and no wheat in the market sells higher at the present time. He is a farmer as well as a miler, and he had been experimenting with Fultz wheat this year. He has sown some this year. It is a very good wheat. The May and Walker wheat stands well with them. In their State they sow largelyfrom one to a thousand acres. They have to sow varieties that they can harvest one after the other They find the Walker, May and Fultz work well, and the Clawson comes a little late.

Mr. Bradfield, of Michigan, wanted a wheat for Michigan that could be a substitute for the Clawson. He said Clawson was the poorest wheat raised in Michigan. The Clawson wheat will yield from 30 to 50 bushels to the acre, while Mediterranean and other varieties would yield about half as much. The millers want to throw Clawson wheat to one side in Michigan, in favor of some variety more suitable for milling.

Mr. Edmund Norton, of Chicago, Chairman of the Committee on Grading and Inspection, stated that the committee had made no report as a body, and that therefore the following contained his own views, only. He then read the following:

#### Grading and Inspection.

The question of the inspection and grading of wheat in our large markets is one which greatly affects all of the country tributary to those markets either as shippers or purchasers, the inspection standing between the producer and the consumer, and establishing a fair comparative value of the grain so inspected. The present system of inspection is the basis upon which the whole production of the country is sold, and the only system adequate to the immense crops that have each year to be handled; and it is of the utmost immension to be the reader. dled; and it is of the utmost importance that grades should be adopted so as to express as nearly as possible the quality of wheat so graded. In this respect the inspection of the Chicago and Milwaukee markets does not meet the requirements of millers dependent upon these markets for supply. Each grade is made to embrace too great a latitude in quality, and embraces wheat varying largely in intrinsic value, so that the designating grade does not enable the miller to judge either as to the quality or variety of the wheat purchased. The present crop, varying largely in quality and price, has stimulated a business very prejudicial to the interests of millers, and apparently of no benefit to any one except to those engaged in it. In reference to the practice of mixing and scouring wheat: So general has this practice become that very little wheat below the grade of No. 2 reaches this market that has not paid tribute to the scalper, and, should the shipper by chance send any wheat that has not been graded down to the very lowest point that the grade for which it is designed will allow, there are plenty of doctor-shops, both here and in Milwaukee, with plenty of screenings on hand to put it up in good shape to go into store, to be delivered to the innocent holder of the receipts, who might naturally ex pect to get a fair average of the grade for which he

The patent leeches who prey upon the milling industry are no worse than the scalpers who prey upon the quality of the wheat which ultimately comes to the miller to grind. They are worse than the speculator, who, though frequently creating a fictitious value, do no injury to the wheat in which they trade; but the scalpers aided by a system of inspection requiring only a weight test on the lower grades, is enabled by mixing and scouring to obtain this weight and grade, although actually depreciating the value of the wheat for milling purposes; for hardly need suggest to you that wheat badly scoured is worse than if not scoured at all. It breaks the fibre of the bran and puts a fictitious appearance on the face of wheat that has not the real merit to carry its good looks. There are sea-mon of the year when the error is proving freely that the scalesce. when the crop is moving freely, that the scalpers have more wheat than they can handle, and a portion of it reaches our market undefiled by the scalp er's touch, and for a time we are able to obtain wheat in its original purity. What does not find a ready sale by sample goes into store to be mixed later in the season with wheat which, although called by the same grade, is very much inferior in value. A large portion of the wheat raised last year in the Northwest, especially Southern Minnesota and Northern Iowa, was rejected beyond redemption, the same causes affecting all of it in about the same degree, and no system of screening out a portion of and scouring the balance anything to its quality for milling. I cannot better illustrate the extent to which this practice obtains, or its evils, than by reading the following letter to Mr. John A. Christian:

Office of H. Williams & Co., Merchant Millers,
HOUSTON, Minn, April 28.

JOHN A. CHRISTIAN, Esq., Minneapolis—L. Sir-Allow me to call your attention to a matter which is affecting the interests of millers in this part of the State almost to the extent of shutting their mills down. I refer to the process of scouring the wheat, so that, subjected to a weight test only, it is made to appear from one to two grades higher than it really is. It would hardly seem probable that a trick so transparent could go far unless Boards of Trade exist for the purpose of promoting speculation rather than legitimate business. But the facts seem to conflict with the probabilities, for although this business has been going on in this part of the State since early in January, and has for some time been general in Southern Minnesota, Northern Iowa, and Wisconsin, I have not been able to learn that any official notice has been taken of it either in Milwankee or Chicago. Of course, scoured and unscoured wheat cannot for any great length of time move in the markets subject to the same rule of inspection. The Southern Minnesota millers are asked six cents a bushel premium for unscoured wheat, as it is worth that to ship, showing that, although the Milwaukee grades, as established at the beginning of the movement of the crop, were based on unscoured wheat, the basis of inspection it now scoured wheat. If this state of things has nos

reached New York yet, wheat-dealers evidently expect that it will, for I learn that a firm recently paid Milwaukee price for 45,000 bushels on the river, expecting to make the freights to Lake Michigan by doctoring in the Green Bay elevator.

It is reported that the Milwaukee elevators now have machinery for doctoring, and that private warehouses have been fitted up with such machinefixed up, brought back, and resold at a profit. It also learn that farmers have learned the sharp practice, and have purchased scourers and are using their threshing-machine horse powers to drive them with. So the matter seems to stand at present, and terms as applied to grades have but little meaning as no distinction is made between scoured and un scoured wheat, although, other things being equal. the difference in value would be from four to ten cents a bushel. I do not know if the nuisance has reached you, but it will be a wonder if you do not have to buy wheat against competitors who make

No doubt it is much easier to point out the abuse than to suggest a remedy. Still, I think if millers can be thoroughly posted, and buy their wheat with a full understanding of what has been done to it, and of the relative value of wheat in the two conditions, subject to the same test, that prices will in time adjust themselves to the new conditions.

I fear, however, that millers may not get sufficiently posted on this crop, unless the whole matter shall be well aired at the National Convention, where there will be representative millers from all parts of the country. The millers hereabouts think parts of the country. the National Convention can do much towards bringing about a wide-spread discrimination against scoured wheat. I will not weary you with a consideration of objections to scouring wheat before it is to be milled, or to scouring it on wrong principles, or by wrong methods, matters of great importance

to be considered in the proper place.

I should be pleased to hear from you with reference to this matter, and would be glad to learn that you will have it brought before the National Convention. Yours truly, H. WILLIAMS.

In regard to winter wheat, it seems proper that wheat raised in points far remote from each other, and varying largely in value for specific purposes should have a different designating grade, and that wheat from Missouri, Kansas and Wisconsin meeting in this market should not be classed under one general grade of No. 1, 2, or 3 winter wheat, thus discriminating against the better varieties in favor of the poorer. As expressing the above views, I offer the following resolutions:

offer the following resolutions:

Resolved, That the Millers' National Association in convention assembled hereby represent to the Boards of Trade in the Northwest that the present system of inspecting wheat is stimulating and protecting the practice of mixing and scouring wheat, thereby reducing the quality to the minimum point allowed by the rules governing each grade; that such scouring and mixing tend to injure the wheat so manipulated for milling purposes; and that we urke upon them the necessity of taking such action as will remedy this evil.

Resolved, That it is the sense of this Association that the system of inspection by test weights should be discontinued on all grades below No. 2, and that a system based upon its value for milling purposes be substituted and that all wheat that has been scoured should be reduced thereby one grade.

Mr. Metzl, of Milwaukee, called up a resolution

Mr. Metzl, of Milwaukee, called up a resolution which he had handed in as follows:

When he had handed in as follows:

When was, Most of the wheat shipped to the markets of Minnesota, Wisconsin, and Iowa undergoes the process of "scouring," so as to increase the weight and secure the inspection of No. 2 for a grade of wheat which otherwise would be graded No. 3, and even rejected, and by the process of scouring, the shipper is enabled to mix a certain amount of screenings into the wheat and still make the latter hold the requisite weight, and as said process is a serious grievance to millers who are obliged to buy their supplies from elevators, therefore be it

be it

Resolved, That this Convention pass a resolution
urging the respective Boards of Trade to establish a
separate grade of all "scoured wheat," and cause the
respective elevators and warehouses to issue special
receipts for such scoured wheat, which receipts should
not be considered "regular" on delivery of wheat, except
when so specified at the time of sale.

The report of the Committee and the resolution of Mr. Metzl were then adopted.

Secretary Little read the following letter from Mr Frank Chamberlain, Chairman of the Committee on Millers' School or College :

ALBANY, N. Y., April 26, 1879. FRANK LITTLE, Esq., Secretary Millers' National Association, Kalamazoo, Mich-My Dear Sir:-I am in receipt of your communication of the 15th, certifyinging to my appointment as Chairman of the Standing Committee No. 10, and notifying me that the next annual convention of the N. M. A. will be in Chicago, May 13, 1879.

I desire to express to you, and through you also and especially to President Bain, my warmest thanks for so many unvarying acts of kindness.

I regret that, judging from present indications. I shall be able neither to attend the meeting referred to, nor to make a report setting forth a well-matured and defined plan, telling where, how and best can be reallized the Millers' School or College. I have thought, talked, and with parties abroad as well as in this country, corresponded much upon the sub ject, and the project seemed to meet with very general favor. It is my deep and earnest conviction that this institution should be established in the West, in connection with some university or college, where its students may learn practical milling, and at its highest estate at the time. I am assured that there are several institutions of learning with which favorable arrangements can be made, provided a certain number of students can be secured, and near where are some of the best mills in this country. Untoward circumstances prevented me from doing what perhaps I otherwise would have done.

Respectfully yours, FRANK CHAMBERLAIN.

The Committee on Milling and Improved Methods was called on by the Chairman to report, but by request, further time was granted.

Mr. Burbridge, of Illinois, asked that the resolution regarding the branding of flour, that was voted to be laid on the table the night previous, be again brought before the Convention. A vote was taken which decided that they should not take it up.

Mr. C. H. Seybt, of Illinois, Chairman of Committee, read the report of Committee on State Organizations.

Report of Committee on State Organizations.

Upon a careful survey of the milling industry of this country, one fact will strike the observer forcibly—that is, the utter lack of sectional laterests. In the milling business there are no State boundaries—no Mason and Dixon's line to separate hostile factions—no mountain ranges, water-courses or climatic changes divide the milling fraternity into warlike tribes, whose self-interest and self-preserva-

tion demand jealous warfare against each other. The milling industry of this whole country presents perfectly homogerous elements; our interests are identical East or West of the Mississippi river, in the winter or spring wheat country, whether our mills are driven by steam or water-power. The misfortune befalling one section of the country make the influence felt in other parts; the progress and advancement of one region eventually rebound to the common good. Aside from the healthy and perfectly legitimate competition and rivalry between the different milling centers, there is no more dis-sention and discord than on board of some ocean steamer, where there are thousands of bags of patent spring wheat flour ranged alongside the rows of St. Louis fancy and Michigan white extras, peacefully sailing along for European ports, on whose piers they will meet their kindred from California and Oregon. We even cross the equator in perfect harmony. This world is large enough for perfect harmony. This world is large enough for us all—at least for the present milling generation. We really have no conflicting interests; they are identical, and so are our adversities. Nature chas-

tises us with drought or flood, with bugs, worms, rust, smut, weeds, and all the numerous ailments which wheat is heir to; while railroad pools, freight discriminations, patent re-issues, infringement suits, grain inspections, elevator iniquities and similar plagues, afflict us on the Pacific shore, on the broad Western prairies and on the Atlantic slope.

Can any one estimate how much the millers of this country by judicious co-operation will accom-plish in advancing their interests and in ridding their business of the drawbacks, vexations and im-positions now heaped upon it? Your very presence here demonstrates that our Association, though we hardly as yet have become acquainted with each has already accomplished much good, and that you are convinced much greater results may

yet be obtained
We acknowledge, without a dissenting voice, that a thorough organization of all the millers all over the country is not only desirable, it has become necessary, and is perfectly practicable. There may be differences of opinion in regard to the mode of organization and to the extent of it; however, as the sole object of the Association can only be the common good, to the utter exclusion of all personal aggrandizement, this probable difference should readily be adjusted. We must have a thorough organization extending to all sections of the country; it must be of uniform character, tempered slightly only by the important by the immaterial local influences; our State and Territorial forces, no matter how scattered, must find a ready point of concentration in the Executive Committee of the National Association. This can only be accomplished by a certain degree of disci-pline, by certain binding rules and regulations, which should be exactly alike in all the different States and local organizations. Individual independence, the personal free will, so dear to every one, is thereby not endangered, the obligations which this Association demands of you are no more than what your sense of honor and fairness will dictate

Some of the States like Minnesota and Missouri, have reorganized and remodeled their constitution in conformity to the demands of the present time. Other States will soon follow, and we consider it of the utmost importance to have uniformity of State laws, at least on all matters bearing on the rela-ti ns to the National Association. The main points are the length of time to which each member has to bind himself and the conditions of the withdrawal, the maximum amount of assessments per year, the amount of damages a member will have to pay if he sees fit to compromise a suit for infringement of patent, which the association is defending for him, and the general power intrusted to the executive committee. After a thorough, painstaking consideration of the subject, we do heartily recommend all the different States to adopt the constitution of Minnesota and Missouri verbatim et literatim, and we do hope with the same spirit of enthusiam and devotion these two States have so gloriously evinced in times which tried the millers' souls. Nothing short of such a legal basis will endow the association with the requisite cohesiveness. ing less will convince those birds of prey, who are now circling over our heads ready for a swoop, that we are no booty for their talons, and that they content themselves with those silly birds who are straying outside of our inclosure.

In reorganizing your State association select for your presiding officers and for members of the executive committee your very best men, whose names are untarnished, who will be true to themselves and to you, whose life experience has given them ripe judgment, and who have yet retained sufficient physical force to fulfill the duties of their office promptly and thoroughly. Your Secretary must be a worker; not a mechanical scribe, but a man who puts soul into his work—an enthusiast, if you are minded to call him such. Your Secretary must consider it his mission to advance the interests of his brother millers, and he must pursue his work with apostolic faith and zeal. If you elect such a man for that office, he will do more toward developing the full strength of your association than any other agency; he will infuse public spirit into the most recluse and selfish; he will harmonize local jealousies; he will disarm distrust; he will brighten up the most dusty miller. In one word, your success as a local organization depends largely on the selection you make for your Secretary.

The National Association is the edifice, of which

the State Associations form the component parts. If your State Associations are healthy and strong, the National Association will be a fortress, impregnable to all attacks; if your local organizations are weak and sickly, the National Association will be founded on sand, an easy prey to dry rot or to the machinations of schemers, "consolidated" or otherwise.

C. H. SEYBT, Chairman.

The Chairman asked if anybody wished to discuss any of the points. There being no answer, the report was put to the vote and carried unanimously.

Mr. Brown, of Minnesota, moved that the Convention adjourn till 9 o'clock to-morrow morning.

#### Sailing o'er the Lake.

[At two o'clock the corridors of the Grand Pacific Hotel were crowded with members of the Association bent upon enjoying the excursion, notwithstanding the inclement weather. Mr. Edmund Norton, of the Reception Committee, mounted a chair in the rotunda and notified the expectant crowd that carriages were at the door to convey them to the Goodrich dock. Nine of Parmelee's omnibuses conveyed all who desired to make the trip, to the dock, where the steamer Alpena, of the Goodrich line, was in readiness to receive them. There were many grave doubts expressed as to the state of the water outside, a rumor having gained credence that the breakers were rolling pretty strong. Notwithstanding the squally Northeast wind, there were no cases of literal back-out, the excursionists had evidently determined to go. After some delay, occasioned by incoming vessels, making it impossible for the steamer to get through the straight cut and out of the harbor, all hands were piped aboard, and, to the music of Johnny Hand's band, the Alpena struck out boldly for deep water. There was quite a sea on, and expectation was rife as to possible sad consequences of the rollling and pitching of the vessel. No extreme cases were noticed until the cribwas reached, when the few ladies in attendance were suddenly stricken with a desire to be on terra firma, or some equally convenient place where their sorrows might not be witnessed by a heartless and unfeeling audience. The captain exhibited excellent judgement by returning to port so soon, as it was evident that not a few musty millers were at the point of imitating the action of the historical whale which swallowed Jonah. To Messrs. Edmund Norton and S. S. Chisholm, members of the Reception Committee, is largely due the success of the excursion. Both these gentlemen were unremitting in their attentions to the wants and creature comforts of all on board. An excellent lunch was provided, with its attendant features of wine and other drinkables. The Oriental Quartette, composed of Charles Smith, C. C. Phillips, C. F. Noble and F. F. Booth, added much to the enjoyment of the trip by their excellent and well-rendered selections. It was the general opinion of the excursionists that the trip was an immense success, which cannot be attributable to propitious weather, but to the efforts of those under whose immediate charge had been placed the successful fulfillment of the programme. Upon the return of the steamer the jolly and satisfied millers were met by carriages which conveyed them to the hotel.]

#### EVENING SESSION-WEDNESDAY.

President Bain having returned, an informal session was held to consider the proposed new constitu-

The Convention re assembled at 8 p. m. the President, Mr. Geoage Bain, it the chair.

Mr. Alexander H. Smith, of St. Louis, read the proposed new constitution for the Association, as prepared by the Executive Committee.

Mr. Baker, of Minnesota, moved that the constitution be adopted as a whole.

Mr Green, of Wisconsin, said that as it was provided that the State should elect the Executive Committee, the Association would be without such Committee until the State organizations were completed. To meet this he proposed that, if the constitution was adopted, the Chair should appoint five persons as an Executive Committee, to serve for the ensuing year.

Er. Snouffer raised that point that copies of the constitution had been promised to each delegate, and that these could not be ready until morning. Moreover this was only a called meeting, it having been understood at noon that an adjournment had been taking until 9 o'clock this (Thursday) morning. For this reason, many members were probably absent, and as this was the most importrnt business before the Association, he moved that further action on the constitution be postponed until the morning.

The resolution of Mr. Green was adopted, and further action was deferred as proposed.

Mr. A. H. Smith then suggested that the constitution be read and discussed informally.

The Chair thought this a good idea. There were good many gentlemen present who were just aching to get in amendments, and it would give them a splendid opportunity to get off their gas. [Laugh.

The Convention accordingly proceeded to discuss the details of the proposed instrument, which was read by sections.

At this point George Harding, Esq., the eminent patent lawyer, was introduced to the Convention and made a speech. It was a pleasure, he said, to meet clients after winning a suit; it was not quite so pleasant after losing a case. [Laughter.] When he had undertaken the Cochrane case for his clients he had studied the milling business and continued its study for a year and and half. The more he studied the subject, the more he was impressed with the large amount of brain it required to run an American mill It was a cause of congratulation that the three judges before whom the Cochrane case was tried should have heard the six days' argument and decided favorably for the Association. In the matter of appeal to the Supreme Court, the speaker thought the members need not be anxious, believing that the result would be highly favorable. His last speech on the patent matter had taken six days, and he was afraid if he began on this topic there would be no saying where he would stop. [Laughter.] He thanked the members for the kind manner in which he had been received.

At the close of the debate upon the constitution, President Bain announced that the Convention will meet at 9 o'clock, Thursday morning, and in all probability conclude its labors that day.

#### THIRD DAY-THURSDAY MORNING.

President Bain announced the first order of business to be the consideration of the new constitution. Constitution of the Millers' National Association as Adopted.

The millers of the United States engaged in the manufacture of flour, who have paid in full all assessments made by the Millers' National Associa-

tion, as heretofore organized for purposes of mutual defense, and who are members in good standing of the State Associations in their respective States, do hereby organize themselves for purposes of mutual protection and benefit as "The Millers' National Association of the United States," under the following articles of Association:
SECTION 1. The officers of this Association shall

consist of a President, two Vice-Presidents, a Secretary and Treasurer, and an Executive Committee.
The offices of Secretary and Treasurer may be held
by the same person, who shall execute his official
bond to the Association in such sum as the Subexecutive Committee may approve. The Executive Committee shall consist of one member elected by each State having a State organization and represented in the National Association. Such member shall be elected at the annual meeting of each State Association. In case of failure to elect at such meeting, the President of such State Association shall fill the vacancy by appointment. This Executive Committee shall elect a Sub-executive Committee of five from its own members—three of whom shall constitute a quorum; the President of the Association being ex-officio a member of this committeee. Said Sub-committee shall exercise the full power of the whole Executive Committee, and shall be authorized to act at any time in the interim between the meetings of the full Executive Committee. They shall also elect the Secretary and Treasurer of the Association, and who shall be subject to their control.

Sec. 2. The annual meetings of the Association shall be held at such time and place as the President and majority of the Executive Committee shall direct.

SEC. 3. The Secretary shall make up the roll of membership from the members of the several organized Secretary shall be a several organized Secretary shall be a several organized.

ized State Associations who have prid in full the assessments heretofore made by the Millers' National Association, as heretofore organized, and shall also include all millers in the States where no State Associations are organized, who have paid in full the said assessments, and no new members shall be admitted without paying all assessments theretofore paid by the original members, including the assessments made for mutual defense under the organization heretofore existing. Provided, that the Executive Committee shall have full power to admit as members any mills not benefited or protected by the expenditure up to January 1, 1879, on such terms as they may deem equitable, and also to reject any applicant for any cause which they may deem sufficient.

4. The Executive Committee shall have charge of the financial business of the Association; and for the furtherance of the objects of the Association for mutual defense, or for the common benefit in any manner deemed advisable by them, may assess the members in a sum not exceeding, in any one year, ten dollars for each run of burrs, or its equivalent in capacity of other machinery (as may be ajusted by the Executive Committee) operating on wheat or its products. Which assessment shall be collected by the several State Associations and by the Executive Committee direct from members in un-

organized States. The Executive Committee shall cause all claims made against any member of the Association for alleged infringement of patents of milling pro-cesses and machinery, and which shall be referred to them by any State Association, or any member from an unorganized State, to be fully investigated; and if they are advised that such claims are in-valid, they shall, on behalf of the Association, de-fend the same and may employ legal and other as fend the same, and may employ legal and other assistance *Provided*, The Executive Committee shall only assume defense, when satisfied the interest of the Association requires it. This section shall not be construed to relieve manufacturers from the duty of protecting those who purchase from them, nor to relieve millers of the duty of purchasing new devices or processes with due care and from responsible parties only. Said Committee also, in their discretion, may arrange for the use of valid and meritorious patented improvements for the members of the Association on equitable

6. Any suit, so defended at the expense of the Association, shall be managed and conducted in its defense by the Executive Committee; and no settlement or compromise thereof shall be made except on terms accepted by the Executive Committee for the common benefit of all the members who may use the devices or processes in controversy; and any member so sued and defended, who shall settle or compromise his case without the consent of the Executive Committee, shall refund to the Association all sums expended in his defense by the Associa-

7. Each State shall be entitled in the Annual Convention to the number of votes according to the

Convention to the number of votes according to the number of burns or their equivalent represented by its full-paid members, whether such State is organized or not; and all voting shall be by States.

8. Within sixty days after call for payment of assessment made by the Executive Committee of this Association, as herein provided, the Treasurer of each State Association shall, with the amount collected from the members of said Association, and to the Secretary of the National Association, send to the Secretary of the National Association a list of the members of said Association who are in default on said assessment; and the Secretary of the National Association shall, with the consent of the Executive Committee, cause the names so rebe removed from the list of members.

9. This constitution may be altered or amended at any annual meeting of the Association, provided such alteration or amendment shall be submitted at least one day before a vote is taken upon it, and receive at least two-thirds of the votes present at such meeting.

On motion of Mr. Green the Chair appointed as a Sub-Executive Committee, to serve until the new Committee can be elected by the State organizations, Messrs. John A. Christian, Minnesota; S. H. Seamans, Wisconsin; Alexander H. Smith, St. Louis, Mo.; J. A. Hinds, New York; and C. H. Seybt, Illinois.

Report of Committee on Milling and Improved Methods

Mr. President and Members of the Millers' Na tional Association:

GENTLEMEN: I again have the honor of addressing you upon the subjects of milling and improved methods, and I assure you that I feel myself unable to satisfactorily discharge the duty to which I have been assigned, and I hope that other gentlemen present who are more capable will favor us with their views on this same subject, for it is a fact that much can be learned by many if not all of us, by imparting our views and listening attentively to others. Not that we can become success-

ful millers, without personal experience on our own part, but from the fact that until within a few years the manufacture of flour in this country has been a kind of hap-hazard way of doing business. Each miller having his own views and following them regardless of a practical result. Hence our experiences have been varied, and by hearing the views and experience of others, new thoughts are suggested to us, and new theories are thus brought up, and an inventive inspiration, so to speak, is set in motion, and new and val-uable means are invented and brought into use, which, if not at once successful, lead to the adoption of something more capable and better adapted to accomplish the desired re-But to improve or perfect any mechan-means or machine, in any branch of manufacture, it is necessary at first to apply the mind to develop the defects in the old, and to devise new mechanical appliances to overcome the defective features; second, the will and the patience to carry forward the experimental operation or trial, changing and adjusting until a satisfactory result is obtained, for it would be almost a miracle if any new machine or device should perform its work perfectly and produce a satisfactory re-sult at the first trial. And any machine constructed upon correct and scientific principles should not be thrown aside as worthless, but by carefully watching the performance of the work, we should find where the wrongs are and apply suitable improvements to make the operation successful. This we, as millers, are not apt to do, but denounce it at once, cast it aside and purchase some other machine only to find the same fault to it.

If we should adopt some such reasoning as this, I am of the opinion that much less money would be spent in trying to make new machinery, perfectly adapted to an entirely new method, work as an attachment to an old and entirely different plan, and condemning the machine because it will not do the work it was never intended to perform, and which could not be done effectually with any device. We might say then that what practice is to the development of new and improved machines and mechanical devices, so is the exchange of devices to the development of new theories. There is no branch of manufacture which has made more rapid progress within the last four or five years than that of making flour, and when we look back ever the past to the mill of a few years ago, with five run of stone and six to eight reels, to the same mill to-day with same number of barrs, and twenty reels, and the necessary machines and machinery to complete a first-class mill, it is not at all surprising that we have made many mistakes and at many times have not taken a scientific and practical way of bringing about our results. Nor is it at all surprising that these results were not in any degree satisfactory. But notwithstanding all this we have made vast improvements but have not yet attained that perfection which would seem possible in the way of granulating and separating the differ-ent products of grain, and without entering into a discussion of the chemical construction of the grain which had been so ably handled by some of our leading milling journals, both in this country and abroad, we will proceed to notice some of the methods of manipulating and handling the grain and its products during the process of manufacture, and discuss their

The manner of cleaning our wheat, which is generally in use, seems to demand as much attention at present as any part of the mill, and, as far as my observation goes, nine mills out of every ten are not cleaning their wheat properly. There seems to be a disposition among millers to adopt machines which run very rapidly and carry the grain against the case by centrifugal force, and the grain is caused to travel against the case with side of the berry against the scouring surface, thus scouring the very part of the grain which needs the least rubbing and leaving the end of the grain which demands attention untouched only as it may come in contact with other grains in passing through the machine. This means of scouring seems to be very defective, and I should, if such machines are to be used, use nothing but the Brush, as they are most certainly superior to the Beaters. But I am of the opinion that the day is not far distant when the Ending Stone will supercede all other cleaning machinery for scouring the wheat, to be followed by a brush and suc-The wheat should be graded before going to the ending stone, into two or more grades, and each grade going to a separate stone; this process, in my opinion, will be carried down to the exclusion of the germ. I am aware that millers generally are not prepared to accept this plan, but so far as I am able to judge, this seems to be the only practical way of treating the grain to relieve what we want to get rid of in the operation of scouring. It may be urged that this is going back to the oldest known methods. This may be true, but the principle seems to be a correct one, no matter whether old or new.

As to the methods of grinding, I have heretofore expressed myself so fully as in favor of the stiff spindle or rigid couplings between the spindle and runner, that I need say nothing further than that I have found no cause to change my views on this subject, but to the contrary, every principle in the whole system of reducing seems to point to that as the correct principle. As to the mode of grinding, so long as we reduce our grain at one operation there can be but at one point at which we can grind, and that is just as close as we can grind without breaking the germs, and when we find the germs broken there is one two things to which we may charge it,

apply the remedy. There is nothing, how-ever, to be gained by grinding higher than will leave the germ in perfect condition; but a close granulation would be preferable if the germ was not considered. There are at pres germ was not considered. There are at present some very thorough and scientific experiments being conducted for the purpose of performing the operations of removing the germs and granulating the grain by other means than the burr. This work is being carried on by thoroughly practical men, and if a success, we may look for a revolution in the manner of reducing the grain, so far as the first operation is concerned at least. the first operation is concerned at least. to the diameter of burrs, there is a great dif-ference of opinion. But if the old spindle and irons are to be used the 4 to 41 stone seem to have the preference, but in either case up to a certain limit the same result may be produced by an increase of motion and a proper distribution of face and furrow, and the required draft for the furrows, as it would seem that a draft suited to a stone running 200 revolutions would not be suitable for one running 100 r evolutions.

No stone of large diameter can do good work running at the first named speed, as it would be impossible to so reduce the face as to prevent heating, which would at once injure the result. But a much larger difference in the speed of a burr may be allowed than is generally thought proper. The extreme may be placed at 160 revolutions for a 48-inch burr, but beyond this point it becomes impossible to so reduce the face surface to do the work properly, although in all cases where it is possible the slow motion is preferable, as the granulation is more thorough and complete, and the granular parts more perfect and solid, and the work of handling both in bolting and purifying can be more readily accomplished, and with far more satisfactory results. It is not, however, clear that the burr is necessary at all to produce the best results in making flour. One thing is sure, that if either the burrs or rolls were to be discarded from mills using both, the burrs would evidently be thrown out, as it would be an impossibility to produce a result satisfactory to the meillr without the use of rolls. And I am inclined to think the iron rolls much superior to any other, and that, too, without differential speed. I am opposed to the differential speed on the roll, from the fact that it seems to give the best result to do the crushing without tearing the particles to be reduced. To do this, is is necessary to reduce at one operation and then disintergate with a brush or other suitable means. And so far as my observation goes

this is much the best means. The bolting or dressing and separating the products after being reduced by any means, is a matter which it would seem that but very few millers have been able to manage, judging from the various samples thrown upon the market, there being only about lone-third of it which has been properly bolted. partly owing to an insufficient bolt surface, and partly owing to the inability of the miller to arrange his cloths so as to give satisfactory result; and in many cases had the miller the knowledge and the proper cloth he could not control the products of his bolt in such a manner as to be master of the situation.

There seems to be a great mistake made by millers as to the difference in flour made by the old and new way of grinding. Some millers maintain that the old way makes just as good flour as the new, but in most cases we find on their brands and sacks the words, New Process flour. Some even go so far as to call it Improved New Process. The fact is, so far as experience goes, they have made a failure of "New Process," and make it up in advertising. There is, however, a great difference between a New Process mill and a mill where gradual reduction is practiced with good results. Any mill may be a New Process mill. It is only necessary to change the working of the mill in any way from that which has been the mode of grinding or bolting, and you have a New Process mill. This is most generally done, in the average mill, by adding a new dusting reel somewhere where it cannot be got to with the products nor the products got away from it, and an additional purifier to clean up tailings. Every miller who has patched up his mill to the New Process feels the need of just one more dusting reel annually, together with the improved purifier for tailings. I speak from experience when I say that in the end one hundred per cent. of the profits will be invested in these appendages. This kind of work will make a new process mill. But to fit this mill for gradual reduction would be quite a different thing. First it would be necessary to tear out all these new improvements and add such new machinery as would be necessary after rearranging the old, and in most cases the old machinery is not worth rehandling, as labor and expense in refitting will make it cost more than to put in new and improved machinery, which will answer the purpose more satisfactorily.

The idea that an old purifying mill can be made to do perfect work by the addition of one or more purifiers, and compete with mills constructed for making flour by the most improved methods is also a very great mistake. Purifying, like bolting, must be reduced to a system, and one purifier will not do the work perfectly for any mill, no matter what the ca-pacity of the machine may be. In fact, purifying does not differ from bolting, with the exception of the application of the blast and suction, and the same arrangement of bolts which will bolt perfectly, will, when applied to a series of purifiers, make the work of purifying perfect, and we should so arrange our purifiers that we have the same control over the product, while passing over the several machines, that we have over the products of the bolts while in the process of bolting either that we are grinding too close or that our burrs are doing imperfect work from other causes; this we may readily determine and over two or three machines, but the result is

much better if we are able to use more machines of less capacity, and take from each machine such middlings as are sufficiently purified, and send the remainder to another machine for further working, and by continuing such a system as this, we may follow it down until we get from the whole a satisfactory result.

But, to make a satisfactory result, we must have middlings to begin with, not flour. There are some manufacturers of middlings purifiers, however, who claim that their ma-chines will purify flour. I do not care to accuse these gentlemen with trying to practice a fraud upon the millers, but, to say the least of it, they evidently have more confidence in the merits of their machines than any miller could possibly have, after purchasing the machine and giving it a fair and impartial trial. The result of such an experiment will result in placing the impurities in the barrel, and the flour in the dust-room, as the separation of any product from another, by blast or suction, carries away the lighter portion, leaving those portions which are of greater specific gravity.

At the last meeting of this convention, I expressed myself as in favor of those machines using a combined blast and suction, and the success attending the use of machines so constructed, since that time, has proven very clearly the position then taken to be correct. Machines constructed on that principle are doing better work to-day than any machines in the market.

It is not my object, at this time, to attempt to teach you how to mill, but I have been asked repeatedly what arrangement and what machinery I considered necessary to produce a first-class result, and I will answer that question here, not in detail so far as the ar-rangement of machinery if necessary, and if you will use the stone, I will say: Put in, for an ordinary mill, nine run of stone, two ending-stones, one wheat grader, one brush, nine sets of rolls, four machines for disintegrating purposes, twelve purifiers, two machines for disintegrating bran, and thirty reels, sixteen feet long; these, with machinery to drive it, all properly arranged, will give a first-class result. And it will be necessary to have it to make such a result as would be satisfactory and profitable. With this machinery in your mill, you can then begin to learn improved J. F. GENT.

Messrs. Homer Baldwin and B. C. Kreider, of the same Committee, submitted a report as

We, the undersigned Committee on Milling and Improved Methods, beg leave to submit the following report as additional to the one already submitted:

Believing, as we do that the rigid driver is theoretically correct, but that practically the adjustable driver produces better results than the rigid driver, we respectfully submit, that in lieu of the riged driver, we would recommend the use of the most adjustable and sensitive driver that can be procured, and in the treatment of middlings would recommend thorough purification, and that the middlings too fine to purify without too much waste be reduced by the use of porcelain rolls, and that the large middlings that are intermingled with germ after being as thoroughly purified as possible, be reduced to finer middlings by the use of iron rolls, and that all middlings thoroughly purified be reduced to flour by the millstone, and as a further purification of the flour we recommend that it be rebolted until made as pure as can be done.

All of which is respectfully submitted. HOMER BALDWIN, E. C. KREIDER.

A communication was read by President Bain from Jonathan Mills, inviting the Convention to visit at the close of the session his experimental rooms at Chisholm Bros., 46 S. Canal street, to inspect his special machines for the reduction of wheat and middlings and cleaning bran.

#### SACKS FOR BARRELS.

The following was introduced, and after some discussion, Mr. Dewars, of Kansas City, agreed to print 10,000 copies at his own expense for distribution:

To the Dealers and Consumers of Flour in the United States:

The Millers' National Association, in Convention at Chicago, beg leave to submit to the trade generally the importance of substituting sacks for barrels, as packages for flour, being well satisfied that it would effect a great saving to consumers and dealers for the following reasons:

First-The sacks containing the same quantity of flour will cost only about one-half as

Second-The freight on the same quantity in sacks would average about 5 per cent. les than in barrels.

Third-The sacks, when emptied, are worth two-thirds their original cost, whereas the barrels are almost wholly useless, and in most ises a great nuisance

Flour can be put up in sacks in such quantities as may be most convenient for the trade in its various branches, thus saving the dealer the trouble and expense of repacking his flour from barrels into sacks, as is frequently a necessity in the trade.

Beggi g your careful consideration of this subject, and inviting a trial of this method, we suggest that you submit such inquiries as you may desire to your mill correspondents.

Mr. Alex. H. Smith, of St. Louis, presented

and read the Report of the Executive Committee.

GENTLEMEN OF THE CONVENTION: Your Executive Committee have the pleasure of formally confirming the glad tidings flashed over

the wires from St. Louis on the 17th of March last, that the "Cochrane re-issue patent, having been expanded to embrace a claim for purifying middlings, when no such process was described, suggested or claimed in the original patent, it is void." This sentence, uttered by the learned judges, after three weeks deliberation, following nearly three weeks' careful hearing of the very able presentation, preceded as that was by a year of laborious and extensive preparation, disposed of the Cochrane claim. Till the very hour of the decision timid millers were frightened into compromising regardless of reveated and upwards. promising, regardless of repeated and unvary ing assurances from your committee, which assurances, by the way, have been fully verified by results; and these results, we trust, will sufficiently prove the value of our organization. While this committee have been, at times, troubled as to where the funds were to come from to conduct the defense of the suit, they were happily relieved at such seasons, either by the liberal advances from some of the State associations, by the kind indulgence of the attorneys engaged in the case, or by the assistance and pledges of individual members of the committee; all of which assistance came so spontaneously as to lead us to believe that our successors will have little trouble in the future in seeing their way clear to defend any further litigation that may be made against us.

Since the decision of the Cochrane suit, nearly all the delinquent States and individuals have responded to their assessments, and on the 17th of February almost all of the indi-viduals comprising the National Association had fully paid up their dues, and were conse-quently able to submit for your information a very satisfactory financial statement of the affairs of the Association. Referring to that statement, it is proper to explain, that, under the plan adopted at Buffalo, in June, 1877, providing that each State Association should defend its members, New York, Minnesota, Missouri and Wisconsin incurred large expenses, which might have been saved, had the pooling, under one management, adopted at the Toledo meeting, in November, 1877, been agreed to at that time. As those expenses, however, were incurred in good faith by the different State Associations referred to, and were intended equally for the protection of all of the members of the National Association, whether such member was sued or not, common justice required that the National Association should assume the liabilities so incurred by the several States; and your committee so deciding, these amounts were credited on the assessments made against those States. The sub-committee of this Executive Committee agreed with Mr. Geo. Harding, of Philadelphia, a celebrated patent lawer, for a specifice sum to defend the members of the Association against the "Cochrance Process" suits; such sum to include not only the fighting of the injunction suits brought against our members at St. Louis, his services in our application to reopen the Deener, Cissel & Welch decision of the Supreme Court, but also to prepare the case with evidence, models, traveling and other incidental expenses necessary to the trial of the suits at St. Louis, and also in regard to the case against Vail & Shotwell, at New York. And we are pleased to say that the sum agreed upon was much less than the labor performed entitled him and his assistants to.

The result arrising from the re-hearing of the Deener case in the Supreme Court of the United States, you are all familiar with, but many of you may not know that a large share of our success in the final hearing of the St. Louis cases was due to our success in that case; and few of you can be aware of the large sums of money necessary to procure the models, evidence and information that crowned the final effort at St. Louis, enabling us to defeat one of the most insidious and well-conducted schemes that was ever concocted against any class of manufacturers in this country. It is needless for us to say to you, gentlemen, how much, outside the pecuniary benefits we have received, we feel indebted to Mr. Harding for the able manner in which he conducted our cases, spending almost his whole valuable time to our services; traveling in season and out of season; tracing evidence here, and a few days later following other evidence, several hundred miles away; he did attorne they were paid, would have done; and, although our cause was a just one, we are free to acknowledge that without his valuable assistance we might not have been so successful as we were. In this connection it will not be out of place to say that Mr. Harding's efforts were ably supplemented by Messrs. Cole, of Minnesota, Judson, of Missouri, and Selden, of New York, the two latter gentlemen naving done a large part in preparing the detail work and evidence for the final trial, although neither of them were called upon to participate in the argument before the Court. Judge Cole also assisted in working up evidence, and not so constantly engaged as the two other gentlemen, made a very able argument in elucidation of our side of the question. The plaintiffs in the Cochrane suit have given notice of appeal, but after the very able and extended decision of the learned Judges, Messrs. Dillon, Treat and Nelson, we have no fear of the final result; and therefore this famous Cochrane suit, which gave us all so much trouble and anxiety, may now be dismissed finally from our minds.

In regard to other litigation now in progress, it can be neither as expensive nor important as the past litigation has been, but in our opinion funds ought to be provided in adto meet all necessary expenses, and prevent the troubles and other serious annoyances that your committee have been subjected to during the pendency of the past suit.

The defense of Griffin of Buffalo, in the

suit against him by the Consolidated Middlings Purifier Co., which company includes the Smith, Barter, dead Cochrane, and resurrected Stoll, and several other minor patents, is being conducted by Mr. Harding, under the direction of our sub-committee; and we have reason to believe that the outcome of this suit will be as favorable as it was in the preceding case. The "Consolidated Co." has also entered suits against the manufacturers of purifiers, and as the parties whom they have sued, the La Croix Purifier Co., of Indianapolis, and Messrs. Collins & Gathmann, of Chicago, are both responsible concerns, we anticipate no trouble to the users of the machines manufactured by those companies, in defending suits that may be brought against the purchasers of such machines; and we hope that hereafter parties who may have claims against the millers for infringements of patents, may take the same honorable course in insisting that the manufacturers of such machines shall bear the responsibility, and not the innocent users of them.

The defense of the Denchfield suits against members of the New York and Illinois Associations, we have delegated to the Executive Committees of those States, assuming, how-ever, the expense of such defense by the National Association.

The main embarrassment in these cases, as in the defense of the Cochrane suit, was owing to the fact that our attention was so absorbed in the greater necessity of defending against what we might now term the "Big Ring." The New York decrees, however, are not so serious as was the Deener decision in the other case, and we have no doubt of our ability to overcome them, when the suits come to a final trial.

The Baker re-issue of which you have all heard, issued in 1867, and re-issued a short time ago, seems to be the oldest purifier patent, excepting the Stoll, which latter is a re-issue of a re-issue upon an original grain cleaner patent, issued in 1866, expanded fast to include "other material," and thence to a middlings purifier; but as "expansion," by the late St. Louis decision, seems to be the death of re-issues, we have no idea that Stoll will give us any trouble.

At the moment, these are the only patents menacing our members, and although, as we have already remarked, their defense or settlement will cost us a mere nothing, yet possibly before the term of our successors expires in the coming year other cases may arise in which the sum recommended by us as an assessment on each run of burrs in our proposed constitution may be all that will be nec-

Heretofore we have been in the habit of assessing each run of burrs operated by our Hereafter we should recommend that no full assessments should be made on any run of burrs except on 36 inches diameter or over; on burrs of less diameter two run of burrs should be reckoned as one, and in case where rolls, whether of porcelain or iron, are used, three sets should be assessed as equal to one run of burrs; these assessments to be made on burrs whether operated for custom or merchant work, and whether operated on wheat, middlings or bran.

In urging the adoption of the constitution proposed to you by our sub-committee, you must acknowledge that we have grave reasons for insisting that all our members shall be bound in a legal way to their fellow members till the questions at issue are decided. Taking the Cochrane case as an example, meeting as it did with successive reverses, it did not seem to become disheartened, for it was secretly stimulated by weak members of our organization, and by outside millers who furnished to "sinews of war," and enabled it to give us the protracted fight it did. Our wounds, gentlemen, came from members of our own household. It is sad to confess that in this day and generation men could be found so short-sighted and false to their business interests, and indeed to their manhood, as to surrender not only their money but their good name, to such an unwarranted and impudent attack. While knowing that it is scarcely necessary to tender any advice to our members, on such a subject, we do not deem it in-appropriate here to suggest that our business policy ought to be that, apart from considerations of friendship or malice, we should refuse to have any business relation with the corporation or individual who have endeavored to obtain money from us as payment for processes or machinery to which they had no legal title. On the other hand, it ought to be our duty and pleasure to encourage those who, with honest claims against us, are willing to accept a fair remuneration for their interests, on terms as expressed in our circular, "alike honorable to users and remunerative to

In conclusion, we again call your attention the need of a strong legal organization, and trust that millers who have heretofore remained outside of our Association will see not only that honor requires their joining us, but that their self-interest will compel them to do It is also hoped that the time and funds of the Association will not in the future, as in the past, be monopolized in the defense of patent suits, but that other and more agreeable means for improving the art in which we are all interested will be suggested and reduced to practice.

The proposed annual assessment, as submitted in the draft of the constitution which we now lay before you, is a very moderate insurance, indeed, for the mutual protection and information that the Association intends to and expects to afford to its membership, but this sum we feel confident will be ample for all our needs the coming year.
Respectfully submitted,
JOHN A. CHRISTIAN, Chairman.

Statement of Account with the State Associations, based on the Toledo Assessment, November 21, 1879.

	No. Stone.	Assess-	Amount Paid.	Balance Due.	Amount Advan'd
llinois	450@\$25	\$11,250.00	\$ 9,743.22	\$ 1,506.78	
ndiana	200 "	5,000.00	2,650.00	2,350.06	
	200 "	5,000.00	3,275.00	1,725.00	
ansas	100 "	2,500.00	75.00	2,425.00	
Maryland.	150 "	3,750.00	4,250.00		500.00
lichigan	300 "	7,500.00	4,175.00	3,325.00	
dinnesota	53314"	13,333,33	21,877.29		8,543,96
Visconsin		10,000,00			1,700 00
dissouri		6,250,00	6,824.44		574.44
ebraska		2,500.00		2,222,00	
lew York		8,750.00			227.63
hio	200 "	5,000,00		2,000,00	
Juorg'zed		2,500.00			170.00
	3,333 **	\$83,333,33	\$79,495.50	\$15,553 78	\$11,717.04

National Executive Committee, Dr.-In account with National Millers' Association.

May 12 .- By amount paid Hon. Geo. Harding

	_ ret'r	3,000	00
	May 12.—By paid Harding account, services and expenses	40,350	00
	1878.		
	June 1.—By paid C. A. Seward, expenses and	4,783	co
	June 1.—By paid account N. Y. Association,	-	
	models, traveling, etc	3,925	15
	June 1.—By paid acc't Wisconsin Association, expense acc't Association allowed,	713	95
	June 1.—By paid acc't Minnesota Association,		
	June 1.—By paid sec,t Missouri Association,	2,702	14
	expense acc't Association allowed,	3,829	62
	June 1.—By paid ac't Michigan Association,	100	00
	June 1.—By paid account for incidental ex-	100	00
	penses, as per account	234	00
	Oct. 4.—By paid F. N. Judson, services and expenses.	2,416	17
	1879.	-,	70
201	April 1.—By paid F. N. Judson, services and	1.283	20
	1878.	1,600	20
	May 1.—By paid Gordon E. Cole, services and	0.515	
	1879. expenses	2,515	40
	May 12.—By paid Gordon E. Cole, credited to		
	Minnesota Association	2,877	46
	tion, incidental expenses	834	38
	May 12.—By paid account N. Y. State Associa-	1 100	
	tion, accounts allowed	1,427	64
	accounts allowed	2,516	22
	May 12.—By paid account Missouri Association, account allowed	181	20
	May 12By paid account, Springfield, Ohio,		
,	expert's testimony	200	00
	May 12.—By paid account, incidental expenses,	631	15
	May 12.—Bal. in hands of Treasurer, \$1,473.29		
1	May 11.—Bal. in hands of J. A. Christian, chairman	4.973	29
	land, same and an arrangement of the second	-,0	-

Note.—The above financial exhibit is based upon the so-called Toledo apportiontment. The different States will in the future be as according to actual number of burrs or their equivalent on which all demand of \$25 per run are now paid. A complete revised list of each State must be sent to the Secretary of the National Association by July 1st next.

After the reading it was received and adopted unanimously.

Mr. Gift moved the following resolution: WHEREAS, We believe a well-made strong paper package is all that is necessary for the transmission of samples through the mails,

Resolved, That we respectfully, through our Secretary, ask the Postmaster General to give this matier his careful consideration, and, if not inconsistent with the good of the service, he be asked to approve of a suitable paper package for the transmission of such samples.

Mr. Gift-We have heard complaints so often about flour leaking from packages and injuring the mail. I think it would be cheaper for the Association to buy rat traps for the Government than to pay extra postage on ten packages.

The resolution was adopted.

WIRE IN WHEAT.

Mr. Crangle-Some millers of the United States are having a great deal of trouble with the wire wheat. They need not have any trouble at all on that account if they only will adopt the magnet. I move the following:

Whereas, By the introduction of simple gangs of magnets in the great mills of St. Louis, Minneapolis, and other places, the evil of wire and other metallic substances in wheat has been obviated.

Resolved, That the complete success which has attended their use warrants us in recommending them to all millers.

The President said he could speak from experience in regard to this matter. Every now and again he had examined a burr and found pieces of wire under it. A man came to his mill and asked him to try some of the magnets. He had no idea of the amount of wire that passed through, but he tried it. The wheat he was running had been standing in the mill for a month or two. It was run twice over a Moline separator, and was running the second time down the spout. The man dropped the magnet in, and in a few minutes it was taken out with more pieces of wire attached to it than he had ever seen or expected to see. He believed that much of the damage which they had hitherto charged to bugs was really due to these "wire bugs." (Laughter.) These nail-heads and pieces of wire cut the bolting-cloths and worked much mischief. He did not believe in the effect of the magnets even then, and thought there had been some prestidigitation in it. His engineer was present at the time, and they tried it again, putting in one gang of five magnets this time. Then his son timed the operations, and in five minutes they found the wheat coming out at the top and took out a big handful of wire. When he came down the about so much per run. From Mr. Smith's

next morning they found not only wire, but nail-heads and small screws. He took up a quantity of the wire on the Board of Trade and showed it there. They all knew that in wheat there were small pieces of black stuff which was known as "black gravel," but which was certainly ore of some kind, and this the magnets took out. Fortunately, there was no patent on these magnets, and they were very cheap-only a dollar each. Five of them would be enough to take out as much wire as would be found in an ordinary mill. He had thirty-eight in all in his mill. They were in all places, even in the branspout, and there they took out little pieces which in some way had escaped the others. He was strongly in favor of the resolution, and of the general introduction of the magnets all mills.

Mr. D. R. Sparks, of Ill., expressed his approval of the magnets in equally warm. terms. At their State Association last winter the subject of wire in wheat came up, and resolutions opposed to the use of wire binders were offered, all the mischief being attributed to the wire. On that occasion he opposed the resolution, and they had found that the wire was not all to blame. Not long ago a magnet man came along and induced him to put in thirteen of the magnets. In a very short time they took out a large handful of wire, little nails, and tacks of all descriptions. The tacks were not of the kind used in mills, showing that they came in the wheat. The samples shown were not exaggeration at all, for he could show equal quantities taken from his own mill. He believed it would pay any miller to put in magnets, especially as there was no patent on them, and they were very cheap.

The resolution was then adopted.

Mr. Schumacher, of Ohio-A little matter I wish to call the attention of the Convention to. There are others probably in the same fix as we are. The Executive Committee charges us \$25.00 per run on two hundred run when we ought to have been assessed for one hundred and twenty. We are charged that and such further assessments as may be made hereafter, and I ask Mr. Smith to give an explanation as to there being \$2,000 due from

Mr. Smith-I am very happy to have an opportunity to make an explantion because it may explain matters generally. At Toledo in November, 1877, there was a representative meeting of one or more gentlemen from each State, all authorized to act for each State Association. It was there determined that the defense should be consolidated and not conducted by the several States as heretofore. It was based on how many run of burrs each State had. After canvassing the matter two days an assessment was settled upon of \$15 per run. Afterwards, at Indianapolis, a year ago, the funds falling short, an aditional \$10 per run was made. For Illinois a basis of four hundred and fifty run was agreed upon. Indiana was agreed upon on a basis of two hundred run. We had her down for three hundred run, but the representatives said it would be easier for them if it was put down to two hundred, and down it went. Iowa on the same theory was arranged at two hundred run. Kansas was agreed upon on a basis of one hundred run. Maryland agreed on a basis of one hundred and fifty run. She had paid to us \$4,250, being \$500 more than she was entitled to pay. During the trial we were in a tight fix. We telegraphed to Maryland: "How much can we draw on you?" the answer came back: "Draw \$500."

The President-We drew.

Mr. Smith-Michigan is the next State on the list. We put her down at 300 run. Minnesota's total assessment was \$13,333.33. She has paid \$21,877.29, being \$8,543.96 in excess of her assessment. That money saved the Cochrane case; that is what it did-saved it from going against the millers. Wisconsin was agreed upon for 400 run. We have only charged her on what she agreed to at Toledo. She has paid us \$11,700, having overpaid us \$1,700. Missouri was assessed at 300 run, but we found she was only entitled to 250. She has paid \$6,824.44, being \$574.44 in excess. Nebraska was agreed upon at 100 run. New York was assessed at 350 run, amounting to \$8,750. She has paid \$8,977.64, being \$227.64 more than she is entitled to. Now, we come to Ohio, which was assessed at 300, but Brother Shumacher, on second thought, felt rather doubtful about it, so we cheerfully put it at 200 run; while on that 200 run she was assessed at \$25 per run, making \$5,000. She has paid \$3,000, leaving a balance of \$2,060.

Mr. Shumacher-The amount agreed upon at Toledo was \$3,000; not anything was said

own statement it must be self-evident that the assessment at Toledo was mere guess-work.

The President-Mr. Shumacher at the Toledo meeting was one of the most enthusiastic members. Ohio was assessed at first on 300 run. Mr. Shumacher thought that would be a little too strong, so we made it \$3,000. During the Cochrane issue one of the things that did me most good, was one morning on going down to my office. Our names had got in the papers and telegraphed all over the country. But that morning when I got to my office I found a telegram signed P. & A. Small, York, Pa.-"draw on us for \$500 and make us members of your associa-

Mr. Sparks-I do not know how Illinois is reported as behind. I have worked pretty hard to get up Illinois already. We agreed in Toledo for Illinois upon \$6,750, and we have paid that and considerably over. The last assessment-\$10 per run-making in all \$25, shows that we have more than paid. I have,

and I guess all have.

Mr. Smith-I want to tell a little joke on Brother Seybt. In the committee the other day Mr. Seybt was feeling very jolly that he was 21 runs ahead on the claim. He got it in his head that 400 run was Illinois' share, and said they had 421 fully paid up. He said he would go back and correct Illinois. I happened to turn back to a scrap-book I had, and in that scrap-book I had the account of the Toledo assessment, and I found that we will charge Illinois 450 run instead of 400. (Laughter.) Mr. Smith was sure the money would be forthcoming shortly.

Mr. Sparks did not want the idea to prevail that they were behind. They would soon see that right.

The President-You are a daisy. (Laughter).

Mr. Sanderson-Is it not true that Michigan, within a day or so, has paid in an additional \$2,000?

Mr. Smith-She has. That is, she has through her Treasurer telegraphed to Mr. Hayden, authorizing him to draw on Mr. Merrill for \$2,000, and that \$2,000 is credited here to her.

Mr. Schumacher, of Ohio, thought that all the States should be re-assessed according to the actual number of members. The matter was left to the Executive Committee.

Mr. Serrin said that his State would have made a better showing had it not been for the fact that on Feb. 27th he was telegraphed that all members were to be full paid by March 1.

Mr. Smith explained that the telegram read, "appear as full paid on March 1," for reasons of importance.

Mr. Gibson said that the telegram had had a good effect in his State.

Mr. Elles gave assurance that Indiana would

not be found wanting.

Mr. Gibson offered the following resolution: "That we hereby tender the thanks of this Association to the members of the Executive Committee, and particularly to the Sub-Committee, for the very able and efficient manner in which they conducted our affairs, and the vexatious and dangerous law suits which so far have been so successfully carried forward. That we appreciate the ability and immense labor expended in our behalf."

Mr. Elles thought the President's name should be included.

The President-The President's name will be added. (Laughter.)

Mr. Atkinson offered the following resolution, which was received unanimously:

Resolved, That the thanks of this Convention is hereby tendered to the Chicago, St. Louis and Alton; Chicago and Northwestern, Chicago, Milwaukee and St. Paul; and Chicago and Southeastern Railway Companies, for the very liberal courtesies extended to the members of the Convention, and the gentlemanly manner in which they were treated by the Conductors.

NOMINATION OF OFFICERS.

The Committee for the nomination of officers for the ensuing year, reported through Mr. Halliday, as follows:

CHICAGO, May 15, 1879.—Your Committee for the nomination of officers for this Association for the ensuing year, would respectfully report as their unanimous choice: For President, George Bain, of St. Louis; Vice-Presidents, L. Fletcher, of Minneapolis and Robert Tyson, of Baltimore.

The gentlemen recommended by the committee on nomination were unanimously elected. President Bain called Vice-President

Brown to the chair, and said:

MR. PRESIDENT: I made up my mind four months ago that I would not accept the position of President of the National Millers' Association again. I thought that such honor should be distributed among the members. is certainly a great honor to be elected, and re-elected again and again, especially as I have done so litte in comparison to the work done by the other officers. I thank you, gentlemen, for the unanimous manner in which you have elected me. I will try and do better men, which was understood, for certain

in the future than I have done in the past. I am not very good in making speeches on such an occasion as this. I thank you for the gen-

erosity you have shown me. (Applause).
At 12:20 the members had a recess until 1 o'clock. The President stepped to the platform at 2 o'clock and informed those present that the Executive Committee were in session considering a settlement of a prospective suit. He would suggest that they continue the recess till 2:30.

#### AFTERNOON SESSION-THURSDAY.

The President called the Convention to order at 3 o'clock.

Mr. Smith-The Sub-Executive Committee have to report that they have selected Mr. S. H. Seamans, of their own number, to act as Secretary and Treasurer, and desire me to explain that the vast amount of correspondence, which has been entailed upon individual members heretofore, renders it necessary that we should have some one of ourselves centrally located to assume the work of correspondence, or have it done, believing that the interests of the Association will be best served by having somebody as familiar as possible with the work. The President suggests, and I am very happy to say we are entirely satisfied with Mr. Little's services in the past, as Secretary. I have to read in addition to the Executive Committee's report, the following notice:

"The Executive Committee notify the members of the Millers' National Association, that they have made satisfactory arrangements with R. L. Downton in behalf of the present members of the Association, and such as may have become members of the Association before the 1st of September, 1879, and that all members of the Association who may hereafter purchase or use rolls not sold or licensed under Downton's patent, will not be defended by the Association on any suit brought under Downton's patent for the use of said roll."

Mr. Smith-The terms of this arrangement will be communicated in due course by the Secretary to the officers of State organizations, on application. The terms will be entirely satisfactory to all interested in the Millers' Association.

Mr. Smith-The Executive Committee have still an aditional report to make, to which I call your attention:

"The Executive Committee of the Millers, National Association notify the members that they have made satisfactory arrangements whereby members of the Association will become released from liabilities for the use of the combination of the brush, sieve and wind-blast, secured by the patents of George T. Smith, on machines now owned by said members, as long as said machines shall be used, and they notify all members purchasing machines containing that combination hereafter, that the Association will not defend persons so purchasing for the use of said combination, or persons who may not avail themselves of the terms of the compromise.'

Mr. Cole, Illinois-I would like to know how far the territory for the Smith patent ex-

Mr. Smith-I can answer that question. It is a matter wholly unimportant under the terms made how much territory they own. The members affected will be satisfied I think when they see what protection there is. The arrangement does not compel members to buy the Smith purifier. Members before buying a machine should write to the State Secretary and get his sense whether it is well to buy that machine or not.

Mr. Elles-It seems to me that we are in the dark, and it is a glorious thing to be in the light, and I would like some information.

Mr. Smith-You will ultimately get the information from your State Secretary, and it is optional with the members whether they take advantage of the terms offered or not. We think we have made an excellent arrangement for you. We think we cleared off a great deal of credit business of the past, and as for the future you still have the liberty to buy any machine you please.

Mr. Elles-You must not understand that I reflect in any way on the Committee. I consider them honorable men and beyond bribery, but still this is a matter of great importance coming on us so suddenly, and it is not a trifling matter, and I feel worried. I cannot go home and rest easy over this matter unless I have a better explanation.

Mr. Smith-This does not include a compromise of the Cochrane suit; we believe we have killed that.

Mr. Schumacher-It seems to me members all join to know what, in case of such compromise, they would have to pay. It seems to me that the members should be protected by paying a royalty for other machines than the Smith.

Mr. Smith-"Mr. President, I think this question will be answered a great deal more quickly if you call the Hon. Geo. Harding to

reasons, was not to be made public, was one which the five me mbers of the sub-committee were very largely interested. It is a great advantage to themselves, and I do not think there could be a better test than the fact that the gentlemen believe it very advantageous to themselves. I was at the discussion, and there was harder fighting and contention than I ever saw any individual client resort to. If any gentleman is dissatisfied with it in the Convention, it does not bind him in the least. You are all free to act under it. As to the title of manufacturers, that will be investigated, and if those gentlemen have no title in that State you need not pay them a cent. As to the purchase of machines hereafter, there they put the screws on to the utmost extent to secure a favorable purchase in the future; an option that will far exceed the expectations of the Association. No man need take any machine he does not choose to. It is an arrangement that I would advise any one to take. The agreement is not made by the Executive Committee; they only agree and we do not agree to anything. When you buy a machine of a manufacturer let him say: "I will defend you if you are sued by any one for that machine." You say to him: "If I buy this machine and pay you your price for it, and a man should come along after I had bought it and say I was infringing on his patent, I should expect you to come forward and protect it." Should Mr. McCormick, of this city, sell a machine to-day, and to-morrow a person come along and sue him for an infringement, he would spend thousands of dollars to defend that machine, for if he did not and judgement was rendered against him it would affect his whole business. Every responsible manufucturer is bound to defend his machine. I would advise the committee whenever they can get an option of this kind at low rates and favorable terms to take it, as it is the safest and best thing to be done. This thing binds nobody. It is a mere re-

peated declaration of the Association that favorable arrangements are made by which any gentleman can escape from any possible reliability an arrangement by which a great advantage is secured to every member of this Association. Innocent people buying machines hereafter must look to the manufacturer of that machine to defend it in case of emergency and guarantee the machine he sells. It transfers the expense of defending the patents they put forward. They have the right to do it, and should be prepared to show the reght-They ought to be prepared to come forward and defend that man, and if they defend him they defend a thousand, but if the Association is to defend every man who chooses to go to a manufacturer and buy a machine it will soon cripple the Association. Or he may go to a man who has no capital. He sells a machine to the gentleman for \$100 and then says he to the gentleman who buys it,-In case any one should charge you with using a machine infringing on their patent you make the Association defend it, and when they show that it infringes on no patent, then they establish my right to build that machine and I will go to work and build. You will find no case where the purchaser of a reaping machine, hay rake, a plow-no case where the question whether the manufacturer of that machine had a right to make and sell it is put upon the purchaser, he ought to be ready to stand by and defend his purchaser at all times. Make the manufacturer defend the purchaser, then, gentlemen, the legal department of this Association may be abolished in about a year and a half. [Applause.]

Mr. Gibson-No individual member of this organization can afford the expense and take the responsibility of seeing whether a certain thing is valid or not, and this Association can afford thousands of dollars to do it. He thought the Association could well afford to stand by all her members. The Association had spent a great deal of money to defeat an iniquity and then gives an indorsement to the validity of their patent.

Mr. Smith-That we have just spent a large sum of money is so; what we did defeat was the Cochrane reissue. We did defeat that. We simply made an arrangement. The Cochrane matter in St. Louis was a process patent which would have covered any middlings purifiers whatever.

Mr. Gibson-Does this compromise settle the suits now pending in the courts at Buffalo? Mr. Smith-The question on the validity of brush has not been decided on. If the millers were defeated they could not collect enough on that brush to defeat anybody, but we do not establish the validity of the title.

Mr. McAtee-It seems to me my friend Mr. Gibson has misunderstood the matter. He Ex.

claims, or seems to claim, that the Executive Committee has decided upon the validity of a patent. I don't think they have done any such thing. They have merely, for a very moderate sum, exempted those of our number who choose to accept it from any damages which may arise by reason of their patent on the part of those who choose to accept the patent. Such being the case, I can readily understand and see it is an option. We are all, more or less, engaged in the grain trade, and we all know how we take an option if it does not cost anything.

Mr. Gibson said the option put the purifier and brush in the hands of the ring.

Mr. McAtee-I think I have the perfect right to purchase any machine with brush attachment, and if I choose to buy of Knickerbocker & Co. I am exempt from any responsi-

Mr. Smith-If in future you buy a machine with brush under sieve with a blast up through the cloth, we understand that you buy that machine from somebody who will guarantee

Mr. Sanderson-I have more confidence in the Executive Committee and the legal gentlemen than I have in the individual opinion of any member, consequently I think we had better accept the situation as it now exists than to trust to future litigation that may arise; consequently I am in favor of accepting the recommendation of the Executive Committee.

Mr. Sparks did not wish to take any special part in the discussion. He agreed with Mr. Sanderson. He thought the sooner they adopted the report the better.

Mr. Gent-I listened very attentively to Mr. Harding, and while the speech was good I can not see that it made but one point, and that was this: "He argued that we should see to it that every manufacturer of machines, when we went to buy, had the right to sell that machine." Why should we pay more attention to the Smith purifier than any other?

Mr. McAtee moved and it was seconded that they endorse the Executive Committee. It was carried with but one dissenting voice.

Mr. Baker-I wish to make a resolution tendering our thanks to the local Committee for the excellent manner in which they have provided for us, and also to the citizens of Chicago for the kindly reception they gave us.

The motion was carried unanimously. Mr. Sanderson-I would offer a resolution tendering thanks to Mr. Little and Mr. Merrill, for the able manner in which they have conducted affairs during their term of office.

Unanimous vote of thanks.

Mr. Brown moved and and it was seconded that the Sixth Annual Convention of the Millers' National Association adjourn sine die. This was carried, and the President declared the Convention adjourned.

#### Doing the City.

[At 4 o'clock, Thursday afternoon, immediately after the final adjournment, the members were taken in hand by the reception committee and escorted in carriages through Lincoln Park, South Park, and Drexel Boulevard. The trip was a source of great enjoyment to all who took part.]

Correspondents, upon matters pertaining to the Millers' National Association, will please address the Secretary and Treasurer, Mr. S. H. Seamans, at Milwaukee, Wis.

How to GET RID OF FLOUR MILL DUST .- A French process designed to circumvent the perils traceable to dust in flouring mills, is thus described: The stones should be surrounded as completely as possible by a movable covering of wood or sheet-iron, which should have no opening in front out what is absolutely necessary for the work. In order to avoid the choking up of the ventilating pipes, it is necessary to provide special discharge pipes for the water, according as the stones are partly below or en-tire above the floor. Again, the passages intended for carrying the dust should be placed underneath the stone, and beyond the point where the work is applied, regarding the direction of motion; it should have a breadth a little greater than that of the stone, and a depth of 8 inches at most, for the largest stones, a sliding door serving to close it whenever dry dust is not produced. The water discharge pipe should also have a valve, which may be closed when water is not used, and when it is desired to carry off the dust produced when the stone is trued. If there are only four or five stones in the work, a single collecting pipe will suffice, and the blower should be placed at the end; but if there are eight or ten stones in one line, a second coleight or ten stones in one line, a second collector, 16 inches by 12, may be placed in the middle of the length of the first, and perpendicular to its direction. If, too, there are two long parallel rows, with eight or ten stones in each, they should be connected with the second collector, or with a third, 16x20 inches, communicating with the ventilator.—

#### Grain Growing in Europe.

The report of J. J. Woodman, of Pawpaw, Michigan, Assistant Commissioner to the Paris Exposition on Agriculture, embracing alimentary and other farm products, has been received. It contains a very interesting account of the exhibit of grain. The first part of the report is devoted to a description in detail of the cereal products of each European country, but the most interesting part of the report is contained in an elaborate table which gives the average amount of the cereal productions of Europe and the countries which furnish a surplus for commerce, and also those which are obliged to import breadstuffs. This table shows that the average annual production of cereals in Europe amounts to 5,147,796,000 bushels, of which Russia produces 1,653,021,000 bushels, or nearly one-third; the whole of Germany, 765,000, 000 bushels; France, 710,130,000 bushels Hungary, 300,330,000. On the basis of an average of 15 58-100 bushels of cereals for each person for home consumption, Roumania, Denmark, Russia, Prussia, France, Hungary, Bavaria and Sweden alone raise sufficient for home consumption, while the following countries in their order are exporters: The German Duchies, Belgium, Spain, Austria, Wurtemberg, Ireland, Turkey, Finland, Great Britain, Saxony, Servia, Holland, Norway, Greece, Italy, Portugal and Switzerland.

The report shows that the whole of Europe, with a population of 297,000,000 ininhabitants, produces 5,147,396,000 bushels, or only about 17 bushels for every inhabitant, while the United States, with 40,000,000 inhabitants, produce 1,629,027,000 bushels, or 40 bushels for every inhabitant.

The countries of Europe, the report says, which produce relatively the most wheat are Spain, Italy and France; the most most rye are Finland, Switzerland and Germany; the most barley are Sweden, Norway, Denmark and Germany; oats, are Ireland, Sweden, Norway, Denmark, Hungary and North Germany; and the most corn, Roumania, Servia and Portugal; that but little buckwheat is raised, except in Holland and France.

The report says that many of the countries of Europe, especially Great Britain and France are largely deficient in malt products, that they are now turning their attention to the United States for supplies; and the English and Irish stock raisers and feeders are greatly alarmed at the success which has attended the importation of fat cattle and dressed meat from the United States. In it they see the same ruin to stock and meat raising in their countries, as they have experienced from the importation of our cereals to their wheat raising. It appears, however, that a new idea has just entered the English mind, and the importation of American cattle is to be made quite as beneficial and remunerative to the English feeders as it is to the American farmers. It has been shown by experiment that American cattle can be imported and fed on English soil, as the English feeders, know how, at a profit, even if the grain fed them them is of foreign production. All of this would be satisfactory to the agriculture.

WORKING STEAM AT HIGHER PRESSURE.-It is well known that great efficiency in steam engines is obtained by an increase of pressure and the use of expansion. To accomplish this, the point lies not so much with the engine as with the boiler, engineers finding no difficulty in working an engine with steam at 150 or 200 pounds per square inch; therefore Mr. Walt, an eminent Liverpool engineer, thinks there is no practical limit to the working pressure. Some engineers will be inclined to differ with this opinion, as the management of steam used expansively in simple reciproeating engines at ranges of pressure much exceeding those named, is considered by many risky practice.

COOLING HOT JOURNALS .- Von Heeren proposes a method of cooling hot journals by a mixture of sulphur and oil or grease. The fine metal dust formed when a journal runs hot, and which strongly acts upon both journal and bearing, forms a sulphide of sulphur. This compound, which grows soft and greasy, does not cause any appreciable amount of friction. It has been very successfully used by the steamers of the North German Lloyds. brother-in-law of Congressman Alvah A.

Our Eastern Letter.

THE TRANSPORTATION QUESTION-MILLING IN PENNSYLVANIA AND NEW JERSEY-SOME JOL-LY MILLERS MET ON THE ROAD BY OUR REG-ULAR CORRESPONDENT.

PHILADELPHIA, Pa., May 10, 1879 .- The flour manufacturing and marketing trade has, for the past month, been in a comparatively fair and prosperous state. The only thing that appears to have marred the severity of the flour interest in the East has been the trouble between the shipping merchants and railroad companies. This difficulty, which has been maintained for several months past, has led to the holding of several meetings in New York and elsewhere. The most important of these indignation conferences was held in New York City, on Thursday May 8th. The meeting was largely attended by the prominent representatives of the flour trade, who are extensively engaged in the handling and marketing of Western made flour, the bulk of the product coming from Wisconsin and Minnesota. The recent orders of the railroads limiting the time in which flour could be stored on their wharves were discussed, and a compromise was accepted by the meeting, and was sent to the railroad companies for their approval. The special committee having the matter in charge was enlarged, and renewed efforts will be made to obtain terms, and it is believed that when the business resumes its usual activity, say about June, that the corporation will consent to the proposition as offered by the flour men, as the interest controlled by them is assuming mammoth and important proportions, and the railroad companies will seriously injure their own interests if they do not discriminate in favor of those who operate in flour. During the discussion at the meeting, Mr. Thomas Carle, a leading flour man, stated that the roads carrying the Western product objected to bringing flour litherage free that was intended for home trade, and also to indefinite terms for storage. The railroads, he said, had refused the first clause of the compromise, (which allows flour not free from litherage to remain on the docks four days,) inasmuch as the Philadelphia merchants were demanding similar concessions which could not be granted, and that the roads say that the discrimination in favor of New York must cease. The flour merchants of New York and Philadelphia are planning for the organization of a combination to defeat the rather unscrupulous schemes of the railroad monopolists, and if the project is successfully accomplished, the plans of the railroad magnates may yet be checkmated.

It seems that there is never to be an end to patented milling machinery suits. A flour mill supply firm of this city, Messrs. Tetes & Allen (who are among your advertisers), have just entered suit in our County Court against George Tobbs, who has, it is averred, infringed the patents of the complainants for an improvement in grist mills. Judge Butler has granted a preliminary injunction in favor of Messrs. Tetes & Allen.

The UNITED STATES MILLER correspondent has made several extended tours through the flour manufacturing regions of Penhsylvania and New Jersey during the past month, and American farmers who are seeking a market the industry at all points visited has shown for their coarse grain and cattle, provided fine evidence of prosperity. While passing this system would be as remunerative to them; through the milling districts of New Jersey but certainly the idea is not flattering to our your correspondent visited the millstone reskill in fedeing, and calls for more science, gion, in Middlesex and Somerset Counties, in skill and economy in this branch of American the midst of one of the most beautiful and fertile sections of the agricultural portion of the State. On the Millstone river, upon which is situated the graceful little town of Millstone, are located a number of excellent and valuable mill properties. Prominent among them are the Weston Mills, seven run of stone, of which A. S. Teneyck is proprietor; Bleachville Mill, four run of stone, John Oakey, proprietor; Griggstone Mill, three run of stone, Edgar & Nichson proprietors; Rocks Hill Mills, four run of stone, D. H. Mount, proprietor; Kingston Mills, four run of stone, Joseph Robinson, proprietor; Opdyke's Mills, two run of stone, James Opdyke, proprietor.

The establishments of all these worthy millers are excellent ones, and have tained at a fine reputation in the country where situated for the superiority of their manufactures. During a long and pleasant conversation with Mr. A. Teneyck, of the Weston Mill (who, by the way, has one of the oldest and finest flour and saw mills in the State of New Jersey), the UNITED STATES MILLER correspondent learned that the flour-making industry of New Jersey is in a reasonably good and profitable state, all the millers experiencing easy and comfortable times. Mr. Teneyck-who is

Clark, of New Jersey,-is one of the wealthiest and most influential millers in the State. Your correspondent met Mr. Teneyck on the morning of May 1st, after a ten-mile walk from New Brunswick, searching for milling information for The MILLER, and the manner in which Mr. T. entertained your representative fully proved his appreciation of newspaper men and their labor in behalf of its interests. Success to Mr. Teneyck, the Weston Mill, and all the millers and mills in the Millstone district. The UNITED STATES MIL-LER correspondent also met another representative New Jersey miller, at Weston, and rode with him on the Delaware and Round Brook Railroad as far as Van Aken station. This gentleman was John Oakey, of Blackwell's Mills. Mr. Oakey is an old, experienced and well-informed miller, and furnished your correspondent with much important and interesting information relative to New Jersey mills and their operations. May the shadow of Mr. O. never grow less, and may his mills become a monument of prosperity and wealth to its genial, jovial and enterprising owner, is the wish of your traveling scribe.

Previous to the above-mentioned trip, the MILLER correspondent had made a flying trip through the interior of Pennsylvania, going as far as the Wyoming coal regions, where amidst coal breakers and thousands of tons of the "Black Diamonds," are situated many extensive and largely-producing flour mills. Among these may be mentioned the mill of Walter Gibbens, of West Nanticoke; the Valley Mills, D. S. Drierbach, proprietor; Beach Haven, Drierbach Brothers; Wilkesbarre and the Lily of the Valley Mills, near Kingston, The Weston Mill Company, limited, merchant millers, of Scranton, is a first-class concern. The corporation is very entensively engaged in the manufacture of a superior flour, and their product holds a high reputation and paying market wherever it is sent.

The grain shipments to this city this spring have been actually enormous, and the elevators owned and operated by the various railroad corporations and individual firms have been taxed to their greatest capacity. The immense increase of business at the grain elevators of the Pennsylvania Railroad Company at Washington street wharf, where the ocean steamships are loaded down with heavy freights of the golden products of the great West, has necessitated a number of improvements and alterations in the working capacity of the elevators, and also an enlargement of the machinery and other apparatus. One of the largest conveying belts in the world, if not the largest, has been ordered by the Pennsylvania Railroad company from Mr. Dietrich, the well-known rubber manufacturer of this city. It is now ready to be placed in position and has been manufactured in one continuous piece of smooth rubber and canvas. It is 1,145 feet in length and 36 inches in width, and weighs over 7,000 pounds. It is made of this great length because the company required a belt strong enough and long enough to convey the grain along the different shutes from one end of the elevator to the other.

DUSTY MILLER.

ANOTHER OF KRUPP'S MONSTERS.-Herr Krupp, the famous German gun maker, has just eclipsed all his former efforts by constructing a new steel cannon, which is the largest piece of steel ordnance yet made. It weighs 72 tons, is 32 feet long, and has a calibre of 213 inches, while that of the English 80-ton guns is only 18 inches. The charge for this monster gun is to be 385 pounds of prismatic powder, the projectile being a chilled iron shell weighing 1660 pounds and having a bursting charge of 22 pounds of powder. The force of the shot on leaving the gun is estimated at 31,000 foot tons, and it is calculated that when placed at an angle of 43 degrees with the horizon the gun will throw its projectile a distance of 15 miles. The forthcoming trials will take place on a range 11 miles long, and targets will have to be placed at such a distance that the gun will have to be directed by other means than the visibility of the object to be hit.

CANADIAN MILLERS' ASSOCIATION.—President, Jas. Goldie, of Guelph; Vice-President, W. H. Howland, Toronto; Hon. Secretary and Treasurer, H. N. Baird, Toronto; Secretary, Wm. Greey, Toronto. The Executive Committee is composed of the following gentlemen; S. D. Saunby, London; Hon. T. N. Gibbs, Oshawa; R. Blain, Gault, ; Wm. Lukes, Toronto; Jas. Webster, Flamboro; H. N. Baird, Toronto; Wm. Spink, Thorold; il. Gooderham, Meadowvale; A. McNaughton, New Castle.

Subscribe for the U.S. MILLER; \$1 per year.

Recent Patents.

The following patents were issued from the United States Patent Office, April 15th, 1879; Microscope for Examining Flour and Bolting Cloth.-Henry J. Deal, Bucyrus, Ohio.

Attrition Mill.-Henry J. Duc, Jr., Charles-Attrition Mill .- John J. Hayes, Green Point,

Middlings Separator. - Charles B. Hill, Nashville, Tenn.

Oat Separator.-Joseph Magoon, Canyon City, Oregon. Middlings Purifier .- James H. Redfield,

Salem, Ind. The following patents were issued April 22d, 1879:

Flour-bin.-Edwin S. Bliss, Richburg, N. Y. Middlings Separator.—David Charlesworth, Egmondville, Ontario, Canada.

Mill-stone Driver. - Wm. F. Cochrane, Jack-Wheel.-John Ebersole, Chambers-

burg, Pa. Mill-stone Dresser .- David L. Ellis, Homer City, Pa.

Turbine Water Wheel .- Andrew J. Hopewell, Edenburg, Va. Middlings Separator .- Silas S. Shaver, Men-

asha, Wis Bag-holder. - James A. Smith, Ashland,

Ohio. Grain Toller .- David Waugh, Wellsburg,

Cornsheller Separator.—Daniel P. Wist, Oak Grove, Pa.

STONES AND HURSTS. - A controversy having arisen regarding what, in millers' parlance, is the most proper phraseology in which to designate the number of stones belonging to a given mill, we have taken the trouble to consult good milling authority upon the subject. Should the miller say eight run of stones, eight runs of stone, or eight runs of stones? Mr. William Fairbairn was for fifty years the greatest mill architect, millwright. and mechanical engineer in England. Titles were heaped upon him, such as C. E., LL. D., F. R. S., F. G. S., etc. He was corresponding member of the Institute of France and of the Royal Academy of Turin, and was Chevalier of the Legion of Honor. He also made his name famous as the author of various works upon subjects belonging to his profession. In these he invariably uses the phraseology, runs of stones, except when he substitutes the word pairs for runs. In our future dictionary of milling terms we shall pronounce Mr. Fairbairn to have been eminently correct. It is well enough to add that, in speaking of the framing or house that incloses the running gear of each pair of stones, the same authority uses the word hurst, and not husk or hust .- St. Louis Miller.

WHY GLASS IS BROKEN BY HOT WATER .-No person could be so foolish as to hazard the breaking of a glass by pouring hot water upon it, if he understood the simple means of accounting for the breakage. If hot water is poured into a glass with a round bottom, the expansion produced by the heat of the water will cause the bottom of the glass to enlarge, while the sides, which are not heated, retain their former dimensions, and, consequently, if the heat be sufficiently intense, the bottom will be forced from the sides, and a crack or flaw will surround that part of the glass by which the sides are united to the bottom. If, however, the glass is wetted with a little warm water, so that thew hole is gradually heated and therby expanded, boiling water can then be poured in without damage. If a silver spoon is placed in a goblet or glass jar, boiling water can then be poured in without danger, unless the article has been taken from a frosty closet and is very cold.

WIRE BELTS. - A German firm is manufacturing woven steel wire belting of a peculiar make, as described below, which they claim to transmit power well, to operate without lengthening, and to run smoothly because there is no overlapping at any place. The spirals of wire are woven across the belting, so that three, four or more spirals form one link. The space between two links is besides, filled up with a cross-piece, so that the closely woven netting of spiral wire forms a band of great strength and flexibility. It is faced and lined with rubber or leather.

EPITAPH ON AN HONEST MILLER .- A correspondent of a Hampshire paper says :-Near the east end of Carisbrooke Church, Isle of Wight, stands an old head-stone which is little noticed, and its inscription, which is as follows, seldom read :- "In memory of James Perry and Mary his wife, who died December 21st, 1747, aged 70; she died January 9th, 1750, aged 65 years.

Here lyes a man the farmers loved, Who always faithful to them proved, And dealt with freedom justly fair-An honest Miller all declare.'

#### Card from E. P. Allis & Co.

TO THE MILLERS OF AMERICA.

In January, 1876,—in the early days of the recent advances in milling—we purchased from R. L. Downton the exclusive right to manufacture "Downton Purifiers" and "Downton Peerless Dusters," which two machines were represented by him to be of great value to millers, and we expended many thousand dollars in vain experiments with them. We, at the same time, purchased from him a Process Patent, now known as "Downton Process," and took from him the following assignment, which was duly recorded in the Patent Office at Washington:

#### (Copy.)

#### Assignment of Patent.

For and in consideration of the sum of one hundred and twenty-five dollars, to me in hand paid by Edward P. Allis & Co., of Milwaukee, Wisconsin, I hereby sell, assign, and set over to said Allis & Co., their successors and assigns, the exclusive right to manufacture and sell rolls for crushing grain or middlings, or other substances, which right or process is secured to me under United States Patent No. 162,157, dated April 20th, 1875, for the full life of such patent, and any re-issues, extensions or improvements thereon, except that a shop-right to manufacture and sell the same in the State of Minnesota, but not elsewhere, is granted to O. A. Pray, of Minneapolis, said Allis & Co. having an equal right to sell in said State of Minnesota.

Dated at Milwaukee, Wis., this 3d day of January, A. D. 1876.

(Signed), ROBERT L. DOWNTON.
Received for record January 27th, 1876, and recorded in Liber D 20, Page 140 of Transfer of Patents.

SEAL. IN TESTIMONY WHEREOF, I have caused the seal of the Patent Office to be hereunto affixed.

(Signed), ELLIS SPEAR,

Acting Commissioner.

There being no adequate demand for the "Downton Purifier," its manufacture was of no great value, and the "Peerless Duster" being an utter failure, its manufacture was abandoned after great and serious loss, and the personal connection of Mr. Downton with us ceased, but no rights we had purchased or acquired were ever abandoned or invalidated.

Subsequently to the above, as we owned the Process Patent and were making iron Rolls, we made a contract with Mr. Oscar Oexle for the exclusive manufacture and sale of Wegmann's Porcelain Rolls in America, and entered upon their manufacture and sale. Mr. Downton meantime, having found his "Purifier" unpopular and his "Duster" a failure, while the Process Patent that he had sold us bid fair to be of value if it could be declared valid, undertook the task of defrauding us out of it and of substantiating its validity, and for this purpose began suit against millers using Rolls. Mr. Oexle maintained that the Downton Process Patent was invalid from previous use, and as the claims and threats of Downton interfered with the sale of Porcelain rolls, he, at his own expense, took up the defense of the millers in the use of Rolls, and this suit, which Downton is prosecuting and Mr. Oexle defending, on the validity of the patent, is still undecided, though a preliminary decision has been given against its validity. We were not parties to the suit, were not represented in it, and had nothing to do with it. We were selling Porcelain Rolls, relying upon their merits and also upon our perfect right to the "Process" under the Downton assignment, should the patent be decided valid. The question of our ownership of the patent has never been legally before a court, and only recently have suits in that direction been instituted.

At this juncture came the late Millers' Convention in Chicago, and the millers of the country have the following occurrence forced upon their consideration. Notwithstanding one of the main objects of the Millers' Association is to defend millers against fraudulent patent claims, and notwithstanding the expenditure by the Association of thousands of dollars to break up patent rings, and notwithstanding the personal expenditure by Mr. Oexle to relieve the millers from Downton's claims, and also notwithstanding the Downton Patent belonged of fecord to us and was legally ours, who were not threatening or suing millers for its use, even Mr. Downton acknowledging our ownership by recently beginning a suit to set it aside-notwithstanding all this, the Executive Committee of the Association, at the close of the Convention, issued a notice to the effect that they had made arrangements with Mr. Downton whereby all members of the Association using rolls not sold or licensed under the Downton Patent would not be defended by the Association on any suit brought under Downton's Patent. This notice is very ambiguous, and may be construed as advising purchase of us, as we sell and license under Down-

ton's Patent, but it was evidently obtained by Mr. Downton for the purpose of inducing members to buy rolls of him and pay him a royalty. This strange action of the Executive Committee in trying to induce members to buy of Downton, if they did so try, the use of a patent he does not own, and that, too, when the validity of the patent itself is in suit, with a preliminary decision against it, is unaccountable, and cannot meet the approval of the Association, nor call for their own confirmation, when this true state of the case is presented.

We have now no recourse, but to give this public notice to all millers, that we own the "Downton Process Patent," and shall protect our ownersihp to the end. We also assure them that we, and we alone, are the persons that can give them a valid license to use the Process, and that none other will be respected. We assert, as a principle of law, that until our recorded assignment is declared void by law, no suit for damages can ever be maintained against them for its use on rolls purchased of us, even though the ownership should finally be decided againt us, which is hardly possible; while on the other hand, every one using this process on rolls bought of Downton or any one else, is liable to us from the moment of their use. If millers buy their rolls of us, they are safe in any issue of the suit, for we are the recorded owners and they are legally innocent purchasers, and we beg them not to neglect their own interests nor ignore our rights, for we shall defend them and establish our claims.

We build the best machines in market, sell them at a reasonable price, and give a license for their use that can never be overturned. We are now able to supply machines rapidly, and ask that patronage that is our just due.

EDW. P. ALLIS & Co.

FAST WORK .- Some time ago we referred to a wonderful piece of fast work in producing flour from standing wheat and putting it through all the usual manipulations, so that the guests of the experimentor were eating hot biscuit, made from the flous, in four minutes and twenty-seven seconds. The gentleman who proposed and so successfully carried out this novel experiment, was Mr. James Lawton, proprietor of the Wild Moss Mills, in Carrolton, Mo. The wheat field was standing but a few rods from the mill and the grain separator standing ready in the field and running at full speed. The mill-stones were also started at the word Go. The mules hitched to the reaper were thoroughly encouraged by the liberal application of clubs, and as they passed over the field men grabbed the wheat and put for the separator. As soon as half a bushel came from the separator it was rushed off to the mill, through the cleaner and into the hopper, then bolted once and carried into the office, where a rousing fire was going and all the facilities for a hasty baking prepared by Mrs. Lawton and her assistant. It was quickly baked and passed to the many guests. This is the best time ever made, and Mr. Lawton feels proud of it, naturally. He says he thinks this time might, under extremely favorable circumstances, be shortened seven seconds. Mr. Lawton's fancy brands of flour are well and favorably known.

INDIAN CORN IN EUROPE.—The United States Consul at Havre has sent to the Department of State a copy of a correspondence between himself and Dr. Johnson, now in Paris, on the subject of maize. It has been charged in France that maize produces a fatal disease in men and colic in horses, when used by them as food. It is the object of the Consul and Dr. Johnson to refute the idea, and to show the healthfulness and economy of using Indian corn in the kernel as meal flour for food. The importation of corn from the United States into France in 1876 was 326,508 bushels; in 1877 it was 1,785,490 bushels. The importation of corn from Italy and Turkey in 1876 was nearly 4,-000,000 bushels; in 1877 it fell to 2,500,000 bushels. It is mostly used in feeding horses in the livery, truck and tramway stables. It is given to cattle to a small extent, mixed with other food. It is also beginning to be used for distilling and for making starch. Damaged corn is bought for these purposes.

The steam mill at Bocklow, Mo., was destroyed by fire on the 3d ult. Before the ruins were fairly cooled the proprietor, J. S. Wertz, had contracted with Nordyke & Marmon Co., of Indianapolis, Ind., for a new three-run new process mill.

Fisher & Davis, millers, Madelva, Minn., disolved partnership. Jno. Y. Fisher continues the business.

#### The Victor Turbine.

The past few years have been fruitful in improvements in machinery and appliances for milling purposes. So many mills have a limited supply of water upon which to depend for power, that we question as to the efficiency and economy of the water wheels they have in use becomes one of great importance. Among the recent improvements in turbines, those embodied in the Victor Turbine, herewith illustrated, are prominent and deserving of careful attention. The capacity of this wheel is quite phenomenal, being more than double that of other wheels of the same diameter, and in percentage of useful effect it also steps to



THE VICTOR TUBINE.

the front, as will appear in the following table of results obtained in accurate tests of this wheel at the Holyoke Testing Flume.

			Head in feet.	Horse	power	PerCentage useful effect.
15	in.	Wheel	18.10	29	.22	.8808
25	in.	Wheel	17.96	68	.52	.8584
30	in.	Wheel	11.65	52	.54	.8676

We need not enlarge upon the above remarkable results. They are claimed to be unprecedented among recorded reliable tests of Turbines, and we feel sure will command the attention of all who desire to obtain at the least cost the largest amount of power from a limited quantity of water.

The extraordinary power of this wheel comes with its numerous advantages, among which we may name economy of flume space, quick speed, light gearing, less loss in transmitting power, and particularly adapts it for shipment to distant points and over expensive freight rates.

The gate is an inside register, having a central bearing, and, with the pinion and segment for operating it, is entirely housed and relieved from pressure, rendering it of easy operation under high falls. The wheel proper, has a downward and outward discharge, and and is of a peculiar and novel construction, but its centre case and gate are substantially similar to those of the well known Eclipse wheel manufactured by the same firm for several years past.

We have received most flattering accounts of the performance of these wheels, and its manufacturers solicit an opportunity to confer with all parties whose supply of water is limited, and who are, therefore, in a situation that will enable them to appreciate high results. Illustrated catalogues and full information concerning this wheel can be had on application to the manufacturers, Stilwell & Bierce Manufacturing Co., Dayton, Ohio.

AMERICAN VS. ENGLISH TOOLS .- Thomas Fletcher, in English Mechanic: I have at this moment at least three-fourths of my tools of American manufacture, many of which have been brought at a very fancy price. If it were not absolute necessity, I should be exceedingly foolish to buy American tools at a high price if English tools could be bought which would do the work equally well. From my own practical experience the difference between the two is this, that an English workman does not, in the first instance, learn what a tool is for, and adapt the tool to the requirements; an American will, as a rule, use his brains, and make what you want without spoiling the whole by ridiculous blunders. If I needed a thing, making which required judgment on the part of the workman, and I could not give my personal and constant supervision, I should, as the simplest way to get the thing right, send the instructions to America.

H. C. Metcalf, of Anamoosa, Iowa, is erecting a four-run new process water mill with all the latest improvements. The entire work is being furnished by Nordyke & Marmon Co., of Indianapolis, Ind.

#### EVERYBODY READS THIS.

NEWS OF THE WORLD.

ITEMS GATHERED FROM CORRESPONDENTS, TELE-GRAMS AND EXCHANGES.

The steam mill at Winnebago City, Minn.,

is again at work.
O. E. Bunnell, of Prairie du Sac, Wis., has

moved to Nebraska.

Geo. W. Stanton, of Janesville, Ia., has sold his flour mill.

A mill is being built at Fountaintown, Ind., for Macy & Frauch.

J. C. Ruddiman's grist mill burned in Mus kegon, Mich. Insured.

Jennison & Co.'s saw and grist mill, Janesville. Minnesota, burned.

A. H. Wheeler is pushing work on his mill

dam at Flandreau, Dakota.

A. Aldrich, of Metamora, Mich., has pur-

chased a two-run mill outfit.

Colchester, Ill., will soon have a two-run

custom mill in running order.

The grist mill at Mondovi, Wis., has started

up and is doing excellent work.

The millers at Hastings, Minn., are happy

over the replenished water supply.

T. D. Vaughn, of Cedar Mills, Texas, is putting up a fine little custom mill.

The mill at Mapleton, Iowa, owned by F. L. Day, is being remodeled and enlarged.

A mill at Basken, Savony was recently de-

A mill at Baalzen, Saxony, was recently destroyed by an explosion of flour dust.

Jackson & Hill, of Ladonia, Texas, are building a new two-run mill, run by an Atlas engine.

Messrs. Hartman & Markward, of Warrensburg, are erecting a four-run new process merchant mill.

G. Schmuck & Co., of Cannelton, Ind., are

adopting the new process, and increasing the daily capacity.

Shields & Tomlinson, of New London,

Iowa, are putting in new buhrs, and adopting the new process.

Mr. Hannum's mill at Ames, Iowa, has been thoroughly repaired, and is now doing a gen-

eral custom business.

Wm. Smith, of Solomon City, Kan., is building a two-run mill. Nordyke & Marmon furnish the machinery.

The mill of Thornburg & Small, at Martinsburg, Ind., is undergoing important alterations in the new process.

The long discussed project of an annual

fund for mill employes, is to be carried into effect at Budapest, Hungary.

Hulbert & Paige, Painesville, Ohio, are building a two-run water mill at New Ulm,

Minn., for Messrs. Frank & Bentzin.

The Gilmantown, Wis., mill has passed into

Claire, and is to be thoroughly repaired.

Sohl & Evans, of Noblesville, Ind., are putting in additional buhrs and fixtures to supply the increased demand for their choice flour.

the hands of Messrs. Ellis & Davis, of Eau

Sprague's thirteen-run mill at Rushford Minn., is running day and night. A one thousand barrel order was received a few days.

Sparta, Ga., is having a custom mill. The proprietor, James Smith, purchased the machinery of Norkyke & Marmon Co., of Indianapolis, Ind.

E. G. Beecher, of Wells, Minn., has sold his mill at that place to a stock company, for \$8,000. The mill is to be put in repair and started up at once.

One of the finest four-run new process mills in Kentucky is being erected for R. C. Poage & Son, at Ashland, Ky. It is driven by an Atlas engine.

Alexander & News, of Greenfield, Indiana, are remodeling their mill to modern ideas, under direction of Nordyke & Marmon Co., of Indianapolis, Ind.

F. Miller & Co.'s brick flouring mill, Watertown, Wis., burned May 9th, containing 500 barrels of patent flour. Loss almost \$4,500. No insurance.

J. Corbet & Son's flour mill at Chaddesly Corbet, near Kidderminister, England, was destroyed by fire on the 11th of April, the loss amounting to £5,000.

The mill of Smith & Giddings, of Danville, Ill., is being enlarged with additional buhrs, bolts and purifiers. Nordyke & Marmon Co., of Indianapolis, Ind., are doing the work.

The Triumph Power Corn Sheller, manufactured by Hulbert & Paige, Painesville, O., is reported as having a very large run this season—larger than for several years.

#### Vissible Supply of Grain.

The New York Produce Exchange Weekly reports for May 30th show as follows;

Wheat Corn Oats Barley Rye		1879, May 17, bush. 15,331,650 11,332,544 1,549,756 982,246 831,379	1878, May 25, bush. 7,507,564 8,882,244 2,301,349 1,158,042 507,728	1877, May 26, bush. 5,184,000 10,426,824 2,302,046 849,696 664,580
Total	27,188,602	30,017,575	20,356,927	19,427,226

#### Public Debt Statement.

WASHINGTON, June 2.—The following is the public debt statement for the month of May:

.....\$354,910,750

Four and a half per cent bds. Four per cent bonds Refunding certificates Navy pension fund	250,000,000 627,334,80 <b>0</b> 28,723,660	
Total coin bonds	\$55,306,660 346,742,546	

Six per cent bonds ....

	ficates of deposit	
\$407,192,783	otal without interest	
\$2,429,914,403 27,859,362 430,591,297	otal debt	
52,250 8,604,363 5,126,876 55,306,660 2,070,977 17,780,660	ebt less cash in Treasury	
26,795,000 8,408,106 169,771,060	ed States notes held for redemp- not certificates of deposit	

#### New Planets.

Perhaps no scientific achievement during the present century has been deemed more marvelous than the discovery of the outermost member (so far as is known) of the sun's family of planets. In many respects, apart from the great difficulty of the mathematical problem involved, the discovery appealed strongly to imagination. A planet seventeen hundred millions of miles from the sun had been discovered in March, 1771, through a mere accident, though the accident was not likely to occur to any one but an astronomer constantly studying the star-depths. Engaged in such observations, but with no idea of enlarging the known domain of the sun, Sir W. Herschel perceived the distant planet Uranus. His experienced eye at once recognized the fact that the stranger was not a fixed star. He judged it to be a comet. It was not until several weeks had elapsed that the newly-discovered body was proved to be a planet, traveling nearly twice as far away from the sun as Saturn, the remotest planet before known. A century only had elapsed since the theory of gravitation had been established. Yet it was at once perceived how greatly this theory had increased the power of the astronomer to deal with planitary motions. Before a year had passed more was known about the motion of Uranus than had been learned about the motion of any of the planets during 2,000 years preceding the time of Copernicus. It was possible to calculate in advance the position of the newly-discovered planet, to calculate retrogressively the path along which it had been traveling, unseen and unsuspected, during the century preceding its discovery. And now observations which many might have judged to be of little value came in most usefully. Astronomers since the discovery of the telescope had formed cotalogues of the places of many hundred stars invisible to the naked eye. Search among the observations by which such catalogues had been formed revealed the fact that Uranus had been seen and catalogued as a fixed star 21 several times! Flamsteed had seen it five times, each time recording as a star of the sixth magnitude, so that five of Flamsteed's stars had to be cancelled from his lists. Lemonnies had actually seen Uranus 12 times, and only escaped the honor of discovering the planet (as such) through the most marvelous carelessness, his astronomical papers being, as Arago said, "a very picture of chaos." Bradley saw Uranus three times: Mayer saw the planet once only. It was from the study of the movements of Uranus as thus seen, combined with the planet's progress after its discovery, that mathematicians first began to suspect the existence of some unknown disturbing body. The observations preceding the discovery of the planet range over an interval of 90 years and a few months, the earliest observation used being one made by Flamsteed on Dec. 23, 1690. There is something very strange in the thought that science was able thus to deal with the motions of a planet for nearly a century before the planet was known. Astronomy calculated in the first place where the planet had been during that time; and then, from records made by departed observers, who had had no suspicions of the real nature of the body they were observing, astronomy corrected her calculations, and deduced more rigorously the true nature of the new planet's motions .- R. A. Procter in the Contemporary Review.

Subscribe for the U. S. MILLER; \$1 per year.

THE TOAD MARKET. - Among the curious sights to be seen in Paris must be reckoned the toad market. Toads are there sold by the barrel. Think of it !-toads selling like potatoes! Who buys them? Vegetable gardeners. Why? For the reason that toads dovour the insects that would otherwise devour the vegetables. Who devours the toads? Contrary to some ideas-not the French people. But toads are being sold now, not devoured, and it is with the selling we are interested. How do they vend them? The man in blouse bares his arm, and thrusts his open hand into the slimy swim, and brings up two, three or four gymnastic toads, wriggling and writhing. He points out their merits, and delivers in a box by the dozen to the eager market gardener, who takes his choice and pays his price. The buying and seeling is done expeditiously and quietly, and the profit to the venders is great.

#### BOOKS.

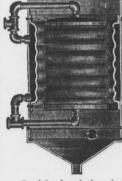
Roper's Practical Hand-Books for Engineers and Owners of Steam
Engines and Boilers.

Hand-Book of Land and Marine Engines	<b>\$</b> 3	50	
Hand-Book of the Locomotive	2	50	
Hand-Book of Modern Steam Fire Engines	3	50	
Catechism of Steam Engines	2	00	
Use and Abuse of the Steam Boiler			

#### GRATIOT'S

### Improved Wheat Heater

Patented March 5, 1878.



The ONLY Heater made of HEAVY COPPER THROUGHOUT; and standing 175 lbs. Hydraulic Pressure. The ONLY Heater that EVENLY heats EACH and EVERY grain of wheat; and draws the moisture from the berry to the outside or bran; thereby THOROUGHLY TOUGHENING THE BRAN ON THE HARDEST or DRIEST Spring or Winter Wheat.

Send for descriptive circular.

GRATIOT BROS., Platteville, Wis.

EVERY DESCRIPTION OF RUBBER GOODS AT NEW YORK PRICES.

GOODYEAR RUBBER CO.

JAMES SUYDAM AGENT.

370 EAST WATER ST. MILWAUKEE.

jely alt

R. G. HANDLEY'S

### MILL PICK

WORKS,

38, 39 and 40 Lower Pershore St.,

BIRMINGHAM, ENGLAND.

I wish to call the attention of Millers, Millwrights, Mill Furnishers, Contractors and others, to the quality of my Mill Picks made by me. I manufacture them of the very best

### English Refined Silver Steel.

I warrant every Pick to cut the hardest French Burr. I shall be pleased to receive any orders. I supply retail and wholesale.

A LIBERAL DISCOUNT TO THE TRADE-

Always in stock a large quantity of various size Picks. P.S.—Prices sent free on application. je

THE Milwaukee Middlings Millstone Co. are furnishing a complete outfit for Hayfork,

#### Bennett's Patent Elevator Bucket.



Made from one piece of Metal.

CHEAPEST AND STRONGEST

BUCKET

Manufactured.

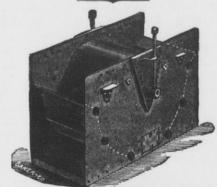
Made of either plain or galvanized iron. Send for Circulars and Price List to

BROWER & BENNETT, Fox Lake, Wis.

#### SPECIALTIES

-MADE BY-

### The Rivet Bucket Co.



The Safety Iron Elevator Boot.



The Rivet (Corn) Bucket. 25,000 in Use.

RIVETBUCKET

THE RIVET BUCKET

200,000 in Use.

THE RIVET

(Mill) Bucket.

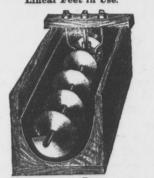
250.000 in Use.

THE CORRUGATED

Belt Bolt



This is the Strongest, Most Durable and Efficient ever produced. 25,000 Lineal Feet in Use.



CONVEYER BOX



The Safety Ventilator.

Rids the mill of dust by the natural draught.

These goods, of extraordinary merit and cheapness, together with all Mill and Warehouse Furnishings, sold by

N. HAWKINS & CO., Supply House, 224 Washington St., Chicago

224 Washington St., Chicago.

Send for Lists and Prices of needed articles.

### IMPORTANT ANNOUNCEMENT.

THE GARDEN CITY PURAFIER,

THE BEST IN THE WORLD,

AND THE ONLY PERFECT ONE.

# LICENSED

UNDER

### EVERY VALID PATENT,

ENCLUDING THE

# GEO. T. SMITH

PATENTS

IAND THE

### Stoll Patent

Having guaranteed our customers, we do not fail to protect them.

As we have settled with everybody who had any claim, or said they had any, for infringement, we are in shape to sell millers the best purifier, and fully licensed under all patents. COLLINS & GATHMANN.

#### Why We Did It.

Having taken a license under the "Ring," as we have always designated the owners of the George T. Smith and Stoll patents, we think we owe our friends and patrons an explanation of the cause which induced us to take this course. We have always held and firmly believed that none of their patents (except possibly the brush patent) were valid, and that it would be an easy matter to upset them. When suit was brought against us we made immediate preparations for vigorous defense and were full of confidence in the result, and this confidence was not shaken until we learned that George Harding was advising the millers to settle. Even then our first impression was that Harding had betrayed us into the hands of the enemy. But careful and thorough investigation, both by ourselves and our attorneys, changed our opinion of the matter, and we were obliged to admit that Harding was right, and the Executive Committee of the Millers' Association pursued a wise course in making a compromise. We had now to choose between fighting against patents which we believed to be valid, or to purchase a license

As we have never desired to use anything which rightfully belonged to another without paying for it, we did not hesitate to pursue the latter course. We thought it our duty toour two thousand customers, and to ourselves as honest men, to see that all who had relied upon us to protect them, were placed beyond question out of the reach of harm, and we have simply done that duty. It has cost us a large sum of money, but if it had been twice as much we should have paid it rather than desert the friends who trusted us. It was bitterly humiliating to us to ask the men whom we had so ardently opposed, and whom we still have abundant cause to dislike, for a license under patents which we had pronounced worthless. But justice required that they should be paid all they could rightfully claim, and we have paid them. We have not forgiven them for their course in the Cochrane matter, and we are afraid we never shall. The Cochrane reissued patents were worthless, and the Courts have so decided, and we cannot help thinking that these men knew they were worthless, and that they had no right to collect royalty under them, but that does not interfere with their right to royalties on good and valid patents.

Many of our friends, no doubt, will be disappointed in our giving up the fight, but we assure them that it was only on the repeated advice of one of our attorneys that we could not hope to win against them. As the Garden City Purifier is now licensed under all patents, both valid and invalid, and as it is the only perfect purifier in the world, weask our friends to see to it that not only their own mills, but those of their neighbors, contain no others.

COLLINS & GATHMANN,

Chicago, Ill.

Millers, Engineers, Mechanics, etc., wanting situations, or mill-owners or manufacturers wanting em-ployes, can have their cards inserted under this head for 50 cents per insertion, cash with order.

situation wanted—I have had two years practical experience in a good flour mill, and want a situation where I can finish learning the trade. I can furnish first-class reference. Address GEO. P. WANDER, 512 Spring st., mr3t Buffalo, N. Y.

WANTED—Situation as head or assistant miller in some first-class firm. Twenty years' experience in steam and water mills. Speak German and English. Salary an after consideration. Address ap\*

LOUIS HALLER, Hicksville, O.

WANTED—A situation as mechanical draughtsman by a graduate civil engineer who has had thorough ex-perience in marine and stationary enging work and gen-eral mill machinery. Good references furnished. Ad-dress C. E., Box 381, Bay City, Mich.

SITUATION WANTED—An experienced head miller, having been employed for many years in the Austro-Hungarian steam flour mills, desires to make a new engagement. Address B. G. 938, care of Hasenstein & Vogler, Vienca, Austria.

wanted—Permanent situation by a miller of 18 years' experience, 12 years in the Northwest; understands "New Process;" am industrious, honest, and capable, and have a family: a place where there are good schools desired; can furnish references. Address C. C. A., care United States Miller.

WANTED—A first-class foreman to take charge of a stone shop; must be perfectly competent to superintend building and finishing buhr stone. Best references required, and none but experienced men having acted as forem n need apply. A good chance for the right emen need apply. A good chance for the right Address F. J. S., care United States Miller. apt

wanted—Millers out of employment and propriet tors of mills to act as agents for the sale of the Ashland Patent Adjustable Sack Holder; one of the best selling articles out. Exclusive territory given, Sample sent to those who wish agency or to use on the receipt of \$1.50. Address

L. JEFF. SPRENGLE, Ashland, Ohio.

WANTED-A situation as Oatmeal Miller by a thoroughly practical, competent man, sober and steady; understands all the different grades for home and foreign markets; the drying and handling of oats in all its details; has had a long experience and can come well recommended. Address "Oatmeal Miller," care of United States Miller, Milwaukee, Wis.

SITUATION WANFED.—A practical miller often years' experience with winter wheat (best flour on new process) desires a place in a thorough new process mill in any capacity in which he can perfect himself in the art of high grinding (spring or winter wheat). Am 33 years old, industrious and temperate in all things; wages no object; unexceptional references given. Address, June tf. Care of Reamer & Co., Chetopa, Kansas.

SITUATION WANTED—By a young man, who has had four years' experience in the milling business. Being part owner of the Neely Mills, Columbia, Tenn., he has had the management of those mills, keeping the books, superintending the grinding, and doing some traveling for the mills. The firm of which he is a member have just leased out the mill and property for a term of years, and he wishes to engage with a medium-sized mill in any capacity. Can take charge of, and successfully run, a 2 or 3 run mill, attending to the stone dressing, grinding, and anything else necessary to do. Has had a good business education, and can furnish the best of references as to honesty, energy, and social standing. Address

mytf

Columbia, Tenn.

#### For Sale or Exchange.

Advertisements under this head \$2 per insertion,

PART LER WASTED-I have a good Grain Elevator, large enough to run a flouring mill. Would like a partner who can furnish the necessary machinery. Parties having mills not paying will find it to their interest to correspond with me.

je\* T. B. GALLAGHER, Larned, Kansas.

FOR RENT—I offer for rent my Grist and SawMill; 3 run of stone; House and Garden; Good Water Power; Water all year round; for term of years. For particu-lars call in person or by letter. M. HELD, je Erfurt P. O., Jefferson Co., Wis.

FOR SALE—A grain elevator in the best grain-growing seation of Kansas. County seat. Splendid business. Address ap\* LOUIS C. WITHAUP, Clyde, Kansas.

FOR SALE.-Steam power saw mill for sale cheap, and on reasonable terms. Mill is in good location, and is doing a good business. Satisfactory reasons will be given for selling. Call on, or address SMITH & TUCKER, feb Cawker City, Kan.

FOR SALE-Custom and merchant mill; steam power; three run of buhrs; the mill has a good run of custom and the flour a good reputation; mill is situated in a fine wheat country and at the junction of three railroads; satisfactory reasons given for wishing to sell. For particulars address Box 106, Altamont, Effingham county, Ill. aptf

FOR SALE—A flouring mill, saw mill and 265 acres of land; 55 acres improved at a price to suit the times for one-half cash; balance long time. The water power is unsurpassed; two run of burrs with necessary machinery. Mill thoroughly repaired last season. Good wheat country. Situated at Orange, Juneau Co., Wis., on the M. & St. P. R. R. Address J. G. EVANS, mrlt Orange, Juneau Co., Wis.

FOR SALE—A grist mill with two run of stone, on one of the best and clearest water powers in the country. Two houses—one a hotel—barns, sheds, hog pen, ten lots with fine fruit trees, in the village of Bird, Oceana Co., Mich. The whole can be had for the give away price of \$4,500, or one-half for \$2,500. Being in other business the subscriber feels compelled to sell. Address at once, J. PALMITER, mr\* Hart, Oceana Co., Mich.

FOR SALE—A 2-run flour mill. Good burns and bolts in perfect order and doing a good business. Waterpower has 14 feet fall, fed by large lake. No ice or floods to contend with. The mill makes good flour and there is plenty of grain in the vicinity. The mill lot contains 4% acres in the town with two dwelling houses, large barn and shed. With the mill will be sold 80 acres of timber land one mile from town. Terms: \$2,000 cash down, and balance in store goods or on five years time. Address for full particulars, WM. SKINNER, feblt Mount Morris, Waushara Co., Wis.

FOR SALE—The Flouring Mills at Troy, Kansas, known as the "Banner Mills," in successful operation, with well-established trade. Location unsurpassed. Railroads in every direction. Fine wheat and corn country. The best county in Kansas. Troy, the county seat, is a thriving town with good schools, etc. The mills have four run of burrs, and the machinery throughout is all first-class. Undoubtedly the best constructed mill in the West. The best opening for business. On account of the ill health of the managing partner the property will be sold at a great bargain. Address jetf TRACY & PARKER, Troy, Kansas.

FOR SALE—I offer for sale a first-class modern flouring mill in this city, making 100 barrels a day; power-water and steam; have not stored a barrel this crop, selling as it arrives in New York; this is a fine opening for any one wanting a mill; property cost \$40,000, but will be sold cheap and on reasonable terms; reason for selling, belongs to an undivided estate. Address

J. D. GREENE, Administrator, je\*

#### For Sale or Exchange.

Advertisements under this head \$2 per insertion,

FOR SALE—Two-run steam mill; best run of custom in the county; two houses and barn. Pays 10 per cent on \$8,000. Cheap for cash, or half cash.

JNO. F. McGUIRE.

mrlt

Clinton, Iowa.

FOR SALE-A flouring mill, saw mill, and 265 acres of land on the M. & St. Paul R. R. Plenty of wheat and a splendid water power. Haf cash, balance long time. Address J. G. EVANS, Orange, Wis.

my\*

FOR NAM.66—A second hand Diamond dressing machine, made by Griscom & Co., with McFeeley Furrowing Attachment, Letter D. Has been in use but short time and is as good as new. Wifl be sold cheap for cash. Address mytf (Deconomyce, Wis.

FOR SALE—The entire machinery of a 4-run 4-ft stone, new process flouring mill, that cost \$50,000, now offered for \$5,000; 10x32 engines, 2 tubular boilers, No. 7 Stillwell heater, all new, not run over 3 months. This is a rare bargain. is a rare bargain. my\* 124 Dearborn st., Chicago.

FOR SALE—The machinery and fixtures, including boiler and 30-horse power engine, and lease of building of Eureka feed mill, 224 E. Lake St., all in good running order; good location; trade already established. Will be sold at a great sacrifice.

T. H. FOS: ER, assignee, 156 Washington st., Chicago.

FOR SALE-Flouring-Mill-Steam-power, four run of stone; main locating, frame, 30x63, 2% stories, with brick basement; brick engine-room, 20x30; building and machinery new; new process; complete in all respects; located in a flourishing town in western Iowa, at junction of three railroads; fuel cheap, doing a good business. Will sell a half interest or whole. Address, my\*

MAYNE & KEY,
Council Bluffs, Iowa.

WANTED—To buy or rent a mill, by a practical miller thoroughly versed in merchant and grist work. Talks both English and German, and can give best of references. Address, S. KAMERER, mr\*

WANTED—A good steam flouring mill at Cawker City, Kansas. The location is exceptionally good. The best of wheat and other grains produced in great abundance. The investment will surely make heavy returns. The Atehison, Cawker City & Denver Railroad will be completed to this point on or before June 1st, 1879. Parties desiring to secure a good location may address for any further information,

EDMUND O. GARRETT,

feblt Cawker City, Mitchell Co., Kan.

FOR SALE OR RENT—One of the best steam flouring mills in the State Four stories, brick and stone, slate roof, four run of burrs. Adapted to new process. Everything new. Best wheat region of the State. Fuel cheap, water plentiful. Near depot and has side track, cooper shep, wagon and stock yards. Pleasant town of 2,000 inhabitants. Satisfactory reason given—neither of us know anything whatever about milling. Terms easy. Fine bargain. Address C. H. HEARD & SON, feb\* McLeansboro, Ill.

FOF SALE—Flour and Saw Mill—One-half interest in a first-class three-run Steam Flour and Saw Mill.

The saw mill is a double rotary, with gang edger, cut-off and bolt saws and shingle machine. It has been built but 18 months, and is in as good a wheat country as there is in the State. My object in selling is to have cash in hand to put in a good c. antry store in connection with mill. Would prefer to seh to a miller or a man that is well posted in s'ore business who can command from \$6,000 to \$7,000 and furnish good reference. I will guarantee good margin to the trade. Address all communications to

A. J. FULLERTON, feb2t

Bonduel, Shawano Co., Wis.

This mill, situated in a small village within four miles of Broad Top coal fields, was recently rebuilt with all modern improvements and is in good repair. Mill is on a never-failing stream, with 30 feet head and is propelled by two turbine wheels. Has three run of burrs and one run of choppers. Building is frame, 42 by 50, and four stories high. Machinery is suited for making either merchant or custom work. Belonging to the mill are a good saw mill, 180 acres of farm land, 100 acres of valuable bark-timber land, three dwellings and a storeroom. The owner of the above property will also sell three separate tracts of good bark and fine timber land, containing 400, 280 and 72 acres. For further particulars call on or address, feb\*

New Grenada, Fulton Co., Pa.

FOR SALE OR RENT—A five-run steam mill, located at Manchester, St. Louis Co., Mo., eighteen miles west of the city of St. Louis. It is located in a neverfailing wheat country and is supplied directly by the farmers at reasonable figures. The mill has been run profitably for the past sixteen years. Was rebuilt on a thorough and convenient plansix years ago. Good reasons for wishing to sell or rent. Mill is running to its full capacity and is doing a good business. No competition, no railroads. All of the offal sold at the mill, and a large trade established for the flour. Will be sold to parties having part cash; long time given for remainder at a reasonable rate of interest, or will rent or reasonable terms. Address or call on the proprietor,

Manchester, Mo.

FOR SALE—A four-run steam flouring mill, all in first-class running order. Three 3% foot burrs for wheat and one 3% foot chopping burr, one Eureka wheat cleaner and a Eureka smutter, Garden City middlings purifier, Excelsior bran duster, Eureka flour packer and all other machinory necessary to complete a first-class mill. Two 28-flue boilers, 65-horse power engine. Stilwell heater. Frame building and seven desirable town lots belonging to the property. Side track of A. T. & S. railroad close by the mill, which is located in the city of Sterling, Rice Co., Kansas, in the midst of the best wheat district in the Arkansas valley. The parties owning the mill are not practical millers, and are engaged in other business. They will sell the property low and on easy terms. Address LANDIS & HOLLINGER, feb\*

FOR SALE—We offer for sale the steam merchant flouring mill located at Peterson, Fillmore county, Minn., one of the finest wheat growing counties in the State. The mill is situated on the Southern Minnesota railroad, with side track to the door of the mill, thus giving the best of facilities for grinding wheat in transit. This road is being rapidly extended westward into the best wheat growing section in the Northwest, so that the facilities for obtaining choice milling wheat are growing better each year. This mill was built in 1876; is 40 x60 feet; three and one-half stories high above the basement. Contains eight run of burgs, with all the modern machinery; brick boiler and engine rooms, practically fire-proof, adjoining the mill 30 x 40 feet; two boilers and 22 x 34 inch sut-off engine built by us. The mill has a capacity of 160 barrels per day, and has a well established trade, the flour commanding the highest price in the market. This property will be sold cheap as we have ne use for it. For further particulars inquire of FILER, STOWELL & CO., mrtf Cream City Iron Works, Milwaukee, Wis.

FOR SALE—A Texas flour mill and land; a rare bargain. I offer my steam flouring mill at Trinity Mills, a depot 16 miles from Dallas, Texas, and on the Dallas & Witchita Railroad, for sale at a great sacrifice. The mill has three run of stone, two for wheat and one for corn. It has a capacity of 100 barrels per 24 hours; fine tubular boiler and good but old style engine; stones driven by beveled gear; mill built four years ago and cost over \$9,000. With the mill I will sell 428 acres or more of land, on which near the mill are two dwellings of four rooms each and a large store-house; about 50 acres of superior prairie soil for field crops, fruit and vegetables; the balance is in timber and will afford perpetual fuel for the mill and fine pasturage. It is located on the Elm Fork of Trinity River, and is exceedingly fertile. I will sell the whole to a CASH purchaser for \$15 per acro—not more than the value of the land. There is plenty of wheat raised in the county. Satisfactory reasons for selling. Address immediately,

aptf DR. ROY B. SCOTT, Trinity Mills, Texas.

BOTTLED BEER.

VOECHTING, SHAPE & CO.,

Joseph Schlitz Brewing Company's Celebrated Milwaukee Lager Beer Cor. Second and Calena Streets,

MILWAUKEE

WISCONSIN.

BOTTLERS' SUPPLIES CONSTANTLY ON HAND Parties corresponding will please state where they saw this advertisement.

### WHITE LEAD WORKS.

We grind as a specialty a Strictly Pure Colored Lead in paste form (not liquid paints), and put up in 25, 59 and 100-10. kegs. By actual test we have demonstrated colors ground into Lead makes a more permanent and fast in color. As to durability it has no superior. We place a guarantee label on each package of 95 per cent. lead, and not over 5 per cent. coloring matter.

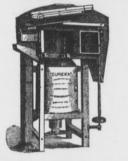
J. E. Patton & Co., MANUFACTURERS OF

WHITE LEAD, COLORS AND VARNISHES.

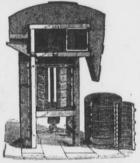
Nos. 268 to 272 East Water St., MILWAUKEE.

Sample of colors sent by mail on application. Parties corresponding will please state where they saw this advertisement. my15

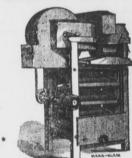
### Established in 1856.



UP BEER OF BUILDING BE A ? Smut and Separating Machine.



THE "EUREKA" Brush Finishing Machine.



SEPARATOR.

We continue, as heretofore, to manufacture in the best possible manner, the Wheat Cleaning Machinery here illustrated. On and after Jan. 1st, 1879, we will discount from our former prices of all our wheat-cleaning machinery 15 per cent, with an additional cash discount of 10 per cent if cash is paid in thirty days from date of shipment. We also keep full stocks of

Genuine Dufour and Dutch Anchor Bolting Cloths. Send for Illustrated Pamphlet. Address

### HOWES, BABCOCK & CO.,

Silver Creek, Chautauqua Co., N. Y.

C. HARRISON & CO., 17 Fenchurch St., London,

Sole Agents for Great Britain and the Continent of Europe.

PERFECT SATIS

ACTION

GUARANTEED

# Garden City Middlings Puritier.

Pat. April 21, 1874; April 13, 1875; also Pat. in Canada and Great Britain, by Louis Gathmann.

### Adapted to both Large and Small Mills.

MOST PERFECT In Construction.



THE ONLY First-Class Machine



### HIGHEST AWARD at the CENTENNIAL EXPOSITION, PHILA.,

And at the Canadian Exposition, where it also triumphed over all competitors.

This machine will purify middlings perfectly by once cleaning, without waste in blowing or offal, which no other machine will do. It is the simplest, and at the same time the Cheapest Machine in the market, when its capacity and the quality of its work are considered. Send for circular in German or English.

### COLLINS & GATHMANN, Prop's,

Clinton and Washington Streets, CHICAGO, ILL.

### Attention, Millers!

Of the Age.

No Patent Staffs Wanted.

#### NO HUMBUG! TRUE! GENUINE!

No Mill-Stone can Positively be TRUED by any of the Staffs now in use.

I have invented, and secured by letters patent, No. 211,244, an Improved Method for Truing the Grinding Surfaces of Mill Stones. Having been practically engaged in the milling and mill-stone business for over 30 years I have learned the great value of having a perfectly true face on grinding stones, and during the past 10 years I have expended a great deal of time and money in making my invention and securing my patent. The very foundation of successful milling is in the proper treatment and use of the mill-stone. A true face will make even, uniform flour and a large percentage of middlings, while an uneven stone will cause uneven grinding and poor flour, which no purifier or system of bolting will rectify. With a true face on the mill-stone the miller can set his irons right, can tram the spindle right, can get the level right, and not half the work in dressing will be necessary. This is a matter of the

#### UTMOST IMPORTANCE TO MILLERS, And I respectfully call your attention to it, and invite

correspondence.

I have just sold rights for mills to the following wellknown mill owners, to any of whom I refer you :

Nunnemacher & Co. Milwaukee, Wis-Gerlach & Dittmarsch, Milwaukee, Wis. Huntingdon & Koch, Barton, Wis. Smith & Co., Grafton, Wis. Volker & Jonas, Saukville, Wis.

Geo. Guettler, Thiensville, Wis. Milwaukee Milling Co., Milwaukee, Wis. Orville Hathaway, Oconomowoc, Wis. F. Miller & Co. (2 mills), Watertown Wis. Barnes & Hodson, Janesville, Wis. Coman & Morrison, Fox Lake, Wis. E. R. Hoyt & Son. Beaver Dam, Wis. H. G. Mathews, Brandon, Wis. Filer, Stowell & Co., Milwaukee, Wis. Schauble & Vallansch, Fredonia, Wis. Wm. Albrecht & Co., Newburg, Wis. Wehausen & Co., Cedarburg, Wis. Bodendoerfer & Zaun, Cedarburg, Wis-Schroeder & Trottman, Cedarburg, Wis-Chas. G. Deisner, Pewaukee, Wis. M. Held, Jr., Sullivan Mills, Jefferson Co., Wis. G. Schnekenbuhl, Palmyra, Wis. Chas. Geisener, Pewaukee, Wis. Hotchkiss & Puhlman, Plymouth, Wis. Bickbauer & Klumb, Plymouth, Wis. J. Bauerkind & Co., Glenbeulah, Wis. Maurer & Co., Johnsville, Wis. Valier & Spies, Marine, Ill. H. Rodee, Ogdensburg, N. Y Bennett Bros. & Coe, Geneva, Ill.

I have placed my price for RIGHTS for mills at an extremely low figure, considering the value of my invention, so as to bring it within the reach of all. For further information and correspondence address

WM. LEHMANN,

722 Fourth St., Milwaukee, Wis.

#### B. F. GUMP.

No. 53 South Canal Street,

Chicago, Illinois.

GENERAL MILL FURNISHER,

COMMISSION MERCHANT,

AND CHICAGO AGENT FOR

GENUINE DUFOUR & CO.

#### BOLTING CLOTHS.

I HANDLE NO OTHER BRAND.

All numbers kept constantly in stock to supply the largest order at a moment's notice. Grit-Gauze Cloths equal in Mesh to 000 to number 6 inclusive always on hand.

Flour Mill Trimmings a Specialty. Such as Rubber, Leather, and Solid Wove Cotton Belting, Elevator Buckets and Bolts, Bran Dusters, Wire Cloth, Plated Wire Cloth, Brass Wire Cloth, Water and Steam Gauges, Boiler Injectors, Pumps, Packing, Smutters, Corn Shellers, Portable Mills, &c., &c. And all necessary articles for Mills at prices to suit the times. prices to suit the times. Send in your orders.

WALKER'S

### BELT TIGHTENER.

Indispensable for Safe and Economical Operation of Belts on Vertical Shaft and Spindle Pulleys. **Prices Eccluded**. Circulars free. Address GEO. WALKER, Box 222, Hamburg, Eric Co., N.Y. [Mention United States Miller.]

WARD & CO.,

Manufacturers of FRENCH BURR

### Mill-Stones.

Under Ward's Patent. Address

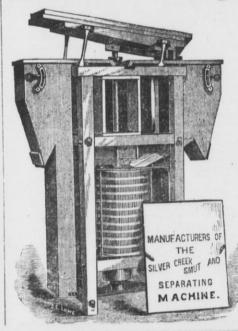


CHICAGO, ILL.
Mill-stones. Old and
New Quarry, solid, and
built on edge. Stones
specially prepared for
grinding Middlings,
made of stock selected
for that purpose; also
those built on P. W.
Ward's new plan as
shown in the annexed
wood cut.

JOHN KEEGAN. JOHN HEENEY. MRS. WARD.

### THE SILVER CREEK

### Smut and Separating Machine



With Adjustable Shaking Shoe and Changable Cockle-Screens, whereby all Cockle can be extracted from the Wheat. Will do thorough work, both as a Scourer and Separator.

Warranted not to cut or break wheat.

### Bolting Cloths

A SPECIALTY.

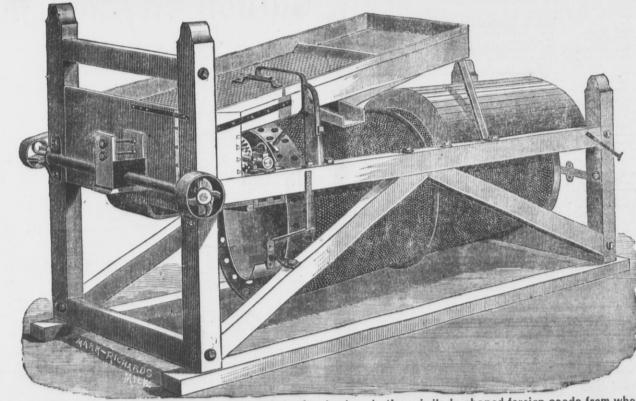
Send for descriptive circular. Address

Nagle, McNeal & Co.

Silver Creek, N. Y.

### COCKLE KURTH'S PATENT

run it. We also manufacture an



The above illustrated machine separates perfectly cockle, wild peas, wild buck-wheat, and other similarly-shaped foreign seeds from wheat. Requires but little power to

SEPARATOR,

Which is fully equal to any manufactured. This is made in two styles, and is in combination with Cockle Separator. One style has two suctions, one operating on grain as it enters the machine and the other as it leaves it, each being independent of the other and easily regulated. The other style has one suction, which may be either first or second. Among our references we respectfully call attention to the following: Cockle Machines in operation, I have learned to appreciate their value, and trust that the fourth, ordered a day or two ago, will be shipped without delay. I want this in addition to the two machines I have already running on wheat, that I may be able to do absolutely perfect work, and cheerfully recommend them to those who aim at perfect work. On the other hand, I was free to admit, the other day, that your Separator is of no use to millers who argue that cockle makes good white flour, increases its bulk, and that therefore it is wasteful to take it out. Yours respectfully.

FERD. SCHUMACHER.

MINNEAPOLIS, Minn., Jan. 9, 1879.—Cockle Separator Manufacturing Company—Gents: We have used your kle Separator for the past three years, to our entire satisfaction. We commend them to all in want of a perfect J. A. CHRISTIAN & CO. machine. Yours truly,

MINNEAPOLIS, Minn., Jan. 16, 1879.—Cockle Separator Manufacturing Co., Milwaukee—Gents: In answer to your favor, would say that we have in use four of your Cockle Machines, and find them to be the only machines your favor, would say that we have in use four of your Cockle Machines, and find them to be the only machines that we have yet seen that will separate the cockle from the wheat. The improved machines give us no trouble in that we have yet seen that will separate the cockle from the wheat. The improved machines give us no trouble in that we have yet seen that will separate the cockle from the wheat. The improved machines give us no trouble in that we have yet seen that will separate the cockle from the wheat. The improved machines give us no trouble in that we have yet seen that will separate the cockle from the wheat. The improved machines give us no trouble in that we have yet seen that will separate the cockle from the wheat. The improved machines give us no trouble in that we have yet seen that will separate the cockle from the wheat. The improved machines give us no trouble in that we have yet seen that will separate the cockle from the wheat. The improved machines give us no trouble in that we have yet seen that will separate the cockle from the wheat.

Minneapolis, Minn., Jan. 9, 1879.—Cockle Separator Manufacturing Co., Milwaukee: We are using two of Kurth's Patent Cockle Separators, and while they work somewhat to a disadvantage on the present crop, we know of nothing that will do the work as well. We consider them the best machine made. Yours truly, NEWTON.

Oswego, N. Y., Jan. 29, 1879.—Cockle Separator Manufacturing Co., Milwaukee—Gents: We are pleased to say that our use of your machines for the last two years, has been highly satisfactory, and especially do we like the new double section machine, which does its work so perfectly that we would not like to do without it. Indeed we deem the machines indispensable in good milling, particularly with spring wheat. Your friends, PENFIELD, LYON & CO.

WHITEHALL, Wis., Dec. 11, 1878.—Cookle Separator Manufacturing Co., Milwaukee—Gentlemen: Allow us to say that the machine works to a charm, and that we calculate our flour is worth fifty cents more per barrel for the use of it. Respectfully yours,

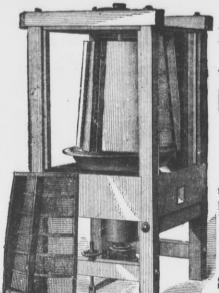
AKRON O., Jan. 27, 1879.—Cockle Separator Manufacturing Co., Milwaukee—Gentlemen: Having three of your We make a machine especially for extracting Cockle and other similar Seeds from OATS and BARLEY, which is of great importance to out-meal manfacturers, malsters, etc. Send for Illustrated Catalogues, describing machine fully with diameter, capacity, etc., to

COCKLE SEPARATOR MANUFACTURING CO.,

P. O. BOX 180.

Cor. Clinton and Florida Sts., MILWAUKEE, WIS. U. S. A.

THE LATEST IMPROVED



Replace Ordinary Engines, Guarante

Save One-Third Fuel.

ing to

Pat. Aug. 14, 1877.

PERFECTION ATTAINED AT LAST

Will ship to responsible parties on trial and

ENTIRE SATISFACTION OR NO

### CHALLENGE

As all manufacturers of Bran Dusters claim their machines to be the best, we will agree to pay for any machine made in the world that will compete with ours, and be adjudged superior y competent judges, provided any other party vill do the same with us.

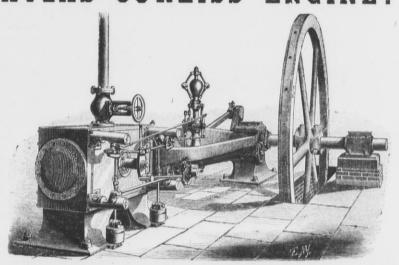
Send for circular to

STEPHEN HUGHES & CO.,

HAMILTON, OHIO.

WRITE

### ATLAS-CORLISS ENGINE!



ATLAS ENGINE WORKS, INDIANAPOLIS, INDIANA

BUILDERS OF ALL CLASSES OF

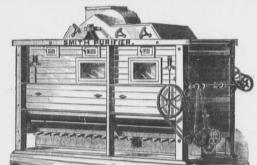
### Engines and Boilers.

We build The Best Farm Engines and Small Engines for Warehouses and Elevators.

The Geo. T. Smith IMPROVED MIDDLINGS PURIFIER.

#### SIMPLE, DURABLE, ECONOMICAL,

AND REQUIRES BUT LITTLE POWER.



Purifies Middlings or Returns from Hard Spring or Soft Winter Wheat, thoroughly,

### The Traveling Brush, The Sectional Draft, The Pockets,

AND MANY OTHER IMPORTANT FEATURES.

A large number are in use in the successful New Process Mills of this country.

We manufacture eight sizes, adapted to the smallest or largest mills. Our prices range from \$225 to \$600, and cover a license under all of the patents owned by the Consolidated Middlings Purifor Company. Middlings Purifier Company.

Send for our New Circular and price list with references. Address the Manufacturers.

Geo. T. Smith Middlings Purifier Co.,

aug

JACKSON, MICHIGAN.

THE Northwestern Mill Bucket Manufactory

310, 312, 314 FLORIDA Is furnishing Mills and Eleva-tors in all portions of the Country with their super-ior BUCK ETS.

NORTHWESTERN
MILL BUCKET.
MILWAUKEE
est market rates. Send for prices.
feb L. J. MUELLER. 197 Pand of Milk and Mulling and Mul

L. J. MUELLER, 197 Reed st., Milwaukee.

SLATER'S IMPROVED

Warranted the best in the world. The only Reel that will dust Middlings perfectly.

BOLTING CHESTS of any capacity at prices to suit the times.

DUFOUR & CO.'S BOLTING CLOTH. Superior Wheat Scouring and Brush Machines. General Mill Furnishings.

CHARLES B. SLATER & CO., Blanchester, Ohio.

VAN DE WATER'S NEWLY IMPROVED

83 PER CENT. GUARANTEED.

No wise man in want of a good 83 per cent. Water Wheel will hesitate in sending his orders for wheels from 6-inch to 72-inch diameter. All orders will be promptly filled on the following conditions: The Wheels may be tested by James Emerson, of Holyoke, Mass., or any other party who has a testing flume desired by purchaser. I will build my wheels to order and guarantee them to give 83 per cent. of the useful effect of the water used, and accompanied by the certificate of the party who may test the Wheel for the purchaser, under the following conditions: Purchaser to pay 10 per cent additional to the price of the Wheel for freight and resting, providing it gives 83 per cent., and if only 80 per cent. is obtained the additional 10 per cent. will not be charged, but the Wheel shall be considered sold, and if less than 80 per cent. No Sale. It is true every turbine builder claims to have the best Wheel in the world, but, if purchasers of Wheels would insist upon having them tested, disreputable and ignorant Wheel builders would be driven from the market. A poor turbine is DEAR at any price, and the public knows that I am right in so saying.

REDUCED PRICE LIST, NOVEMBER 1, 1878:

It is optional with the purchaser to take Wheel tested or not, for the above price from shop. Address all communications to

HENRY VAN DE WATER, Auburn, New York, U. S. A.

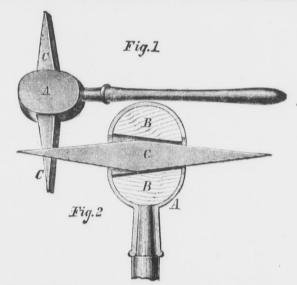
ROCHESTER, N. Y., May 28, 1874.—II. Van De Water, Esq.—Dear Sir: In regard to the 16-inch Water Wheel I bought of you I will say, that under a 28 foot head I am told by the miller that it runs 2-run of stone 45 feet in diameter, grinding 16 bushels of feed and 10 bushels of wheat per hour at 5 gate, which the old over-shot wheel never sould do with that amount of water. I am satisfied that yours is the best Wheel made. Wishing you success with your improvements.

N. S. FULLMAN.

J. O. Kendall & Co., of Hartford, Wis., say of their 30-inch Wheel: "It will dress and grind from 5 to 6 bushels of wheat per hour on each pair of burrs and from 15 to 20 upon the feed-run, and can drive them all to do the above amount of work. We have 5-run of 4-foot burns and I feed-run, also a large amount of cleaning inachinery, and the Wheel runs them all to our satisfaction."

Any number of references can be furnished upon application.

Noye's Patent Pick Holder



The Only Holder Worthy of the Name.

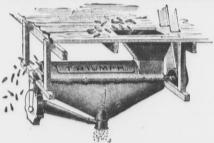
The Pick can be adjusted at will to strike the Stone at any desired angle. Wehave constantly on nand a large assortment of our celebrated

Cast Steel Mill Ficks

AT PRICES TO SUIT THE TIMES.

JOHN T. NOYE & SONS, Buffalo, N. Y.

TRIUMPH



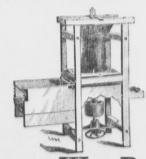
Shells and Cleans 2,000 Bushels Ears per day. The Cheapest, Best and most Simple Power Corn Sheller in use. Send for Circular and Price List. HULBERT & PAIGE,

Painesville, Ohio.

R. P. WARD,

THE IMPERIAL

Corn Sheller



Adjustable While Running So as to shell corn of any size.

WILL also CLEAN the SHELLED CORN.

Send for descriptive circular.

R. P. WARD, SILVER CREEK, CHAUTAUQUA CO., N. Y. Mill Pick Works

HENRY HERZER.

456 Canal Street.

MILWAUKEE.

I desire to call attention to the durability of MILL PICKS made and dressed by me. I manufacture them of the best ENGLISH STEEL, and warrant all work to give satisfaction.

I shall be pleased to receive your orders, as I always have a supply of New Picks on hand, and give particular attention to dressing Picks.

GEO. R. GALE,

HAYWARD MILL FURNISHING WORKS

YL GA



HENRY BODMER'S CELEBRATED Het Anker (Brand) Bolting Cloths.

THE BEST QUALITY OF FRENCH BURR MILL-STONES.

Office, No. 66 River Street,

CLEVELAND, O.

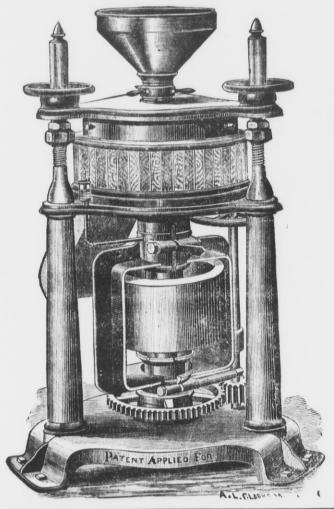
### CREAM CITY IRON WORKS.

# Milwaukee Middlings Mill-Stone Company,

MILWAUKEE, WISCONSIN,

## RNISHERS.

SOLE MANUFACTURERS OF



# Jonathan Mills'

# Wheat and Middlings



MOST PERFECT DEVICE ever INVENTED for REDUCING GRAIN to FLOUR.

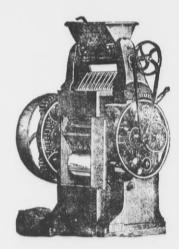
REQUIRES LESS POWER, LESS ROOM, and LESS ATTENTION Than any other Mill Manufactured,

AND CAN BE SET ON ANY GOOD MILL FLOOR WITHOUT EXTRA FOUNDATION.

Send for Circular and Price List to the MILWAUKEE MIDDLINGS MILL-STONE CO., MILWAUKEE, WIS. Plans and Estimates furnished on application for complete Flouring Mills on our system.

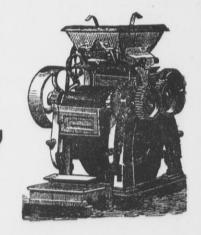
VIENNA EXHIBITION, 1873, Awarded Diploma of Honor.

PARIS EXHIBITION, 1878, Awarded 2 Gold Medals and 1 Silver Medal.



# GANZ & CO.'S Iron Foundry and Manufacturing Association,

Buda-Pesth, Hungary, or Ratibor, Germany.



We take this method of recommending to the American milling public our PATENT ROLLER MILLS with chilled cast iron rollers, for crushing and grinding wheat, which have met with such eminent success in Europe. The mill-owners of Buda-Pesth, as well as the prominent millers of Austro-Hungary, and a large number in Southern Germany, Switzerland and England, have provided for their mills the celebrated GANZ ROLLER MILLS, which are about to supplant entirely grinding on mill-stones, their working being more perfect, producing more white flour, requiring less power than the best mill-stone, and wanting no repairs excepting to occasionally replace a hearing. We have introduced into the art of milling these Roller Mills with chilled cast iron rollers, and from 1874 to January, 1879, we have delivered in the different European countries, Africa and the United States of America about 2,100 mills, and all work satisfactorily. Our crushing mills may now be regarded as absolutely necessary for every well-furnished modern mill, and this is proven by the numerous testimonials at hand. Our grinding mills are remarkable for their absolute discharge hearings, by means of the newly-devised Anti-Friction Pressure Rings. These Rings allow a very high pressure, and hence assure the performance of a great deal of work, avoiding all waste of power caused in other machines by friction in the bearings.

Out of numerous testimonials at hand we select the following:

Buda-Pesth, March 28, 1878.—To Messrs, Ganz & Co., Foundry and Engineering Co., Limited, Buda-Pesth: Complying with your request to communicate to you my experience with your Roller material, I have pleasure in stating that I consider it, i.e., your generally well-famed chilled iron, as the best within my experience, and its adoption has satisfied me in every respect, so that I do not hesitate to assert, by introducing it on a large scale, you have rendered a considerable service to the milling art. Your material is equally well adapted for rough grinding, softening or grinding. Owing to its great hardness I cannot characterize it otherwise than indestructible. The grooved cracking rollers have demonstrated this hardness, as also a toughness, of your castings in a manner which astonishes all who know the rapid wear of cutting edges used in the treatment of grain. Your smooth rollers, once properly ground, preserve their complete cylindrical form, and do not require any repair for a period which even now cannot be estimated. They acquire, soon after being put to work, a finely-gritted surface texture, eminently adapted for grinding as well as for drawing down the meal, a condition which they preserve without change. It is quite superfluous to prove that there can be absolutely no question of discoloring unless with reference to new rollers, to which some remnants of oil, emery or other matter may yet adhere. The flour produced by your Chilled-Iron Rollers is very lively and has remarkable baking qualities. While stating the above to the best of my conviction in answer to your inquiry. I seize with pleasure this opportunity to express to you my thorough approbation, not only of your roller material, but also generally of your roller mill construction. Your rough grinding gracking) with chilled-iron roller mills constitutes such an essential step in advance as compared to the rough grinding with stones, that they cannot fail to win their way into every well-built mill, working on the high or half-high grinding sys

(signed) C. HAGGENMACHER, Director of the First Ofen-Pesth Steam Mills.

TIVOLI KUNSTMUEHLE, Munich, April 5, 1878.—To Messrs, Ganz & Co., Engineers, Buda-Pesth—Dear Sirs: In reply to your esteemed of March 28, we have pleasure in testifying to our satisfaction with the Chilled-Iron Rollers

supplied to us by you. We have now had both smooth and fluted Rollers in use for the last two years, and have not found any appreciable wear in the smooth Rollers. With reference to the work and capacity we can but report favorably. The Flour produced by them is lively, and not killed as has been stated in some quarters, while its baking properties are first rate. Referring to the lately supplied fluted Rollers, Mechwart's Patent, grooved on the new method, they work admirably and are especially to be recommended for mellow wheats. Recapitulating, your Roller material is as tough as it is hard, and therefore in every way adapted for the purpose it is intended. We remain,

Tivoli Kunstmuchle, A. MUELLER.

Buda-Pesth, July 16, 1877.—Messrs. Ganz & Co. Buda-Pesth—Gentlemen: The most satisfactory results which, on testing the different Wheat-breaking Machines, we obtained from your Fluted Rollers, induced us to adopt your system and, in consequence, we already provided our mill with a great number of your Breaking-Rollers. In consideration of the experience derived from use of these Rollers we begt point out as particular advantages of your Wheat-breaking System that extremely little flour is produced, provided the rollers are used as directed, that your Rollers most satisfactorily detach the Semolina from the Bran, and thoroughly separate the Germ-Particles, and finally that they are of an astonishing durability, and that it requires no skilled labor to manage them. Moreover it must be stated that your system suits perfectly well any process of Breaking-Wheat. It affords us so much more pleasure to give you the above account, as we are inclined to think that by the construction of these Rollers you have achieved an essential progress in the milling industry. Yours truly, PESTER WALZMUEHL-GESELLSCHAFT. Riedle, m. p. Burchart, m. p.

Buda-Pesth, July 11, 1878.—Messrs. Ganz & Co., Engineers, Buda-Pesth—Dear Sirs: Having had occasion to try your newly patented Roller mills with others, known until now, I feel induced, regarding their excellent qualities to give orders for furnishing me the Roller mills to be erected in my two mills. These Roller mills are to be recommended by their construction, surpassing all known until now, and especially for their remarkable capacity, doing much work with little power. Believe us, gentlemen, Yours truly,

HEINR. HAGGENMACHER.

BRANDERS A. ADLER, Bohemia, February 13, 1879.—Messrs. Ganz & Co., Buda-Pesth—Gents: I give you my best thanks for your delivering to me your well-made and well-working machines, as well as for those 2 machines you delivered me last year. I have no objection to your publishing this. Yours faithfully, G. HANNAK, Civil Engineer and Mill-owner.

Address all communications t

### GANZ & CO., Buda-Pesth, Hungary,

Cable Address "GANZ, Kaiserbad."

Or GANZ & CO. Ratibor, Germany.

Volume 7.-No. 3.

#### MILWAUKEE, JULY, 1879.

Terms: \$1.00 a Year in Advance.

#### NEWS.

#### EVERYBODY READS THIS.

ITEMS GATHERED FROM CORRESPONDENTS, TELE-GRAMS AND EXCHANGES.

John D. Lang, miller, of Vassalboro, Me., is dead.

Fisch's mills in Manitowoc Co., Wis., are being rebuilt.

Jno. S. Urie, of Carbondale, Kan., is building a two run mill.

A flouring mill was burned in Boston, Mass., June 24th.

The great Menasha water-power suit is now on trial at Oshkosh.

Ten thousand barrels of California flour were recently shipped to China.

Nearly 12,000 barrels of flour were shipped from Minneapolis June 21st.

Messner Bros., millers, Bridgeport, Mich., have dissolved partnership.

D. K. Landis, miller, of Derry Church, Pa., has made an assignment.

Wm. Hamilton & Co., of Edwardsville, Ala., are building a small custom mill.

Work on Washburn mill "A," in Minneapolis, is being rapidly pushed forward.

The mill of Samuel Stewart, situated at Huntsville, Ohio, is being remodeled.

Messrs. Haffner & Schimer, millers, Lockport, N. Y., have made an assignment.

H. F. Brown & Co., millers, Minneapolis, succeed to the firm of S. S. Brown & Co.

John Carlisle, of Millersville, Ind., is placing new process machinery in his mill.

R. K. Stafford, miller, of the firm of R. K. Stafford & Son, Staffordsville, Va., is dead.

Book & Hess, of Argos, Ind., are adding an additional run of buhrs, iron hurst and elevators.

The milling firm of Rye & Vincent, Edenburg, Va., has been succeeded by Vincent & Boehm.

Bauman & Snyder, millers, of Pataha City, W. T., have dissolved partnership. Bauman continues.

The Milwaukee Middlings Millstone Co. have sold over one hundred mills during the past month.

John T. Noye & Son's, Buffalo, N. Y., loss by fire was about \$50,000. They were insured for \$46,000.

The Milwaukee Middlings Millstone Co. are more crowded than ever with orders and business still increasing.

The large mill of Long & Co., at Russelville, Ky., is being overhauled and is having additional machinery.

Samuel Zimmerly, of Socoro, New Mexico, is adding a run of buhrs, elevators, bolt and other machinery to his mill.

J. M. Welden, of Lewisburgh, Ky., is building an addition to his saw mill, in which he will place a custom mill outfit.

The Anchor Mill, Minneapolis, owned by Messrs. Pillsbury & Co., has been thoroughly reconstructed and has started up.

The mill at Money Creek, Minn., formerly owned by S. Fox, has been purchased by John Leman, who has given it a general overhauling.

Albert Curtis, an employe of the Northwestern Mills, Milwaukee, had his leg broken, June 20th, by the careless backing of a wagon.

The mill at Bluffton, Iowa, formerly owned

by Blackmer & Meder, has been sold to Hall & Rice. They intend to remodel the mill this summer.

The firm of D. K. & J. Sternberg, millers, of Boulder, Col., has been dissolved. The business will hereafter be conducted by J. Sternberg.

W. W. Vaughn, miller, of Lyons, Wis., is dead. He was also senior member of the firm of •W. W. Vaughn & Co., flour dealers, in Racine, Wis.

Strowig Bros. have ordered a two-run water mill of the Nordyke & Marmon Co., of Indianapolis, Ind., which is to be set up at Valley Falls, Kan.

Jonathan Greggson, of Austin, Minn., is taking the machinery out of his mill and will rebuild it and increase the capacity, making it a first-class mill.

Robt. Williams, proprietor of the Northwestern Flour Mills, Milwankee, has recovered \$302 of the \$332 recently stolen from him by his servant girl.

The grist mill owned by James Forbes at Chickasaw, Iowa, is having an addition built on, and increased two run of stone, making it a five-run mill.

The Attica Milling Co., of Attica, Ind., have ordered two additional run of buhrs, bolting chests and elevators, to increase their mill to a five-run.

Nordyke & Marmon Co., of Indianapolis, are building a large elevator for I. P. Evans & Co., of Indianapolis, for handling grain used in ther mill.

Nordyke & Marmon Co,, of Indianapolisa Ind., are building a two-run mill, to be driven by an Atlas engine, for A. W. Althouse, of Osage Mission, Kan.

Wysor, Kline & Co., of Muncie, Ind., are making extensive improvements in their large mill, and adapting it to the latest principles in new process milling.

Four thousand barrels of flour were recently shipped from New Orleans to Baranguilla, a town in New Grenada, on the Magdalena river, South America.

The Selma (Ala.) Compress Co. have ordered a three-run mill, which will be intended for manufacturing corn-flour, meal and various other products from corn.

Most of the mills on the Southern Minnesota Railroad in Minnesota are running full capacity, and at the present time farmers are not slow in bringing in their wheat.

The Milwaukee Middlings Millstone Co. have a number of contracts on hand to take out four-foot stones and replace with their sixteen-inch mills for grinding wheat.

Mr. F. W. Stock, of Hillsdale, Mich., takes four more sixteen-inch mills from the Milwaukee Middlings Millstone Co., throwing opt four-foot stones to make room for them.

The Milwaukee Middlings Millstone Co. are furnishing 7 mills in Michigan, 4 in Wisconsin, 3 in Minnesota, 2 in Missouri, 5 in Illinois, and many others in various parts of the country.

The firm of Frasius & Bennett, millers, Clyde, Kansas, has been dissolved by mutual consent, Mr. Bennett withdrawing. The new firm succeeding to the business is now styled Frasius & Withaup.

C. C. Busby, of Fieldon, Ills., has engaged the Nordyke Marmon Co. to remodel his mill to the improved methods of new process milling. Two run of burrs, iron hursts, purifiers, rolls, etc., are being furnished and set in position.

The mill at LaCrosse, Wis., owned by A. A. Freeman and M. L. Freeman, now has fifteen run of stone and twenty-two sets of rollers. Millwrights are now at work endeavoring to

make it as near fire-proof as possible. It is a first-class risk in every particular, and is a success under the management of Mr. Ziedler.

Millers who have the old style porcelain rollers run by gear wheels, that wish to stop that everlasting deafening noise, can do so by running the gear wheels in oil. Have a tin or galvanized iron pan made that will entirely encircle said gear wheels fitting tight around the shafts; hinges on one side, and fastenings on the other; fill about half full of oil.

Within the past year John T. Noye & Sons, have ordered Walker's Belt Tighteners for operating belts driving mill-stones and machinery in several of the mills for which they have furnished the fittings; among which may be mentioned the well known milling firm of Penfield, Lyon & Co., Oswego, N. Y., for whom they recently ordered several of these tighteners. This shows an appreciation of this invention in high quarters.

It is a settled fact that Cawker City is to have a first-class steam flouring mill. The necessary aid which has been asked of our people has been extended, and the building will be immediately erected. The mill will be furnished by four run of burrs, and the engine will be of sixty horse power. The entire mill, when completed, will cost from \$10,000 to \$11,000, and will be an institution that will go far toward building up the business interests of our city. We wish the projectors of this enterprise the very best of prosperity.-Cawker City (Kansas) Free Press. [Messrs. E. M. and J. A. Beach, formerly of Illinois, are the parties who are going to build the mill above mentioned.]

The following is a list of millers who have lately bought the Becker brush from the Eureka Manufacturing Company, of Rock Falls, Illinois: Wm. Ohlhausen, Weston, Mo.; W. H. Burns, Woodville, Ohio; Barney & Kibby, Sandusky, Ohio; Coulton Bros., Bellefountain, O.; W. E. Woodyear & Co., Baltimore, Md.; Q. M. Brandt, Mount Joy, Pa.; Richmond City Mill Works, Richmond, Ind.; Nordyke & Marmon Co., Indianapolis, Ind.; J. E. Loughrey & Co., Monticello, Ind.; D. H. Caswell & Co., Nashville, Tenn.; Cannon & Son, Bell's Depot, Tenn.; Whitmore & Binyon, London, England; Oscar Oexle, Augsburg, Germany; Anton Gunther, Hamburg, Germany; J. Grossman, Buda Pesth, Hungary; many; J. Grossman, Buda Pesth, Hubban, Ernst Billhuber, Holez, Spain; A. Millot, Zurich, Switzerland.

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.

In our August number we shall present our annual review of the milling industry in Milwaukee.

It is highly probable that the electric light will soon be introduced into the leading flour mills of this country.

WE call the attention of our readers to the advertisement of Wilhelm Braun, of Carlsbad, Bohemia. Parties writing to foreign advertisers should mention in their letter where they saw their advertisement. Letter postage to European parts is 5 cents for each half ounce. Newspapers, 2 cents each.

THE Board of Trade flour trier and grain inspector, manufactured by H. J. Deal, of Bucyrus, O., is meeting with rapid sale. The celluloid flour triers are cheap and very handsome. Mr. Deal presented us with one a short time since, and one of our miller friends captured it from us, but before he had enjoyed the possession of it 24 hours, a brother miller, just on his way to England, gobbled it from him. We hope some of the British millers will keep up the joke and pass the trier along.

#### IT BEATS THEM ALL.

Lehmann's Method of Truing the Faces of Mill Stones.

Ever since the announcement was made of the novel and important invention by Wm. Lehmann, of Milwaukee, of a simple method of securing a perfectly true face on mill-stones, great interest has been manifested by millers all over the country. His method is so perfect that, after he has trued up the faces of the upper and lower stones, he can place a row of single thicknesses of paper all around on the lower stone, and then let down on it the upper one, and every piece of paper will be held tightly between the stones. This he has done frequently. Every miller knows the value of a true face. No patent staff of any kind is required. Mr. Lehmann's method has met with the warmest approval wherever introduced, as can readily be seen by reference to the letters which we append below. The first of which is from George G. Smith, the wellknown millwright, of the firm of Smith Bros., No. 454 Canal street, Milwaukee, a gentleman to whom the Millers' National Association are under no small obligations for efforts made in their behalf.

MILWAUKEE. June 21, 1879.—Wm. Lehmann, Esq.—Dear Sir: I herewith give you my opinion concerning your improvement in staffing and truing mill-stones. I have seen the improvement used, and paid attention to the improvement it made in the grinding, and found it to excéed anything I have seen. I find that it is the best method so far invented, and find it entirely new and movel, and would cheerfully recommend it to all that have faith in a true face on a stone. Yours truly, GEO. S. SMITH.

GENEVA, Ill., May 23, 1879.—Wm. Lehmann, Milwaukee, Wis.—Dear Sir: Enclosed find Chicago draft for — dollars, as per agreement with our Mr. Bennett. for your patent for use in our mill—"Bennett's Mills," Geneva. Kane county, Illinois, 8 run of 4-feet stones. We consider it the best thing that ever was for straightening the face of a mill-stone, and worth the money. Yours truly, BENNETT, BROS. & COE.

PLYMOUTH, Wis., May 9, 1879.—Mr. Wm. Lehmann: Herotofore we have used the old-fashioned long staff as well as the circular staff, but since testing the merits of your method of staffing mill-stones we are convinced that it is by far the best way yet discovered. Being millers of many years' experience we supposed we knew how to staff a stone, but we confess, we were wrong entirely. Your method of staffing is beyond any question the most perfect used so far, and in our opinion no mill can afford to do without it. Respectfully,

HOTCHKISS & PUHLMANN.

Beaver Dam, Wis., March 10, 1879.—Mr. Wm. Lehmann: Itwas as much a surprise as a pleasure that we witnessed your system of staffing a stone, and have become satisfied that it is the correct principle, and do hereby certify that we shall use Mr. Wm. Lehmann's device for staffing mill-stones in our mill, and do say that it is the best device we have seen.

E. R. HOYT & SON. G. S. Campbell, head miller.

Fox Lake, Dodge Co., Wis., March 26, 1879.—Mr. Wun. Lehmann—Dear Sir: We enclose a draft of — dollars, the balance due you for your method of staffing stones. We can recommend it as being a great improvement over anything we have seen. Yours truly, COMAN & MORKISON. J. W. Ashley, head miller.

WATERTOWN, Wis., Feb. 26, 1879.—This is to certify that we are using W. Lohmann,s method of truing and facing mill-stones in both of our mills, and find it superior to anything we have yet used or seen, and found on bringing the two faces of the stone together we could lay paper between each two separate lands and letting the stone down none of same could be withdrawn. F. MILLER & CO. W. H. Foete, head miller.

Letter from a millwright since 1840 and mill owner for the last 15 years.—This is to certify that I have used Mr. Wm. Lehmann's method for straightening or truing the face of mill-stones for the past four months, and am satisfied that it is far the best of any in use. For with the use of, this method we are enabled to make more middlings and more uniform and of necessity a better quality of patent flour. And would recommend its use. Most respectfully yours. ORVILLE HATHAWAY. Dated Oconomowoc, Waukesha Co., Wis., Feb. 18, 1879.

Ogdensburg, June 9, 1879.—Wm. Lehmann—Dear Sir: Your favor and bill came duly to hand, your draft came and was paid. I am well bleased with the work. I have fixed 3 run: hey do nice work. I hope you will make some money, as you have a valuable improvement to mill owners. Yours truly, HENRY RODER

Read Mr. Lehmann's advertisement on another page and send in your order. His terms are reasonable, and his method is well worth the money asked for it. Address all communications to Wm. Lehmann, 722 Fourth street, Milwaukee, Wis. U. S. A.

A PARTY of natives from the "ould sod" visited a Westfield, Mass., clothing store the other day to buy a suit of grave clothes for a deceased friend. All varieties of garments were examined and discussed by the mourning friends, but none could be decided upon until one of the party held up a light, thin suit, saying, "gorra, let's take this, by's, it's thin and cool, and poor Pat will find it mighty comfortable." The suit was bought with grave faces, none of the party evidently seeing any incongruity in the recommendation.

### UNITED STATES MILLER.

#### E. HARRISON CAWKER, EDITOR.

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#### MILWAUKEE, JULY, 1879.

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We send out monthly a large number of sample copies of THE UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. We are working our best for the milling interest of this country, and we think it no more than fair that our milling friends should help the cause along by liberal subscriptions. Send us One Dollar in money or stamps, and we will send THE MILLER to you for one year.

POSTAGE stamps taken in payment of subscription to the UNITED STATES MILLER and the Millers' Text Book. \$1.25 pays for both for one year.

WE call the attention of our readers to the advertisement of the Schroll Grain Drier. We published a description of this machine in our May number. It is unquestionably the machine of the day for grain drying purposes. Write for further information to C. Schroll, 24 and 26 S. Canal st., Chicago, Ill.

THE COMPROMISE has been endorsed by most of the State Associations. Some of the Minnesota millers still feel bad about it, but we think that on further reflection all will become satisfied that the terms secured by the Sub-executive Committee were favorable. At any rate, millers are not compelled to avail themselves of those terms if they think they can do any better.

### Flour Mills Burned Recently.

Knowles, Bigelow & Co., Randolph, Wis. Loss, \$5,000.

H. P. Beattie, Davenport, Iowa.

Borst Bros, Middleburg, Y. Y.

Bennett, Becker & Co., Jackson, Mich. Loss, \$125,000; insurance, \$75,000.

Burroughs & Pierson, Flint, Mich. M. Geiselman, Marlbro, Va. Insured, \$4,-

THE Northwestern Grocer is a new weekly trade paper, published in Milwaukee, by Messrs. Trayser Bros. It is the neatest and most able commercial journal that has ever been published in this city. It circulates among dealers in the States of Wisconsin, Minnesota, Michigan, Iowa and Northern Illinois, and has already been of great value to Milwaukee merchants. We wish the Northwestern Grocer a long and successful career.

Mr. SHAPE, of the well-known firm of Voechting, Shape & Co., bottlers of Schlitz's lager beer, has been on a trip for a few weeks, half business and half pleasure, to the Pacific coast. In his letters home to his friends he speaks in highly favorable terms of the climate, fruitfulness, geniality and hospitality of our Pacific brethren. He is also gratified to learn that Californians are not so predjudiced in favor of their native wines and Kentucky Bourbons, as to waste any opportunity of drinking a glass of Milwaukee lager.

THE Milwaukee Practical Miller's Association, in addition to the ordinary benefits of the Association, has taken the preliminary steps for providing a relief fund for indigent and sick members, and for those injured by accident; thus doing away with the unpleasant, uncertain means of relief which comes from passing 'round the hat, and putting in the place of charity, a good business fund for the relief of deserving members. It solicits correspondence from like associations wherever such may exist.

#### Indiana Millers' State Association.

The annual session of the Indiana Millers' Association was held at Indianapolis on June 19th. The attendance was fair in numbers, and the result of much importance to the association. The session lasted two days.

President Ellis opened the proceedings with the following address:

Gentlemen—It is now two years since the organization of our State Millers' Association. During this time there has much transpired which was and is of great importance to the milling interest, the most important of which was the victory over the Consolidated American Middlings Purifier Company, at St. Louis. This decision in our favor was and is of more importance to the milling interest of this country than many suppose, for in this we have actually shown our strength, and shown it in such perfection that any ring that may be formed hereafter will not attack us before knowing that their claim is just and right, and should their claim be a just one, then we are prepared to compromise with them for a fair compensation for whatever patent they may

The compromises just made by our National Executive Committee, of the nature of which you have all been informed before this, have no doubt been made with a view to protect the mutual interest of all millers belonging to the association, and should be complied with by all means, as they have not done this hastily, nor without due deliberation, and have acted also upon the advice of the attorney of the National Association, the Hon. George Harding, who has attended for the past two or three years to the case just decided in our favor.
The consideration of this compromise is not of so great an amount but that every miller interested can pay, and this will at least put aside all litigation against paid-up members that may arise hereafter.

This, now being effected, it is not said that

our troubles in this direction have ceased, for there may yet be other matters brought to light which are now looked at triflingly that may be a source of great annoyance to us; therefore, I would beg of you not to lose interest in our association or its workings, for you have now plainly seen its benefit.

In this matter alone you have been more than doubly compensated for all the outlays you have had, consequently there is nothing to re-

Heretofore I must say that members have not taken such an active part in discussing the various topics that have been brought before our conventions. This I regard as a lack of duty, as it is to every one's interest to fully understand every point that is discussed it is often the case that the humblest one among us can and will make such suggestions as will overcome existing evils, if so I may call it, and enlighten us all on a subject that has long been dark to us.

The various committees that I have appointed to report at this meeting, the Chair-men of which I have addressed personally, will, I hope, make such reports to you at this meeting as will be of much interest to you.

Another important matter to come before this meeting is the revision of our old constitution, or, in other words, to adopt a new constitution. This I have submitted to our Executive Committee, and they will report it to

It will also be your duty at this meeting to elect a new set of officers for the coming year, and in doing this, let us take such men from among us, and we have plenty of them, that have the interest of our Association at heart and will give it their best attention.

After due discussion on report of Mr. Gibson, of the Executive Committee, the recommendations of his report were adopted, whereby the constitution was amended, to be in accordance with that of other Western Milling Associations, that of the Wisconsin Millers' Association being adopted.

Able reports from Committees on 'Inspection" and "Grain for Milling" were read, and adopted, after discussion.

An interesting discussion occurred on the

second day of the session, on flour tests. Assessments were made, and the following officers elected for the ensuing year:

President—Jos. F. Gent, Columbus. First Vice President—B. Jenkins, La Fayette. Second Vice President-J. R. Callender,

Vincennes. Secretary and Treasurer-H. H. Emery, In-

Executive Committee-David Gibson, Indianapolis; John A. Thompson, Edinburg; N. Elles, Evansville; Wm. Paddock, Vincennes.

Member of Executive Committee of National Association, R. L. Thompson, Terre Haute. It was also moved and carried that any mill owners in the State may become members of the Association upon full compliance with the provisions of the Constitution and the payment of the full amount already paid by other members to date, and the annual membership fee of five dollars. The Secretary was instructed to notify millers of this action.

No further business being before the meeting it was adjourned.

#### [For the United States Millier.]

To Millers of the State of New York.

At the annual meeting of the Millers' National Association, held in Chicago, on the 13th, 14th and 15th of May last, the Executive Committee accepted the proposition made by the Consolidated Middlings Purifier Company, of Jackson, Michigan, whereby full-paid members of the various Associations, and all who may become members prior to July 15th, 1879, and who are infringing some or all of the Geo. T. Smith patents, more particularly the "combination in middlings purifier" of the suction (or blast) "vibrating seive and brush under the seive" in any purifier they are now using, can settle and be granted an entire release for the past, and a license for the future, for the sum of twenty-five dollars for each purifier containing such combination. This sum will cover all patents on purifiers belonging to said company (excepting the Cochrane, which the committee refused to entertain), including the Stoll, Barter and Smith claims. Members desiring to put brush on purifiers now in their mills, can do so at same rates.

An equally favorable proposition, made by the Downton Purifier Manufacturing Company, for their Downton process patent, No. 162,157, which covers the application of rolls to unpurified middlings for the purpose of removing the germ, but does not cover their use on wheat, bran, or purified middlings, was accepted by the committee. Members infringing can settle for past and future for a royalty of \$25.00 per set for the first three sets; \$15.00 per set on the second three sets; \$10.00 per set on the next four sets, and all over that number \$5.00 per set. This applies only to rolls at present used in their mills, and the said royalty is to be paid when the validity of the patent is sustained by a decision of a Circuit Court of the United States.

These terms will apply only to full-paid members of the various associations. For details I will refer you to the inclosed circular. The National Executive Committee, after a thorough examination of the various claims, aided by our counsel, Mr. Harding, believe this arrangement to be exceedingly favorable to the millers. The policy of the National Association is to avoid all litigation so far as can honorably be done, and especially where there are no good reasons for doubting the validity of the patents, and to compel patentees and manufacturers of mill machinery to protect and defend their licenses.

As evidence of the very favorable terms of the above proposition to millers, I have reliable information that the owners of the above patents charge a certain purifier manufacturer (and refuse to take less), \$75.00 royalty on each machine he hereafter manufactures using a brush on the underside of a vibrating seive. Millers of this State infringing those and other patents, who fail to become members of the New York State Millers' Association before July 15, 1879, will be entirely at the mercy of the Consolidated Middlings Purifier Co., or some similar organization. In addition to the advantages above mentioned, members will be protected against all future fraudulent or invalid patents which may be owned by unscrupulous men or combinations, whose sole aim is to bleed or levy blackmail on the miller. They will also have the benefit of all the information now or hereafter in the possession of the National Association, and the large discounts which will be obtained by the officers of the National Association for their members from patentees and manufacturers of mill machinery. The number of patents 'issued within the last seven or eight years on middlings purifiers amount to several hundred. Some of the older ones, notably the Barker

and Stoll, have lately been reissued for the purpose of covering later and more improved machines. The propositions made by the owners of the Barker patent re-issued in November last, which claims to cover all suction machines, was declined by the committee, and is liable to be the subject of litigation in the near future. Millers desiring to become members can do so by remitting to the Secretary and Treasurer of the New York State Millers' Association \$25 per run of burrs, reckoned on the following basis: counting all stones in mill 36 inches diameter and over, used on wheat, middlings or bran, custom grinding stones included; all under that diameter, two stones counted as one, and in all cases where iron or procelain rolls are used, three sets as one stone. Members and those desiring membership will please fill out the marginal interrogatories of the enclosed circular, mailing one to me and the other to S. H. Seamans, Secretary National Association, Milwaukee, Wis., and new members infringing can avail themselves of the above arrangement, by returning the enclosed certificate for the signature of the Secretary and Treasurer of the New York Millers' Association, with a check for the proper amount. The business can be done through me, should you prefer.

To show the utter helpless condition of a single miller when used by a patentee, I will say, that the cost to the National Association of defending the Cochrane suit, was \$74,495.-59.

J. A. HINDS,
Secy. and Treas. N. Y. S. Millers' Association.
Rochester, N. Y., June 11, 1879.

#### Trade Items.

Edw. P. Allis & Co. have just received a large shipment of the choicest violet burr blocks. They have large orders from Minneapolis for these stone which are in great demand there.

Edw. P. Allis & Co. have over 400 machinists and moulders now on their pay roll, besides their large crew of millwrights.

J. A. Cole, of Rochester, Minn., has contracted with Edw. P. Allis & Co., of Milwaukee, for his new mill. It will contain violet stone and porcelain rolls, used in combination.

Edw. P. Allis & Co. are fitting out a new machine shop in addition to the present large one to keep up with their orders for rolls and engines.

Gould & Ostrander, of St. Louis, Mo., have ordered a Reynolds-Corliss engine of Edw. P. Allis & Co.

Seymour, Sabin & Co., of Stillwater, Minn., have ordered a 26x48 Reynolds-Corliss engine of Edw. P. Allis & Co., Milwaukee.

The Reynolds-Corliss engine has, in carefully conducted export trials, developed an economy never before equaled.

The Millers' Association, of Minnesota, have called a special meeting at the Nicollet House, in Minneapolis, July 1st, to make a move to protect themselves against the Cochrane and Downton rings. The heavy millowners of the Northwest are not satisfied with the action of the National Association in these settlements, and will do what they can to avoid paying on this basis.

E. P. Archibalds & Co., of Dundas, Minn., are about to remodel their mill, will raise the roof of mill building 35 feet, put in more rolls and increase the capacity throughout, besides adding steam power; contract is not let yet. This mill manufactured the first Minnesota patent flour, it taking about three weeks to manufacture the first 100 barrels. At the present time Archibald & Co's. patent flour is well known throughout the universe for its superior quality.

Jesse Ames Son's at Northfield, Minn, are increasing the capacity of their mill, building an addition to the building. They contemplate putting in steam power on account of scarcity of water. W. G. Gunn, of Minneapo lis, is doing the millwright work.

#### Special Business Notices.

Do you need a good Saw Gummer or Saw Tooth Swage? If so write to J. W. Mixter & Co., Templeton Mass. Agents wanted.

NOTICE.—Owing to the death of Mr. Edward Harrison, we take this method of informing you that the business will be continued until further notice, and that all orders will receive prompt attention. Letters should be directed to the "Estate of Edward Harrison," New Haven, Ct.

IMPORTANT NOTICE TO MILLERS.—The Richmond Mill Works and Richmond Mill Furnishing Works are wholly removed to Indianapolis, Ind., with all the former patterns, tools, and machinery, and those of the firm who formerly built up and established the reputation of this house; therefore, to save delay or miscarriage, all letters intended for this concern should be addressed with care to Nordyke & Marmon Co., Indianapolis, Ind.

SPECIAL NOTICE.—We desire to make known to the millers of the United States that we have secured license under the Barker and Sherburne patents, and by purchase, have secured exclusive right to the Palmer & Plamondon patent, and are thus in position to fully guarantee our customers against prosecution in the use of the Garden City Purifier.

Je COLLINS & GATHMANN, Chicago, Ill.

On the Reduction of Wheat and Middlings.

BY JONATHAN MILLS.

The reduction of wheat into a first-class flour without undue waste of the flour portion of the berry, and at the same time bringing the cost of production down to the least possible trouble and expense, is a problem that 3 to-day interests every first-class mill owner in this country. In competing in the markets of Europe, we have to contend with some very fine hard wheats as well as with their old established brands of flour. Some of our mill owners have been inclined to attribute the superior quality of a few brands of Hungarian flour to their system of reduction by rollers. I am free to express my belief that if we had the same wheat to handle in this country in some of our finely-built mills where stonedressing has been brought up to a science, we would do far better work and make a grade of flour that could not be equaled by any system of rollers ever devised. Every miller and millwright that I have talked with that has visited the mills of Europe, informs me that they are far behind us as to the condition in which they keep their burrs dressed and balanced. If such is the fact it is easily explained why they give preference to reduction by rolls. I am positively sure that the reduction of middlings down to flour by rolls, no matter how gradual the process may be, is all wrong. I admit that the roller flour shows up well in hand as far as color is taken into account, and that it also shows up very well when first baked into bread; but right here is where it falls far behind flour made by millstones-it dries out very quickly, and in about eighteen hours it has no more moisture in it than a red cedar chip, and is about as devoid of taste as so much starch. This is caused by the rollers flattening out the gluten cells, as well as a great portion of the gluten itself which cannot bolt through the cloth, and, in the very nature of its form, is compelled to part partnership with the starchy portions of the flour. While the flour passes through the cloth the gluten cells and a great portion of the gluten adhering to the cells are passed out, either through the coarser cloth so often used, toward the tail of the reels, to grade the fine, unpulverized portion of the middlings through, or else, where fine cloth is used the entire length of the reel, they pass out over the tail of the reel. Therefore, the very material that retains moisture in the bread is bolted out, while flour made by mill-stones, perfectly fitted up, rounds up every particle of middlings, gluten cells and all, into a fine, granular flour that will all pass through the cloth together. We hear fault found with middlings sometimes being out of round, elongated, angular, and unfit to be perfectly purified. I have yet to hear the first miller attribute the same fault to flour, although the same fault exists in the oval, elongated form of the flour when made by rollers. The consequence is, it must be rolled down to the very finest possible degree in order to have it pass through even moderately fine cloth. Some man should invent a cloth with oval meshes to accomodate the roller advocates.

About two years ago I stated my belief that no system could be devised in the shape of rollers or crushers that could be made to supersede the mill-stone for flour making. I am now stronger in that belief than ever before. We have never had a perfectly constructed mill-stone, with its whole outfit so made as to hold it rigidly to its duty, therefore, we have never done as perfect work with mill-stones as they are capable of doing. But even as they are operated in every well-constructed mill where stone-dressing is done in good shape, they will make better flour than any kind of rolls.

I do not want it understood that I would exclude rolls entirely from the mill, as I believe they are a much-needed auxiliary to the more perfect reduction of the wheat by mill-stones, in sizing down the coarse, germy middlings, and for flattening out the germ so as to separate it from the middlings. Further than their use as above stated, I think they are not required. They are a delusion and a snare for any other use in milling.

Thus far I have only been making comparisons between the use of rolls and mill-stones for the reduction of middlings. As to the reduction of the wheat berry from its natural form, I wish to treat first on its preparation for proper reduction. I have read the reports of the late Millers' Convention on milling, improved methods and machinery, by the various committees, all of which interested me very much, showing that at least they were trying to arrive at a satisfactory solution | it would be a better investment than he could | can Miller.

of the proper methods of milling. On the subject of cleaning wheat, Mr. Gibson and Mr. Gent both touched on the ending stone for cleaning wheat. Evidently both had been exchanging ideas, both being from the same section of Indiana. Mr. Gent says he is of the opinion that the day is not far distant when the ending stone will supersede all other cleaning machinery for scouring the wheat berry. This process, in his opinion, will be carried down to the exclusion of the germ. With all due respect for their opinions, I will have to differ widely from them on that mode of cleaning wheat. They evidently have not investigated this matter as closely as they might, or they would have very soon arrived at the fact that to end wheat down to the exclusion of the germ would reduce the weight of the wheat, at the very least, fifteen per cent. No miller could stand that kind of a reduction. In ending wheat on ending stone (which means a hard sandstone and nothing else) the bran is abraded more or less at each end and at each lobe of the kernel. The idea of Mr. Gent, to pass it through a brush machine, does not remedy the evil already done by the ending stone. The wheat flour cannot be kept up in color when made from ended wheat, as the bran is so badly abraded that the burrs in grinding it comminute a great portion of it so much that it bolts through with the first flour, and by no system of bolting can it be got out. The very gentlest maner in which we can clean wheat is almost too harsh for some of the tender winter wheats. A far better plan is to pass the wheat through about 24 conveyors, each 50 feet long, making 1,200 feet altogether, and have each conveyor box closed over tightly, and at least six inches clear space over the conveyor, with a good suction fan attached so as to draw the impurities away at the discharging end of each conveyor. Of course an opening should be left at the opposite end of the conveyor that could be regulated to give the proper amount of air necessary to carry of the dust and fluffy, downy beard that is worn off by attrition through the constant action of the conveyors. As the wheat leaves the last conveyor it should be sent to a good, gently-operating brush machine. This mode of cleaning does not wear off the hard, glazy varnish of the berry, nor does it abrade the bran at the lobes of the berry, but it effectually removes the fuzzy and loose volatile matter, and the brushing removes the adhering volatile matter that becomes deposited in the crease of the berry as far as it is possible to do so without splitting the kernel. Mr. Gibson stated the facts of the results in splitting the kernel in his report on wheat cleaning, he says: "Then we have the crease or depression lengthwise of the berry, which always contains a large amount of dirty, dark matter, very injurious to flour." He is quite right as to the dirty, bluish matter in the crease of the berry being injurious to the flour, and I know the kernel can be split longitudinally through the crease and the dirty, bluish, volatile matter removed almost entirely without the further use of brushes. However, I believe that a gentle brushing after the berry is split open would still remove a portion adhering injurious matter, although I have not tested this afterbrushing. But I do know that the berry can be successfully split, and by so splitting the germ is liberated in its natural form without being broken up, as is the case when it is rasped off by the harsh action of ending stones. The ending stone means decortication, and nothing less, but hardly to so great or severe an extent as was done by the sandstone decorticators so extensively adopted in many of our best mills a few years ago. At Grand Rapids, Mich., a good milling firm asked my opinion, in 1873 or '74, in regard to a sandstone decorticator that they were then putting in. I freely told them the results they might expect. The manufacturers of that decorticator got ruffled at what I had said, and wrote a severe letter to the Leffel Water Wheel Co., whom I then represented, asking them to stop my expressing such strong adverse opinions. However, my positive convictions were not stifled, as I believed I knew

more about cleaning wheat than the makers of

that machine would ever learn. It was an-

another delusion and snare, that showed up

like a pewter dollar in a mud hole. I have

long since found out that I can more surely

depend on the true state of the condition of a

kernel of wheat or flour, or any of the wheat

products, by examining it carefully through a

strong microscope than to depend on the naked

eye. A good one or two hundred dollar mic-

roscope in the possession of every first-class

mill owner is the best auxiliary to the true

knowledge of milling that he can possess, and

make any other way about his mill.

I have now disposed of the cleaning of the wheat, as I would prefer to have it done in order to prepare to obtain the best results from it in reducing it to flour and middlings. A great many millers are using heaters, which I think advantageous in certain conditions of the wheat, and it would be well for every merchant mill to have heaters, since they can be used or not, as the nature and condition of the wheat may require. Any good miller can soon learn when the wheat is in condition to be benefitted by the heater, after using and experimenting with heaters a short time.

There are many mills where they use iron rolls for lightly crushing the wheat before grinding. I am satisfied that in high grinding mills where they are working for a large percentage of middlings, the crushing of wheat before grinding is not the thing to do, as it reduces the quantity of middlings and makes too much first flour. It also shapes the wheat, so as to admit the burrs to comminute the bran to too great an extent, makes the first flour "off color," and increases the quantity of low grades, which is already too great in a majority of mills. The quality of the first flour is a sure criterion of one or both of two facts, viz.: that the wheat is too severely scoured or that the burrs are in bad condition. There are several good experimentors at the present time exerting their best efforts towards the reduction of wheat, to a large percentage of middlings, regardless of the quality of the first flour. I claim the making of a large percentage of middlings is desirable, whenever they can be made, and the first flour held up in color, so as not to depreciate too greatly in value. There are many mills to-day making a large per centage of patent flour and bringing their wheat down so low that it barely will pass for more than super. The difference in prices obtained for the patent and first flour is so great that in many cases, if the two grades were mixed together, they would bring a greater profit to the miller than to sacrifice the first flour for the benefit of the patent. The machine or system of machines that can be made to reduce the wheat and hold up the wheat flour to a higher standard than is now done now (no matter whether the quantity of patent is increased or not) is what the trade demands at the present time. Any good, firstclass mill can turn out a good patent flour, but so much cannot be said for their wheat flour; and the millers are greatly interested to see whether this cannot be accomplished otherwise than by means of mill-stones. If it cannot, then practical inventors will be compelled to turn their attention to the more perfect construction of the mill-stone and its attachments. While there is but very little room to advance on the present style of building mill-stones, there is vast room for improvement in their action on the grain.

The purification of middlings and the bolting of the different grades of flour are allimportant in every mill. Many mills are deficient in the quality of cloth used for both; and this is a part of milling that is the hardest to lay down absolute rules for without an elaborate article, with numerous diagrams, showing the best plans for the many different qualities of wheats. While the same rules for the reduction of wheat are good for all grades and kinds of wheat, the same rules laid down for purifying and bolting spring wheat will not hold good in winter wheat. A system that is perfect on Michigan or other soft wheats, in purifying and bolting, does not hot hold good in every particular on the harder varieties of winter wheats. Therefore, to properly treat this subject, each kind of wheat must be considered and different plans laid down for each, which would involve much labor and careful statements of all the facts relating to each variety. This is a subject that I hope to treat on in the near

future.

In conclusion, I believe that mill owners would be greatly benefitted by sending their head millers off on a tour of inspection about once a year. I know a few of the progressive millers that have been doing this for the past three or four years, and to my personal knowledge, in several instances, it has resulted in far better stone-dressing than had previously been the rule in the mill, and better milling throughout. It stimulates a pride and interest which is to the benefit of every mill owner who sends his miller around. Head millers of this country should form a brotherhood and hold annual conventions, in conjunction with a convention of flour mill machinery men, independent of the Millers' National Association, where they could be brought in contact with the vast and varied collection of the different kinds of machines used in the manufacturing of flour. It would be well to admit the mill owners as members, that they might

take part in the different discussions .- Ameri-

Room for Invention.

We frequently hear the remark that the time will soon come when the course of invention will be run; when, like Alexander, inventive genius will weep, because there are no more worlds to conquer. The fact that iron fingers have in so many branches of industry been made to perform tasks once done by sinew; that electric throbbings have outstripped the fleet messenger in business affairs, and the iron horse with food of burning coals carries the love-letter in the mail-sack, where once the oat-fed country steed galloped along the hard-beaten road. These facts are impressive and suggestive, but not convincing on the subject of an ultimate limit to inventive usefulness or inventive power. The ball of progress in rolling along has wrapped about it many a layer of ideas formed into tangible facts; but the periphery grows, and the capacity for enlargement grows with it. As the circle of knowledge widens, the illimitable space beyond still more increases, and there is both more to learn, and greater ability to learn If the needs of man were the sole guage of his demands, there might well be a point at which invention, satisfied with granting all needful things, would be compelled to rest. But "to want" means both "to lack" and "to the food and shelter and clothing absolutely requisite develop into luxuries of pala te and æsthetic taste. The rude needle of bone that sewed with sinew the boar-skin cloak and made of it a definite garment, was an invention that might have sufficed in its line, had the skin garment satisfied; but demand and supply are commensurately progressive; each surpasses each, onward in the march of progress; and now we have that household companion, the sewing machine, purring like a kitten, while basting, sewing, hemming, gathering, tidily at high speed; this modern sewing machine being as legitimately the development of the bone needle, as the fashionable garment of to-day is the outgrowth of the fig leaf of Eve and the skin covering of her son. Our wants have become artificial. With successive generations, luxuries develop lnto customary grants and eventually become necessities. Our condition is ameliorated, and hence our appreciation sharpened, while cer tain faculties have become dulled and inven tion must supply their places or their defi-Where invention has produced an ciencies. effect, it is for invention to extend and perfect Thus, in every walk of life it is for cunning brain and deft fingers to effect new combinations or perfect the old, fearless of thwart or limit. In proof that with improvement criticism becomes more keen, and demands more imperative, we have only to look about us for promising fields to engage the inventor. While the harvest of golden grain no longer falls before the classic sickle, and the hay maker has ceased to be a picturesque inspiration for the poet—the root-crops still demand personal delving and grubbing, and the ripen-ed fruits still call for human pickers to pluck them one by one. For the inventors who would devise a mode removing half the blossoms from a peach tree, without injuring the buds which form the next year's bearing stems, there awaits a magnificent prize. Ramie and other fibers still defy the textile art; and the gorgeous aniline dyes fade with a summer's Household fires, once synonyms of health and cheerfulness, are now gloomy and noxious monuments of our heedlessness of things sanitary. Those domestic conveniences that should minister to our comfort and well-being, poison us insidiously but surely. Our vaunted gaslights blacken our paint and kill our window plants, while in the streets, the pipes which lead the gas destroy our shade Our sewers and our drains are confounded in name and in use, and both of them are poisonous. Our chimneys breathe forth smoke which is unconsumed fuel, and hence wasteful. Our steam boilers, with partly consumed fuel, supply our engines with wet steam, and the engines (whose cylinders have to be supplied with oil, through faulty design and workmanship) waste part of the remainder. Our horses, shod with no regard to humanity or tractive effect, draw wagons or cars which rattle our teeth out, on roads or rails which rattle the vehicle to pieces. The explosives long ago were constrained to throw hurtful missiles, have but in one instanceblasting-been employed in peaceful work; if we may except the gun powder pile driver, the precursor of a long line of explosive motors yet to come.

For these and hundreds of other eyils, inventive genius must provide the remedy; and as new and artificial wants arise and develop into necessities, upon the inventor, even in the vanguard, devolves the duty of exploring the land of the possible and providing for the

legions of the actual. It might be said that science falls into the ranks of knowledge, and art after art is added to the forces of man, the field of true invention would narrow, and that of improvement, combination and application correspondingly widen. And this distinction may not perhaps be improper to draw or inappropriate to apply. Certain it is, that as observation and experience lay down the facts, and reason deduces therefrom the theories and evolves from these again the laws which govern things and forces intangible, the plane of the inventor will rise higher and higher, and his usefulness will never diminish. It is to him that races unborn, nations unformed, countries unexplored, look to for their betterment and the achievement of their substantial welfare. him the antagonism between man and man the foul distinctions of caste and class-will be swept away; and better men, under better lives and higher pleasures and comforts, achieve the destiny written for them in the days when the rocky ribs of this earth were formed.

#### UNITED STATES MILLER.

OFFICE, 62 GRAND OPERA HOUSE, MILWAUREE, WIS. Subscription Price \$1 per year in advance Foreign Subscription \$1.50 per year in advance

#### MILWAUKEE, JULY, 1879.

THE UNITED STATES MILLER has now commenced its seventh volume, and has become universally acknowledged to be one of the most valuable milling journals in America, both for the purpose of transmitting owledge on milling and mechanical subjects and as an ivertising medium for introducing and selling all kinds of modern milling machinery. It is our aim to meet the wants of our patrons, whether manufacturers or con-Our editorial course will be entirely independent, and we shall do our best to give our readers the benefit of the litest important news on subjects pertaining to the objects of this paper. Our circulation and advertising patronage cover all sections of the country. We do not deal in machinery ourselves, and consequently We cordially invite all those who have already patronized us to continue their patronage, and those who have not to try our columns. We append herewith our

ADVERTISING RATES FOR 1879.

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One inch card	4 6 10	00 00 00	8 12 20	00 00 00	11 16 30	00 50 00	\$10 20 30 60 120	00	40 60 100	00
One half page	40	00	80	00	120	00	200	00	400	00

Size of page, 12x18. Length of column, 16 inches. Width of column, 2% inches; 4 columns to each page.
Business editorial matter per line, 30 cents. If over 50

Illustrations charged for in proportion to space oc-

Advertising for Millers wishing situations, or millers

wanting to engage employes, 50 cents.

MILL FOR SALE advertisements, \$2 each insertion.

We have recently published a List of Names and Post-Office Addresses of the Flour-Mill Owners of the United States and Canadas, which is of great value to those who desire to communicate by circular with American millowners. The price is \$5 per copy, post paid. Cash must accompany the order.

We have also lately published a Saw and Planing Mill Directory of the United States and Canadas. Price, \$5. Subscription price to the United States Miller, \$1 per year.

M'Lean's Millers' Text Book, which every miller

should have. Price by mail, 60 cents, post paid.

Ropp's Easy Calculator, which every business man should have in his pocket or on his desk. Price by mail,

Our Job Printing Department is one of the finest in the State, and particular attention is paid to all kinds of commercial work, which we can do on the most reasonable terms. Parties desiring to publish catalogues, circulars, etc., should send for estimates.

Address all communications to the UNITED STATES MILLER, 62 Grand Opera House, Milwaukee, Wis.

A FEW years since there was a firm of millers in Manchester, England, named Skin &

M'LEAN'S Millers' Text Book and the UNITED STATES MILLER, for one year, for \$1.25. Order now. Send money or postage stamps.

LESSEPS, the great French civil engineer, will turn the first sod in the construction of the Darien Ship Canal January 1st, 1880.

The first barrel of flour made from the crop of 1879 was received in New York May 13th, from Americus, Georgia. The wheat was threshed May 2d.

E. C. NOTBOHM, of the firm of Notbohm Bros., of Janesville, Wis., paid us a visit during the month. He reports renewed activity in the middlings purifier business.

READ the new advertisement of L. J. Mueller, manufacturer of elevator buckets. He has no traveling agents, and sells at as close figures as it is possible to do and furnish a first-class, reliable bucket. Examine his price list.

MILLARD READE, of Liverpool estimates that the world is at least six hundred million years old. He comes to this conclusion after investigating it much less than one-half the

We will send a copy of the MILLERS' TEXT BOOK, by J. M'LEAN, of Glasgow, Scotland, and the UNITED STATES MILLER, for one year, to any address in the United States or Canada, for \$1.25. Price of Text Book alone, 60 cents. Send cash or stamps.

THE UNITED STATES MILLER has the largest circulation of any milling journal published in America, and was the first milling journal started in America entirely independent of connection of interest with some machine or mid-furnishing establishment.

WE hope all who receive sample copies of the UNITED STATES MILLER will favor us with their early subscription. The price-one dollar per year—is a mere trifle, and ensures you a first-class paper containing a great quantity of matter of direct interest to your trade. Do of the week .- Ex.

not delay, but send your order now. Enterprising, go-ahead millers cannot afford to be without the current milling literature of the

#### IMPORTANT NOTICE.

TO THE PARTY RECEIVING THIS PAPER WHO IS NOT ALREADY A PAID SUBSCRIBER.

We hereby extend to you a cordial invitation to become a subscriber to the UNITED STATES MILLER. We shall endeavor to make it of the greatest possible use and benefit to the milling fraternity, and no mill should be without it. The best talent that we can obtain in this and other countries will contribute to its columns, which will also be enriched by carefully translated articles on subjects of interest to the craft. Subscription price, \$1. Enclose money or stamps in an envelope, seal carefully, and send at our risk. By return mail you will receive a receipt therefor. Address

> THE UNITED STATES MILLER, Milwaukee, Wis.

#### Keeley Again.

Keeley's wonderful motor has proved a failure, and his \$6,000 generator has been broken up and sold for old iron-but he was not discouraged-no, nor is he going to be as long as he can find men with money willing to invest in chimeras. He has it now-solid-pressure to the square inch of 20,000 pounds, and you only have to move a little lever 12 inches long so as to open and close a 4-way valve placed within the "cross-bar" of the generator, a small quantity of water having been previously "squirted" into the generator by means of a small rubber bulb. The substance evolved, which produces this immense force, he calls "inter-molecular etheric substance," and the power used to drive, "a vibratory engine." Look out, gentlemen-keep out of the way of the "inter-molecular substance."

#### Ohio State Millers' Association.

PRESIDENTS OFFICE, AKRON, O., June 13th, 1879 .- The Third Annual Convention of the Ohio State Millers' Association, will be held in the city of Akron, Ohio, commencing at ten o'clock a. m., on Tuesday, July 6th, 1879. A reorganization of the Association will probably take place, and a new constitution be adopted to harmonize with the constitution recently adopted by the National Association. Also a member of the National Executive Committee is to be elected. These, and other subjects of general interest to be considered, should secure the attendance of ALL members. We also invite all millers who desire to join our Association, to be present.

FERD. SCHUMACHER, Pres. ROBERT COLTON, Sec.

#### The Editor's Diary.

The editor of a Texas paper gives the following figures from statistical memorandum

Requested to retract. Didn't retract. Invited to parties and receptions by parties fishing for puffs	,362 416 416 ,333 33
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Threatened to be whipped	174
Been whipped	0
Whipped the other fellow	4
Didn't come to time	170
Been promised whisky, gin, etc., if we would go	110
after them	610
Been asked what's the news 300,	
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ied about it	977
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hanged polities	32
Changed politics	50
Axpect to enange still	- 20
lave to charity \$5	5.00

#### A Patent Office Circular. .

The following circular explains itself and will be of interest to inventors:

DEPARTMENT OF THE INTERIOR, U. S. PATENT OFFICE, WASHINGTON, June 12, 1879.

No power of attorney executed after July 1, 1879, purporting to have been given to a firm or corpartnership, will be recognized, either in favor of the firm or of any of its members, unless all its members shall be named in such

power of attorney.

H. E. PAINE, Commissioner.

Approved. C. Schurz, Sec'y of the Interior.

"What is the chief use of bread?" asked an examiner at a recent school exhibition. 'The chief use of bread," said the urchin, apparently astonished at the simplicity of the inquiry, "is to spread butter and molasses on."

WHAT THEY CALL IT .- The horny-handed workman calls it "pay," and the skilled mechanic, "wages;" the city clerk, "salary;" the banker, "income;" a land owner, "revenue ;" a lawyer, "fees ;" a burglar, "swag ;" but it all comes to the same thing at the end

#### Small Advertisements.

Many an inventor of some really valuable thing has hesitated about advertising for lack of the pecuniary means of putting in a large advertisement in first-class papers, but it is not absolutely necessary to have a large advertisement to increase your business, as we will presently illustrate. Large advertisements will, as a matter of course, catch the attention of more readers than the small ones, but especially in the milling business at the present time, when every energetic miller is striving to improve, there are thousands who scan carefully every line published in a journal like the UNITED STATES MILLER, devoted to the interests of the trade. To succeed in selling an article it must, in the first place, be possessed of intrinsic value and positive merits. Having these qualifications a small advertisement will introduce it, and as the manufacturer gets able he can of course make a greater display and attract greater trade. To illustrate: Mr. George Walker, of Hamburg, N. Y., is the owner and manufacturer of a valuable Belt Tightener. He has advertised in a modest way in this journal for about a year, the merits of his Tightener have become widely and favorably known. He has just sent us, unsolicited, the following letter complimentary to this journal:

HAMBURG, Erie Co., N. Y., June 23, 1879.— Edit ir United States Miller—DEAR SIR: In justice I am prompted to say, that during the time I have advertised my "Walker's Belt Tightener" in your paper, formerly the U. S. MILLING AND MANUFACTURING JOURNAL, and now the S. MILLER, I have by that means received orders from various parts of this country, East, West, North and South, and also from England. I'therefore regard it as an excell-ent medium for advertising milling goods. Respectfully yours, GEO. WALKER.

THAT BERRY STORY .- The papers are rehashing the old Berry story, and they don't conclude it in accordance with facts. This is the correct version: A celebrated comedian arranged with his green grocer, one Berry, to pay him quarterly; but Berry once sent in his account long before the quarter was due. Thereupon the comedian, in great wrath, called upon the grocer, and said to him: say, here's pretty mull, Berry; you've sent in your bill, Berry, before it is due, Berry. Your father, the elder, Berry, would not have been such a goose, Berry; but you needn't look so blue, Berry; for I don't care a straw, Berry; and if you come here before June, Berry, I'll kick your rasp, Berry, until it is black, Berry."

THE Minneapolis millers have a joint stock association for the purpose of buying up the best wheat raised in Minnesota, so that there may always be a stock on hand to keep the millers in material to run on. The Milwaukee millers might do well to follow their example. It is true that ordinarily the elevators of this city contain much more than sufficient for any demands our millers might make, but under such extraordinary circumstances as those which now control the wheat market, it seems for the once to be a question of either shutting down for a while or running low grade wheat. An organization of the millers of Milwaukee could certainly do no harm, and we believe would be beneficial.

THE Becker brush, made by the Eureka Mfg. Co., Rock Falls, Ill., has become such a necessity in merchant mills that the firm write us their trade has fully doubled from previous years. The demand is so great for them they have been compelled to double their force to keep up with orders so as to ship promptly. The great success of this machine advantage over all other brushes is that it has a solid cone-shaped brush, which has double the brush surface of any other machine, and its cone shape prevents the wheat from falling directly through as is the case to a large extent in a straight cylinder or sectional brush. It can be run from top as well as below. Parties ordering should state where they wish to run it from. See their advertisement on front page.

MESSRS. JAMES LEFFEL & Co., of Springfield, Ohio, have favored us with their beautiful catalogue for 1879, of water wheels and the Bookwalter engine. Their water wheels are world renowned and need no word of commendation from us or anybody else. Over 7,000 of them have been put into practical use. The Bookwalter engine, also manufactured by this firm, is meeting with marked success wherever it has been introduced. It is manufactured to meet the demand for light power. The engines and boilers are calculated to supply from 3 to 62-horse power. They are neat in design, substantially made, and very | President of the association, presided.

reasonable in price. Messrs. Leffel and Co. will be pleased to furnish parties desiring to purchase, with their new catalogue for 1879.

WE lately received a copy of the Blanchester (Ohio) Press, and in it read a very neat notice of the well-known bolting reels manufactured, by Chas. B. Slater, of Blanchester, Ohio. Millers who have not yet done so, should write to him for one of his descriptive

THE Geo. T. Smith Middlings Purifier Co.,

of Jackson, Mich., are erecting a new factory in place of the one recently burned, two stories high and 60 feet wide by 200 in length. They have a large force of men at work in temporary quarters building middlings purifiers, so as to fill all orders promptly.

THERE is but one country to which we do not export any of our hog products, and that is Turkey in Europe. Here are the total exports for the last nine months:

Pounds. .579,448,328 ..232,642 308 Bacon and hams...... Lard.....

16,497,872

RUSSIA, Germany, Hungary and France are open fields for enterprising American elevator builders. The last number of Die Muehle, published at Leipzig, has an illustrated article on the subject. To the best of our knowledge Pesth, the great milling centre of Europe, has no elevator proper worth speaking off.

JOHN F. DILLON, Judge of the U. S. Circuit Court for the Eighth Judical district, and well known to the milling fraternity by reason of his connection with recent patent cases, has sent in his resignation to take effect Sept. 1st, 1879. He will take a position in the faculty of the Columbia College, N. Y., which commands a higher salary with less arduous labor.

MESSRS. JOHN T. NOYE & SONS, the wellknown Buffalo mill furnishers, have about removed all traces of the fire which scorched them somewhat last month. Their business has scarcely suffered any by the unwelcome visitation, and they are now prepared to fill all orders as fast as possible after receipt. Their valuable and extensive line of patterns were absolutely uninjured.

CAWKER didn't think the Wisconsin millers' meeting worth attending. He preferred to get his report from the NORTHWESTERN MILLER. And he didn't even dare venture on the streets for fear he might catch a "shark." -N. W. Miller.

This too, after getting the proofs of the report from the office of the UNITED STATES MILLER. Never mind Al-just wait till we take that fishing excursion.

WE call the attention of our readers to the advertisement of the Peninsula Stone Co., of Akron, Ohio. The stones furnished by them are for the purpose of ending wheat or hulling oats. Our readers will do well to refer to Jos. F. Gent's report at the Millers' Convention, published last month, and read what he says on this subject. Ferd. Schumacher, one of Ohio's leading millers, is President of the

REBELLIOUS MINNESOTA MILLERS. -The millers of Minneapolis met June 23d, and requested the President of the Minnesota Millers' Association to call a meeting of the millers of the State, for the purpose of repudiating the recommendations of the National Association in regard to the Smith and Downton patents, believing them to be utterly fraudulent. They are disposed to fight them to the bitter end.

OUR readers will do well to read the advertisement of C. Rakes, of Lockport, N. Y., manufacturer of Jewell's adjustable separator, Rake's improved upright and horizontal bran duster, improved adjustable brush and beater, smut machine, buckwheat hullers, etc. Mr. Rakes also deals in all kinds of flour mill machinery and supplies. Write to him for his latest circulars and price lists, mentioning that you saw his advertisement in the UNITED STATES MILLER.

#### German Millers' Association.

The twelth annual session of the German Millers' Association was held in Berlin, June 21st-25th. One of the most important feat ures of their session is the complete exhibitions of flour-milling machinery, for which ample accomodations are provided, and inventors and manufacturers warmly encouraged to exhibit their productions. The programe sent us is very full and complete, and shows that ample arrangements for social enjoyment were made. Herr Jos. J. Van Den Wyngaert, the

#### GRAIN.

Peculiarities in its Normal and Manufactured State.

An Investigation Under the Microscope-Showing the Adulterations and Natural Evils to which It has been Subjected.

A COMPLETE INVESTIGATION OF THE SUBJECT BY ONE OF THE LEADING CHEMISTS OF EUROPE.

flour in General-Wheat Flour-Rye Flour Barley Meal-Oat Meal-Indian Corn-Rice Meal.

[Translated from the German of Dr. Herman Klencke expressly for the UNITED STATES MILLER,—cuts repro-duced by our special engraver from the original.]

#### [Continued from May number.] As an illustration, we here give in fig. 15 a

picture of wheat flour when mixed with rice

meal, in fig. 16 with maize, and in fig. 17 with

bean flour. But there are also methods of discovering the said adulteration by a chemical process. For those buyers and sellers who already possess some skill in examinations of this kind, or who take pleasure in arriving at a safe and fully exhaustive conclusion by a scientific method, we here mention first the method of Boland, which is based upon a quality which Gay Lussac has made known, namely, if a mixture of wheat flour and potato starch is carefully ground in a mortar, the much larger starch particles of the potato will be ground much sooner than the smaller and flat round ones of the wheat, and when water is added to it, a liquid is produced which is rendered blue by iodine water, while, by exactly the same treatment, pure wheat flour will furnish a liquid that will not turn blue by iodine, or will at least become of a color clearly distinguishable from the former. In consideration of this fact 25g. of the flour which are to be examined are taken. The glutinous contents of it may previously have been tested on another portion of it in order to be able to judge of its quality in general, this is done, as has already been mentioned, by separating the gluten over a hair-sieve of fine muslin cloth, while it is being washed, and constantly kneaded from the starch which runs through. [Fig. 18.] Good flour must contain from 10 to 12 per cent of gluten, and from 65 to 72 per cent of starch. The above mentioned 25g. of this flour are mixed in a cup, or porcelain dish, with 12,5g. of water, which is added slowly and in drops and is stirred with a glass tube, then this mass is kneaded in the hollow of the hand, and thereby the entire contents of starch in the mass are washed out over the aforenamed fine sieve, or (according to Boland's method) in a glass or porcelain vessel, which is half filled with water so that only the pure gluten will remain. If the flour is poor the gluten will appear granulous, and it is difficult to gather it in the hand. After it has been thoroughly washed out, the gluten which has been obtained is now weighed, so as to ascertain at the same time how much of it the flour contains. The 25g. of flour, if it is pure and good, must accordingly contain from 2.5-10 to 31g. of gluten. If less is obtained that alone will be sufficient to create suspicion about the quality of the flour. The water containing starch, which is in the bowl, is now stirred with a glass tube and poured into a champagne glass where it is left untouched for one hour; during this time a sediment will form itself at the botton of the glass, which must not be moved or touched, while, by means of a siphon, the water which has accumulated over the sediment is very carefully removed; two hours later this operation is repeated, for the starch still retained a certain quantity of water from which, by this time, it has gradually been separated. The mass which has now formed itself at the bottom of the glass, will, by a careful examination, be found to consist of two different layers; the upper, which is of gray color, consists of separated gluten which had been washed out during the process and had thereby lost its elasticity, and of albumen; the lower layer, of a dull lead color, is starch. With the greatest care the upper gray layer is now removed with a tea-spoon, and if a little should remain just above the starch it is not necessary to remove every particle of it. Now the untouched layer of starch is left to dry so that it will become wholly compact, in this condition it is carefully loosened, with the tip of a finger or knife, from the inner wall of the glass, so that the layer (in the conical shape which it has received from the glass) can be taken out by turning the glass over on a glass plate. To dry the mass still more thoroughly this cone of starch is placed on a dry plate of gypsum.

geneous, but if it contains potato starch which

have sunk first, and consequently will lie at the bottom, that is, at the apex of the cone of starch, while the wheat starch will form the wider base. If with a knife thin layers are now taken off one by one, every one weighing about one gram (which always corresponds in weight to 1-25 g. of the examined flour), every layer which has been cut off is ground separately and successively in a mortar of agate with a pestle,

will change its color to blue if it contains potato starch; while pure wheat starch will only acquire a yellow or light redish-violet hue. If the starch in the mortar is grated too long, it will become too fine to be sufficiently blue colored with iodine, and the experiment may lead to wrong conclusions; the mortar of agate has been chosen, so as not to have too smooth surfaces, which like glass or

porcelain, let the

verizing them. By this method of examina- is also allowed to settle until the starch par-

the relative quantity; of the potato-flour which has been added, by carefully taking off the upper gray part of the cone of starch from the lower and white part, and this gradually and in layers 1 g. in weight, and every single layer examined with iodine in the prescribed manner. If the layers now change to a lighter yellow or a reddish-violet color, we have before us the wheat starch of the base of the cone.

1-25 of the examined flour, a calculation of the fraudulent admixture is easily made. If for instance 5 layers (of 1 g. each) of the cone of starch have been found to contain potato starch, 5 times 1 g. of it will be contained in the starch, or in 25 g. of it, 5 grams of the potato starch will be found. . If the base of the cone consisting of wheat starch is now weighed, and added to the weight of the potato starch, we have the whole contents of starch of the flour, and by dividing it by the amount of potato starch, we find the percentage of the

fraudulent admixture. In taking off the lay- more kali is added (about 1.75 parts to 100 ers the relative quantity of the potato starch parts of water), it will be transformed to a

If the flour has been pure and unadulterated | judged of merely by the eye. As has been this mass of starch will appear wholly homo- said before this examination requires some skill and practice, but if once obtained, which is much heavier than wheat starch, this will is not difficult, it enables to judge exactly of the amount of the fraudulent admix-

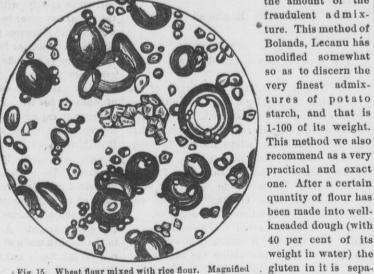


Fig. 15. Wheat flour mixed with rice flour. Magnified 420 times.

at first dry and subsequently with some cold | already mentioned (fig. 18), the water which water, the liquid is then strained and some has been used for washing out the starch is concentrated tincture of iodine is added, it collected and stirred so that all particles it

contains are well distributed; then the turbid water is passed through a fine hair sieve so as to retain the remaining particles of gluten and bran, and is poured into some conical glass (a champagne glass for instance). Without waiting for the water over the sediment which is now forming shall clear itself, it is poured off and set aside as soon as a sufficiently great sediment has been formed. Then

quantity of flour has

kneaded dough (with

40 per cent of its

weight in water) the

rated in the manner

starch particles pass over them without pul- this sediment is dissolved in pure water, this tion one is enabled approximately to estimate ticles which are distributed in the water have all settled.

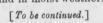
same process is now applied as in the first case, the turbid water is poured off and the sediment is again dissolved in pure water. This is repeated from five to ten times with the sediment, which of course is of less quantity every time. This sediment is composed of different parts. The last slowest sediment contains almost nothing but small



especially of large particles of potato starch and a small quantity of little potato starch and large wheat starch particles. If this latter sediment is examined with a magnifying glass, it will show a lustre like the finest kernels of beet-root cassonade, If alkaline water is added (100 parts of water and 1.25 parts of kali), most of

these small glossy kernels or balls at some one point of their surface will show a circular opening of very small diameter. If the sediment is dissolved in alkaline water (in quantity 80 times its weight), and a little

on a glass plate in thin layers can easily be colored with a watery solution of iodine, and when acidized with muriatic acid it occasions bluecolored blisters which are from five to six times greater in diameter than the starch par ticles. This method, however, is also somewhat circumstantial and less suitable for the use of bakers and dealers in flour. For this purpose we can recommend the following method for its greater practibility. In a mortar a mixture of 16 parts in weight of the flour and 16 parts of pulverized sand-stone is grated for about five minutes, and in small quantities, so much water is added that a uniform dough is formed, which is wholly dissolved in the water that is gradually applied. (If for instance 16 g. of flour and just as much pulverized sand-stone are taken 1-16 liter of water will suffice to dissolve the dough.) This solution is filtered, about 1-32 1. of it are taken to which just as much solution of iodine is added (8 g. of iodine in 500 g. of distilled water). If this liquid is obtained from good, pure wheat flour, it will acquire a rose-colored hue from iodine; but if the liquid contains potato starch it will become blue and lose this color very slowly, while the rose color of a pure solution of wheat starch will disappear the more rapidly when the wheat is reaped in a wet season or the flour ground in moist weather.



#### Grindstones.

What can disable a machine shop more effectually than to destroy the grindstone? Unless the loss were supplied by the modern substitute, the emery grinder, to destroy the grindstone would be to wreck the shop. A thorough study of the subject will develop more requirements than many think, and much ingenuity or skill in designing might be displayed in working out the problem. It should be strong, simple and clean; the trough expanded to catch as much as possible of the drip water and grit; a movable shield securely hinged to keep the water from splashing, and yet permit the stone to be used from either side; rests provided upon which to rest tools and the rod for turning the stone, these rests being arranged to move toward the center as the stone wears smaller. The bearings should be generous in size, proper provisions being made for oiling without washing the grit into the bearings with the oil, and the ends of the bearings being protected by some device which effectually prevents the entrance of the grit. The stone should be secured to the shaft by nuts and washers, and the washers fixed so that they can not turn with the nuts as they are screwed up or unscrewed. In hanging the stone, great care should be taken to hang it true sidewise, not only for convenience in using, but because a stone that is not true sidewise can never be kept true edgewise.

Suppose a stone to run one-fourth of an inch out of true sidewise, and while in motion draw a line around it within three-eighths of an inch from the edge, on an average. From this line there would be but one-fourth of an inch of stone on one side and one-half on the other. If you had a stone only this in thickness-that is, a stone one-fourth of an inch thick on one side and one-half of an inch thick on the other-would not the one-fourth inch side wear away faster than the other? That is exactly what it does on that side of the thick stone, only the thicker the stone and the less it is out of true the less it wears.

To TEMPER MILL PICKS .- 1. Take two gallons rain water, one ounce of corrosive sublimate, one of sal-ammoniac, one of saltpeter, one and one-half pints of rock salt. The picks should be heated to a cherry red and cooled in the bath. The salt gives hardness, and the other ingredients toughness to the steel; and they will not break if they are left without drawing the temper. 2. After working the steel carefully, prepare a bath of lead heated to the boiling point, which will be in. dicated by a slight agitation of the surface. In it place the end of the pick to the depth of one and one-half inches until heated to the temperature required. The principal requisites in making mill picks are : First; get good steel. Second, work it at a low heat; most blacksmiths injure steel by overheating. Third, heat for tempering without direct exposure to the fire. The lead bath acts merely as a protection against the heat, which is almost always too great to temper well.

Bennett, Dewey & Burt, of Rochester, Minn., propose to build a \$50,000 flour mill at Bismarck, D. T.

The Rockdale flouring mills near Dubuque,



Fig. 16. Wheat flour adultersted with corn flour or corn starch. Magnified 240 times.

Fig. 17. Wheat flour adulterated with bean flour. Mag nified 420 times.

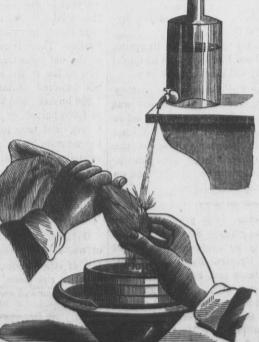


Fig. 18. Washing out and separation of the gluten from the starchy portion of wheat flour.

which has been added may generally be translucent uniform jelly, which, when spread Ia., are being rebuilt.

Iowa Millers Association.

PROCEEDINGS AT THE JUNE MEETING.

The Iowa millers have a sort of dual organization-the Association proper being to consider matters generally for the good of the trade, and the Defense Association is for the express purpose of defending the members against the claims made by patentees for infringement of patents. Both of these organizations met at Marshalltown, June 4th and 5th, in the Court House at that place. About twenty-five members from various sections of the State were in attendance. The meeting was called to order by President J. J. Snouffer, of Cedar Rapids, who made a short address. He explained the great importance of the meeting, and urged that prompt and decisive action be taken by the members present upon the question of adopting a constitution and completing a thorough and effective organization. After the reading of the minutes of the January meeting at Des Moines, Secretary Reed stated that no new members had been admitted since the last meeting, that there had been no applications. President Snouffer advocated the consolidation of the State Association and the Defense Association, and that the new organization become a part of the National Association- Upon motion of Mr. Sharp, of Wilton, those present who were not members of the old Association were permitted to join. Robt. Wight, of Iowa Falls, availed himself of the privilege and became a member. The Committee on Constitution asked further time in which to prepare their report. An informal discussion was held concerning the action of the Sub-Executive Committee of the National Association at the Chicago meeting. Many expressed their dissatisfaction in unmeasured terms, while others expressed themselves satisfied, and were in favor of adopting a constitution similar to those adopted by the Minnesota and Missouri Associations. D. B. Knight, of Boone, finally moved that a committee of three be appointed to devise plans for future action. Carried. D. B. Knight, G. F. Weist and C. H. Peters were appointed, and the Convention adjourned 2:30 P. M.

At the above hour the Convention was called to order. The Committee reported in favor of consolidating the regular State Association with the Defense Association. Adopted. After a lengthy discussion concerning the advisability of being or not being a part of the National Association. A joint committee of six, three from the State and three from the Defense Association, were appointed to prepare a new constitution. This Committee consisted of Messrs. Wright, Ellerston, Hutchcroft, Knight, Serrin and Weist. The Convention adjourned until

5 P. M.

At this hour the State Association was called to order, and majority and minority reports were presented. Mr. Knight's majority report recommended the consolidation of the two organizations as an independent State Association, and presented a proper constitution for such purpose. Mr. Serrin's minority report favored the consolidation, and advised the adoption of a constitution such as had been adopted in Missouri and Minnesota, and that they remain a part of the National Association.

It was moved that the minority report be accepted, and that the constitution be read by

Mr. Sharp moved as an amendment that a section of each constitution be read alternately, and the best from both adopted. Motion then carried as amended.

Mr. Sharp moved that a vote be taken to ascertain who were in favor of remaining with the National Association. The motion was carried, and a majority voted in favor of remaining.

Upon motion of Mr. Weist, the vote to read the constitution by sections was reconsidered, and the Covention then adjourned until 8 o'clock to meet at the Boardman House.

The Convention was called to order at

8:30 O'CLOCK.

Upon motion of Mr. Hammond, the Convention took up the constitution submitted by the minority of the joint committee and proceeded to read it by sections. Each section was read, discussed, and adopted, substantially as presented. After the reading by sections Mr. Hammond moved that the constitution be adopted as a whole. The motion was carried unanimously.

Upon motion of Mr. Serrin the Convention proceeded to the election of officers to serve until the next annual meeting. The following officers were elected:

President-J. J. Snouffer. Vice-President.-H. Hammond.

Secretary and Treasurer-J. R. Serrin. Executive Committee-J. R. Serrin, H. Hammond, G. F. Weist, F. J. Woodbury.

Delegate to the National Association-J. R

Upon motion of Mr. Hammond the Convention adjourned until

9 A. M. THURSDAY.

The Convention was called to order at 9

Mr. Knight moved that the action of the Convention in adopting a constitution the previous evening be reconsidered. A long and lively discussion followed which showed that the advocates of an independent State Association, and the champions of the National Association were farther than ever from a compromise. The motion to reconsider them was carried. This effectually settled the question of consolidation in the negative.

Mr. Knight now moved that a committee of three from the State Association be appointed to prepare a new constitution for that body; the motion was carried and the President appointed as such committee Messrs. Hammond, Ireland and Knight. The Convention then adjourned until

1:45 P. M.

The Committee on Constitution recommendea the adoption of the old constitution without amendment. The report was unanimously adopted, and the Millers' State Association then adjourned sine die.

The Defense Association was now called to order and lost no time in adopting a constitution similar to that adopted by the Minnesota Association, and with the following sections

Sec. 11. The following persons shall act as officers of this Association until the regular annual meeting in January, 1880:

President-J. J. Snouffer.

Vice-President-H. Hammond.

Secretary and Treasurer-J. R. Serrin. Executive Committee-G. F. Weist, H. Hammond, F. J. Woodbury, J. R. Serrin.

Member National Executive Committee-J. R. Serrin.

Sec. 12. This constitution may be altered or amended at any annual meeting by a twothirds vote of all the members present.

Mr. Weist moved that the Treasurer be required to give a bond of \$2,000; seconded and carried unanimously,

Upon motion of Mr. Sharp the Secretary was authorized to send a copy of the new constitution to all members of the old Defense Association for signatures, and to notify all other millers in the State by postal card.

Upon motion of Mr. Hammond, the Convention adjourned sine die.

A CLEAN SWEEP .- It was a sad looking tramp, with a pained expression of face, that entered a Sutter street bar-room the other day, holding in his hand a small, battered red canister. "Look at this," he said sorrowfully. 'I went into a gun shop and begged for something to eat, and the man handed me this can of powder. He said I' could go shooting-a starving man go shooting. Just think of it."

"Well, mizzle," retorted the barkeeper, who had just set up four fancy drinks for a row of

"I pledge you my word," said the vagrant, holding the can within an inch of the stove, 'I'm so miserable, I've almost a mind to blow myself up."

"Dare you to do it," said one of the bystanders, winking at the crowd.

The wrecked party gave a sad, lingering look at the poured out liquor, as that he might ne'er behold again, and tossed in the can.

The yell that the whole crowd gave as they started for the other side of the street was heard on Telegraph hill. When they filed in about ten minutes after the empty can did not explode, there were four empty glasses on the counter, the lunch table was an empty mockery, and the till looked like a savings bank on the day after a really large deposit.

GALVESTON, Texas, feels proud over the completion of the "Texas Star Flour Mill," erected in that city by a stock company, of which Hon. John Rymershoffer is President. It is the largest steam mill South of the Arkansas river, and it is fitted up throughout in modern style. It has both stones and rollers. The engine is of 60-horse power. The machinery was put in place by Messrs. Jno. T. Noye & Sons, Buffalo, N. Y. Having any quantity of excellent wheat in their immediate neighborhood, and a constant demand for flour from Mexican, West Indian and South American ports, the milling company feel confident of an excellent trade.

The New "Hundred Weight."

One of the most serious objections to an imperative adoption of the cental system has been that our foreign trade in grain has been carried on mainly with Great Britain, where the cental has never been in use. The British weights and measures pertaining to grain have always been more or less complex. Thus the English ton is 2,240 hs. The transactions in grain are mainly by "quarters." The commercial "quarter" is 480 fbs, but the quarter of wheat is 504 hs. The British quarter is a measure of capacity as much as is the bushel; it represents cubic space, and not weight. British wheat weighs from 63 to 64 hs to the bushel, and eight bushels are equal to a "quarter." The ton being 2,240 lbs, the British "hundred weight" (cwt) is 112 lbs. The "stone" is equal to one-eight of a hundred weight, and a "quarter" hundred is 28 ths, or two stones weight. Another embarassment is in the English mode of selling flour; the "barrel" of 196 hs is unknown to British trade. Flour is sold by the "sack," 280 ths and the sack is computed to weigh 6 ths, making the weight of a British "sack" 286 lbs. American flour for exports is now put up in "sacks" instead of barrels; these are divided into parts of sacks, as halves, three-quarters, and other divisions, there being as many as five sizes put up in this country for the export trade. So many sacks represent so many hundreds of pounds, and as railroad and ocean freights are now charged by the hundred, the computation is an easy one. It has been found that sacks are more readily packed; they not occupying so much space in proportion to the weight of flour as the barrels, transportation of flour in that form is cheaper.

During 1878 the British Parliament adopted a new act relating to weights and measures, which act, among other things, provided that all grains and dry products should be sold by pound only, the pound avordupois being the unit. To the Board of Trade was left the determination of the multiples of the pound to be used in large transactions. The National Board of Trade recommended, and an Order ih Council has adopted the "cental or new hundred weight" as a new denomination or standard. This order went into force in February. Hereafter, in all transactions in grain and dry products; the British hundred weight will be 100 ths, instead of 112 as heretofore, and a ton of barley or potatoes will be 2,000 ths, instead of 2,400 ths.

There are those who can remember when in this country 112 hs were the hundred weight, and when all the large scales in general use were supplied with weight's of 7, 14, 28 and 56 hs each. These divisions of the hundred weight are still in general use in England, but hereafter in grain and dry measure, the 100 ths will have decimal divisions; fifty pounds will be half a hundred. The old system has not been abolished; the new one one is not obligatory, but has been legalized; and the practice of using the cental, which has been so far confined to Liverpool, will probably become general.

The British hundred weight of 112 ths being the sole standard in that country has heretofore been in the way of any general adoption in this country of the cental; but now that the hundred weight will have the same significance in both countries, there is no longer any substantial reason why it should not be adopted in this country, to the exclusion of tude should be rated by centals instead of by bushels. There is really no excuse in adhering to the old measure. A bushel of wheat is now by law 60 ths, and a bushel of corn 56 ths. Six hundred centals of wheat are equal to 1,000 bushels, and 560 centals of corn are equal to 1,000 bushels of corn. It will require but a very brief term to become as familiar with the measure by weight as with the measure of capacity, particularly as in all large transactions the grain is actually measured by weight and sold by weight. It will be as easy to reduce centals to bushels as it is now to reduce

OATMEAL RELISH.-Fill a saucer nearly full of well-cooked oatmeal. Now fill the oatmeal full of strawberries (pressing them in), ripe peaches, ripe pears, or some such fruit. Add a little sugar and cream. It is a rich and delicate dish.

THE Argentine Republic, South America, is a good wheat-producing country. It is reported that 40 vessels are now on their way from the River Plata to European ports loaded with wheat. The emigration of Germans and Italians to the Argentine Republic is reported to be large.

THE PRODUCTION, EXPORT AND DOMESTIC CON-SUMPTION OF WHEAT .- The following table, compiled by Tallmadge & Lindman, of Milwaukee, from official sources, is of value to all shippers of wheat:

		WHEAT.	
Year.	Production.	Exports.	Home cons'p.
1863	173,677,900	41,468,400	132,209,500
1864	160,695,800	22,959,800	137,736,000
1865	148,552,800	16,494,300	132,058,500
1866	151,990,900	12,646,900	139,353,000
1867	212,441,400	. 26,323,000	186,118,400
1868	224,036,600	29,717,200	194,319,400
1869	260,146,900	53,900,700	206,246,200
1870	235,884,700	52,574,100	183,310,600
1871	230,722,400	38,995,700	191,726,700
1872	249,997,100	52,014,700	197,982,400
1873	281,254,700	91,510,400	189,744,300
1874	309,102,700	72,912,800	236,189,900
1875	292,136,000	74,750,600	217,385,400
1876	289,356,500	57,149,900	232,206,600
1877	364,194,100	92,141,600	272,052,500
1878	420,122,400	145,122,000	175,000,400
1879	480,000,000 €	stimuted	

Curiosities of Currency Redemption.

Whenever anybody mutilates a national bank or legal tender note, whenever anybody comes into possession of a worn-out note, or whenever by accident anybody's money of this character becomes so far destroyed that it will not pass, he sends it to the Treasurer's office, and there judgment is passed on it. Of course every precaution 's had against fraud. Quite often a woe-begone piece of note will be sent in, and after the crucial test will turn out tobe the relic of a counterfeit bill. Sometimes the affidavits accompanying a fragment of what was once a greenback are "manufactured." In such cases the replies that the sender gets to his request for redemption are more pointed than polite.

Among the curious cases which have come up, says the Washington Star, was that of the poor old woman in Philadelphia. She was saving money in order to accumulate enough to secure her admission to some charitable institution, and had got together \$65. Distrustful of savings banks, she put her money on a shelf well concealed. It soon disappeared. She was certain that it had been stolen. Some of the neighbors persuaded her to tear up the floor. She did so, and after a close search, the fragments of her \$65 were found in a rat's nest, the proprietors of which had been exercising their nibbling propensities on the money. She gathered up the fragments and sent them to the Treasury. Most of the money was in national bank notes, which were mutilated beyond the possibility of recognition. For them she could regain nothing. Of the legal tender notes but \$8 could be redeemed, so the old lady lost \$57 by the rats.

Another case in which there was a distrust of the banks was that of a farmer living in Illinois. He always kept his money in the house or about his person. A short time ago he had \$11,000 in ready cash and carried it in his coat pocket. He went to bed, leaving his coat on a chair. His wife complained of the coldness of the room, and he got up to stir the fire. He had been back in bed but a short time when the room filled with smoke and the well-known odor of "something burning." He jumped up to find his coat pocket burnt out and his \$11,000 a charred mass. Fortunately there was enough distinguishable about the notes to secure him, upon his sworn and attested affidavits of the facts, a new set complete. He may patronize the banks hereafter.

Perhaps one of the most remarkable cases that has ever come before the redemption division occurred last week. A Nebraska backwoodsman dropped his pocket-book containing \$100 into the camp-fire. Before he could get it out the heat had so acted upon it that the book had shrivelled upinto a hard burnt ball. He did not attempt to open it, but sent it on with a statement of the facts. The ball was cracked just as a hickory nut would be in order to get at its contents. Inside was found, perfectly intact and undamaged, the \$20 and \$10 bills that went to make up the \$100.

The old boot figures quite frequently. A Tennessee man put \$135 into a boot and secreted his boot in his smoke-house. When he went back for it he lost his bearings and could not find it. Six months afterward he stumbled across the old boot exactly where he had left it. The mouey inside the "bushel." All transactions of any magni- had furnished nourishment for cock-roaches and wood-lice. A handful of the small pieces was all that was left to tell the tale. Sending them on to the Treasury, they were examined, fixed together, and enough were identified to give the man \$50.

> SERVED HIM RIGHT.—A gentleman in full dress -broadcloth coat, white gloves-bolted into a drug store precipitately recently.

> "Can you fix me, right off," he panted, "a preparation of castor-oil that can be taken without any one ever detecting the odor, or even suspecting that it's medicine, and that will-you know, one that'll

"I should say I could," said the druggist.

In five minutes the apothecary came out with a glass of pleasant looking liquid in his hand.

"Monsieur," he said, with a smile, "while you are waiting, permit me to offer you a glass of lem-

"Certainly, but hurry, please."

The customer drank the beverage hastily. Several minutes passed, when he growled impatiently. "Come, come, where is that preparation?"

"Monsieur," said the apothecary, "I am happy to observe that I have exactly met your desire. That preparation you have just taken, without the slightest suspicion of its character-"

"Beast, villain! Ah-h! It wasn't for myself that I wanted it! I'm to be married in an hour, and it was for my prospective mother-in-law, who has just been taken ill."

#### Longevity of Millers.

During the thirty-four years and eight months, from May 1, 1843, to Dec. 31, 1877, there died in the State of Massachusetts 161-801 men over 20 years of age, whose occupation was specified in the registry of their decease. The average age at which they died was about 51 years. The number was so great and the period covered is so long that by the study of the classification of the employment of those dead, we can get a very good idea of the comparative ages at which men of different occupations and in an ordinarily healthy community are swept away by death. The deaths in only six different occupations were at an age on an average, above 60. They were, first the gentlemen, 68; second, the farmers, 65; third, the Judges, 64; fourth, the light-house keepers, nearly 63; fifth, the basket-makers, 61; and sixth, the pilots, over 60. Clergymen lived a little over 59 years and professors over 57 years, lawyers about 56 years and physicians 55 years. The active mechanics died on an average at the following ages: Millers, ropemakers and wheel-rights, 57 years; clothiers, pump and block makers and tallow chandlers, 56 years; potters, 55 years; hatters, 54 years; blacksmiths, 53 years; calico printers and wood turners, 52 years. All other occupations fell below the above enumerated classes, brakemen dying earliest of all at 26 years of age. It will thus be seen that millers are among the longest lived men in the community, following after professional men and gentlemen of leisure, who are the longest lived men in every country. The millers lived six years longer than the average, and twenty years longer than the class denominated as factors laboring abroad, (baggage-masters, brakemen, engineers, firemen, soldiers, etc.,) who died at an average age of about 37 years.

#### The French Milling Trade.

In order to obtain a correct idea of the immense value of the milling industry in France it will be found necessary to take the average consumption of flour in ordinary years, and add thereto the excess of the exports over the imports. Now, if we suppose each of the thirty-six millions of inhabitants in France to consume on an average 20.60 ounces of bread, which would be nearly equivalent to one pound of flour, we find that the total consumption of flour amounts to 35,275,000 pounds daily, or 12,875,375,000 pounds yearly. 'The average annual imports of flour from 1872 to 1876 were 29,207,000 pounds, and the average exports during the same period 275,-790,000 pounds, and consequently the annual production of flour in France amouted to 13,-121,958,000 pounds. Again, supposing every hundred pounds of wheat to yield on an average 74 pounds of flour, 22 pounds of bran and offal, and 4 pounds of dust, we arrive at the conclusion that the French mills daily grind about 825,000 bushels of grain into flour.

There are upwards of 15,000 pairs of stones in the different mills in the country, requiring sixty thousand horse power to drive them. If we further reckon the average price of wheat during the above-mentioned years to have been 54s. per quarter, the value of the annual production of flour will be about £92,000,000, and of bran and offal about £100,000. In the early part of the present century the mills were scattered over different parts of the country, the motive power employed being principally wind and water; but at the present moment there is no district where these small mills have not been replaced by larger ones, with at least six to ten pairs of stones, and driven by steam or hydraulic machinery, to avoid any stoppage of work on account of low water. Manual labor is employed as little as possible where the work can be performed by mechanical power. In a properly arranged mill one workman is sufficient for each two pairs, and one stone dresser for every five pairs of stones. In general the mills are fitted up for low grinding, and up to the present day only a few are engaged in medium grinding. The number employed in high grinding is also comparatively small. The milling trade of France, on the whole, is in a flourishing condition, and from the moderate demands of the consumers, with regard to the quality of the products, it is also very remunerative.

Marseilles is the great milling centre for the export trade, on account of its favorable position for receiving grain, and it is there that the large mills are situated which are principally engaged in the import and export trade. -Austro-Hungariau Miller.

SUBSCRIBE for the U.S. MILLER. Only \$1

LUBRICANTS. - The evils attending the use of oils and fats as lubricants upon machinery are well known to engineers and mechanics, but the causes and nature of their injurious action are not so generally understood. We give, therefore, a brief but very lucid explanation of their action which we find credited to Dr. Marquardt, by our contemporary, the Boston Journal of Chemistry. The most obvious and least objectionable evil attending their use is the gradual oxidation (or gumming) which they undergo, and in consequence of which their lubricating qualities rapidly diminish. A more objectionable property of these substances shows itself when they are applied to such parts of machinery as are more or less highly heated. In such circumstances, these substances are decomposed into their constituents, glycerine and fatty acids. The latter combine with the iron work of machinery to form an iron soap, the metal surfaces being corroded thereby and fresh surfaces exposed corrosion. Marquardt recommends the substitution of the mineral oils (heavy petroleum products that boil above 600 deg. F.) for animal oils and fats as the remedy,

#### Foreign Flour Competition.

A correspondent "Nil Desperandum," supports the views we expressed in last issue with regard to the mode in which the British miller should meet his foreign competitor, and he also gives a few crumbs of comfort to the former which may enable him to bear his present ills with some equanimity of spirit. In the first place our correspondent, a gentleman who is thoroughly competent to pronounce an opinion on the subject, says the American manufacturer has yet to learn that the London bakers expect above all things uniformity in the quality of the flour they use. For some months after the supply of American flour set in with the severity that has characterized it for some considerable time past, several well-known brands sustained an excellent character. The quality of these, however, has since been so much reduced that they are not worth what they were by 3s. per 280 pounds. This, as might be expected, has led buyers to purchase with extreme caution, and, although great care in testing samples is used, the final and best test, that of actual bread-making, frequently discloses the fact that the flour which by sample test appeared the best by 2s. per 280 pounds, was 8s. worse than that which, by the same test, was placed in the second place as regards value, but which, by the actual baking test, was placed first. The London baker is more a man of routine than of science, and if he gets a cheap lot of flour that has a decent appearance, he is tempted to take it for mixing purposes, and only finds out his mistake when he finds his customers joining in a chorus of complaint with regard to degeneracy in the quality of his bread. We have heard of many complaints about the deterioration of the color of his bread made from home manufactured flour, mixed with the lower brands of American, which have recently so freely appeared upon our markets, while many bakers who have been beguiled into using them, in consequence of the low figure at which they can be bought, declare that they are dear at any price. All this, of course, is in favor of the native miller. It indicates that the foreigner cannot compete with him with the weapon of low grade flour, and the highest grade is too expensive a weapon to be profitably used. It must, however, be borne in mind that in America milling is a progressive calling, and that there science is becoming more and more a factor in flour manufacture, by means of which the American may, within a short time, turn in his own favor the balance of advantage which, as matters now stand, is on the side of the manufacturers of this country. The ultimate safety of the latter, in other words, the securing of a position from which he cannot be driven, depends upon his readiness to press science into his service, for the purpose of raising the standard of quality in his flour as regards strength, color, elasticity and durability, to such an altitude as will fairly satisfy the growing demand to this country for a superior class of household bread than that to which we have been previously accustomed .-The Miller, London.

OTTAWA dispatches state that the Canadian Government has discovered that, in order to evade the duty on flour, American shippers have placed a Canadian brand upon American flour. The customs department at Halifax has been instructed to require Canadian customs certificate for all flour said to be Canadian, imported via the United States.-N. E. Grocer.

#### Monopoly in Milling.

The histories of all manufacturing industries are replete with instances of efforts to establish monopolies. The flouring industry from its nature has been perhaps as free from these efforts as any other, but there appears to be at the present time a growing tendency to concentrate the manufacture of flour in certain milling centres in large mills. It is claimed, and more than likely it is true, that a very large mill can turn out great quantities of the best flour at less expense per barrel than smaller institutions, the owners of many of these latter not being financially able to avail themselves of the best modern milling machinery. Recently we heard a well-known miller state that it was only a question of time, and no very long time, either, when most of the small country merchant mills would shut down for good and the milling of America would be 'almost entirely done by great mills in milling centres such as St. Louis, Milwaukee, and Minneapolis. Such a result is, we think, neither probable or desirable. The thousands of water-powers throughout the country can be utilized in no better manner than to drive mills to make the grain into flour in the vicinity of the place where it is grown. There should be established grades of flour as there is of wheat; and mills, whether great or small, in the city or in the country, should grind to come up to these established grades. It is true that certain places, among which Milwaukee is one of the most prominent from natural and artificial advantages, are and always will be great milling centres; but there is no reason that we know of why flour made in outside merchant mills, where power is cheap and transportation reasonable in price, should not be able to hold its place in the markets against flour made in the "big mills," if it is equal in quality. Judging by the reports from the various mill-building establishments furnished from month to month, we venture the assertion that there will be more small mills built during the year 1879 than in any previous year. Our population is augmenting, our wheat production is increasing, our flour export trade is rapidly growing, and we believe there is room for all the flour mills we now have and thousands more.

Some tricks in "Parlor Magic," printed in juvenile publications, are very amusing as well as very simple. "The Enchanted Pin," for instance. To perform this trick you take a common brass pin, such as a man sometimes uses to fasten his shirt collar when a rear button flies off. To satisfy your audience that the pin doesn't contain a false bottom, let them have it in their hands to inspect. This will convince them that there is no deception about it. Now bend the pin in two placesfirst, about one-third from the head, and, second, the same distance from the point, so that the business end will project upward. Again show your pin to the audience in order to satisfy them that it is the same pin, only bent-bent on mischief. Now place the pin on a hard-bottomed chair, and when a late visitor enters invite him to sit upon the chair. The effect will be magical. If the ceiling is not more than ten feet from the floor, the probabilities are that the man will arise so spontaneously that his head will make a dent in it. This incocent little trick never fails to amusean audience, and if such amusement received more encouragement in the domesticcircle there would be few poems written asking "Where is my boy to-night?"—Norristown

THE shortest organized railroad in the world, says the Railway Age, is the Castle Rock & Tucker Gulch railroad in Colorado, which boasts of a President and General Manager, and is just 700 feet long. A paragraph has been going the rounds of the newspapers that the Wood River railroad, in Rhode Island, is the shortest in the world, its length being seven miles. The first sentence in this paragraph ought to settle the Wood River statement. In fact, there are several shorter railroads than the Wood River. For instance, the Horn Pond branch, Mass., twothirds of a mile; the Moshassuch Valley; Rhode Island, less than two miles; the Ferro Monte, N. J., 2½ miles; the Mt. Hope 4½, and the Charlotteburg & Green Lake 41 miles. The last two are New Jersey roads.

A DARKEY was boasting to a grocer of the cheapness of ten pounds of sugar he had purchased at a rival store. "Let me weigh it," said the grocer. The darkey assented, and it was found two pounds short. The colored gentleman looked perplexed for a moment, and said, "Guess he didn't cheat dis chile much, cos while he was gettin' the sugar I stole two pair ob shoes."

#### Recent Patents.

The following patents for flour milling machinery were issued from the United States Patent Office, April 29th, 1879, to the parties named below

Fanning-mill. - John Bennett, Belleville, Ontario, Canada.

Diamond Mill-stone Dressing Machine. — Thomas P. Benton, La Crosse, Wis. Turbine Water Wheel .- John C. Cline, Philadelphia, Pa.

Mill-stone Dressing Machine. - John C. Cookson and S. L. Hart, Menasha, Wis Grinding Mill .- John Fitzgerald, Brooklyn,

N. Y. Turbine Water Wheel .- Samuel Goutner, York, Pa. Grain Meter. - Edward Riessert, Cologne,

Middlings Purifier.—William S. Snyder, Aurora, Ind.

The following milling patents were issued May 6th, 1879:

Bag-fastener. - Jacob J. Boyer, Hebron,

Grain Drying Kiln .- Charles W. Boynton, Chicago, Ill. Machinery for Unloading Grain from Cars. Thaddeus L. Clark, Mt. Vernon, Ohio.

Middlings Grinding Mill.—James Jones, Louisville, Ky. Grain Separator.-John H. Sturgeon, Owensville, Ind.

The following patents were issued May 13th,

1879: Water Wheel Curb .- Wm. R. Calkins, Great

Barrington, Mass. Fanning-mill .- A. W. and C. T. Kendrick, Brooklyn, N. Y.

Grain Sampler .- Wilfred C. Lyman, Chicago, Ill.

Grain Sacking Scales .- Edwin A. Martin, Thornsville, Ohio. Middlings Grinding Mill,-Jonathan Mills,

Milwaukee, Wis. Grinding Mill .- Ambrose W. Straub, Philadelphia, Pa

The following patents were issued May 20th,

Bag-holder--Charles A. Bickle, Hagerstown, Grinding Mill.-John T. Obenchain, Log-

ansport, Ind. Mill-stone Driver .- William Patterson, Con-

stantine, Mich. Middlings Separator .- Wm. and N. Thayer, Westerville, Ohio.

The following patents were issued May 27th,

Bran Package.-J. and E. Belt, St. Paul, Minn. Process and Apparatus for Mashing Grain.

John A. Ebenhardt, Cincinnati, Ohio. Bag-fastener.-Alexander Gleason, Greenville, Mich.

Grain Steamer and Drier .- Lafayette Hartson, Wyoming, Iowa. Grain Transfer Machine .- John T. Hugh,

Pittsburg, Pa. Grain Conducting Apparatus.—John T. Lenox, Chicago, Ill.

The following patents were issued June 3d,

Separator. - James W. Morrison, Grain Clinton, Ill.

Grain Scourer and Cleaner .- Morton Toulmeir, Mobile, Ala. Middlings Purifier.-Henry White, Galves-

The following patents were issued June 10th,

Magnetic Separator .- Henry E. Cook and J. B. Thayer, River Falls, Wis. Water Wheel .- Albert B. Conch, Newman,

Ventilation for Mills .- Venendo P. Harris,

Greensburg, Ind. Grain Cleaner.-Josee Johnson, New Lebanon, N. Y. Middlings Separator.—Chauncy T. Keller,

Lima, Ohio. The following patents were issued June 17th,

Porcelain Rolls for Grain Crushing Machines. Wilhelm Braum, Carlsbad, Austria, assignor to Weber, Uster, Switzerland.

Dressing Mill-stones-Daniel Brubaker, Oswego, N. Y.

Portable Roof for Sheltering Grain.—John
R. Davis, Sun Prairie, Wis.

Feed Roll for Middlings flour .- Charles A.

W. Jaquett, Brooklyn, N. Y., Grain Door.—Thos. Sille, Ft. Erie, Canada, and J. R. Petne, Buffalo, N. Y. Mill-stone Driver .- Geo. T. Smith and W Cochrane, Jackson, Mich.

Rice Hulling Machine. - Edsell Totman, Batavia. Ill. The following patents were issued June

24th, 1879. Mill-stone Driver-Wm. J, Blackwell, Magnesborough, W. Va.

Grain Separator-Union Iron Works, Decatur, Ill. Blast-regulator for Grain Separator—Chas. H. Faling, Tonawanda, N. Y.

Grain Disintegrator-Edward Fox, Brooklyn, N. Y.

Turbine Water Wheel-Francis M. Kent,

Grand Ledge, Mich.

Mathew Greggson, of Ramsey, Minn., had part of his milldam washed out by high water on the 1st of June, and, before repairing the dam, will build two additions to the mill and put in more machinery.

[Written for the United States Miller by James McLean, of Glasgow, Scotland.] Does the Modern System of Milling Pay? A SUBJECT THAT WILL BEAR CONSIDERABLE

DISCUSSION.

The connection between the proportions of face and furrow surface and the production of more or less middlings, with their influence on the quality of the flour, originates a vast amount of quackery in millerdom (and it must be admitted some of those quacks can make fortunes as well as the medical ones), and it certainly is amusing to see the precision with which they talk of the percentages of middlings with certain styles of stone dressing, and the amount of feed to carry. One leading maxim with them is that the miller who can produce the greatest amount of evenly-granulated middlings is the most proficient. This is the rock on which many New Process millers must founder. If experienced, practical millers reflect on their own experience in grinding down at once, they would see that it is an utter impossibility to obtain a heavy proportion of evenly-granulated middlings without friction more or less according to the keenness of the stone, and this friction causes pulverized bran and a heavy proportion of flour dust,-the more cutting power the more regular, and the more crushing power the more irregular in size the middlings.

For example, a stone is newly furrowed and cracked and makes numerous middlings and cut-up bran in spite of the miller, and except he can remedy this by an extra feed and consequently heat on the stone, he gets specky flour, which can only be avoided by extra sifting or dressing, or smaller flour produce. If he is willing to be at the expense of extra sifting and the wheat is soft, the flour works better with the baker, being freer or sharper; but if the wheat is hard a double injury is inflicted; the bran being more cut up, causes extra expense for dressing, and at the same time the flour is over free or gritty, causing short, badly-raised bread.

Now, the same law which prevails with grinding down at once, likewise prevails however high or often the grindings are, and it certainly seems extraordinary reasoning on the part of those who advocate a smaller feed for high grinding, and shows that the prevalent idea has been to try and skin the kernel, whereas if they had inquired as to the results of experiments made long since, they would have seen such a mode of disintegration never paid.

A stone's furrows edges at the rim catches the stuff exactly similar to rollers (as it is utter nonsense that they cut it like shears), and gives the miller a wonderful command of crushing and cutting power. The less the crushing power is exercised, the more the bran is pulverized from the rotary motion of the particles being more developed; and with hard wheat which requires no artificial stone edges or cracking, even the smoothest grinding surface with a moderate keen stone cannot prevent great pulverization of the bran however high the grinding if the crushing power is not duly exercised by putting on more feed according to the hardness of the wheat.

The smooth grinding surface, or slow stone speed, or roller grinding, are but appliances to attain the requisite crushing power so as to avoid excessive heat; and as the higher the grinding, the more the particles will burst and expand without injury from compression, therefore the more the crushing power can be exercised by an increased feed, and at the end the results will be whiter flour and more of it with an equal expense for sifting, compared to that where the crushing power has not been duly exercised; and the more the crushing power is exercised and the less the face friction, the more irregular in size the flour particles. And even-granulated middlings should never be attempted with hard wheat until the final bran-cleaning grinding, when the stones are close enough to make the bran slide without rolling, cleaning it better and quicker, and the extra friction makes more even-sized middlings. As even granulation must always have increased face friction or cutting power, which is adding to the difficulty of separation by sifting, as well as augmenting the quantity of flour dust; and, to avoid this flour dust, friction should be exercised no more than what is requisite for clean bran without regard to the evenness of granulation, as very hard wheat splinters through from bran to bran, and a large proportion of clean bran can be separated while the flour particles are still of a large size, the proportion of clean bran decreasing as the wheat gets softer or more compressible.

A Fall River, Mass., mechanic recently said that during his lifetime he had been in twentysix different strikes, and had lost money every time by being connected with them. .

#### Farina.

The word "farina" is of Latin origin, and comes from far, meaning a kind of grain-"spelt," known as German wheat, which was formerly used by the Romans either roasted whole or ground into flour. Hence the name was originally applied to the matter: but as this matter was also ground into flour the name came to be applied to the flour likewise, and by degrees, to the ground product of cereals. "Farina" is at present the French name for flour, and we may quote the word "flour" as very similar in use to "farina." "Flour" means the matter, as when we speak of "flour" without any prefix or qualification, it is understood to to mean wheat flour, but flour also applies to the form, and is used in a secondary sense to mean anything ground into powder. Dr. Ure defines "farina" as "the flour of any species of corn or starchy root, such as the potato, etc." The chemical definition of "farina" is "starch" "fecula." The name "farina" is given in this country to the hard flinto and most valuable part of wheat. It is made by a process of high grinding, which secures granulation, the wheat from which it is made being previously cleaned and scoured. Spring wheat being the hardest, yields more farina than does winter wheat, but both are used in its manufacture. From farina is manufactured what are termed "new process" flours. It is put up in bulk and in packages for domestic use.

#### A Card From Geo. T. Smith.

BLOOMINGTON, Ill., June 14, 1879. Editor United States Miller .- DEAR SIR: In your issue for June there appeared "A Card" from Messrs. Notbohm Bros., of Milwaukee, which merits at my hand a grateful acknowledgement. The magnanimity of the writers is most marked, and all the more appreciated by me, because the article referred to was wholly unsought and unexpected. It is cheering in these days of sharp competition and rivalry in all matters pertaining to business-especially improvements in machinery-to find such evidences of pure manhood, and if other manufacturers of purifiers had been as free to acknowledge the rights of patentees as the above named firm, millers would have been saved much valuable time and annoyance and a large amount of uselessly expended money. Messrs. Notbohm Bros. took a position in the early introduction of my middling purifiers, which resulted in their temporary prejudice, but by their thoughtful consideration, together with their business sagacity, discovered their error, and had the honesty to so place themselves before your readers. These gentlemen have expressed themselves very satisfactorily in your paper, and I am pleased to make an extract from their article. They say: "The compromise made at Chicago by the Association which recognized Smith's patent, was, therefore, as will readily be seen, of the utmost importance to us, and we congratulate the Association and the Smith's Purifier Co. for it, believing that our aid in that direction will be appreciated by both."

I cannot help tendering my thanks for the kind manner in which they express themselves, and feel that such competitors are worthy.

Yours, Respectfully. GEORGE T. SMITH.

THE Appleton Post, in speaking of the new flour mill to be erected by M. T. Bolt, of Michigan, in Appleton, describes the new mill as

The dimensions of the building are to be 40x60 feet and four stories in height including foundation, The foundation is to be com-posed of solid stone masonary. The superstructure is to be a heavy frame, veneered The whole to be covered with with brick. substantial iron roof and thus the establishment will be practically fire proof, so far as exposure from the outside is concerned.

The power is to be furnished by two excellent turbine water wheels, which are to be placed in iron husks. The machinery will further consist of five run of stone, three purifiers and one set of crushers, at present. Additional crushers will be added as occasion demands. The machinery is to be furnished and placed by Hurlbert & Paige, of Painesville, Ohio. This mill will be completed aud ready for operation as soon as the growing crop is harvested.

Nordyke & Marmon Co., of Indianapolis, Ind., are making almost a new mill from the remains of Henry Kleischer's old one, situated at Frankfort, Ind. Purifiers, middlings, burrs and other machinery is being added.

[Official Publication.] Important Address of the Millers National Association,

TO THE MERCHANT MILLERS OF THE UNITED

STATES.

SECRETARY'S OFFICE, MILWAUKEE, June 16th, 1879. DEAR SIR: The Millers National Association has become a living reality, and is destined to be one of the leading organizations in the United States, both for the protection and advantages accruing to its membership and the upbuilding and improvement of this, the largest manufacturing interest in the nation. Thus far its history has been largely that of a defensive organization. Although its first conception was purely for the information and improvement of its members, this seems to have been temporarily placed largely in the background when the millers of the United States found themselves face to face with demands for royalty amounting to millions of dollars on a reissued patent which they fully believed to be illegal and fraudulent. As an illustration of what the Association has already accomplished in the way of protecting its members we need but enumerate some of the more prominent claims that have been successfully met since its organization, among which are the Cochrane, which taken at its most modest demands before suits were commenced, @ \$2,000 per run; the Geo. T. Smith, \$250; Booth Separator, \$25; Denchfield, still in the field and now being contested, \$100; making a total of \$2,375 per run, to say nothing of the Barter, Stoll and Guilder patents, now happily disposed of as far as our members are concerned by the settlement at Chicago. The first of these with its exorbitant demands has, we trust, been burried out of sight and past resurrection.

The second of these, the Geo. T. Smith patents on the combination of air blast or suction vibrating sieve and brush, is now owned by the Consolidated Middlings Purifier Company, who also own the Stoll reissue, covering a reciprocating sieve with sections of different degrees of fineness; a fan for causing air currents to pass upward through the sieve and material on the sieve, openings for regulating air currents, etc., etc. The Barter intending to cover the vibrating sieve brush etc., providing the Smith should fail, and the Guilder patents covering the transverse brush.

With this array of patents owned by men of undoubted energy and with abundant capital, the officers of the Association have with good reasons anticipated a series of vexations and expensive law-suits, perhaps extending over a number of years before the justice or fraudulency of these various claims could be settled by the courts, and in which as in the Cochrane case the members of the Association could be at all the trouble and expense, and outsiders who are either too niggardly or negligent to lend a helping hand, enjoy equal benefits. Happily, however, through the judicious labors of our Executive Committee, the tables have turned, and those remaining outside the Association must fight their battles for themselves. After a most thorough and exhaustive examination of the whole subject, aided by the Association's attorney, Judge Harding, of Philadelphia, a gentleman of eminent ability and acknowledged authority on patent law, who has made middlings purification a special study, as illustrated in his signal defeat of the Cochrane ring, they have made an arrangement whereby the members of the Association, AND ALL WHO MAY BECOME SUCH PRIOR TO JULY 15th, 1879, can obtain a complete release for all past infringement and a license for the future use of purifiers now owned by them by the payment of a mere nominal sum for those machines only containing the full combination of blast (or suction) vibrating sieve and brush under the sieve. This payment by members of the Association will cover all patents on purifiers belonging to this company, including the Stoll, Barter and Smith. Members desiring to put brush on purifiers now in their mill can do so at same rates; they also have special rates of discount on future purchases of machines from this company.

The Denchfield suction claims for which a royalty is still asked (though the patent has already expired) exceeding the whole amount expended in defeating the Cochrane suits, and to be paid by members of this Association for a complete release under the Barter, Smith and Stoll patents, is now being contested by the Association, as will the Barker if thrust upon

The Executive Committee have also made an arrangement limiting the liability of members under the Downton roller patent providing it is sustained by the United States Court.

By this action of the Executive Committee the Association may expect in future to be comparatively free from expensive litigation, reducing the cost after the expenses already incurred are met to a trifling amount annually, while freed from this source of annoyance it can return to the first and grand object of its organization, the information and advancement of its members, and the development of the milling industry until we shall be enabled to profitably grind the millions of bushels of wheat now annually exported, and ship the manufactured product to feed the hungry in all parts of the world.

Considering what the Association has already accomplished and its capabilities for benefitting its members in future, we believe this a fitting time to call upon the millers of the United States to join with us. It is no longer an experiment, but a grand success, but to enjoy its full benefits you must come at once. The advantages secured under the compromise made by the Executive Committee are limited to those who become members prior to July 15th, 1879. After that time you must expect to meet the Consolidated Middlings Purifier Company on their own ground and pay whatever they may demand, as you cannot expect to contest their claims single handed. As an illustration of that fact, I may say that it cost the National Association nearly \$80,-000 to defend the Cochrane suits.

In addition to the advantages above mentioned, members will be protected against all future fraudulent or invalid patents which may be owned by unscrupulous men or combinations, whose sole aim is to bleed or levy blackmail on the miller. They will have the benefit of all information now or hereafter in the possession of the National Association, and the large discounts which will be obtained by the officers of the National Association for their members from patentees and manufacturers of mill machinery. The number of patents issued within the last seven or eight years on middlings purifiers amount to sever-

If you wish to join with us you will apply at once to the Secretary of your State Association, who, on payment of assessment already paid by the old members, will send you the full details of the Chicago compromise and a certificate of membership entitling you to all benefits accruing to members. It is very desirable that every merchant miller in the United States should be enrolled as a member -"IN UNION THERE IS STRENGTH." Where no State organization exists, you can apply directly to the Secretary of the National Association who will forward the necessary papers. Let us hear from you at once, there is no time to be lost. Respectfully,

S. H. SEAMANS, Sec'y and Treas.

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.

#### The Brewers' Bother.

It has been said that "misery loves company," and if such is the case, the millers have the consolation that they are not alone in trouble over patent right suits. The brewers have been sued for infringement of a patent owned by Mathew Gottfried and others; suits having been brought in the U. S. Circuit Court for the District of Wisconsin, against the Ph. Best Brewing Company, Joseph Schlitz, Valentine Blatz and Jacob Obermann of Milwaukee, and Bartholomoe & Roesing, Fortune Bros., and Perter Schoenhafen of Chicago. The suit is brought on the ground of an alleged infringement of a patent issued May 3d, 1864, to Matthew Gottfried and John F. T. Holbeck, for an improved invention in pitching beer barrels. The patented invention consists in the application of a hot blast into the interior of the barrels for the purpose of heating the staves so that the pitch will stick to the wood and form a coating. Prior to the patent the process required the removal of the heads of the barrels. The invention is in use by the brewers throughout the country, and the present cases serve as tests for hundreds of others, some of which are now pending and others that will be instituted should the plaintiffs be successful. The invention is said to be the most important ever made in the brewing business, and upon the litigation depends hundreds of thousands of dollars. The cases from Chicago were decided in favor of the patentees by Judge Blodgett a year ago, but a rehearing was subsequently granted. No compromise was effected at the June convention of the brewers in St. Louis. It is proposed to fight it out.

Subscribe for the U. S. MILLER; \$1 per year.

#### Russian Cereals.

[Translated from L'Echo Agricole" for the London Miller, and republished especially for the benefit of the readers of the United States Miller].

In the grand international market of Europe, Russia figures as the country par excellence for the production of cereals. According to the statistical accounts of late years, Russia produces on an average 686,700,-000 hectolitres (1,888,425,000 imp. bus.) of grain annually, 633,000 hectolitres (1,74,750 imp. bus.) of which are produced by European Russia (comprising the kingdon of Poland, the produce of which amounts to 42,000,000 hectolitres-87,150,000 imp. bus.); 8.400,000 hectolitres (23,100,000 imp. bus.) are produced by the Grand Duchy of Finland, 21,-000,000 hectolitres (57,750,000 imp. bus.) by the Caucasus, and lastly, 27,300,000 hectolitres (75,075,000 imp. bus.) by Siberia and Turkes-

Of the total quantity of grain produced by European Russia, 92.3 per cent, or 581,500,-000 hectolitres (87,150,000 imp. bus.) remain in the country and serve not only for home consumption, but for sowing; the remaining 7.10 per cent, or 48,000,000 hectolitres (132,000,-000 imp. bus.), are exported both by sea and land, and go to stock the diffeernt markets of Western Europe.

The predominant part played by Russia on the international market of Europe as a cornproducing country, is proved by the comparative report of the quantities of cereals imported and exported by the various countries of Europe during late years, of which we give the resume in the following table.

Let 100 represent the total quantity of cereals, grain, flour, etc., figuring in the various markets of Europe, both for export and import, we find the part of each country in this international traffic represented by the fol-

lowing ugures.		SMITH !
IMPORTING COUNTRIES.		ng strib
England Belgium Holland Sweden and Norway Germany Switzerland France Italy Greece	6.13 5.66 4.25	per cent.
Total Exporting Countries.	100	
Russia North America Danubian Principalities Austro-Hungary Denmark Other countries of Europe (Turkey, Spain, Portugal), Africa, America, Australia.	14.15 11.32 4.72	per dent.
Total	100	

England, the grain importing country par excellence, is also the principal buyer and consumer of the cereals produced by Russia. The greatest part of the cereals exported from Russia as well from the Baltic ports as by way of the Black Sea and the Sea of Azoff, and even by land, is intended for Great Britain.

France and Italy take the corn exported through the Southern ports. Germany provides herself from Russia, both by land and through the Baltic ports. However, part of the Russian grain sent to Germany only passes in transit through the Prussian railways, to be sent to England from Prussian ports. As regards the other countries above mentioned, they only receive Russian cereals indirectly and by accident; the commercial relations of these several countries with Russia are altogether insignificant, with exception of those of Holland and Greece, which sometimes take important quantities.

Besides exportation, comprising nearly three-sevenths of the corn circulating in the different Russian markets, there exists in Russia a great home movement, the object of which is to prevision by means of the remaining four-sevenths, the other parts of European Russia less favored with respect to production, and unable to provide for themselves. As regards production compared with population, Russia must be divided into three large zones, one of which-the northern and a portion of the central zone-produces less corn than suffices for local consumption; the second, that of the West, and part of the East, produces no more than sufficient to enable it to dispense with foreign aid; and lastly, the third, the great zone of the celebrated black land, or tchernozeme, the zone which embraces twenty-six Governments, as well in the centre as in the South, in the South-east as in the South-west (the kingdom of Poland, though also deprived of its black land, must also be comprised in this third region), and where the production suffices not only for local consumption, but also feeds the first of the above-mentioned regions, and by itself alone, furnishes to commerce and for exportation all that is not required for Russian home consumption, an amount the importance of which we have indicated above. It is then to this sidering that it cannot be fixed at more than

part of Russia alone, exceptionally favored in respect to soil and climate that we are indebted for the large mass of cereals of all kinds which supply our internal markets and provide for exportation.

The total area of European Russia, including the Kingdom of Poland, is estimated at five million square kilometres, or 500,000 hectares (1,236,000 acres).

This vast extent of territory contained, in 1875, a population of 71,736,980, which is not more than 14.3 per square kilometre. (A kilometre is 4 poles 38 inches.) Although these figures represent an arithmetical average, they are not to be regarded as absolutely correct, inasmuch as the density of population varies enormously in the different regions and provinces of Russia. In certain provinces of the centre and south-west, the population amounts to 45.50 inhabitants per kilometre, whilst in the regions of the north and east there are less than 5.1 of inhabitants per kilometre. Still, keeping in view the three principal zones mentioned above, we find in respect to the first that in a compass of 1,957,317 kilometres, with 15,404,052 inhabitants (8 per square kilometre), there is an average production of 76,656,000 hectolitres (210,804,000 imp. bus.), which is equivalent to 4.97 hectolitres for every inhabitant.

As regards the northern and eastern zones of the Russian Empire, which we have represented as being able almost to provide for themselves, in a compass of 791,718 kilometres,\* containing 10,807,382 inhabitants (14 inhabitants per square kilo.), the production amounts to 85,050,000 hectolitres, which is equivalent to 7.85 hectolitres of production and consumption for each inhabitant; and lastly, the third, the great productive zone of Russia, where, in a compass of 2,250,964 kilometres, and with a population of 45,429,546 (20 per sq. kilo.), we find an average production of 468,300,000 hectolitres,† or 10-30 hectolitres per inhabitant. In the first zone, then, there is a officit of nearly 3 hectolitres, and in the third, an excess of 2 hectolitres inhabitant. For the whole of Russia the average production of grain amounts to 8-78 hectolitres; the internal consumption, both in providing for the wants of the inhabitants and for sowing the lands, amounts to 8-11 hectolitres per inhabitant; the remaining 67 litres (the excess of production over local requirements) are reported.

Properly speaking, the agricultural portion of the territory of European Russia (comprising the Kingdom of Poland, but exclusive of the Grand Duchy of Finland) may be estimated at 163,800,000 hectares, t which corresponds to 34.07 per cent of the total area of the land, which we shall estimate here, after deducting the area of the waters, at 780,800,-000 hectares. The 36.67 per cent of this quantity, 12.39 per cent of the total area (or 60,060,000 hectares), represents the part of the prairies or meadow lands, the productive steppes and pastures; 103,740,000 hectares-21.58 per cent of the whole land, 63.33 per cent of the agricultural part-fall to the arable land. Let us say at once that the relation which the arable land bears to the prairies and pastures is subject to exceedingly considerable variations, in the same way as is the agricultural part of the territory in relation to the land not under cultivaion and the woody parts. Thus, whereas in certain provinces of the centre, at the northern part of the region of the black land, the quantity of arable land amounts to more than half-nay, even to twothirds of the total area, reserving for the meadow lands only 10 per cent, and for the woods 9 per cent; in the north and north-east of Russia this quantity is very small in comparison with the area of the woods and the undefined lands. It is the same in the south compared to the large extent of the steppes and fertile meadows, which are only employed for cultivation on a relatively small scale, and where agriculture makes no use of the manure which the mass of fodder obtained in this country could produce, if the breeding of cattle here did not possess an absolutely primitive character.

Considered under the point of view of cultivation, the arable lands in Russia should be divided into three categories-fallow land, land used for its production of cereals, and land producing oleaginous and leguminous plants, root plants, fodder, special products, etc. Considering, the predominance in nearly every part of Russia, except the Southern region, the kingdom of Poland, and the Baltic provinces, of the triennial rotation of crops, the extent of the fallow land is very considerable. The extent of the land devoted to agricultural plants, other than cereals, con-

4,368,000 hectares, which corresponds to 421 per cent of the quantity of arable land, to express the extent of the land devoted to the cultivation of cereals (inclusive of peas, which statistical accounts do not admit of our separating from cereals), we have the statement of 66,520,000 hectares, an area presenting the 63.16 per cent of arable land, 40 per cent of agricultural area, and 13.62 per cent of the total soil of Russia."

Cereals in their turn being divided into winter and summer cereals, we ought to make a distinction between the quantity of land employed in the cultivation of those different kinds, and we find 31,286,000 hectares or 30.15 per cent of arable land annually devoted to the cultivation of winter cereals, and 34,234,-000 hectares or 33 per cent of arable land used for summer cereals. If to the quantity of land under cultivation of summer cereals we add the land sown with plants other than cereals, and which for the greater part are not winter plants, we find not less than 37.2 per cent of arable land employed in the cultivation of summer plants, consequently there is not only a larger area devoted to winter cultivation, but also of fallow land.

This absolute and relative predominance of summer cultivation is explained by the fact that in the South of Russia, in the region of the steppes, winter plants are scarcely ever cultivated, and the mode of cultivation prevalent there excludes even the fallow, the uncultivated steppes producing generally, during the years when they are cultivated, only summer plants, such as wheat, flax, millet, etc., and remaining during the rest of the time in the category of undefined lands, pastures and meadows. Summer plants have the advantage over winter plants in Poland also. As a general rule it may be admitted that the production of winter wheat corn increases in proportion as we advance from North-east to Southeast, giving place to summer plants in a direction nearly parallel to that of the isothermal lines, or lines of equal temperature. Amongst the cereals cultivated in Russia, rye holds the first place, in consequence of the extent of the land it occupies. It occupies not less than 42.97 per cent of the land devoted to the cultivation of cereals; rye alone takes in nearly the whole of the fields reserved for winter plants, for the area devoted to the cultivation of winter corn is relatively very restricted, the latter occupying no more than 4.78 per cent of the land devoted to cereals. Amongst summer cereals, oats holds the first place; they occupy not less than 21.11 per cent, wheat, 7 per cent, millet, maize, etc., which takes up the rest of the land, or 1.8 per

Such is the relative importance of the cultivation of the various kinds of cereals in Russia according to the extent of the land devoted to each of these plants. They may be classed in a rather different order, if we take into account the relative importance of the product of these various cultivations in the Russian home and foreign trade. From the latter point of view, it is no longer rye which holds the first place, but wheat. For this reason we proceed to a more special examination of the various cereals cultivated in Rus-

WHEAT.

Notwithstanding the importance in the agricultural produce of Russia, wheat is a plant the cultivation of which is far from being general there. Although the limit of wheat extends from North-east to North-west, to the 59th, 61st, and 62nd degrees, and in Finland even to the 63rd degree of latitude, the cultivation of this cereal is unimportant, except in the regions of the South, South-east, and South-west, and partly in the centre of Russia. This forms the real wheat region, approaching to its northern part, which nearly corresponds with the northern limit of the region of the black land, the grand region of the predominant cultivation of rye, a region which, with few exceptions, embraces all the northern part, as well as the North-east, Northwest, and centre of Russia, destitute of black land.

According to the cultivation of summer wheat predominates over that of winter wheat, the dominant region of the cultivation in Russia ought to be divided into two distinct and separate parts. The cultivation of winter wheat predominates in the northern part of this region, as also to the West of Russia and in Poland. The cultivation of summer wheat is restricted to the Southern part and all the region of the South-east of Russia. In all the other parts of the empire which do not enter within the circumference of the wheat zone, the cultivation of this plant possesses only secondary importance, appearing only

sporadically, with exception of a few localities in the North-west, the Baltic provinces, etc. Summer wheat is cultivated by preference in these localities. The cultivation of summer wheat predominating throughout the vast regions of the South, it is the latter variety of the two sorts of wheat which possesses the greatest importance in Russia, as much by the extent of territory devoted to it as by the mass of products which it furnishes for consumption. Thus, of the 11,575,000 hectares annually occupied in the cultivation of wheat in Russia, the part assigned to winter wheat is only 3,134,000 hectares, whilst the cultivation of summer wheat occupies not less than 8,441,000 hectares.

We know that, in respect to its botanical properties, wheat (triticum) is a species which is generally divided into four principal classes, established by Nilmorin, and at present adopted by the majority of savants who have occupied themselves with this question, amongst others by M. M. G. Henje and Haberlandt. These four classes are:

1. Vulgar, or ordinary wheat or corn (Triticum sativum Lomm s. vulgare Willd.) 2. Hard wheat or corn (Triticum durum,

3. English wheat or corn (Triticum turgidum L); and

4. Polish wheat or corn (Triticum Polonicum).

To the wheat species belong also the different varieties of spelt, which are divided into two or three classes, which we mention here only for the purpose of placing them on record. These classess are: (Triticum spelta), starchy grain (Triticum dicoccum, shank,) and (Triticum monoccocum L). Compared with wheat, properly so called, these varieties possess only a secondary importance.

Along with the botanical classification, there is also another, based on the character and chemical composition of wheat. This classification, established by M. Million, is nearly as important as the first from a practical point of view, especially in relation to commerce. and the utilization of wheat for grinding. According to this classification, the different varieties of wheat may be referred to three great classes, viz.:

1. The kinds consisting of hard grain. 2. The species consisting of half-hard

grain; and 3. The species consisting of soft grain.

The characteristic properties of these various kinds are sufficiently well known to dispense us from any necessity of treating of them here. We shall merely remark that the chemical classification does not correspond with the botanical classification, and that varieties of wheat botanically different, often belong to one and the same category of hard or soft wheat, and vice versa. On the other hand, the various kinds of wheat mentioned above are subject to infinite variations, lose or gain, according to the method of cultivation, the influence of soil and climate, etc., and the properties which characterize them both in a botanical and chemical point of view. The fluctuation of these properties and their frequent transformations, prevent any more ample classification of the various kinds of wheat cultivated in a country, esspecially when the country is so large as Russia, and presents so many conditions so different in every respect.

We shall restrict ourselves, then, rather to the practical than the theoretical division of the various kinds of wheat cultivated in Russia, of winter and summer wheat. Although this division rests on no scientific basis, and it is incontrovertible that certain varieties of wheat may be cultivated, and are in reality cultivated, both as winter and summer wheat, nevertheless this division must be adopted in Russia more than elsewhere, for the very method of cultivation of both the winter and summer species varies very much in that country.

\*A kilometre is about 1,070 yards. †A hectolitre is 2% imperial bushels. ‡A hectare is about 2% acres (2.471). (To be continued).

The following parties are remodeling their mills to the new process, adding purifiers, middlings-burrs, bolting chests, elevators and other necessary appurtenances: Wm. Harding, Crooked Creek, Ind.; G. W. and J. E. Millspaugh, Fairfield, Iowa; G. W. Graham, Carbondale, Ills.; W. H. Huntsman, La Porte, Iud.; C. D. Merritt, Morristown, Tenn.; Harris & Campbell, Potomac, Ills.; D. A. Richardfon, Indianapolis, Ind.; C. P. Chapman, Pittsfield, Ills.; Cooper & Funk, Shelbyville, Ills.; Elijah Lewis, Chariton, Iowa; R. M. Simmons, Adairsville, Ky., and James Mack, Smithfield, Utah.

#### Steam Power For Flouring Mills.

President Elles, of the association having introduced the speaker, Mr. Barr said:

I have been asked by several members of this association to give you an informal talk this evening on a subject which, next after milling itself, is of the greatest importance to the miller

The milling interest in this State is not only large and important, but growing. The mill of to-day, as well as that of the future, must, from the nature of things, be a steam mill. Thus I can easily understand why you in convention in which your time is necessarily short, deem the subject of sufficient importance to devote an entire evening to the discussion of steam power.

The steam engine is made to include in its widest application, everything relating to the motive power of the mill. It will answer our present purpose if we divide the subject into three parts

- 1. The engine proper.
- 2. The boilers.
- 3. The furnace.

Most of you are familiar with the various competing engines now in the market, so I will leave that part of my talk until later in the evening and will take up the subjects in the reverse order in which I have named them, beginning with the furnace.

In designing a furnace it is important to know what kind of fuel is to be used. The fuels at our immediate command are wood, bituminous and anthracite coals. I think it improbable that any mill in Indiana is regularly using anthracite coal as a fuel. A small percentage of mills use wood, but the larger number use bituminous coal. Fortunately we have not only an abundant supply but an excellent quality of bituminous coal in this State. The problem of the furnace is somewhat complex as its functions are partly mechanical and partly chemical. A fair consideration of either or these would occupy too much time this evening, yet the importance of the subject will not allow it to be passed by without a word. The design of the steam engine as a whole is simply a train of mechanism by which fuel is converted into power in motion. For the present, then, we shall leave the steam engine and devote a few minutes to coal.

The best varieties of Indiana coal contain about 55 per cent of carbon, and 35 per cent of hydron carbon gas. The value of any fuel depends upon its capacity for giving off heat. In this respect the Indiana coals are entitled to take high rank when properly burned. Engineers usually estimate the value of coal by comparative evaporation. I do not think this is as good a way as that employed by chemists who fix its value accordingly as it contains a greater or less number of heat units. By a heat unit is meant that quantity of heat which will raise the temperature of water one degree Fahrenheit from 30 to 40. This particular temperature is named because it is that at which water is at its greatest density. One pound of pure carbon such as charcoal or good coke yields about 14,500 such units when properly burned. One pound of hydrogen burned in oxygen gas, gives off during its complete combustion more than 60,000 heat units, or more than four times that of carbon. The thermal power of Indiana coal will not vary much from a general average of about 14,000 heat units; as this is not far below the theoretical value of carbon, and as our coal contains only about 50 per cent of carbon, this number of heat units is to be accounted for by the presence of the hydrogen in the coal.

In burning this coal, the products of bustion of the carbon will be carbonic acid gas if perfectly burned; and carbonic oxide gas if perfectly burned; of the hoydrogen, the product of combustion will be water.

A great deal has been said and written on the subject of smoke and it has been made to bear the burden of incompetency these long years. I admit that smoke is a great nuisance and should not be permitted to escape, especially in the larger cities and towns. Its prevention is not difficult, and in England where its escape had become an unbearable nuisance, legislation was invoked when a reconstruction of furnaces began, which soon solved the practicability of the problem. There is of course some loss attending a smoky furnace. but the loss by these sooty particles is not so great as is generally supposed. The great source of loss is by imperfect combustion, that is, by burning coal to carbonic oxide gas, instead of carbonic acid gas. Let us see what this amounts to. One pound of carbon is equivalent, as I stated a few minutes ago, to about 14,500 heat units when burned to carbonic acid gas; if burned to carbonic oxide gas its heating power is reduced to about

4,500 heat units-so you see that it makes a difference of about 10,000 heat units for every pound of carbon burned whether it is burned to carbonic acid gas, or carbonic oxide gas. This enormous waste may be going on constantly without the knowledge of either the engineer or mill-owner for the reason that carbonic oxide gas is invisible. It would be a fortunate thing indeed if it were otherwise. The formation of this gas may be explained in some such way as this: Suppose the furnace to be in active operation, the grates covered with a mass of coal in process of combustion; the air entering the ash pit comes in contact with the body of highly heated carbon, the oxygen of the air unites with the carbon in the proportion of two atoms of oxygen to one atom of carbon to form carbonic acid gas. This is, so far, perfect combustion, but in passing through the body of the fuel it takes up another atom of carbon which changes the chemical nature of the carbonic acid gas and converts it into carbonic oxide gas, which consists of one atom each of carbon and oxygen. This product unlike the first is imperfect combustion. Now if we have a properly constructed furnace we may again convert this carbonic oxide gas into carbonic acid gas. What is needed is a supply of air above the fire. This air must be admited in limited quantity and at a high temperature. A very good way to get this is to build hollow walls around the furnace, and force the air past the highly heated fire-brick lining. This ought to raise the temperature up to several hundred degrees.

Another source of loss is occasioned by the admission of too much air in the furnace. The actual quantity required is about 150 cubic feet per pound of coal; it has been experimentally determined that about double this quantity is usually supplied. In addition to this about one-fourth of the total heat of the furnace passes up the chimney, serving no other purpose than making a drift through the fire. Let me put this in another way: Those of you who are burning four tons of coal in twenty-four hours are losing the useful effect of one ton of coal, receiving nothing in return but draft or circulations through the furnace; I have made no calculations in regard to it, but I venture the assertion that it would furnish power enough to run a dozen blowers large enough to supply all the air needed to consume properly the same amount of fuel.

In regard to steam boilers, the practice in this country is almost entirely confined to horizontal cylinder, flue, or tubular boilers, externally fired, and set in brick work. The horizontal tubular boiler has a good record, and is the one usually selected for flouring mills. The question as to whether a boiler should be fired externally or internally can hardly be said to be definitely settled. There are weighty arguments on both sides, and so far as I have been able to gather any testimony in regard to either, I fail to see any good reason why we should give up our standard horizontal tubular boiler. One very important thing in regard to the selection of a boiler is to see that proper provision has been made for a good circulation of water around the shell and tubes, and, that suitable openings are provided for internal inspection and cleaning. Most of the well water in this State is very hard. The scale formed by its evaporation is composed principally of carbonate of lime and magnesia. Some provision must be made to get this out of the boiler. My own practice has been to put a man-head in the front of the boiler under the tubes, and one at the back end of the boiler and above the tubes. In all ordinary cases this allows ample facility for cleaning and repairs.

Defective circulation lowers the steam producing power of the boiler by the over heating of the plates so that the water repelled from the iron, a thin film of vapor interposing between the water and the iron. This condition of things is often referred to by writers as the spheriodal state of water. In explanation of this, you have all at some time or another observed the action of drops of water spilled on the top of a highly heated stove; the water does not break out info steam, but assumes a globular or spheriodal shape giving off no steam. It is in contact with the iron but only at a single point, it runs along the top of the stove and finally over, the edge to the floor. When the water is in this state, and the fire at a very high temperature, there is danger of weakening the boiler by overheating the plates.

But, aside from all this, if the water at the bottom of the boiler cannot easily reach the surface after it has become heated, it is obvious that the construction of the boiler is defeating the very object for which it was designed and built.

Every set of boilers should have a good popular, and on the whole has given excellent steam pump. It may take a little more steam to operate the pump in this way than if a belt pump were used, but its advantages and conveniences will more than offset the other. Every steam boiler should have a good safety valve. The practice of connecting several boilers together and having but one safety valve for the lot, is altogether wrong. Every boiler should have a good steam guage, the very best that can be had; the difference in price between a good gauge and a poor one is so small that it ought never to be taken into account. It not unfrequently happens that the safety of the whole establishment depends upon the reliability of the steam gauge, and especially is this true where boilers are in use, which from long services and other causes are not safe above certain pressures.

The heating of the feed water is an important matter. This is usually accomplished by the exhaust steam being conducted into a closed vessel in which there are coils of pipe through which the feed water passes. Advantage may also be taken of the heat in the exhaust steam to precipitate impurities in the water. The action of the "Stillwell" heater may be taken as an example.

In regard to the engine proper the choice lies between tfle ordinary slide valve engine, the automatic slide cut off, and engines with a detachable valve gear automatically regulated by the governor. The first is the commonest form of a steam engine. It furnishes a compact, simple, and durable engine if properly designed and built. The point of cutting off is fixed during its construction and is not variable; in ordinary practice it ranges anywhere from five-eighths to seven-eighths of the stroke from the beginning. The action of the governor on this class of engine consists in reducing the pressure of steam in its flow from the boiler to the cylinder so that the average pressure of steam on the piston shall permit a certain number of revolutions junder a certain load. This is by no means the most economical form of engine. Yet, for small mills, it is often to be reccommended rather than a complicated automatic engine, notwithstanding the increased fuel consumption by taking into account a lower first cost, simplicity and ease of management by unskilled persons.

There are several automatic slide cut-off engines in this market; perhaps the one best known to most of you is the "Buckeye" engine. A very superior valve gear, though but little uesd in the West, is the "Rider." The "Allen" engine, as designed by Mr. Charles T. Porter, is in many respects a superior engine.

Taken all together this particular type of engine is to be recommended mainly because of its positive valve motion, and the high rate of revolution possible-two very desirable features in a mill engine. The present tendency with millwrights is to connect the mill shaft directly to the engine shaft and require the engine to run at such rate of revolution as the machinery of the mill requires. The tendency is, therefore, to larger cylinders, shorter stroke and higher speed. The demands made upon the builders are for better designs, the best of materials, good workmanship and guaranteed performance.

Where mills are large and must of necessity be geared, then slow running engines are to be used. Among the competing engines of this class now in the market, and fitted with a variable automatic cut-off gear, controlled by the governor, I have in mind the "Corliss," "Brown," "Wright," and one or two others of which I do not now recollect the builder's The "Corliss" is perhaps the best engine known, and most talked of, of any engine ever built. Its record is one of which the designer, and the country as well, may be proud. The best results with this class of engines are to be obtained by using steam at a high pressure and cutting off, say from one-fifth to onefourth from the beginning of the stroke and expanding down as near the atmospheric line

In regard to economical use of steam, the engines I have just named are about equal. These engines have what is known as a drop cut-off, that is, at the beginning of the stroke, the steam valve is moved by means of what is technically known as a "clutch" or "toe," and continues its movement until it reaches a 'stop," the position of which is regulated by the governor; this stop unhooks or detaches the valve and allows its being seated independently of the rest of the moving mechanism. This is usually accomplished by means of a weight or spring. The exhaust valves are not affected by the closing of the steam valves. For engines making not more than, say sixtyfive revolutions per minute, this type of valve gear has few objections and has become very results.

This has been a rambling sort of a talk, and in conclusion I beg to say that it seems to me that the ideal engine of the ideal mill would be something like this: A high speed automatic cut-off engine with a positive cut-off motion. Whether this shall be controlled by a governor or by some other mechanicism operated by the pressure of steam, I cannot say, though I think the governor will probably be retained. The coilers are to be capable of carrying a working pressure of steam from 100 to 150 pounds per square inch with perfect safety. The furnace to be built on an entirely different principle from that in which ordinary boilers are now set. A force of draft to be used instead of natural draft. The products of combustion instead of being allowed to escape up the chimney, will probably be forced into a separate chamber alongside the boiler setting, and made to do duty in heating the air before entering the ash pit. The feed water may also be taken into this chamber and allowed to absorb as much heatfrom it as possible. A self-feeding mechanism of some sort for mechanical firing is also needed; this should feed the fire from below, instead of scattering the fuel over the top of the fire.

I had intended saying something about sectional boilers, but the lateness of the hour and not having anything to show the peculiarities of construction, will prevent my introducing it to-night. These are proprietary designs, and are furnished only as the owners of the patents in their judgment think best adopted to particular cases.

I have omitted many things in this talk and would be glad to answer any questions that may suggest themselves to you.-By W. M. Barr, of Indiana, at the Indiana Convention.

Bread is now selling in London at twelve cents for the four-pound loaf, that is at three cents a lb. The present price is unusually low, however, and it has not been so low more than three or four times in the last forty years. The average price for the last ten years has been just about 4 cents a lb.

Edw. P. Allls & Co., of Milwaukee, have orders ahead for over 100 roller machines, including porcelain, corrugated, chilled iron, and smooth chilled iron machines, and are turning them out at the rate of three daily.

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We hope the milling friends of the UNITED STATES MILLER will be as liberal to it as it has been in the past, and will be toward them in the future. Subscription price, one year \$1,

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With table for taking one-eighth toll and making ample deduction for cleaning, etc. Grists figured out in a few seconds at any number of pounds of flour per bushel. Two for 50 cts.; five for \$1. Postage stamps taken. Address
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### The Millers' Text Book.

By Jas. McLean, of Glasgow, Scotland.

By Jas. McLean, of Glasgow, Scotland.

A DESCRIPTIVE AND EXPLANATORY Account of the various grains, machinery, and processes used in grain mills. The first clear and successful explanation of said processes ever printed. It treats on and explains all the newest and most improved modes of manufacturing wheat, oats, barley and peas, introducing the three latter mainly with the views of illustrating the principles at work in the proper manufacture of the first. Such as the various modes of storing, cleaning and grinding wheat, and the effects on their proper working with the Baker, showing conditions which must be observed to make flour equal to Hungarian. The effects of the different styles of working mill-stones, rollers and disintegrators contrasted. Also the different modes of separation, including gold sifting, the revolving crank sifter, the shaker, the wire cylinder, the silk reel, the best mode of working the silk reel. Vertical and horizontal air currents, the effects of air currents contrasted with sifting. Altogether explaning clearly well-defind principles which govern proper grinding and dressing, where too often all is doubt and uncertainty. And although extensively circulated in Britain the last 12 months, none has yet ventured in print, to controvert its solution of the most difficult problems in the milling business. And being the production of a miller who has been over much of the United States, it can be easily understood by American millers. Price sixty cents, sent post paid. Address all orders to R. Harrison Cawker, Editor of The United States, who is sole agent for America.

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The statement and circulars, issued by E. P. Allis & Co. are worthless, and there is no truth in them. A license given by them, to use my Process Patent, No. 162,157, is not worth the paper it is written on. The right, if any was ever given, under their advertised record, was reconveyed by them back to me on the same day, and can be found on record in the Patent office.

Judge Dillon of the United States Courts on the 28th of March decided that their paper was worthless on its face, independently of the other paper.

I will hold all millers responsible to me who purchase from E. P. Allis & Co., or any other person but myself or authorized agents. I will defend all who purchase from myself or authorized agents.

## R. L. DOWNTON,

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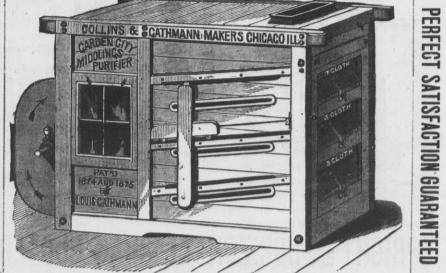
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MOST PERFECT In Construction.



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And at the Canadian Exposition, where it also triumphed over all competitors.

This machine will purify middlings perfectly by once cleaning, without waste in blowing or offal which no other machine will do. It is the simplest, and at the same time the Cheapest Machine in the market, when its capacity and the quality of its work are considered. Send for circular in German or English.

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MILWAUKEE,

I desire to call attention to the durability of MILL PIOKS made and dressed by me. I manufacture them of the best ENGLISH STEEL, and warrant all work to give satisfaction.

I shall be pleased to receive your orders, as I always have a supply of New Picks on hand, and give particular attention to dressing Picks.

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Warranted to produce a better grinding surface than the Pick or Diamond and save 50 per cent of labor in dressing Burrs and expense for tools. Face Rubber 10 x 6 x 3 in., weight 12 lbs., price \$3.00. Furrow Rubber, 10 x 6 x 1 x or 1 x, 1 x or 2 in. as required, price \$2.50 or both for \$5.00. Sent by express on receipt of price. Circulars free. Address all orders to the sole manufacturers,

MILLER & McCARTHY,

dec Mount Union, Penn.

MILLER'S PATENT COMPOSITION BURR RUBBER.

For Cleansing, Sharpening, and Facing Burrs, and Smoothing Furrows.

GET THE BEST.

#### Situations Wanted, etc.

Millers, Engineers, Mechanics, etc., wanting situations, or mill-owners or manufacturers wanting em-ployes, can have their cards inserted under this head for 50 cents per insertion, cash with order.

SITUATION WANTED—An experienced head miller, having been employed for many years in the Austro-Hungarian steam flour mills, desires to make a new engagement, Address B. G. 938, care of Hasenstein & Vogler, Vien a, Austria.

WANTEB-A young miller who is well posted to take charge of my mill. He must thoroughly understand dressing and keeping the stones in order. In answering this state how long and where you have worked, and what wages you expect. Address VARIETY WORKS, P. O. Box 29, Union Springs, Ala.

WANTED-A first-class foreman to take charge of a stone shop; must be perfectly competent to superintend building and finishing buhr stone. Best references required, and none but experienced men having acted as foremen need apply. A good chance for the right man. Address F. J. S., care United States Miller. aptf

WANTED—A situation as Oatmeal Miller by a thoroughly practical, competent man, sober and steady; understands all the different grades for home and foreign markets; the drying and handling of oats in all its details; has had a long experience and can come well recommended. Address "Oatmeal Miller," care of United States Miller, Milwaukee, Wis.

situation wanted.—A practical miller of ten years' experience with winter wheat (best flour on new process) desires a place in a thorough new process mill in any capacity in which he can perfect himself in the art of high grinding (spring or winter wheat). Am 33 years old, industrious and temperate in all things; wages no object; unexceptional references given. Address,

A. D. REAMER.

June tf. Care of Reamer & Co., Chetopa, Kansas.

has had four years' experience in the milling business. Being part owner of the Neely Mills, Columbia, Tenn., he has had the management of those mills, keeping the books, superintending the grinding, and doing some traveling for the mills. The firm of which he is a member have just leased out the mill and property for a term of years, and he wishes to engage with a medium-sized mill in any capacity. Can take charge of, and successfully run, a 2 or 3 run mill, attending to the stone dressing, grinding, and anything else necessary to do. Has had a good business education, and can furnish the best of references as to honesty, energy, and social standing. Address

E. O. NEELY, Box 137, mytf

Columbia, Tenn.

#### For Sale or Exchange.

Advertisements under this head \$2 per insertion, cash with order

FOR SALE—One-half of 3-run, water power flour-ing mill, all in good order, and fully equipped with pur-ifier, brush, smutter, separator, Parker scales and good effice. Will sell easy on terms, and take part in good farm.

I. W DALLY, jy\*

Woodbine, Iowa.

FOR SALE—A small Steam Flouring Mill, 23 miles below St. Louis, on the Mississippi river and Iron Mountain Railroad. Everything in good running order. Will take part pay in country store goods. For particulars address C. W. FUNK.
jy\* Salphur Springs, Jefferson Co., Mo.

PARTYER WASTED-I have a good Grain Elevator, large enough to run a flouring mill. Would like a partner who can furnish the necessary machinery. Parties having mills not paying will find it to their interest to correspond with me.

je\* T. B. GALLAGHER, Larned, Kansas.

FOR REN'T-I offer for rent my Grist and SawMill; 3 run of stone; House and Garden; Good Water Power; Water all year round; for term of year. For particu-lars call in person or by letter. M. HELD, je Erfurt P. O., Jefferson Co., Wis.

Tes R SALE OR LEASE—For a term of years.
The Cedar Street Flouring Mill, St. Louis, Mo. New, and in complete running order, having six runs of buhrs and a capacity of three hundred and fifty barrels per day. Adjoining this property we have large vacant lots, which we will sell on very reasonable terms. Apply to McCREEY & TOWERS, jy\*

McCREEY & TOWERS,

jy\*

705 Pine St., Street, St. Louis, Mo.

FOR SALE-I offer for sale a first-class modern flouring mill in this city, making 100 barrels a day; power-water and steam; have not stored a barrel this crop, selling as itarrives in New York; this is a fine

opening for any one wanting a mill; property cost \$40,000, but will be sold cheap and on reasonable terms; reason for selling, belongs to an undivided estate. Address
J. D. GREENE, Administrator, je\*

Faribault, Minn.

FOR SALE.—Wishing to concentrate my business, I offer for sale one of my flour mills situated at Breckenridge, Sangamon County, Ill., 14 miles from Springfield, on the Ohio & Mississippi railroad, in a good milling country. This is a good two-run mill, nearly new with latest improvements and elevator attached for handling grain. Mill cost over \$10,000; will sell low and on good terms. For full particulars, address T. J. McWANE, Versailles, Brown County, Illinois.

FOR SALE.—"Pearl Mills," at Columbia, Maury Co., Tennessee, are being offered for sale at about half cost. They were recently rebuilt, and been since run net more than twelve months, and the building and machinery are new and in first-class condition. The machinery is the latest improved. They are located in a good wheat section, and between and adjoining two rail-roads. Capacity, 150 or 20° barrels flour and two car louds meal in twenty-flour hours. Have a fine trade. Address.

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Columbia Tenn.

FOR SALE.—A bargain for someone with a little capital. Our steam grist mill with two run of burrs, 42-inch, and the necessary cleaning machinery, with planing mill attached, will be sold to a good party for a song, or almost given to him. Situation good, at the crossing of the C. & N. W. R. R., and the C., M. & St. Paul railway, in a rich farming country. Lands joining those of C. & W. Railway, about 1,500 feet from depot. Good run of custom. Reasons for selling, poor health and other business. Terms given on application to

I. D. TITSWORTH & CO.

jy\*

Milten Junction, Rock Co., Wis.

FOR SALE—The Flouring Mills at Troy, Kansas, known as the "Banner Mills," in successful operation, with well-established trade. Location unsurpassed. Railroads in every direction. Fine wheat and corn country. The best county in Kansas. Troy, the county seat, is a thriving town with good schools, etc. The mills have four run of burrs, and the machinery throughout is all first-class. Undoubtedly the best constructed mill in the West. The best opening for business. On account of the ill health of the managing partner the property will be sold at a great bargain. Address jetf TRACY & PARKER, Troy, Kansas.

FOR SALE.—At La Grange, Mo., A four-run, brick, steam mill, situated on the Mississippi River, and on the St. Louis and Northwestern Railroad. This mill is 60 feet square and four stories high; it also has an L 60 feet long by 30 feet wide, three stories high, furnishing storage room for 10,000 bushels wheat and 5,000 barrels flour; well and substantially built; boilers, engines and machinery almost new; contains 4 runs of old stock French buhrs and one pair for regrinding, with ample bolting capacity; 1 separator, 2 smutters, 1 brush scouring machine, 1 purifier, 3 pairs flour and wheat scales, and 1 six-ton wagon scales. This mill is situated in a splendid wheat region, and will be sold at a bargain. Address the LA GRANGE SAVINGS BANK.

FOR SALE—A Texas flour mill and land; a rare bargain. I offer my steam flouring mill at Trinity Mills, a depot 16 miles from Dallas, Texas, and on the Dallas & Witchita Railroad, for sale at a great sacrifice. The mill has three rin of stone, two for wheat and one for corn. It has a capacity of 100 barrels per 24 hours: fine tubular boiler and good but old style engine; stones driven by beveled gear; mill built four years ago and cost over \$9,000. With the mill I will sell 429 acres or more of land, on which ne at the mill are two dwellings of four rooms cach and a large store-house: about 50 acres of superior prairie soil for field crops, fruit and vegetables; the balance is in timber and will afford perpetual fuel for the mill and fine pasturage. It is located on the Elm Fork of Trinity River, and is exceedingly fertile. I will sell the whole to a CASH purchaser for \$15 per acre—not more than the value of the land. There is plenty of wheat raised in the county. Satisfactory reasons for selling. Address immediately, aptf DR. ROV B. SCOTT, Trinity Mills, Texas.

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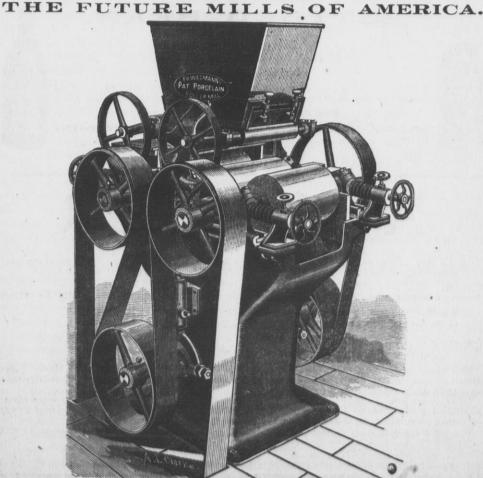
Having assumed the control of this famous quarry, the undersigned is prepared to furnish on short notice a superior quality of sharp, fine grit sandstones for

Ending Wheat and Hulling Oats.

Send for price list.

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## TO THE MILLING PUBLIC.

We have our attention called to the following:

#### EMPHATIC NOTICE TO MILLERS.

The statements and circulars, issued by E. P. Allis & Co. are worthless, and there is no truth in them. A license given by them, to use my Process Patent, No. 162,157, is not worth the paper it is written on. The right, if any was ever given, under their advertised record, was reconveyed by them back to me on the same day, and can be found on record in the Patent office.

Judge Dillon of the United States Courts on the 28th of March decided that their paper was worthless on its face, independently of the other paper.

I will hold all millers responsible to me who purchase from E. P. Allis & Co., or any other person but myself or authorized agents. I will defend all who purchase from myself or authorized agents.

R. L. DOWNTON, No. 114 South Main St., St. Louis, Mo.

We will simply say in answer thereto:

First—We have never reassigned Process Patent No. 162,157 to any person, but own said patent now.

Second—If Mr. Downton has a reassignment of his Patent Process, No. 162,157, from us to him, as he now claims, then he thereby admits that he did assign to us said Process Patent, No. 162,157.

Third—If he has such a reassignment why does he not publish it to the world, and by so doing make his "emphatic notice to millers" MORE EMPHATIC than his unsupported word that he has such a paper.

Fourth-If Mr. Downton already has a reassignment of said Process Patent, No. 162,157, why is he now suing us in the United States Courts to try and have said original assignment set aside? Comment is unnecessary. Send us your orders. We will fill them and give you a license that CAN NEVER BE OVERTURNED, Mr. Downton's assertions to the contrary notwithstanding.

## E. P. ALLIS &

MILWAUKEE, WIS.

BOTTLED BEER.

VOECHTING, SHAPE & CO.,

Joseph Schlitz Brewing Company's Celebrated Milwankee Lager Beer Cor. Second and Calena Streets.

WISCONSIN:

BOTTLERS' SUPPLIES CONSTANTLY ON HAND Parties corresponding will please state where they saw this advertisement.

Or dealer that has been waiting to buy the BECKER WHEAT BRUSH, can now do so without any fear; as a certified copy of the final decree, as here published, will show a SETTLEMENT OF THE SUIT. UNITED STATES CIRCUIT COURT, ?

NORTHWESTERN DISTRICT OF ILLINOIS.

Present Hon. THOMAS DRUMMOND, Judge.

THROOP GRAIN CLEANER CO.,

EUREKA MANUFACTTRING CO., and JOHN M. GALT. In Equity.

This cause having been heretofore heard on bill, answer and proofs and referred to the Master, under decree entered, to take and report an account of damages, and the complainants now waiving such accounting under settlement made;

It is ordered, adjudged and decreed, that the decree entered otherwise remains in full force and effect: and the injunction heretofore granted shall stand as to all machines, containing flanges, rings, or any equivalent provision, for expanding or contracting the scouring jacket or case.

It is ordered, adjudged and decreed that the defandants pay to the complainants the sum of one cent as its damages, and that the defendants pay the costs.

NORTHERN DISTRICT OF ILLINOIS.—ss.

I, William H. Bradley, Clerk of the Circuit Court of the United States, for said Northern District of Illinois, do hereby certify the above and foregoing to be a true and correct copy of the order entered of Record in said Court, on the 21st day of June, A. D. 1879, in the cause wherein Throop Grain Cleaner Co. is the complainants, and Eureka Manufacturing Co. is the defendants, as the same appears from the original Record of said Court, now remaining in my custody and control.

In testimony whereof I have hereunto set my hand and affixed the seal of said Court, at my office in Chicago, in said district this 21st day of June, A. D. 1879.

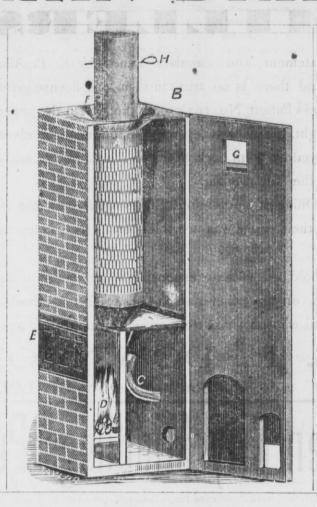
WM. H. BRADLEY, Clerk,

WM. H. BRADLEY, Clerk.

Saturday, June 21st, A. D. 1879.

## Schroll's Improved GRAIN DRIER.

Brewers in America. The Only Recognized GRAIN Millers and



Only Recognized GRAIN Millers and Brewers in America DRIER by

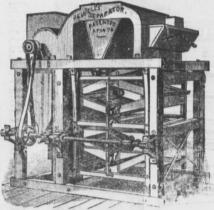
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All work fully guaranteed. Responsible parties can have 30 to 60 days' trial on my new work, also on dressing where the Steel is of good quality, and has not been destroyed by working; and if not superior to any work produced in this country, there will be no charge for the same. A stronger warranty is unnecessary for any

ORDERS BY MAIL OR EXPRESS PROMPTLY ATTENDED To.
Send for circular and reduced price-list. When shipping, always see that your proper address is either on the box or inside.

PRICE LIST OF THE

### RIVET (Mill) BUCKET.



These Buckets have a hardware (Japan) finish; are rust-proof, are light, durable and cheap; are of the latest and most approved pattern. Also Belting, Bolts, Scoops, Iron Conveyors, and the SAFETY ELEVATOR BOOT. Special Bucket for Ear Corn. Liberal discount-

THE RIVET BUCKET CO., 54 and 56 Frankiin street, Chicago, 1H.

FLOUR TRIERS.

Of every description-Pearl, Ivory, Silver, Celluloid, Shell, Steel and Nickel Plated. As I am the only party in the world that makes a specialty of Flour Triers, and Patentee and Sole Manufacturer of the

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Flour, Grain and Bolting Cloth Inspector,
I can furnish them of any material, size or color known.
I can furnish them of any material, size or color known.
I can furnish them of any material, size or color known.
I can furnish them of any material, size or color known.
I can furnish them up in all colors and styles.
Red, White. Blue, immitation of Malachite, Shell and Pearl. They are perfect beauties, as well as useful articles, as Colluloid is one of the hardest substances known after undergoing a certain process.
All orders promptly filled at wholesale or retail.

H. J. DEAL, Bucyrus, Ohio.

jy Eastern office, 35 Union Square, N. Y.

Volume 7.-No. 4.

#### MILWAUKEE, AUGUST, 1879.

Torms : \$1.00 a Year in Advance Ningle Copies, 10 Cents.

Nagel and Kaemp's System of Roller Milling.

Mr. President and Gentlemen of the National Association of British and Irish Millers:

I have been invited to read a paper before you to day upon the subject of Roller Mills. This is a subject which, it is almost needless for me to say, is at the present time exciting a very great amount of interest amongst millers, and it is therefore with the greater pleasure that I find myself enabled to bring under your notice some remarks upon this most important subject, and which I hope may prove to be worthy of your consideration.

To many who are connected with the profession of milling there appear signs that the millstone, after a long life, has, at length, nearly run its course, and it is not altogether without some regret that we foresee the possibility, perhaps at no very distant date, of having to bid adieu to so old and useful a friend. In the face of keen competition at home, however, and the ever-increasing facilities for the introduction of foreign flour into this country, it becomes a question of the greatest moment to British and Irish millers by what means they may best hold their own. I have said that the millstone is an old friend, but it is equally true that we have another which is older still, and one, moreover, which has received but scant justice at our hands,-I refer to the grain.

It is, perhaps, needless, to remind you that up to a comparatively recent date vast quantities of valuable middlings, which might have been converted into fine flour, were virtually wasted. The introduction of middlings purifiers throughout the country has caused a great saving in this direction, and the value of these machines as a means of treating the middlings is now almost universally acknowledged to be an established fact, for, whether we afterwards reduce the middlings by stones or rollers, the result will show that a decided advantage has been gained by the previous process of purification.

The application of roller mills—both of porcelain and chilled iron—to the reduction of middlings has proved these machines to be very valuable assistants to the miller.

Centrifugal dressing machines have also aided to no small extent in the general improvement which has taken place in the manufacture of flour during recent years, while to those I have mentioned may be added many more mprovements which have been gradually adopted, and have, in a greater or less degree, been the means of enabling millers to do greater justice to the grain by turning it to better account than it had been possible to do before these improvements were adopted. It is, however, an undoubted fact, that e ery alteration does not of necessity constitute an improvement, and, unfortunately, alterations have occasionally been made in flour mills which have demonstrated the truth of this in a very decided and unpleasant manner, and consequently engendering a natural hesitation on the part of the miller to whom any proposal is made, the carrying out of which would entail the sacrifice of at least a portion of his existing plant. When the question of success or failure of any proposed alteration, upon an extensive scale, is felt to be a matter of deep interest to the milling profession in general, it would appear scarcely fair that the total expense of making the trial should be borne by one individual or one firm, who can reap no benefit whatever in case of failure, while in the event of success attending the trial the benefit will be immediately shared by the whole profession at large. I venture to anticipate that your Council will, in their wisdom, at some future date take into their consideration the question as to whether some combined action on the part of the National Association of British and Irish Millers may not with advantage be resorted to, with a view to forwarding the interest of

the profession at large, and also to avoiding individual loss.

Messrs. Nagel and Kaemp, of Hamburg, who have made milling engineering a special study, have perfected and patented a system of manfacturing flour by means of roller mills and other machinery, and without the aid of the millstone. I was entrusted by these gentlemen with the introduction of their system into Great Britain and Ireland, but not until the system had been thoroughly tested and proved satisfactory, under their own supervison, on the Continent.

Bearing in mind the fact that Nagel and Kaemp's system had not as yet been tested upon English wheats, I anticipated some difficulty in procuring an opportunity of erecting it; but I was fortunate enough to meet with gentlemen who, after investigating the matter, had the courage to adopt the system, and it was with great satisfaction that I ascertained that the system proved equally satisfactory when operating upon soft English wheat as it had previously been when operating upon the harder foreign grain.

It is Messrs. Nagel and Kaemp's system of roller milling which I am about to have the pleasure of describing to you, and I trust that, by sparing you such details as are not absolutely essential to affording a general idea of the process, I may have the satisfaction of feeling that I have not abused your indulgence.

The thorough cleansing of the wheat before the reduction of the grain is proceeded with is a necessary adjunct to every process of milling, and Nagel & Kaemp's system forms no exception to this rule. The better the wheat is cleaned the more satisfactory will be the result, so long as the grain itself contains no injury during the cleaning process.

Messrs. Nagel & Kaemp's system consists:
1. In the crushing of the corn, bran, and middlings between rollers, the pressure of which, as also the space between, can be con-

veniently regulated.

2. In the thorough loosening of the parts which have been crushed asunder in the roller mills by means of a machine termed a "dismembrator," the intensity of the action of which may be adjusted to suit the material upon which it has to operate.

3. In separating as completely as possible, by means of centrifugal dressing machines and middlings purifiers, the material after leaving the dismembrators, and in order to produce the pure finished flour, the pure middlings, and the finished bran.

Nagel and Kaemp's roller mills, each of which contain but one pair of rolls, revolve at equal speeds or without differential motion. The surface of the rolls is formed of the hardest chilled iron, and is perfectly smooth. The roller shafts are of cast steel, each shaft being carried by two bearings, the shells of which are constructed in such a manner that in the event of the elasticity of the shaft when working under heavy pressure allows of the very slightest deviation in the direction of the centre line of the shaft where it passes through the bearing, the shell of the bearing will immediately respond, by turning on its centre, so as exactly to follow the direction of the shaft, presenting thereby the whole of the surface of the bearing to the shaft and obviating any tendency to excessive heating.

At either end of the shaft which carries what is termed the "fast" roller, a pulley is fitted, motion being imparted by this means to the whole machine. The corresponding or "loose" roller is made to revolve by the pressure of its periphery against the periphery of the "fast" roller, differential motion and consequent friction being thereby entirely avoided. It is necessary to bear this fact in mind, for it is to the almost total absence of friction throughout the process that the success of the system is to a great extent due.

The bearings of the "loose" roller are carried by one strong semicircular cast iron arm

or lever, by which the regulation of the roller mill is directly effected. An apparatus containing a strong steel spring is applied to the centre of the lever, whereby an elastic pressure may be imparted, as also the space between the rollers altered at pleasure. These two distinct operations are performed by means of a single hand-wheel. Conspicious self-registering gauges are fitted upon the front of the frame, and these enable the foreman miller to ascertain at a glance both the amount of pressure that has been applied, as also the position of the rollers in relation to one another. The man in charge of the machines may, by means of the hand-wheel already referred to, with one hand ascertain the state of the crushed material, and with the other regulate the machine to suit his purpose, precisely in the same manner as he may have been accustomed to regulate his stones.

The convenience with which the roller mills may be regulated permits of the same machine being used for crushing either wheat, bran or middlings; the plan is, however, not advisable in the case of a continuously working system, and where each of the several products should have their proper roller mills assigned to them. The diameter of the rollers is considerably greater than that which has hitherto been generally thought sufficient for this class of machine; the bearings, as well as the whole construction of the machine, has been arranged with a view to working at a high speed with perfect safety, and when occasion requires (as, for instance, the operation of rolling the bran) under a heavy pressure. The large size of the rollers and the high speed at which they work enables a large quantity of material to be operated upon with good effect.

THE DISMEMBRATOR. — The disembrators which receive the crushed corn, bran and middlings from the roller mills, are machines which in so far resemble Carr's well-known disintegrator, as they contain discs fitted with concentric rows of teeth. Nagel and Kaemp's disintegrator has one stationary disc and another which revolves at a greater or less speed according to the nature of the work which the machine is called upon to perform. Both discs (which are of steel) are fitted with concentric rows of steel pins, the pins of one disc overlapping those of the other by nearly the whole length of the pins.

The material to be operated upon enters at the centre of the stationary disc, and by centrifugal force is driven towards the periphery, passing on its course through the several concentric rows of teeth or pins, by which the material becomes tossed and knocked about until the parts which have already been crushed asunder by the rollers become thoroughly loosened from one another, and thereby prepared for the subsequent treatment by the centrifugal dressing machines.

I would here, gentlemen, request you to bear in mind that it is not with a view to pulverization that these machines are applied. The speed at which the discs revolve imparts a more gentle action than that which would be necessary in order to pulverize the material. This more gentle action is desirable upon several accounts, and especially in the case of the bran, which it is the object of the patentees to preserve as broad as possible. The bearings of the steel shaft which carries the revolving disc are arranged in a similar manner to those which I have already attempted to describe in the case of the rollers; special care has, however, been taken in the case of the disintegrator, to enable the shafts to revolve at an exceedingly high speed, if necessary; and so satisfactory have been the results that although many machines have been, and are, running at a speed exceeding 3,000 revolutions a minute, I am unaware of a single case where the bearings have become dangerously hot.

By way of demonstrating the small

amount of friction in the bearings, I would mention that within the east-iron frame of the machine, small tanks are constructed for the purpose of receiving the oil coming from the bearings, and, notwithstanding that the quantity of oil is small when drawn off from the tanks, the oil presents apparently as clear an appearance as when it was poured into the oil cup. The disintegrator is driven by a small pulley which is placed upon the disc shaft, the belt driving this pulley being kept in a proper state of tension by means of a tightening attached to the machine; the position of the tightening pulley may be altered whilst the machine is in motion. A cast-iron hopper fitted with a feed roller is attached to the machine, and an arrangement is effected whereby the air is, so far as possible, prevented from entering the machine. The inlet being closed, and the air being forced from the centre of the discs by the action of the revolving discs and pins, a partial vacuum results, relieving the internal moving parts to a great extent from the resistance of the atmosphere, and enabling the machine to be driven with a small amount of power. The partial vacuum created within the machine is increased by the action of an exhaust, between which and the disintegrator a filter is applied, the main object of this being to draw off the moist air before the material enters the elevators which shall convey it to the centrifugal dressing machines.

CENTRIFUGAL DRESSING MACHINES.

We have now come to the third process, namely, the operation of dressing the various materials which have passed through the several roller mills and dismembrators. You are doubtless all more or less acquainted with the principle of the centrifugal dressing machine, and with regard to this it will be unnecessary to trouble you further than to remind you that it consists in a slowly revolving cylinder, which is coated with either perforated zinc or silk, and within which is a shaft revolving at a higher speed, and which is fitted with curved beaters having the form of a screw with a very great pitch. The cylinder may be placed in a horizontal position, the inside beaters catching up the material to be dressed whilst in a state of suspension, and throwing it with a gentle action against the entire surface of the coating of the cylinder; by this means the different particles are separated from one another and assorted according to their specific gravity and size. The advantage of this in the case of sizing middlings will at once be apparent, and it is of no less importance in the case of flour. Indeed, I may, perhaps, say that it is in one respect of greater importance in the latter case than in the former, for that light dust which, when mixed with the flour, has the effect of spoiling the color, may be separated from the middlings during the process of purification, but the desirable separation is accomplished by the centrifugal dressing machine through the beaters throwing the heavier particles forming the fine flour with greater force against the cylinder coating than the lighter particles of dust. The dust remaining inside of the cylinder is, together with the other parts of the reduced grain possessing less specific gravity or greater size than the particles of flour, gradually worked towards the tail end of the machine, where it finds its

The remaining machines which are used in Nagel & Kaemp's system are the middlings purifiers for purifying the various assortments of middlings after they leave the dressing machines.

Having given a general description of the construction of the machinery used, I will now proceed to explain the process.

The cleaned wheat is first passed through one roller mill, and after being crushed enters one dismembrator, where the crushed parts of grain become thoroughly loosened from one

[Concluded on page 58.]

### UNITED STATES MILLER.

#### E. HARRISON CAWKER, EDITOR.

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#### MILWAUKEE, AUGUST, 1879.

SUBSCRIBERS changing their location and writing to us to send the MILLER to their new address, will confer a favor by stating what their former address was.

WE intended to have given our readers a review of the milling interests of Milwaukee in this number but as many extensive improvements are being rapidly made, which will soon be completed, we defer it to another month.

We will send a copy of the MILLERS' TEXT BOOK, by J. M'LEAN, of Glasgow, Scotland, and the UNITED STATES MILLER, for one year, to any address in the United States or Canada, for \$1.25. Price of Text Book alone, 60 cents. Send cash or stamps.

WE thank our milling friends throughout the country who have sent us items of news. We are always pleased to receive these favors, and hope our readers will bear the UNITED STATES MILLER in mind when anything transpires worth recording.

WE have in our possession a wonderful specimen of penmanship, in which the Lord's Prayer complete is written four times inside of a space covered by a gold dollar. The work was executed by Prof. Lowell Lincoln, who was drowned on the Seabird, April 9th,

NEW WINTER WHEAT .- The first arrival of the crop of 1879 (101 sacks) was received at St. Louis on the 12th of June, and was sold at auction the following day at the fancy rate of \$1.50 per bushel. The wheat was grown in New Madrid Co., Mo., and was purchased by the Atlantic Milling Co. from the consignees, Senter & Co. The first arrival of the erop of 1878 was on June 7, from Illinois, and sold at \$1.25 \.— The Miller (London.)

DEATH OF DELOS L. FILER.-Saturday, July 26th, Delos L. Filer, of the firm of Filer, Stowell & Co., of the Cream City Iron Works, Milwaukee, died at Ludington, Mich., aged 62 years. Mr. Filer was a resident of Milwaukee, but for many years has been largely interested in business here. He was one of the heaviest dealers in and manufacturers of lumber in Michigan, and at the time of his death was President of the Pere Marquette Lumbering Co. He had been ailing for some time, but attended to business until ten days before his

THE WINTER WHEAT MOVEMENT.-Never in the history of Cincinnati has there been such a trade in wheat as during the past three weeks. The movement has been so large that all ordinary facilities for transportation have proved inadequate, and the railroads have been obliged to increase their equipment by drawing cars from the Northwest, but still the facilities are not equal to the demand, and shippers have to wait for cars. The wheat comes mainly from Kentucky and Indiana, where the crop proves to be large beyond the most sanguine expectations, and the marketing of it so early in the season draws money to the country commercially tributary to Cincin nati, which cannot fail to have a salutary influence upon the general trade of the city during the autumn months. The receipts of wheat there from July 1 to July 23, inclusive, amount to 1,215,454 bushels. For the corresponding time last year the receipts were 800,-567 bushels, which up to that time was the largest known. The increase this year is 414,877 bushels, or over 50 per cent. - Cincinnati Price Current.

STATISTICAL.—The values of exports of domestic merchandise during the fiscal year 1878 were \$680,709,268; in 1879, \$698,334,-951. Values of exports of foreign merchandise for the fiscal year 1878, \$14,156,498; in 1879, \$12,093,792. Values of imports of merchandise during the year ending June 30, 1878, \$437,051,632; June 30, 1879, \$445,-792,141. The total value of exports of merchandise for the year ending June 30, 1879, exceeded the value of imports of merchandise \$264,636,602, as against excess of exports over imports the preceding year amounting to

\$257,814,234. Exports of coin and bullion the last fiscal year, \$24,996,641. Imports of coin and bullion, \$20,293,000. During the preceding fiscal year the exports exceeded the imports of coin and bullion \$3,918,811. The Chief of the Bureau of Statistics furnishes the following information derived from official returns in regard to immigration into the port of New York. There arrived at the port of New York during June, 1879, 19,263 passengers, 15,929 of whom were immigrants. During the corresponding period of 1878 the total number of passengers arrived at the port was 12,521, of whom 9,506 were immigrants. The arrivals during the twelve months ended June 30, 1879, as compared with the corresponding period of 1878, were as follows:

Immigrants Citizens of United States returned Sojourners	36,458 6,249	1878. 72,163 22,706 5,193
Total	141,931	103,062

#### The Millers' Compromise.

A good deal of murmuring and muttering under the bed quilt, so to speak, is heard amongst millers from various sections of the country in regard to the recent compromise, and, probably, not without a good deal of cause. The discontented claim that the validity of Smith's claims was as well known to the Executive Committee of the National Association two or three years ago as it was at the time of the compromise. The fact is, that no such compromise could have been made two or three years ago, as was made during the session of the late Association, and so the committee decided to contest all claims until favorable terms could be made. It reminds us of the story of the Vermont politician whose opponent threw up to him the fact that his sister had given birth to an illegitimate child. In defense he said: "Yes, my friends and feller citizens, Sister Sal did have a baby, but it was such a little bit of a dried and shrivelled up thing that it don't 'mount to nuthin nohow,' and on the strength of that expression was elected. So it was with the compromise. The original claims have "dried and shrivelled up so that it don't 'mount to nuthin nohow," and the great majority of millers are willing to accept the situation and wait calmly and serenely for the next claimant who is sure to appear.

#### New Grade of Barley.

The Directors of the Milwaukee Chamber of Commerce have recommended the establishment of a new grade of barley. The present grades are defined as follows

No. 1 Barley—Shall be of a bright, natural color, plump, sound, well cleaned and free from other

No. 2 Barley—Shall be sound and reasonably No. 2 Barley—Shall be sound and reasonably plump, reasonably clean, and free from other grain—good malting barley, but may be slightly stained.
No. 3 Barley—Shall include all shrunken, dis-

colored, but reasonably sound barley, and fit for malting purposes.

Rejected Barley—Shall include all barley unsound or for any cause unfit for No. 3, but fit for

arehousing. The proposed new grade, which takes an inter-

mediate position between No. 2 and No. 3, is defined as follows Extra No 3 Barley-Shall comprise barley that

slightly unsound, or too much stained, or shrunken r No. 2, but otherwise meeting the requirements of that grade. The old definition of the No. 3 barley is to be

amended by stricking out the word "all."

The proposed change or addition to the grades now established will render the barley grades identical with those of Chicago; that city having adopted the new grade proposed here one year ago. Much barley was diverted from this market to Chicago for the want of it, as the difference in price between No. 2 and No. 1, about 20 cents per bushel, involved a serious loss to shippers on the qualities described in the new grade, and much trouble to the receivers in bagging it out, and selling it on its merits. The intermediate grade, when established, will probably range in price about mid-way between No. 2 and No. 3. The full list of grades will be No. 1, No. 2, extra No. 3, No. 3, and rejected, designated as above shown.

How to Direct Letters.—The importance of writing out fully the destination of missives sent by mail is not fully appreciated. To insure the greatest degree of certainty, the superscription should embrace the name of the town, the county and the State. Town names are duplicated in nearly all of the new States, or vary so little in the spelling that no certainty of destination can be assured, except the name of the town is supplemented by that of the county. Through neglecting to designate the State, delays and losses innumerable are occurring daily. It may seem superfluous labor to a man in haste to direct his letter fully to Boston, Mass.; New York, N. Y.; Washington, D. C., or Milwaukee, Wis., but the necessity of it will be apparent when it is known that in the full list of United States Postoffices, the familiar names ot well-known cities and towns are repeated as follows: Brooklyn, 18 times; Williamsburg, 10; Baltimore, 5; Bangor,

ton, 17; Chicago, 4; Milwaukee, 4; Cincinnati, 8; Cleveland, 10; Louisville, 15; Nashville, 15; Philadelphia, 7; Richmond, 22; Washington, 30, and Springfield, 25. There are over 300 such repetitions on the list, and some thirty duplicates in different counties of the same State. To insure certainty of delivery, direct, (1) to the town, or city, (2) to the county, (3) to the State or Territory.

DISPATCHES dated July 29th, say that the crops in Hungary are badly damaged by the recent sudden great heat followed by heavy

LATEST reports from Southern Russia show that the crops have been entirely ruined by the long drouth and innumerable swarms of locusts.

NEW CURE FOR HYDROPHOBIA. - Recently a little girl living in Paris was bitten on the hand by a mad dog. She soon exhibited signs of hydrophobia. Two Russian physicians, Drs. Schmidt and Ledeben, made the little patient inhale three cubic feet of oxygen. By this means in an hour and a half all the symptoms dissappeared and the child remained calm. Two days afterwards the malady returned in all its distressing characteristics-difficulty in breathing and swallowing. A fresh inhalation of oxygen was tried and at the end of fortyfive minutes the attack subsided, never to return.

AN OLD ENGINE.—A venerable relic of past engineering skill has been presented by the Earl of Lonsdale to the Patent Office Museum, South Kensington. This is a specimen of Heslop's winding and pumping engine, a patent for which, numbered 1,760, was taken out in the year 1790. Heslops's engine, one of the immediate predecessors of James Watts' invention, was considered in the days of our great grandfathers to be an almost perfect machine, being superior to the atmospheric engine of Newcomen, even as improved by Smeaton. The present engine has been at work in the neighborhood of Whitehaven for 73 years, having been erected at Kell's pit for raising coal about 1795, afterwards removed to Castlerigg pit, and thence to Wreath pit in 1837. At the latter place it not only lifted coal out of the mine, but worked a pump till last summer, when it was brought to London. The engine now at South Kensington is the last survivor of its race.

CHEAP WHEAT IN THE SOUTH.—The wheat market, says the Chattanooga (Tenn.) Times, is becoming so thoroughly demoralized as to create some anxiety among buyers as well as growers. The trouble seems to be on account of the great supply furnished by Georgia. Our dealers heretofore have been quite active in filling Southern orders for new wheat, but this season they are receiving no orders at all from the South. The Southern mill owners write that they can buy all the wheat they can use at much lower figures than our merchants can buy it from the growers, which shows that, on account of the stringency of the times and scarcity of money, the farmers are compelled to dispose of it at any price. Our farmers are anxious to sell their crops, but say they can not afford to take the prices offered by our merchants and our merchants can not afford to pay them more. There is an immense crop, and it is of very superior quality, but the quantity rules the prices more than the quality. Georgia has grown an immense crop, and prices will not advance, but, on the contrary, recede, until this large crop is used up by the mills and the flour disposed of.

#### Correspondence.

A LETTER FROM WASHINGTON TERRITORY.

FORT COLVILLE, W. T. Editor United States Miller-DEAR SIR: Having noticed several articles in your valuable and ever welcome paper in regard to the Cochrane case, I thought perhaps the following facts (which can be amply testified to if necessary) would be of some interest to the millers of the United States:

In the winter of 1866-7 I entered upon the construction of a machine to make farina. think it was completed the last of January, 1867, and worked satisfactorily, making of purified middlings from 20 to 26 pounds of flour per bus. (60 lbs.) of wheat flour of the very best quality, equal I believe to any produced in the world from the same kind of

My machine has a capacity for making from 8,000 to 10,000 lbs. of farina (as we call it here, or middlings as it is called in the East) per day. I think there is a difference; the most of ours being much coarser. I send you a small sample of our No. 3 farina. We make some much coarser and some finer than the 10; Boston, 12; Buffalo, 16; Burlington, 17; Charles sample. We can make it perfectly pure, free from specks, bran or anything else, so that it makes flour entirely free from specks.

I have just completed another machine to make farina or clean middlings; will have it in working order soon, and expect to make from 30 to 35 pounds to the bushel of wheat of No. 1 flour equal to the best.

If it meets my expectations I will, perhaps, communicate with you again. I inclose you a sample of No. 1 or farina flour; also of No. 2 or shelling flour. Please send in return a sample of the best purified middlings; also of the best No. 1 grade of patent flour; also please inform me as to the number of pounds of patent flour made from sixty lbs. of No. 1 wheat. L. W. MEYERS,

Fort Colville, Stevens Co., W. T.

#### Latest Rules on Table Etiquette.

Our able and influential contemporary, the Christian Weekly, gives some valuable hints on table etiquette, but we think it has not pursued the subject far enough. We beg leave to offer a few additional rules, which those who would be considered au fait would do well to bear in mind:

Always, after scratching your head at the table, knock the dandruff from your coat with the napkin.

If the waiter has neglected to place a spoon at your plate, ask for one. The hostess had rather you would ask for a dozen spoons than have you drink your soup from the side of the

Do not speak with your mouth full. If you want to say anything take the food out of your mouth and hold it in your hand until you get through talking.

One's teeth are not to be picked at the table; but if it is impossible to avoid doing so, take them out and hold them under the table while you pick them.

Soup should be taken from the side of the spoon and not from the end, which latter is suggestive of swallowing both spoon and soup.

At the conclusion of the meal the knife and fork should be laid side by side on the plate with the handle pointing towards the right. It is a sign of low origin to leave the handles pointing towards the left, and in Boston they give a person the cut direct who crosses the knife and fork.

Of course, no genteel person will spit on the floor, nor is it considered just the thing to ask the waiter to pass the spittoon. Always spit in your napkin.

Do not pass the plate that is handed you to your neighbor. Keep it; you may not get an-

If you find a hair in your food be sure to call the hostess' attention to it, at the same time making some gallant remark about its matchless beauty, and place it carefully in the back of your watch.

An Englishman, "who had seen better days," was riding in the coach to Leadville, the new mining town in Colorado. "Will you please," said the Englishman, "open that window; I want to see the mountain scenery." An Irishman who was snoozing in a corner, looked up on hearing the remark, and observed, "Bedad, you'll see plinty of it a month from now when your coming back on

Stuart & Douglass are putting a 20x42 Reynold's Corliss engine into their new oat meal mill in Chicago. They purchased the engine of Ewd. P. Allis & Co., Milwaukee, Wis.

Ewd. P. Allis & Co. are making up about 2,000 yards of bolting cloth for three or four of the large Hungarian mills they are now building. They have also eight new orders for 30,000 feet of leather belt for same jobs.

The old Kilbourn mill, Milwaukee, is to be entirely rebuilt and remodeled according to the Hungarian style exclusively.

Cunningham's starch factory at Vincennes, Ind., burned July 29th. Loss \$150,000. Insurance \$50,000.

### Special Business Motices.

Do you need a good Saw Gummer or Saw Tooth Swage? If so write to J. W. Mixter & Co., Templeton Mass. Agents wanted.

Notice.—Owing to the death of Mr. Edward Harrison, we take this method of informing you that the business will be continued until further notice, and that all orders will receive prompt attention. Letters should be directed to the "Estate of Edward Harrison," New Haven, Ct.

IMPORTANT NOTICE TO MILLERS.—The Richmond Mill Works and Richmond Mill Furnishing Works are wholly removed to Indianapolis, Ind., with all the former patterns, tools, and machinery, and those of the firm who formerly built up and established the reputation of this house; therefore, to save delay or miscarriage, all letters intended for this concern should be addressed with care to Nordyke & Marmon Co., Indianapolis, Ind.

#### NEWS.

#### EVERYBODY READS THIS.

ITEMS GATHERED FROM CORRESPONDENTS, TELE-GRAMS AND EXCHANGES.

It is said that the large flouring mill at Oconomowoc, Wis., has or is about to change owners.

Edward Rupling, miller, of Stillwater, N. J., is dead.

The storms throughout the Northwest during the early part of July did great damage to growing crops, and destroyed much valuable property.

The Park Mills at St. Louis, Mo., are being overhauled.

A new steam mill is being erected at Warrensburg, Mo.

Scanlan & Smith are building a new elevator at Hopkins, Mo.

Notwithstanding the lightness of the crops in the Canterbury district of New Zealand, the aggregate yield of wheat, oats and barley is said to be about one-fourth greater than last season. In the Otago district, the wheat crop has diminished by 370,000 bushels, but oats show an increase of 2,000,000 bushels and barley a small gain. New Zealand, therefore, proposes to export a few millions of bushels of wheat.

H. D. Rush, Leavenworth, Kas., is overhauling and enlarging his mill. Two additional runs are being added, making it an eight-run mill and one of the best in the State.

Chas. Lovelace & Co. are enlarging and improving their mill at Wyandotte, Kas.

E. O. Stanard has added five run more burrs to his Eagle Mill at St. Louis, Mo.

The boiler in the steam flouring mill at Carlisle, Ky., owned by Rogers and Bastian, exploded on the morning of July 8th, throwing the engineer, Jas. Summers, a distance of 40 feet. He was fearfully mangled and died in two hours. Loss to the mill, about \$3,000.

A correspondent of the LaCrosse Chronicle writing about Galesville, Wis., says: "The largest and most successful business institution in the town is the flouring mill of Mr Wilson Davis, a large four-story stone structure, that has made its owner many dollars in its time and still continues to grind them out for him. It has a magnificent water power, the entire Beaver Creek, and the pond formed by its dam, is a very fine sheet of water that extends a mile or more up the valley to the east of the village, making an exceedingly attractive feature in an already beautiful land-scape.

John Getty & Co. are building a new fourrun steam mill at Ellsworth, Kas.

W. T. Soden, Emporia, Kas., is overhauling refitting, and greatly improving his mill.

Leonard & Richardson are building a very fine grain elevator at Morris and Leonard, Mo.

The Semple & Birge Manufacturing Company, of St. Louis, Mo., failed July 7th. It seems probable that matters may be so adjusted as to allow this old business house to go on again.

The old Eagle Mill, now used as a cooper shop by J. B. A. Kern, was the second mill of the kind built in Milwaukee. The "City Mill," set in motion in the fall of 1844, was the first. Both were operated by John Anderson, who built the dam for the Rock River Canal Company. In 1847 he built the mill conducted by the late Col. Amos Sawyer.

During a thunder storm Mr. Christian, a miller of Marion, Minn., was struck by lightning and terribly disfigured.

The Red Wing Mill Co., Red Wing, Minn., are about to erect an elevator with a capacity of 100,000 bushels.

P. Fleming, miller, of Orland, Cal., has made an assignment.

An elevator is being built at Renville Station, Renville county, Minn., and the people are anxious to have a grist mill also.

Wheat has been brought as far as sixty miles to be ground at the mill at Roscoe, Dakota.

The Ames mill at Northfield, Minn., has shut down for three months to put in new machinery.

Smyth & Smyth's grist mill at Merriton, Canada, was recently destroyed by fire. Loss, \$2,000; partially insured.

C. H. Jenison, of Two Rivers, Wis., and Mr. Chase, of River Falls, Wis., are building a flouring mill at Lake Park, Becker county, Minn. They expect to have it ready to begin work by the time the new crop comes in.

Charles T. Rogers, miller, Chelsea, Mich., has moved away.

A sad accident happened in Louis Apple's mill at Mooresville, Ind., on the 26th June. The six year old son of the proprietor while playing in the mill, fell between the wheel and the stone work and was instantly crushed to death.

Forestburg, Dakota, will soon have a flouring mill.

Silas Barkley, a well-known and prominent miller, has commenced the erection of a new flour and grist mill at Hulmeville, Bucks county, Pa. The mill will be of stone, 32x40 feet, four stories high, with a frame storehouse for grain, 32x25 feet, attached. The machinery will consist of four runs of stones, with all the modern attachments and five water wheels will be put in to do the work.

The Archibald Mill at Dundas, Minn., is to be made 35 feet higer by the addition of two stories and a balloon frame on top, and engine house built to accommodate a large engine. Machinery will be added to increase the capacity of the mill to 300 barrels per day. The contemplated improvements will cost about \$30,000.

Mr. C. E. Conley has built a new process three-run mill at Bloom Center, Logan county, Ohio. George C. Yager will be the miller.

R. M. Judy, of the Atlanta Mills, Ga., has just sold them to Philo A. Marsh, of Peoria, Ill. Mr. Marsh will take possession Oct. 1st.

The Empire, Reciprocity and Lake Ontario Flouring Mills, with elevators attached, at Oswego, burned July 24th. Loss, \$150,000; insured, \$83,000. The adjoining buildings were badly damaged by fire and water.

Careful estimates of the wheat crop of Michigan gives the yield per acre as 19.9 bushels, giving a total probable yield for the season of almost 31,300,000 bushels. This is more than double the yield of 1873, and 8,000,000 bushels greater than the yield of 1877.

The coopers of Milwaukee have formed a Union, of which Albert Kaus is President and Louis Ries Secretary.

Messrs. King & Moore's mill at Mormontown Corners, Taylor county, Iowa, was damaged to the extent of about \$1,000 by the recent heavy rains. The flume and flood gates were destroyed and the foundations badly damaged.

C. N. Wilcox, proprietor of the Oxford Mills near Cannon Falls, Minn., is building a stone engine house 32 feet long and 30 feet wide, to contain a 73-horse power engine which will be used when the water power fails or is insufficient.

Messrs. Kimball & Beedy, of Forest City, Minn., have just put in a new 66-inch turbine, made by Stout, Mills & Temple. They have also moved their flume outside of the mill and run by belt, and have put in a new hurst frame for their seven run of stone.

The Mazeppa Mill Company, Mazeppa, Minn., are going to overhaul and repair their mill and increase its capacity to 300 barrels per day. Messrs. W. F. Gunn and R. G. Shuler, of Minneapolis, Minn., have the contract for the work, which will be done under the immediate supervision of Mr. J. Hull. The improvements will be completed in time for the new crop.

A new elevator has just been completed at Linden, Mich.

A large flouring mill is soon to be built at Oakwood, Dakota.

Hixon Bros. are putting in a three-run mill at Granite Falls, Minn.

Mr. H. A. Brintell is building a grist and saw mill at Judd's Corners, Mich.

Patterson & Rice, of Clio, Mich., will soon have their flouring mill in operation. Work has been commenced on the new dam

for the Cascade mills at Osceola, Wis.
J. B. M. Kehlor & Co., of St. Louis, Mo.,

are, building a flouring mill at Edwardsville, Ill.

The new flour mill at Bismarck, Dakota,

The new flour mill at Bismarck, Dakota, has reached its fifth story and will soon be roofed.

Messrs. Wulff, Walker & Co.'s new grist mill at Neenah, Wis., is finished and ready for work.

The crop reports from Russia partly contradict those previously made. According to an Odessa journal of the 24th of June, the condition of the crops in the South of Russia and in the Caucasus is almost worse than it has ever been. That which remained, injured by the drought and then by the hail which

followed, is now destroyed by the enormous quantities of grasshoppers and blackbeetles. The crops in the neighborhood of Odessa and in the Southern Russian provinces of Bessarabia, Ecaterinoslav, Cherson, Poltawa, and in the Caucasian provinces of Tiflis, Tersk, Bahu, Stawropel and Kutais, are, according to this statement, almost entirely destroyed.

At the Berlin Millers' Exhibition there were 50 different roller mills and 23 centrifugal dressing machines.

The Toufflin system is being introduced into Somaroff, South Russia, where a mill equal to 30 pairs of stones is being erected. The machinery is supplied by Rose Freres, Rue de Viarmes, Paris.

The Buda-Pesth milling trade has sustained a severe loss by the recent death of Mr. Josef Ullmann, the much respected and widely known director of the Pannonia steam mills at Pesth.

Chas. T. Rogers, of Ann Arbor, Mich., has sold his flouring mill to L. E. Sparks for \$4,000.

At the Berlin Exhibition of milling machinery, a gold medal for distinguished services rendered to the progress of milling was awarded to Mr. F. Wegmann, of Zurich, and a similar medal was given to Messrs. Nagel and Kaemp, of Hamburg. Messrs. Ganz & Co., of Buda-Pesth, obtained a silver medal for progress in chilled iron roller mills, and Millot, of Zurich, a similar prize for services rendered to the progress of milling. The above prizes were given by the Minister of Commerce. The Millers' Association awarded a silver medal to Mr. Oscar Oexle, for services to the progress of milling.

A. J. Stroup, of Elk Mills, Mo., is building a flouring mill.

W. D. Deans & Co., of Belknap, Ill., are having their mill remodeled.

Nordyke & Marmon Co., of Indianapolis, Ind., are building a two-run steam mill for J. A. Keller, of Tunnel Hill, Ky.

Hill & Hill, of Sanborn, Ind., are enlarging their mill to a four-run new process mill.

Foreman & Carter, of Browning, Mo., are building a three-run merchant mill with Atlas engine.

Sloan & Parkinson, of Blanche, Texas, ordered new machinery for a three-run water mill.

A new two-run water mill is going up at Wichita, Kansas. The proprietors, the Mc-Mahan Bros., purchased their machinery of Nordyke & Marmon Co., of Indianapolis, Ind.

Daily, Russell & Williams, operating large mills at Crestline and Nevada, Ohio, are putting in middlings buhrs and machinery in both mills.

S. T. Cummings, of Oxford, Mich., is building a new flouring mill.

Jos. W. King, of Twin Grove, Ill., is enlarging his mill and adding two run of buhrs, bolts, elevators, purifiers and other machinery. Nordyke & Marmon Co., of Indianapolis, Ind., have the contract.

A new brick flouring mill with three run of buhrs, is being built at Olmstead, Ky., by W. E. Boyd.

The old mill at Auburn, Ky., is giving way to a new patent process mill with latest imimprovements. The proprietors, Messrs. Gordon & Griffith, get their machinery at Indianapolis, Ind., of Nordyke & Marmon Co.

Sugg, Harmes & Co., of Fayetteville, Tenn., are building a custom mill.

J. W. Ground, of Augusta, Kan., is putting in two run of buhrs, purifiers, elevators, etc., in his mill.

A three-run steam mill is being built at Wheatland, Minnesota.

J. Shideler's mill at Attica, Ind., is being overhauled by Nordyke & Marmon Co., of Indianapolis, Ind.

Hixson Bros., of Granite Falls, Minn., are building a three-run water mill.

A four-run new process flouring mill, driven by a Corliss engine, is being built at Ellsworth, Kan., by Getty & Co. Nordyke & Marmon Co.'s machinery, manufactured at Indianapolis, Ind., will be used in this mill.

The 40,000 acre Grondin farm, near Fargo, D. T., Will be supplied with a steam mill, the machinery for the same being furnished by Nordyke & Marmon Co., of Indianapolis, Ind.

Edw. P. Allis & Co. have orders ahead for fifteen of the Reynolds-Corliss engines.

The millwrights have commenced work on the White, Listman & Co. mill at LaCrosse, and the large 20-run mill for E. V. White & Co., of Minneapolis, Minn., both of them fine mills, one being built and furnished complete by Edw. P. Allis & Co., of Milwaukee, Wis.

A large shipment of "violet" millstone blocks has just arrived consigned to Edward P. Allis & Co., Milwaukee, right from the quarries.

Edward P. Allis & Co. are now working on contracts which will require over 3,000 yards of bolting cloth and 30,000 feet of belting.

Edward P. Allis & Co. have closed a contract with E. T. Archibald & Co., of Dundas, Minn., to entirely rebuild their large mill on the Hungarian system.

Jere Ames & Sons, of Northfield, Minn., are

putting in a large lot of roller machines which they purchase from Edward P. Allis & Co., of Milwaukee.

Edward P. Allis & Co. have orders for over 200 roller machines.

The Milwaukee & St. Paul R. R. Co. have purchased an 18 x 48 Reynolds-Corliss engine for their new shops from Edward P. Allis & Co., Milwaukee.

The Milwaukee Middlings Millstone Company have sold five 16-inch mills to Mr. C. L. Colman, of Winnebago, Minn.

The Milwaukee Middlings Millstone Company have lately received a number of orders from various parts of South America.

We learn that the Milwaukee Middlings Millstone Company have established an agency in Germany and also in England.

The Middlings Millstone Company have been running their shops 24 hours a day for the past three months without intermission.

The Milwaukee Middlings Millstone Company are turning out four mills per day, or 125 every month.

The business of the Milwaukee Middlings Millstone Company is increasing so fast that they are now making arrangements to increase the capacity of their works.

The Milwaukee Middlings Millstone Company have a number of contracts in Colorado and California.

The Milwaukee Middlings Millstone Company are now rebuilding Mr. R. P. Owens' mill at Anoka, Minn., which was recently burned down.

The Milwaukee Middlings Millstone Company are refurnishing Messrs. Pratt & Co.'s mill at Champlin, Minn.

The Milwaukee Middlings Millstone Company have commenced work on the big mill in Milwaukee, which, when completed, will contain 100 of their little mills, and will be the largest mill on this continent. At present the building is to be erected 60 by 80 feet, and arranged to accommodate 50 mills, and at the end of the first year after starting an addition will be added the same size as the first building and the balance of the mills put in.

During the month of July the Cockle Separator Mfg. Company sold 40 machines.

The Cockle Separator Mfg. Company of Milwaukee have recently opened a trade with South America with good prospects, as the wheat there is said to be badly mixed with cockle

The cockle machine, combined with their latest improved oat separator and suction, has proved a great success, and is used in the best mills throughout the country. Millers buying the combined machine will save themselves the cost of a separate oat separator, which is an important item.

Smith Bros., of Milwaukee, are rebuilding and enlarging the Winnebago City Mills, Minn., making it of 200-barrel capacity per day. C. L. Colman is proprietor.

Smith Bros., of Milwaukee, are making improvements in the Fredonia (Wis.) Mills, puting in bolt chests, etc.

Smith Bros., Milwaukee, are making plans for rebuilding the Saukville Mills, which were burned down two years ago.

F. W. Stark's mill at Hillsdale, Mich., which was rebuilt and enlarged by Smith Bros., of Milwaukee, was started last week and is working beyond expectation.

Messrs. Austin & Worden, of Minnesota Falls, Minn., are going to put in two new run of buhrs.

The mill dam at El Paso, Wis., was damaged to the amount of about \$100 by the recent freshet.

McSpaden's mill dam four miles from Houston, Minn,, was badly washed out by the recent heavy rains.

Hermann Tezman, of Hastings, Minn., has filed a caveat for a mill-stone driver and bail which he has invented.

### UNITED STATES MILLER.

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We send out monthly a large number of sample copies of THE UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. We are working our best for the milling interest of this country, and we think it no more than fair that our milling friends should help the cause along by liberal subscriptions. Send us One Dollar in money or stamps, and we will send THE MILLER to you for one year.

M'LEAN'S Millers' Text Book and the UNITED STATES MILLER, for one year, for \$1.25. Order now. Send money or postage stamps.

We kindly thank Mr. Wm. Dunham, of the London Miller, for early proofs of the report of the British and Irish millers' first annual

POSTAGE stamps taken in payment of subscription to the UNITED STATES MILLER and the Millers' Text Book. \$1.25 pays for both for one year.

A SUBSCRIBER who evidently believes in Shakspeare's saying, "Brevity is the soul of wit," in remitting for his paper, says: En. fnd \$1, U. S. M., 1 yr. Snd rept.

That miller don't propose to waste time on anybody

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.

WHEAT CROP OF SOUTH AUSTRALIA .- The area of land under wheat is 142,205 acres in excess of the previous year, and the total quantity available for export is estimated at 176,350 tons, the average yield being estimated at seven bushels per acre.

THE following is the semi-annual statement of the Millers' National Insurance Co., 143 La Salle street, Chicago, July 1, 1879. Assets: United States bonds, \$10,000; treasury warrants, \$2,750; cash in bank, and subject to draft, \$24,620.89; premiums in course of collection, \$150; deposit notes subject to assessment, \$356,521.13. Total, \$396,521.13. Liabilities, none.

THE CINCINNATI INDUSTRIAL EXPOSITION. -The seventh exhibition, commencing September 10 and ending October 11, 1879, is announced, and all American inventors and manufacturers are cordially iavited to avail themselves of the advantages offered. All persons desiring to exhibit, should address without delay, H. McCollum, Secretary, Cincinnati, Ohio.

THE UNITED STATES MILLER has the largest circulation of any milling journal published in America, and was the first milling journal started in America entirely independent of connection of interest with some machine or mill-furnishing establishment.

JULY 10th the thermometer stood at 100° in St. Louis. If the next issue of the St. Louis Miller don't show the effect of ice water, we are mistaken. We know it is hard for the St. Louis boys to come to it, but in such cases it cannot be helped. With the thermometer up here in Milwaukee at 90°, some of the boys in the office have told us that ice-cold weis beer tastes remarkably fine.

WE hope all who receive sample copies of the United States Miller will favor us with their early subscription. The price-one dollar per year—is a mere trifle, and ensures you a first-class paper containing a great quantity of matter of direct interest to your trade. Do not delay, but send your order now. Enterprising, go-ahead millers cannot afford to be without the current milling literature of the

BUDAPEST MILLING INDUSTRY .- The usual yearly meeting of the Pesth Roller Mill Company was held on the 7th of June. The report presented by the Directors showed that the company had ground 1,600,000 bushels of grain during the past year, being 250,000 bushels in excess of the previous year. The net profit realized was 170,639.23 florins out of which sum it was proposed to pay a dividend of 15 per cent, the balance of 20,639.23 florins being placed to the reserve fund.

THE GERMAN MILLERS' ASSOCIATION.-The above named Association met in Berlin, Germany, June 21st, and continued in session until the evening of the 25th. The attendance was large and several papers of value to the trade were read. The exhibition of milling machinery of German, French, Hungarian, Austrian and American was large and attracted great attention. The exhibition room was 265 x 56 feet in size and 40 feet in height, and the space was well occupied. These exhibitions of machinery at millers' meetings are of much interest to both manufacturer and con-

MILWAUKEE PRACTICAL MILLERS' ASSOCIA-TION. - The above organization is now thoroughly established and have a regular place of meeting for debates, experiments, etc. The object is for the mutual improvement of its members and nothing else. Readings of questions and answers, essays and relation of the result of various experiments, with illustrations, will form the regular proceedings. The benefit of this will soon manifest itself. We wish this Association the most unbounded prosperity. Mr. Charles Mueller is President and Mr. Levi Hicks, Secretary. Their meeting and reading room is at 913 Winnebago St.

PORCELAIN MILLSTONES .- A German mill engineer in Potsdam has recently manufactured millstones of porcelain, which have been fitted up in a steam mill in Potsdam and have given, it is said, very good results. The stones consist of a hard, regular, porous mass of porcelain, and possess, we are informed, the qualities requisite in a good French burr. These porcelain millstones are claimed to be superior to all others. In the experiment above referred to, the upper stone was of porcelain, the lower one being a French burr. Specimens of porcelain millstones were exhibited at the Paris International Exhibition of last year, where they attracted some atten-

#### The Silver Creek Flour Packer.

Messrs. Howes, Babcock & Co., of Silver Creek, N. Y., have recently added to their line of manufacture the SILVER CREEK FLOUR PACKER. The reputation of this firm for handling only first-class machinery is a sufficient endorsement of the new PACKER. The trade of this well-known firm has been much heavier this season than last, and it includes a heavy amount of sales of the genuine Du-FOUR bolting cloth, which has now such a favorable opinion from millers all over the country. The sales of the Eureka, the Eureka brush and the Eureka separator are very large, and they never fail to give satisfaction. All mill-owners who have not done so should send for circulars.

#### Nagel and Kaemp's System of Roller Milling.

[Continued from page 55.]

another; the material is now in a proper condition to enter the dressing machines. The produce of the dismembrator, after being elevated, is divided into two equal parts. Each portion enters a separate centrifugal dressing cylinder. The largest middlings and the heavy bran are by these cylinders separated from the rest of the meal, the latter passing into four cylinders situated below. The latter cylinders produce, besides several assortments of middlings, the first run flour. The percentage of flour so produced may be regulated wit exactness by the setting of the rollers.

The heavy bran dresser already mentioned passes directly from the dressing cylinder into a second roller mill, and after being crushed enters a second dismembrator, passing through which it is conveyed into a single cylinder centrifugal dressing machine, which now dresses out the bran in a thoroughly finished state. From this machine the flour and middlings pass together into two centrifugal cylinders below, and from these machines, besides several assortments of middlings, the so-called "bran flour" is produced.

The several assortments of middlings now remain to be operated upon, and these, after being divided into different quantities, according to size and specific gravity, and after purification, are conveyed into three separate roller mills, each roller mill receiving its supply of middlings in a more or less uniform size. After being separately rolled, the whole pass together into one disemmbrator, which operates upon the crushed middlings in a similar manner to that already described in the two previous processes. The produce of this dismembrator, is now divided into two equal parts and conveyed to two centrifugal dressing machines, and from thence into four cylinders situated below. The cylinders produce, hesides several assortments, the first quality of middlings flour. The middlings which have thus been dressed out of the middlings or semolina flour are in some respects equivalent to those which are usually termed "tailings," but inasmuch as they are "sharper than the ordinary run of tailings, I take the liberty of retaining for them the more dignified title. These middlings or tailings are now once more conveyed to the purifiers, and from thence to three separate roller mills, where they are again crushed, passing afterwards together into one dismembrator. The product of this dismembrator is now conveyed to one centrifugal dresing machine, and from thence to two cylinders below. The tailings produced from these cylinders are, as a rule, not of sufficient value to be re-worked, but where the case is otherwise, the more valuable tailings may be re-purified and passed once more to the lastmentioned three roller mills, where a margin of capacity will be found to perform this occasional extra work.

It may, perhaps, not be out of place here to mention that a peculiarity of this system is that even after an almost endless process of re-rolling under heavy pressure, the tailings never attain to that soft consistency which is found in the case of tailings which have been dressed out of rolled middlings which have been produced by means of stones; this again is due to the absence of friction during the whole process of the reduction of the grain. This sharpness is caused by the particles of bran, and not from the fact of any valuable middlings remaining amongst the tailings.

This, then, gentlemen, constitutes Messrs. Nagel & Kaemp's patent system of roller milling, and I will, if you will bear with me a little longer, proceed to state some of the advantages which are claimed for it over the

By superseding the mill-stone we effect at once a considerable saving in the matter of working expenses by obviating the necessity of the costly operation of keeping the surfaces of the stones in good working condition. The mill-stone, by its imperfect action, absorbs an amount of power greatly in excess of that required by a more perfect instrument capable of performing the same amount of work and in a more satisfactory manner. The frictional action of the stones is avoided and superseded by the crushing and simple action of the rollers and dismembrators. The meal, instead of leaving the stones in a warm or even hot state, passes from the dismembrator in a perfectly cool or even cold condition. The bran is not torn or cut, but presents the sharp edge which it received upon the bursting of the grain under pressure of the rollers. In place of mill-stones we adopt roller mills and dismembrators, the working expenses of which

are light and the manipulation simple; moreover they are machines which may be applied to low, half-high and high grinding, by a simple alteration of the setting, which may be effected in the space of a very few minutes, and which facilitates the discovery of the most advantageous manner of treating each particular class of grain. The germ, which is reduced and mixed with the flour, to the detriment of its color and durability, by the action of the stones, is, by the operation of Nagel & Kaemp's system, simply pressed into a flat cake, which, being of a tough nature, passes harmlessly through the dismembrator and into the dressing machines, where, owing to its large size, it is easily separated from the flour and dressed out with the offals.

The flour produced by this system shows a distinct improvement, both as regards the quality as well as the quantity.

The improved quality shows itself in a marked manner when it is applied to the test of baking. The cause of the larger percentage of flour becomes at once apparent when the state of the bran is considered, the former being thoroughly separated from the latter without the bran being either cut or torn. The improved quality of the flour, and especially its capability of producing a larger quantity of bread from a given quantity of flour than from the flour produced by mill-stones, results from the absence of heating, and by the addition of flour produced from that part of the grain, so rich in gluten, which is found to be attached to the inside surface of the bran, and which has been parted from it by the pressure of the rollers without the bran itself being destroyed.

Besides the facility with which the machines may be applied to various classes of work, the wear and tear is very slight, and as every machine is manufactured to template, the removal of any part which in course of time may require repair may be effected without loss of time. The risk of fire is greatly lessened in consequence of the absence of the mill-stones.

The space required for the erection of the roller mills, dismembrators, and centrifugal dressing machines, with the necessary shafting, elevators and worms, is very small, the machinery occupying generally about one-half the room which has hitherto been considered requisite, and the absence of vibration enables the mill to be of lighter construction than that which is necessary where mill-stones are used.

The system may be partially applied where it is considered undesirable to replace the existing machinery altogether, and a proportionate advantage will by this means be gained; for instance, where it would be considered an advantage to grind higher with the stones were it not for the difficulty experienced in cleaning the bran, a partial system may be erected to operate upon this thick bran, and although the result will not be so satisfactory as when the whole process is adopted, yet a material advantage will be gained.

The question of power is always a most important matter; and in regard to this I may mention that after taking the average of five different mills, all working upon this system, it has been found that more than 40 pounds weight of wheat have been completely reduced to flour and offals per one effective horsepower and per hour, inclusive of the power absorbed by the cleaning machinery. It may perhaps interest some gentlemen present to compare this result with the work performed at their own mills.

Within a period of somewhat more than two years Nagel & Kaemp's system has come into operation either partially or entirely, in thirteen different mills, and several are now in course of erection or construction. It has been tried in England, France, Germany, and Hungary under widely different circumstances, but with an unvaryingly satisfactory result.

#### IMPORTANT NOTICE.

TO THE PARTY RECEIVING THIS PAPER WHO IS NOT ALREADY A PAID SUBSCRIBER.

We hereby extend to you a cordial invitation to become a subscriber to the UNITED STATES MILLER. We shall endeavor to make it of the greatest possible use and benefit to the milling fraternity, and no mill should be without it. The best talent that we can obtain in this and other countries will contribute to its columns, which will also be enriched by carefully translated articles on subjects of interest to the craft. Subscription price, \$1. Enclose money or stamps in an envelope, seal carefully, and send at our risk. By return mail you will receive a receipt therefor. Address

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A COMPLETE INVESTIGATION OF THE SUBJECT BY ONE OF THE LEADING CHEMISTS OF EUROPE.

Flour in General—Wheat Flour—Rye Flour
—Barley Meal—Oat Meal—Indian
Corn—Rice Meal.

[Translated from the German of Dr. Herman Klencke expressly for the United States Miller,—cuts reproduced by our special engraver from the original.]

[Continued from July number.]
For the purpose of completeness and to en-

able our readers to apply the comparative ex-

amination by means of several different

methods, we mention a few more of them

recommended by chemtsts, which have by ex-

perience also been shown to be practicable. A

very accurate method of examination is car-

ried out by Donny, which is based upon the

fact discovered by Payen, that a weak solu-

tion of corrosive kali which has no perceptible chemical influence on the starch particles of wheat, but has such influence on the potato starch as it increases perceptibly the volume of the particles. Keeping this fact in mind, some of the suspected flour is spread on a small glass (the object bearer of a microscope), its particles examined so as to become familiar with their form and size with a microscope or strong magnifying glass, then dissolve in a weak solution of corrosive kali (about 11 to 2 parts in 100 parts of distilled water), and the examination will now show that the particles of wheat starch will hardly change at all, while the particles of potato starch will expand into large, thin and translucent plates. This phenomenon may be rendered still more striking by adding a drop of a solution of iodine to the flour while it is dissolving, whereby the particles become of a bluish violet color. Potato starch by the action of corrosive kali is increased in volume from 12 to 15 times above that of wheat starch. Robine mixes 10 g. of wheat flour with 4 g. of bicarbonic natron (natron bi-carbonicum), and gradually and in small portions adds 1-16 L of water. When well mixed it is put into a glass, and in small portions diluted (wine) vinegar is added (2 to 3 spoonfuls of vinegar and 1 spoonful of water). It will effervesce, and a foam will be produced which is formed by the gluten and a portion of the starch. He now continues the adding of the diluted vinegar until it has entirely ceased to effervesce. Then he takes off the foam, puts it in a liquid which consists of 1-32 L of a watery solution of iodine and a small quantity of alcohol. If the flour is good and pure the liquid will be rose-colored, as in the method of examination which we have before recommended as the simplest, and this rose color will disappear in a short time; but if the flour has been adulterated with potato starch the sediment will divide itself into two parts, the lower part blue which will not lose its color again, and the upper lighter color which will soon lose its reddish color. The lower sediment then is potato starch, the upper, wheat starch. Another method is that of the apothecary Carakin, in Toulon. A tin measure which will hold 2 g. of water is filled entirely with the suspected flour, and is then levelled by passing a straight stick or piece of board over it so that the measure is exactly filled. Then the flour is put into a flask with a glass stopper, but which must be rather wide at the neck, and hold about 50 g. of water. The flask has two marked lines, one showing the measure of 20 g. and the other that of 40 g Before putting in the flour, the flask is filled to the lower mark (20 g.) with a liquid which consists of 80 parts solution of kali (of 1° areometer) and 12 parts of alcohol (at a temperature of 12°) of 34°. Now the glass stopper is put in and the flask shaken for two minutes, and then the mass is filtered through common filter paper into a cylindrical glass, which has marked lines for 1 g, and for 10 g. of water. If the filtrated mixture has now filled the glass to the lower graded mark (1g.), water is added up to the second upper mark and the cylinder well shaken, so as to mix the contents well. Then 5 drops of acidized solution of iodine are added, that is to say 5 dg. of pure iodine dissolved in 50 g. of alcohol and then combined with 50 g. of pure pyroligneous acid (of 7°). If a greenish yellow color is produced by this addition of iodine after having been shaken, there is no potato

starch in the flour; if a dark green, there is an admixture of 5 per cent of it; if a bluish green, 10 per cent; a grayish blue, 15 per cent; a sky blue, 20 per cent; a dark blue, 25 per cent. Mayet has recommended a process which is based upon the consistency which a solution of corrosive kali imparts to the grain flour and potato starch. The consistency of the latter is much greater. By this process, 1-20 of potato starch in the flour can be detected. First the gluten is withdrawn from the flour in the well-known way, and for experiment 100 g. for example may be taken; the starch contained in the water is left untouched for some minutes; if it contains potato starch this will first settle on the bottom, and when the fluid is poured off, the sediment will consist almost entirely of it, only slightly mixed with particles of grain starch. The sediment is collected on a filter, and when freed from its water parts 10 g. of it are taken, dissolved in 100 g. of water, and then 10 g. of pure wheat starch are treated in the same manner and dissolved in 100 g. of water. Each mixture is now put into a glass, both glasses being exactly alike, and each holding 125 g., and then 10 g. of the solution of kali are added to each one. After six minutes the pure wheat starch will form a thick opaque mass, but which can easily be poured out of the glass, while the potato starch has become a perfectly jelly-like dough which cannot be poured out of the glass. Martens has proved that an admixture of 5 per cent of potato starch in flour may be discerned if it be grated finely in a very hard mortar (crystal). If water is added this will, after a few minutes, dissolve a little of the flour. The filtration will then yield a clear liquid, which will become blue from a solution of iodine, if there is potato starch in it, but will retain its clear color when the flour is pure, doubtless because the particles of wheat starch are finer and, surrounded by their gluten husk, were not pulverized in the mortar, and because only the inner central part of them is capable of being dissolved in cold water. There are still other methods of examination, but these may be left unconsidered here, since they are in reality based upon facts we have already mentioned. Wheat flour is also very often adultered with other grain flours that are cheaper, especially with those of maize, rice, rye, barley and oats. This the microscope principally will disclose, since the starch particles of the flours named have different and characteristic forms. We refer to the engraving which we shall furinsh when treating specially of each of the flours named. A particular adulteration of flour is practiced in England, where a certain mixture of flour which goes by the name of "Cones Flour" is produced and sold for the purpose of adulterating other kinds of flour. This flour is a common article, and in daily use with bakers in England; it is said to be used in Petersburg also, and there it is pretended to be the product of a special kind of wheat which is called revet. This "Cones Flour," as has been disclosed by examinations with the microscope, is not always the same; it often consists only of rice meal, mostly of a mixture of wheat, rye, barley, rice, bean and Indian corn meal; even salt and alum, carbonic lime and carbonic magnesia. When wheat flour is not missing entirely, it is found in only small quantity in the mixture.

[To be continued.]

ADVICE TO BATHERS .- With a view of diminishing the loss of life which annually occurs from drowning, the Royal Humane Society of England issues the following seasonable advice to bathers: "Avoid bathing within two hours after a meal, or when exhausted by fatigue or any other cause, or when the body is cooling after perspiration, and avoid bathing altogether in the open air if, after being a short time in the water, there is a sense of chilliness, with numbness of the hands and feet, but bathe when the body is warm, provided no time is lost in getting into the water. Avoid chilling the body by sitting or standing undressed on the banks or in boats, after having been in the water, or remaining too long in the water, but leave the water immediately if there is the slightest feeling of chillness. The vigorous and strong may bathe early in the morning on an empty stomach, but the young and those who are weak had better bathe two or three hours after a meal; the best time for such is from two to three hours after breakfast. Those who are subject to attack of giddiness or faintness, and who suffer from palpitation and other sense of discomfort at the heart, should not bathe without first consulting their medical adviser."

National Association of British and Irish Millers.

FIRST ANNUAL MEETING.

The First Annual Meeting of this Association was held on Wednesday afternoon, June 11, in the hall of the Worshipful Company of Bakers, Harp Lane, London, E. C., under the Presidency of Mr. Alderman Hadley, for the transaction of general business, and for hearing papers upon matters of vital importance, read by gentlemen connected with the milling interest. There was a large attendance.

The President, who was received with ap-

plause, said: Gentlemen, I find, upon refer-

ence to our proceedings in the past, that there

are really no minutes to be presented to the

meeting, because the last meeting was an in-

augural meeting. This is really our first annual meeting. Hence there is no report of our previous meeting to be presented to you, but only a report of the work which we have done during the past year, which would be read by the Secretary. I find that we met for the purpose of forming this Association at the Corn Exchange Hotel, Mark Lane, on the 11th of February, 1878. It was a most influential meeting of millers, and it was resolved that this Association should be formed. We met again at an inaugural meeting at the same place on the 29th of April, when the Association was really formed. I had the pleasure of presiding over the meetings on both those occasions, and I am sure it will be within recollection of all of you how interesting were the proceedings when we succeeded in launching into life the National Association of British and Irish Millers. To-day we have met to commemorate our first annual meeting, and I cannot but think that this meeting will be as successful as those which we held last year. The Miller stated in a recent issue that the programme we have to present to-day will be of an exceedingly modest character. Now I admit that is so, and I do not know that we are to blame for exhibiting to you our modesty, as there is nothing detrimental in the character of any person or association for aiming at modesty. But while we have given you a modest programme, I venture to think and to say that the programme really submits to you questions of the most vital importance, which must affect our trade, and which will ultimately, I think, bring to bear a large and vast amount of influence upon our progress and prosperity. Although, therefore, while we confess to our modest position and programme, yet I can assure you our inspirations are somewhat of a higher and nobler character. Now I may say that the successful formation of the Association might justly be regarded as its greatest achievement. At one period it was the general opinion that it was impossible to unite millers together in one body for the promotion of their common interests. But here, as in other matters, no sooner was there a real determination that the work should be done than what was deemed an impossibility became an accomplished fact. That, I repeat, is the greatest work we have yet achieved, because it is a creative work—the bringing something into being which had not previously an existence. With existence came in due time the aptitude and fitness for action, and when these had been brought into play all things became more or less possible. Among the causes which more immediately conduced to the organization of the members of the trade into an Association, not the least important were the establishment, in 1875, of the organ of our trade, The Miller, and subsequently The Corn Trade Journal. In these papers the theory and practice of milling were discussed and explained as, in this country, they had never been before; information relating to the modes of flour manufacture in other countries, and the machines used in the work, was freely given, and for the first time British and Irish millers had an opportunity of exchanging opinions on all matters affecting their trade, thus deepening and extending their interest in it. The ordinary vehicles of public opinion supplied all they cared to know respecting the political, social, and commercial condition of other countries, but until the journals I have named were established, their information as to the system of milling practiced abroad was of the most defective, vague, and unsatisfactory character. We have during the past year brought out and accomplished work of a most important nature, in the formation of different associations and organizations throughout the kingdom. We have established in London the Millers' Association, in Liverpool an association for Liverpool and district, as well as well as associations in Northampton, Colchester, Devon County, Herts, Wilts, Dorset, Sheffield, and other parts. In each of these associations

the millers have been brought together, and are engaged in the work of mutually extending their interests. The Association took a most important part in securing the legalization of the cental under the new Weights and Measures Act. Mr. Redgrave gave us an exposition in this hall upon the new Factories' Act. That act, as you are aware, would very materially affect every mill in this kingdom, and the Association has done much to bring before the millers generally the principles of the act, so that they might conform to what was binding upon them

to what was binding upon them. The subject of fire insurance will be brought before you by Mr. Appleton, who is to read a paper to you on the subject, and you will have an opportunity of discussing the best means of improvement in that direction. A meeting was held last year at Bristol, during the agricultural show week, which was the largest and most important meeting of millers ever held in a provincial town. We there formed Associations, and acquaintances, and mutual relations with one another which undoubtedly tended to promote, in that part of the country, a feeling which had not previously existed. That meeting would not have been held had it not been for our Association. I trust a similar result will be obtained this year in London at the Royal Agricultural Society's meeting, when I hope to see a large number of millers from every part of the United Kingdom, as well as from other parts of the world, co-operating with us in endeavoring to do what we can to assist our own particular branches of the trade. So far I have dealt with our work of the past. I have now to bring before you some indication of what our work must be in the future. Although during the past year the work of establishing district Associations has gone on as well as could be expected, still, if the Association is to be in the highest sense beneficial to the trade, greater efforts must be made to secure the organization of all the great milling centers of the kingdom during the present year. The question is, how is this to be done? Now there are many ways in which this could be promoted. One undoubtedly would be for us as an Association to issue circulars to all the leading millers in the various districts, and to urge upon them to gather together to consult and combine, and thus to assist in removing any evils which may exist in their special localities. Another way would be for our Secretary to go to the different localities and endeavor to organize meetings with the view of bringing members of the trade together for the purpose of explaining to them the advantages of organization. From the Commercial, Practical and Technical Committees reports had been expected, but that from the Practical Committee would only be presented. It is not my intention to detain you long to-day, because we have a considerable amount of work to get through, and I think you would prefer hearing some of the other gentlemen read their papers, which would be of greater interest to you than anything I can say. Mr. Simon and Mr. Sanderson are to read papers upon the manufacture of flour. You know that at the present time the millers throughout this Kingdom are suffering very much indeed from competition, not so much individual competition amongst themselves as from foreign competition. This alone shows the necessity for an organization of millers to protect themselves from being inundated with flour from abroad. The two gentlemen to whom Literred will read to you papers relating to the production of flour, so that possibly it may assist millers in being able to introduce some new system or other that will enable them to make that manufacture in such a way as to be able to meet this competition. To that end they should aim by getting all the light they possibly could on the best machinery and the most scientific, and, at the same time, most economical methods of converting wheat into flour. In connection with this I venture to affirm that it would be the means of doing away with local and personal jealousies if the trade were to combine heartily and frankly for mutual protection from the attack of foreign manufacturers. It is important to notice what the American millers are proposing, as exemplified by the speech made by Mr. Bain before the convention just held. In the course of his address Mr. Bain said:-"I see no reason why, with cheap fuel and large water power, cheap transportation, late improvements in the processes of milling, and first-class machinery in nearly every large mill in the United States, a bushel of wheat should leave this country except in the shape of flour. While our English friends justly ridicule the proposition of one of our Pennsylvania members, who seriously suggested an export duty on wheat, they kindly furnish us a Roland for our Oliver in the person of a Lincolnshire miller, who just as seriously suggests, as the only remedy for the decadence of the British milling interest, the taxation of American flour, while American wheat should come in duty free." Now that gives us a clue to what we are threatened with from America, but it is not in protection nor in reciprocity to which we must look for relief. There is nothing to hope from that means, and it is folly to expect any permanent benefit from the adoption of reciprocity.

The Conservatives are now just as deeply committed to free trade as the Liberals. Only recently, the chief of the Conservative party, and leader of the present Government, utterly scouted the idea of adopting reciprocity, denouncing it as a phantom protection in disguise. Reciprocity means retaliation, and we as a country have been engaged in taking off duties, and showing to the world that we can, consistently with free trade principles, carry on a commerce unrivalled by any other nation. Our American brethren are, in consequence of the very high tariff on machinery, suffering from protection. They cannot avail themselves of the advantages of English invention and manufacture. They are thus placed out of the market as competitors, as his friend and confrere, the President of the American Millers' Association, had stated. You may have noticed recently, that there had been a large contract from America for English steel rails, which quite justified the observation I have made in reference to the position of America. I believe there is a duty of something like sixty per cent on steel, and with all their protection in America they were able to come to the English market and buy a better quality at cheaper rate.

In reference to the flour trade England is peculiarly situated. We are the receivers of the whole surplus produce of all the grain producing countries in the world, whether America, India, Australia, Russia, Germany, Turkey or Hungary. The position of the English miller is, therefore, peculiar, as the various kinds of grain possess a different nature, and require different manipulation. He was thus ever changing, as one or other of these countries was favored with an abundant harvest or visited by a scanty one. Some seasons the English millers were inundated, as at present, by the American surplus of wheat, in consequence of a good American harvest, and this wheat required its own peculiar treatment. In other seasons, when America had not such a good harvest, English millers would manufacture their flour from the excess of Russian, Turkish, or Hungarian wheat. At another time they might be using, to a very large extent, the products of British India. They would also at another time be drawing a large supply from their Australian colonies, and in each of these cases a distinctive treatment and manipulation must be adopted. In consequence of this state of things English millers enjoy advantages possessed by no other flour-producing country-advantages which it is our duty to turn to the best account. There is one country which I have omitted to mention, and it is a country which I think will soon exercise a vast influence upon the English market, and it happens to be one of our own colonies, viz., Manatoba, in the extreme northwestern States of North America. Manitoba we shall be able to get wheat in larger quantities than we are receiving from

Milling in England might be saiusto be in its infancy, and the nature of the raw material to be converted by the manufacturer into the finished product ought to be thoroughly understood. With the physical properties of wheat every practical miller is, no doubt, more or less familiar, but it is to be feared that a great many would come off very badly were they subject to a moderately rigid examination with regard to its chemical composition. That is a subject to which we should devote a special study, because a due appreciation of the chemical composition of wheat is necessary to enable us to discover the best methods of converting it into flour. Hitherto there has been no attempt in England, as was made long ago in Paris, and more recently in Vienna, to establish standard samples of flour or rather an approximation to standard samples. Could nothing be done in this direction? That was a question well deserving the attention of the Council and of the Association. Regretable though it may be for me to have to admit it, our manufacturers have hitherto proceeded more on the "rule of thumb" process. A scientific insight would soon solve the problem as to the best method of treating the grain, whether we are to have "high grinding," "half-high grinding," the American new process system, the Austrian roller system, or the

English "flat grinding" system. Whatever could be done by other millers, whatever quality could be produced by others, could be done and produced by England. We are not prepared to admit superiority in others. It is a question simply of the intelligent adaptation of means for the accomplishment of definitely proposed ends, and it would be a libel upon our understanding and enterprise to suppose that, with the ample means at our disposal, we are so incompetent in their use as to be unable to produce flour which shall be equal in all that constitute excellence to any producer in any part of the world.

#### New Zealand as a Field for Farming Emigrants.

[The following valuable information in relation to farming in New Zealand has been sent in reply to a series of questions addressed by the editor of the Mark Lane Express to Mr. John Simpson, now of St. John's College, Auckland, New Zealand]:

1. Would I Advise Any One to Come Out Here?—No; for two reasons. First, because I made up my mind before leaving the United Kingdom that I would never be the means of inducing any one to emigrate, whether relative or acquaintance, for fear of after-regrets. Second, as I intend returning myself, it would look rather out of place my advising others to do what I could not or would not do myself. Notwithstanding this, I will give the required information in the most unbiassed manner, and your friend may depend on its truthfulness as completely as if he was on the spot, and had personally collected the information, judging for himself accordingly.

2. Does Farming Pay Well?-Evidently, by what I can hear from the working and gentlemen farmers about here, there is not much money to be accumulated by any branch of farming; but an industrious man with capital may acquire property, both in land and stock, which will enable him to live in comfort and independence, and be a valuable inheritance to his family years hence, when the population has quadrupled, which it will not take so very long to do. The great point in New Zealand is, that every man possessed of health, perseverance and industrious habits can have a home of his own, where he needs call no man master, and where he can have all the comforts of life, untrammelled by restrictions as to the working of his land, game laws, or any of the burdens or grievances of the old country. This very facility of obtaining a comfortable living to some extent retards the development of the country, as great numbers of people, when they find themselves in moderate comfort and independence, make no further efforts to improve their position.

3. Modes of Farming.—Small farmers possessing, say, from 50 to 150 acres, mostly keep a dairy, growing green oats and Indian corn, which can be had in succession all the year round, and does admirably instead of turnips or mangels, not only during the winter months, but during dry weather in summer when the pastures are burned up, a time when such a supply is actually of more importance than in winter. The produce is mostly made into cheese, for which an average of 7d per th. is obtained. Near towns butter is made, for which during the spring and summer from 9d to 1s per pound is obtained, and in autumn and winter from 1s 4d to 1s 9d per lb. Such men have a field or two of wheat and a few acres of potatoes, the land being laid down again with clover and grasses, without manure of any kind during the course, and sometimes they take four, five, or six crops of wheat in succession from the same field. Over 200 acres, some of them have all sheep, keeping every acre in grass, and growing nothing that will involve labor, not even a field of meadow-hay. This is a bad system, and engenders lazy, idle habits; and the land being overcrowded with stock for the sake of a big clip of wool, soon becomes poisoned, and the young sheep are hard to bring through the rainy season, many dying, which are just left to rot where they fall-months after the deaths being quite able to be counted by the little heaps of bones scattered over the fields, showing very powerfully how labor is avoided in all countries where it is scarce and dear. Sheep-farming has paid badly this year, wool being so low-from 10d to 1s for washed, 7d to 8d for wool in the grease, and 6d per tb. for lambs' wool. Splendid lambs have been sold for 8s each-in fact, the very pick of the flock -running down to 2s 6d for middling and inferior. Larger farmers combine cattle and sheep farming, providing nothing for the winter but a field or two of hay to throw on the grass during the spring, or they may grow a field of oats and cut it green for hay, which makes splendid fodder. It is astonishing how little labor these men employ; on a thousandacre farm there may be only two men, and

these almost continually on horseback, dashing about like the wind. They are splendid horsemen, quite as good as Mexicans, and with their long stockwhips, which they crack like a pistol, they almost take a bit out of the hide of a refractory bullock. A neighbor of ours, Mr. William Taylor, owns 12,000 acres in fee; what you would call his home farm being here, and consisting of 1,000 acres, carrying 2,500 sheep and a lot of cattle and horses, and the remainder in the valley of the Waikato, about sixty miles from Auckland. All this property is managed by himself and sons, the latter being splendid horsemen, and fashionable gentlemen as well. Mr. Taylor, although a very wealthy man, and a director of the Bank of New Zealand (you can see his name in the Times any day), says this vast property makes very little money, but will become exceedingly valuable by extension of the railway system. He feeds splendid bullocks -three-quarter bred short-horns and pure Herefords-and these animals, weighing 8 cwt. each, make only about £12 on the average. He sold great numbers of sheep this summer, after clipping, to the boiling down establishment, at 2s each, and many of them were very good animals; but for cast ewes, no matter how good, their unavoidable fate is to be melted down.

4. GETTING A FARM.—There is no difficulty in getting a farm almost anywhere, but really good land is not often in the market, and must be waited for and watched, as 50 acres of real good volcanic land is better than 500 middling scoria, or indifferent clay. The farmer whom I have already mentioned as having had on a pet field 55 bushels of wheat per acre, would not part with his farm, which is his own property, at £50 per statute acre, and he has 63 acres or thereabouts. Six pounds an acre is about the lowest price for which land worth having can be obtained, and it will not be all cleared at that; but there may be a house on it, some offices, and a few fenced fields about the house. Ten pounds an acre will buy fair feeding land, and by chance all might be cleared and fenced at that price, but not often, although the whole money down, to a needy man, sometimes secures a bargain. A farm of 463 acres was bought the other day by a Scotchman I know at £15 an acre, and is considered worth the money, although no particular bargain, one-fourth in cash, and the remainder on mortgage at 7 per cent, which is easier than bank terms, but is still a considerable burden. I have clipped out the advertisement of this farm, which will show you how such things are described. I may mention that this very Scotchman incautiously went too far into the country last year, in his anxiety to settle, and was driven off by the Maories, after ploughing and laying down to grass and clover 80 acres. He got about 600 acres very cheap, and had paid an installment, but the man who sold could not give a good title, and hence the interference of the Maories, from whom it had been bought honestly enough; but the deeds were imperfectly signed, a common defect with the Aborigines, and as they almost always regret parting with their land, if there is a flaw they are sure to take advantage of it.

5. BEST PART OF THE ISLAND.—The province of Auckland alone contains 171 million acres, and, possessing a magnificent climate, is decidedly the favorite with those who can afford to choose a particular locality. The whole island is very well described by comparison thus: North Auckland, say from Whangarcie and the Bay of Islands to Cape Maria, is like Spain; South Auckland, com prising the Waikate, Piak, Tamanga, and Poverty Bay, France; south of the North Island, and north of the South Island, England; and Otago and Westland very fairly represents the climate of Scotland, as it has frost and snow enough to please any Aberdonian. In any part of either island farms can be had in abundance of all sizes, and if a man wants a larger place than he has money to pay for, he can always borrow on mortgage, by paying one-half, three-fourths, or a fourth in cash. In stocking but little money is required, as will be seen by the prices quoted; but even in this, money or stock will be gladly advanced by salesmen and commission agents, who have the banks at their back, and are only too glad to be asked; but for all that, happy is the man who keeps out of debt, although, at the same time, it is perfectly consistent with good management to borrow a reasonable sum. Land is got on lease occasionally; but the practice of hiring land is as yet the exception, and not the rule, some of the best farmers I know being men paying a large rent, however, and their practice, in having wheat and potatoes in large quantity, and using bone dust, is an example to the districts where they live.

6. CLIMATE.—In the North Island simply delicious, particularly north of Lake Zaupe, but all exceedingly healthy for Europeans, and cattle can live out throughout the winter and do well.

do well. 7. SAFETY OF LIFE AND PROPERTY.-Not more so in the world, and there being little or no real poverty, and a living easily made, there is little temptation to plunder, and the population is as yet too small scattered to contain or hide disreputable characters, and the law is also well administered, by a splendid body of police and resident magistrate in each district. With regard to the natives, they are very quiet people about Auckland, working for the farmers, fishing, and selling fruit, fowls, fish and mushrooms about the town, in the quietest and most unobtrusive manner possible. I speak from experience in this as well as in everything I have already said, as we live near the native settlement of "Oraker," a splendid block of land adjoining the Pacific, which they could never be got to part with, and are hemmed in by the whites. These people live mostly on pork, potatoes, sharks (which they catch in great numbers), and a kind of shell-fish called "pi-pis," which they collect in immense quantity, wash the shells clean of sand, then cook until the shells open, take out the contents, and string them on threads of the native flax, hang them on the fences to dry, when they keep good for months. There is a pi-pi bank just under our house, where a party of men and women often come, and remain a week or ten day, working most industriously between the tides, and sleeping round the oven, which is a deep hole in the ground, heaped up with pebbles which are made red hot by a fire at the bottom, covered with bags, and sand heaped over all, so that no heat is dissipated or lost. This is an admirable oven, and fish, pork, potatoes, and herbs, such as tender thistles and fernroots, are cooked by it in the most delicious manner, the flavor of the different articles being thoroughly incorporated by the confined steam. The ground all round is well warmed by such a huge fire continually going for the preparation of the pi-pis, and the whole company of men, women and children, when night comes, just roll themselves up in a blanket, and in a circle, with their feet to the fire, sleep the sleep of the just, until the returning tide calls them again to their labors. The only inconvenience their presence creates with us is their borrowing habits, the women borrowing tea, sugar, bread and wearing apparel, and the men a boat mostly, these things being a grear temptation to them. When it becomes tiresome, however, and they are refused a couple of times, they cease coming, and altogether they conduct themselves in the most good-humored manner. In the interior they are sterner, and possess more of the nature of the savage than those who are living surrounded by white men; and no stranger to the country should ever think of settling amongst them, or of buying land direct, as he is sure to be the loser, as I have already given you an instance. There is no necessity for doing se, as Government negotiates the purchase of native lands in immense blocks, taking plenty of time (even years) to get all the tribal signatures, and then selling in suitable sections to the settlers, giving a Government title, which can never be gainsaid or annulled; so that any man trying to purchase a farm from the natives direct is a fool for his pains, and pays dearly for his greed or silliness. They are anxious enough for the money, but when that's received do not like to part with, he land, and after a few months bring forward a few families of the same tribe, who, they assert, had an equal claim, and either require more money or instant resignation of all claim; and, being the strongest party up there, they are not slow to enforce their demand, driving off all stock on the instant as a preliminary to what is to follow; and 40 or 50 tattooed men, with no dress on save a shawl or half blanket strapped round their loins, coming across a man's fields with hostile intentions, are no bad inducement to cut and run. To sum up this query, the native element in New Zealand is no hindrance to the safety or prosperity of the white man, and need deter no man from coming, a fact of which one finds the truth almost the instant he steps on shore, as the first thing that catches his eye is groups of tattooed men and women sitting on the wharfs, steps of hotels and public buildings, or on the pavement, smoking, laughing, chatting in Maori, eating pumpkins and melons, or offering such things for sale, and he sees instinctively that the day of danger from these people is past; accepting the fact on the instant by his own judgment.

8. Kind of Business.—Undoubtedly a man possessing a trade, such as builder, engineer,

carpenter, draper, or grocer, and £2,000, can do well; but to enter on any trade in New Zealand, or embark in any unknown business, means bankruptcy sure and certain. Rents are terribly high, a country hotel even, of any standing, commanding a rent of from £12 to £15 a week; and a hotel in Auckland the other day, the United Service, was let at £12 a week for 21 years, £3,700 in cash, and the tenant to build a large wing at his own expense, which he has now got nearly finished. If a farmer, a farm is the only opening which affords him security for his capital, and he must, wages being so high and worth a man's while saving, lend a hand at all operations himself, and make his family do the same, or he will scarcely succeed; and it really pays well to do so, and in a new country it is no lowering of caste to do it, and is much pleasanter than most people suppose, and when a man and his family, by doing their own work, can save the price of two or three men and women servants, perhaps amounting to £5 a week, the fatigue of labor is forgotten. At 5 per cent, the interest given by the banks, a man's money is fructifying while he is looking about; and, above all things, he should be in no hurry settling till he knows the country, and can, to a great extent, judge for himself.

Conclusion.-New Zealand is a country people soon get fond of, on account of its splendid climate, the abundance and cheapness of the necessaries of life, and the feeling of security, comfort, and independence which seems to float in the air, and becomes part and parcel of a man's spirit almost at once-at least, as soon as the home-sickness wears off, and he can look about him. Few people care about returning to the old country for good after having established themselves comfortably here, and most of those who do so return again, finding life insupportable in the old country, friends probably being dispersed, and their very modes of thinking changed. Most people, however, are very fond of taking a trip for a year or so to the land of their birth, finding pleasure, I dare say, as much as any thing, in showing their children the old andfamiliar scenes, and introducing them to relatives and old friends, and the young people themselves are mad to see the land they have heard so much of, and nearly every ship and mail carries away a number of passengers of this kind, many of them substantial and wellto-do now, and who a very few years ago left home very humble people indeed. The people about here wonder that I myself should ever think of going back to a country where poverty and want cannot be kept out of sight even of the palace, where independence in an humble man is simple impertinence, and where a living has actually to be struggled for; to say nothing of the severity of the winter, a thing unknown up here, frost being seldom ever seen, snow never, unless on the tops of very high mountains. They say if I do go I am almost certain to return amongst them again, but they also say that if I remain two years or so longer, I will laugh at my folly in ever thinking of leaving such a beautiful country, where life, aided by the bounteous gift of nature, both by salubrious climate and fertile soil, is thoroughly enjoyable.

TO RID THE MILL OF DUST .- The stones should be surrounded as completely as possible by a movable covering of wood or sheetiron, which should have no opening in front, but what is absolutely necessary for the work. In order to avoid the choking up of the ventilating pipes, it is necessary to provide special discharge pipes for the water, according as the stones are partly below or entire above the floor. Again, the passengers intended for carrying the dust should be placed underneath the stone, and beyond the point where the work is applied, regarding the direction of motion; it should have a breadth a little greater than that of the stone, and a depth of eight inches at most, for the largest stones, a sliding door serving to close it whenever dry dust is not produced. The water discharge pipe should also have a valve, which may be closed when water is not used, and when it is desired to carry off the dust produced when the stone is trued. If there are only four or five stones in the work, a single collecting pipe will suffice, and the blower should be placed at the end; but if there are eight or ten stones in one line, a second collector, sixteen inches by twelve, may be placed in the middle of the length of the first, and perpendicular to its direction. If, too, there are two long parallel rows, with eight or ten stones in each, they should be connected with the second collector, or with a third, 16x20 inches, communicating with the ventilator.

#### Minnesota Millers.

In answer to the special call recently made, the Minnesota Millers, in fair numbers, met at the Nicollet House, Minneapolis, July 1st, W. P. Brown, President, and F. S. Hinkle acted as Secretary. C. C. Washburn in his remarks said he had no doubt but that the sub-Executive Committee of the National Association had acted in good faith. J. A. Christian explained the proceedings of the committee in effecting the compromise. He reviewed the interviews with the representatives of the Barker, Downton and Denchfield patents." The Barker patent, represented by Judge Hill, was decided to be worthless and so was the Denchfield patent, and the committee determined to fight them. The agreement, as Mr. Christian understood it, with the Downton folks was that the millers should pay a scale of royalties when Mr. Downton obtained a decision in his favor, in the United States Supreme Court, but he noticed that it had been changed and published that the royalties were to be paid when a decision was obtained in Circuit Court instead of Supreme Court. The Smith brush patents were considered by the committee as the only ones which were indefensible, and acting on the advice of an attorney, Hon. George Harding, they settled with the Consolidated Company, and thereby evaded a large amount of litiga-

Mr. Washburn asked whether Mr. Harding was retained by Downton. Mr. Christian answered that he believed some such arrangements had been made both with Downton and the Consolidated Company, and that Harding had promised the latter, in case the settlement with the millers was made, to help strengthen their title to the brush.

Mr. Cahill called attention to the circulars sent out by the Executive Committee, which he thought were calculated and intended to intimidate the millers.

Mr. Williams wanted a little information about whether the association were still going to contest the Cochrane patents in the Supreme Court.

Mr. Cahill said that the last circular issued by Secretary Seamans was merely an advertisement for the Smith machines. It looks as though the committee had gone in "cahoots" with the Consolidated Company.

Gov. Washburn said he did not like the looks of the thing. He didn't impugn the motives of the Executive Committee or charge collusion of Mr. Harding, but he would have preferred that he had not accepted a retainer from one party and suggested acceptance from another. In speaking of the brush, Mr. Washburn said that he thought there was no doubt that the first automatic brush was put on by George T. Smith in his B mill. He thought there was no doubt that he got his idea from La Croix.

He did not believe, first that Geo. T. Smith invented the brush, or second, that if he did inventit, it was a patentable thing. If the Smith patents were valid, then there was no use fighting them, and the sooner the millers settled with them the better it would be. He did not believe the Smith claim to the brush was good. It was a fraud and was in the hands of the very ring of scoundrels they had been fighting all along, and he did not feel like surrendering to a gang of rascals who had been defeated at St. Louis and then came to Chicago under another guise and effected a compromise. He had 50 machines and he did not propose to pay a cent of royalty until he was forced to do so by the Courts. As to the Downton patent, according to Mr. Christian, there had been an imposition practiced upon the committee in the substitution of the Circuit Court for Supreme Court. He thought that if the association did not fight it, Mr. Downton would on an ex parte hearing get a decision in his favor and then the outsiders would not be liable to any more damages than the royalties to be paid by the members of the association. He didn't believe he had the slightest right for that process. It has been used for twenty-five years, and every one knows that in the use of rolls, the effect is to get out the germ. Under these circumstances his claim that he has a process for getting out the germ is perfectly absurd. He said Mr. E. P. Allis had a perfect assignment from Down-

President Brown then said he had just received two communications from Mr. Allis, which, if Mr. Washburn would give place for a moment, the Secretary would read. The Secretary then read the explanation of the Downton-Yaeger suit at St. Louis, concerning which there has been so much dispute, as furnished by Messrs. E. P. Allis & Co., which has already been published in the Unresp

STATES MILLER. A rambling description was then entered into which proceeded to considerable length about different patents. Gordon E. Cole, attorney of the Minnesota Association, being called upon, made some remarks in which he advised the payment of the \$25 royalty for the use of Smith's brush.

To test the sense of the meeting Mr. Cahill moved that the Minnesota Millers' Association defend any member of this association against any suit brought by the Geo. T. Smith, or Consolidated Purifier Company, against them for use of brush, or any other device claimed by that company. Mr. Fletcher wanted to know whether it would be considered bad faith to aid the fight and at the same time pay the \$25 for each purifier.

Mr. Baker submitted the following as a substitute for Mr. Cahill's motion:

Resolved, That this State Executive Committee are hereby instructed to contest all suits brought against members of this association for infringements on purifier patents, except the Geo. T. Smith patents on the combination of air blasts or suction with vibrating sieve and brush.

Mr. Pettit thought that it would be impolitic to instruct the Executive Committee to defend all suits, as there might some suits arise which no one would want defended.

Mr. Baker changed his substitute by adding the words "if in their opinion such patents are invalid." The substitute was put to a vote and lost.

Mr. Fletcher moved as an amendment:

Resolved, That any member of the State Association may have the privilege of settling with the Consolidated Middlings Purifier Company on the basis as recommended by the Executive Committee of the National Association at Chicago, and not be considered as acting in bad faith, provided said parties pay such assessments as are levied by the association.

The motion to amend was lost.

The question recurred on the original motion by Mr. Cahill.

Mr. Pettit thought that after having expressed so much faith in the good intentions of the Executive Committee, and having submitted great matters to their judgment, it did not look well and was not just to them to repudiate their action the first time their judgment was contrary to the feelings of the association. He thought that the State Association, having become part of the National Association, ought to abide by the action of the National Association. It would be both unjust and unreasonable and unwise to do otherwise.

Mr. Brown thought that after the members of various other State Associations had endorsed the action of the Executive Committee at Chicago, it would throw the greatest firebrand into the camp of the National Association and please the Cochrane folks better than anything else to take the action proposed by Mr. Cahill.

Mr. Cahill submitted his motion in a little different form in the shape of the following resolution:

Resolved, That the State Millers' Association defend any member of said association against any suit brought by the Consolidated Mildlings Purifier Company against them for the use of the brush on middlings machines.

Mr. Washburn moved the reconsideration of Mr. Fletcher's amendment, and it was adopted

Mr. Cahill's resolution was then submitted and voted upon.

Upon demand by Mr. Christian the ayes and noes were ordered.

Mr. McClure said that he proposed to stand by the State Association, but he thought the time had passed when the State Association could afford to stand in opposition to the National Association, and that it would be a mistake on the part of the State Association to

have a side fight.

The call of ayes and noes being made, resulted as follows:

Ayes—Messrs. Dunwoody, Cahill, Croswell, Hinkle, Syme, Officer, Loring, Washburn and Fletcher—9.

Noes—Messrs. Hobart, Pettit, Rollins, Day, Hineline, Espenscheid, Kimball, Taylor, Seebach, Barber, Goodrich, Holmes, Crocker, J. A. Christian, Baker, Gregg, Bronson, Sprague, Ortman, Walcott Mill Co., White, Williams, Green, McClure and Brown—25.

Mr. Cahill's motion was thus lost, it being

the evident determination of the great majority of the members to stand by the action of their representatives at the Chicago convention.

Upon motion by Mr. Baker the convention then adjourned sine die. And thus ended the rebellion.

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Milling and Baking in Pompeii.

In the excavations made at Pompeii,—that remarkable city covered by the great eruption of Vesuvius, A. D., 79,—some very interesting discoveries were made of the modes of milling and baking employed by the people of that city and of that day. A large bakery occupying an entire house was unearthed in the streets of the Herculaneum. The inner court was occupied by four mills. These crude mills consisted simply in huge stones, set one upon another, in appearance much like a large hour-glass. The lower stone remained firm while the upper was revolved by means of an apparatus kept in motion by a man or a donkey.

Slaves were often sent to the mill, sometimes having their eyes put out as a punishment for misbehavior. Occasionally persons of good position, hired out to millers and performed this work to earn money to spend in the gratification of their dissipated habits.

The primitive Romans made their bread in their own houses. Rome was already nearly five hundred years old when the first bakers established mills, to which the proprietors sent their grain, as they still do in the Neapolitan provinces; in return they got loaves of bread, that is to say, their material ground, kneaded and baked. The Pompeian establishment which we discribed was one of these complete bakeries. One can still recognize the troughs that served for the manipulation of the bread, and the oven, the arch of which is intact, with the cavity that retained the ashes, the vase for water to besprinkle the crust and make it shiny, and finally, the tripleflued pipe that carried off the smoke-an excellent system revealed by the Pompeian excavations and successfully imitated since. The bake-oven opened upon two small rooms by two apertures. The loaves went in at one of these in dough, and came out of the other baked. The whole thing is in such a perfect state of preservation that one might be tempted to employ these old bricks that have not been used for eighteen centuries for the same purpose—the very loaves have survived. In the bakery of which we speak, several were found with the stamp upon them, "Siligo grani" (wheat flour), or "e cicera" (of bean flour), a wise precaution against the bad faith of dealers.

Still more recently, in the latest excavations, Signor Fiorelli, the Government engineer, came across an oven so hermetically sealed that there was not a particle of ashes in it, and there were eighty-one loaves, a little sad, to be sure, but whole, hard and black, found in the order in which they had been placed at the time of the destruction of the city. Enchanted with this windfall, Fiorelli himself climbed into the oven and took out the prec ious relics with his own hands. Most of the loaves weighed about a pound, the heaviest a little more. They were round, depressed in the center, raised on the edges, and divided into eight lobes. Loaves are still made in Sicily exactly like them.

AN ELECTRIC STONE DRESSER .- Mr. J. G. Cranston, engineer, Newcastle, England, whose name is favorably known in connection with rock drills, air compressors, and coalcutters, has just invented a machine which is worked by a dynamo-electric machine, and which he claims will dress mill-stones or other stone, and drill rock economically, with rap idity, precision and dispatch. The invention, which we have seen at work is an ingenious one, and, judging from the trials of it that have been made, it promises to meet with considerable success. The chisel employed is fastened to a spring arm, which protrudes from a case containing magnets and armatures. This spring arm when the magnets are connected with the dynamo-electric machine, moves up and down with extreme rapidity, causing the chisel to strike a blow at each de-The inventor states that it can be made to strike from one to two thousand blows per minute. Wires being used instead of steam pipes, enables the apparatus to be moved readier to any angle, or worked at any reasonable distance without much loss of power; while not the least meritorious portion of the whole invention is the horizontal frame or base to which the electric apparatus is fixed. This frame is portable, and by the use of screws can be so adjusted as to cause the chisel to strike any portion of a circle with either a swift or slow motion, the number and intensity of the blows being regulated according to the softness or hardness of the stone. By the use of this machine, Mr. Cranston claims that he can cover a mill-stone in a very short space of time with the necessary groove and furrows having the straightness, regularity, and parrallelism so much desired in good mill-stone dressing. It remains to be stated that the apparatus can be worked either automatically or by hand, so as to suit the varying natures of the stone being operated upon.

#### Pennsylvania Millers.

SEMI-ANNUAL MEETING AT ALTOONA, JULY 8TH.

The State Millers' Association of Pennsylvania met in semi-annual convention in the parlors of the Logan House Altoona, July 8th. About half-past 2 o'clock Secretary A. Z. Schoch, of Selinsgrove, Pa., called the meeting to order in the absence of Mr. Miner, the President, and Mr. W. P. Duncan, of Bellefonte, of the firm of Duncan, Hale & Co., was elected President pro tem. After a few appropriate remarks by Mr. Duncan, the minutes of the previous meeting were read-the reports of committees contained in them being omitted-and they were adopted as read.

Reading of the reports of officers was the next business in order. The President pro tem stated that as he had not expected to be called to the Chair there would be no report from the President as he had none prepared.

The report of the Secretary was then read

by that officer as follows:

Mr. President and Gentlemen: During the interval of six months little of general interest has occurred within our organization to com-We have added since our last report thirty-one names to our roll, making our membership eighty-seven to date. This membership should, however, not be accepted as an indication of the success or usefulness of our organization, as we believe it is generally admitted that a decided interest has been awakened to improve the industry in which we are engaged, besides cultivating the amenities of the trade. Millers generally are becoming educated to the fact that many old ideas and methods, good in their time, must be abandoned and the improved modern appliances and principles substituted. serious obstacles in the way of the speedy improvement of our mills and methods with which we have to contend, are the numerous patent claims which have been made upon all kinds of mill machinery, so conflicting and complicated that the just and fraudulent ones cannot be distinguished, preventing the purchase of many reliable machines because of

these indefinite claims.

The Millers' National Association has to some extent endeavored to correct this evil, and has lately triumphantly succeeded in the signal defeat of that formidable organization the so-called Cochrane ring, the particulars of which are familiar to you all. lable benefits of that expensive and laborious litigation all now enjoy, but to accomplish which too few contributed material aid. view of the fact that the comparatively few have been obliged to defray the expenses which all alike should share, it is not surprising that the National Association has determined to look after the interests of her own members only, fixing a time after which those who persistently remain outside must take care of themselves. The important subject will doubtless be fully presented to you by your

committee.

At our last meeting at Lancaster (as you have heard from the minutes) a resolution was passed in substance. "That members of this Association using middlings purifiers subscribe and pay to the National Millers' Association ten dollars (\$10) per run of stone as an admission fee into that society." This action we This action we communicated to the Executive Committee of the National Association, who, upon consideration, declined to accept our proposition, assigning as their reason for the refusal, "That as members alike share the advantages, so all should equally bear the burdens of the organization," thus fixing the terms of the membership at \$25 per run, the sum previously assessed and paid by old members. Upon these conditions thirty-four run were subscribed by members of this Association previous to March 1, which number, together with fourteen run not members of this Association, make the total representation of State on that date only forty-eight run. We hope this number will be largely increased before the 15th instant, to secure the advantages named, and for the reasons assigned in the late circular on the subject issued by the National Association, which you have, no doubt, all received and considered, and are now prepared to act

In conclusion permit me to congratulate you upon the pleasing outlook for a successful business year for the miller. While the general business depression has severely affected our industry, yet we have not, like many others, been seriously embarassed, and now with the general revival of all branches of industry of which we have assurances on every hand, together with the bounteous crops all over our land, betoken for us plenty to keep us employed-a good demand for our product at remunerative prices, if we but learn, as should be our constant aim, to do our work well. Respectfully yours, A. Z. Schoch, Secretary.

The calling of the roll followed, showing forty-seven members of the Association present. Then came the enrollment of new members, and sixteen persons advanced to the Secretary's table and paid the required membership fee of \$3.

Reports of committees were next in order, and the first report read was that of the Committee on Patents:

Your committee have the satisfaction of reporting the termination, since our last meeting, of the great St. Louis middlings purifier suit, which all millers watched with so much interest. It was decided in favor of the mill-

ers. Individual members of this society lent their aid to break up this ring, but the society proper made no contribution. The patent claimed on air blast for purifying middlings has fallen to the ground. Your committee think this decision as important an event in the history of milling as was the introduction of the purifier into practical milling.

The patent on the "traveling brush" to clean the sieves of the purifier is now claimed by a number of parties. Millers should be cautious about using the brush, unless the use of the patent can be guaranteed to them by responsible parties. The contract with the George T. Smith party, made by the National Association at Chicago, is the best evidence we can get of the opinion of that body as to the ownership of the patent. Your committee are of the opinion that an "automatic traveling" brush will soon be attached to all purifiers, and that a purifier is incomplete without it, or some other device, to keep the cloth free and unclogged.

Your committee could enumerate other patents in suit which are of less importance. They again caution millers against buying patent machinery from irresponsible parties New milling devices are daily patented, and what a miller can buy with safety is as important a question as what will pay him to buy.
W. LATIMER SMALL,

NATHAN SELLERS, GEORGE M. CRESSWELL, JACOB WATTER.

The report was discussed at some length and was followed by the report of the Insurance Committee, read by President Duncan: To the President and Members of the Pennsyl-

vania Millers' Association: GENTLEMEN: Since the meeting of our Association at Reading, one year ago, at which time your Committee submitted a report, we have nothing of special importance to report excepting to reiterate what was said at that No doubt many of our members will remember that we urged the importance of taking steps for the formation of a Millers Mutual Insurance Company for the State of Pennsylvania. The milling interests of the State being large and important and the capital invested in mill property being very large, we think an insurance company organized on the mutual plan would save the millers a very large sum of money every year. Of course mutual companies, like all others, if not properly managed would not be profitable, but your Committee has no doubt a company could be organized and conducted on strictly business principles, that would make very large returns to the insured in the saving of premiums. The experience of your Committee has been that mill property is not specially hazardous, as claimed by most companies; that is, mill property in Pennsylvania. If any member of this Association will make a calculation of the mill property destroyed by fire in his own immediate neighborhood, or county, for a period of say ten or fifteen years, we think the small percentage of loss will surprise him. The Chairman of this Committee made an estimate of the losses on mill property in his own county, about one year ago, and was surprised to find that the loss, covering a period of fifteen years, did not reach two per cent, and he is confident that the losses paid by insurance companies in the same county, in the past ten years, have not been two per cent of the amount of insurance on this kind of property. Now good companies charge on the very best class of water mills about two per cent per annum. Now it occurs to us that this rate is extravagantly high. There may be other States in which the percentage of loss is higher, but we honestly believe that there is no class of property more desirable for insurance companies than mill property in the State of Pennsylvania, or none that pays the companies Now the question arises, how larger profits. are we to remedy the existing order of things and have our premiums reduced. Your Committee think the only true plan is to organize a company on the mutual plan, whose business shall be confined to this State. The Chairman of your Committee has had some correspondence with the Secretary of the Boston Manufacturers' Mutual Fire Insurance Company and learns that the average cost of insurance in their company during a period of twenty-five years has on one-third of one per cent per annum. Their business is mostly confined to cotton and woolen mills, which we should think would be more hazardous than flour mills. Much more could be said on this subject, but your Committee only expect to open the way for discussion, and hope the subject will be fully discussed by the members of the Association.

The President thought a great deal more money was spent at present by the millers for insurance than was warranted by the percentage of loss. If a mutual company could be organized he believed insurances could be effected at a very material reduction to millers. He hoped the report would be thoroughly discussed.

Mr. Frank Hayes, of Lock Haven, said that seventy-five firms were represented in the State Millers' Association, and with this number an Insurance Company could be started with risks of \$200,000. Even if each miller took but \$2,000 of insurance that would make a basis of \$150,000.

President Duncan was of the opinion that the maximum risk to be taken by a new Mutual Company should be \$3,000, as an Association just forming could not afford to assume very large risks.

After further discussion by Messrs. Hayes, Bare and Ellsworth, a motion to put a question to ascertain how much insurance each miller would take in a new company was carried.

Mr. Hawbecker's was the first name called, and that gentleman rose and said he did not wish to enter this agreement blindly. He would join a Mutual Company, but as he carried \$5,500 of insurance he did not wish to be limited to \$3,000, according to the terms of the new Association. He wished to know, therefore, if millers would be prevented from effecting insurances with other companies.

President Duncan in reply said that millers insured in the mutual society would not be debarred from going into other companies if the insurance they carried were higher than the Mutual Company wished to take.

Some further debate ensued and then Mr. Hawbecker said he would take \$2,500 in the Mutual Company, and a call of the meeting showed that the company could commence with \$88,000 of insurance, although the test was not a fair one on account of the absence of so many members who were known to be willing to join in the enterprise.

A delegate stated that no Insurance Company could be organized with less than \$100,-000 assured.

Mr. Hayes moved that the Insurance Committee be authorized to take steps to organize the Insurance Company and report at the next

A delegate insisted that \$100,000 must be subscribed and guaranteed before a charter of incorporation could be obtained.

During the continuation of the discussion it was mentioned in reply to a suggestion to that effect that a temporary organization could not be effected at this time, because all the members were not present, although Mr. Isenberg thought that the matter should proceed to the election of a President, Board of Directors, etc., merely as a matter of form to get the company started. Other members agreed with Mr. Isenberg's suggestion, but as no headway seemed to be made it was intimated that it would be well to postpone consideration of the question to another meeting, or that it might be put in shape at the evening

Mr. Ellsworth insisted that the question be referred to the Insurance Committee, they to have everything in readiness to effect an organization in a very short time at the next semi-annual meeting.

The motion of Mr. Hayes that the Insurance Committee take steps to organize and report at the next meeting, was then passed.

The report of the Committee on Transportation being called for, Mr. E. H. Hanscock, of Wilkesbarre, Chairman of the Committee, said he had no written report prepared, as little or nothing had been done since the last meeting to further the interests of the Association looking to low freights, as the railroad companies' rates had fluctuated so greatly, and had been put at a ruinously low figure by the companies themselves.

Mr. Isett, of Spruce Creek, thought the question of freights had not been done justice, and said that the Pennsylvania Railroad Company had been unjust to the millers in their rates of freight to certain points that he

Mr. Ellsworth also complained of unfairness in the freight charges, and until some other and better arrangements were made the millers of Pennsylvania would be unable to compete with those of the East and West.

Another delegate believed that it would be useless to consume time in this discussion. Unless the millers could cammand capital enough to build a line of railway from Philadelphia to Pittsburgh in opposition to the Pennsylvania road, or to go into the Legislature and compel that body to devise measures that would give them relief and justice, further discussion was of no consequence.

A member remarked that there was no hope for the millers in the Legislature, as the members of that body were all controlled by either the Pennsylvania or Reading railroads. However, if the millers chose to combine for the purpose they would be strong enough in their united power to compel some satisfactory terms. He thought the combination against them could be broken if the millers would but put their shoulders to the wheel and push with all their might.

After some further remarks were made it was decided to defer discussions until the evening session.

The following report on mill machinery and processes was then read by the Chairman of the Committee, Thomas Wright, of Kingston, To the President and Gentlemen of the Millers' State Association:

It was believed that the interests of this Association would be better served by an interchange of ideas and experience among its members than by a written report. As a gentleman of large experience recently expressed, "I have milled for twenty-five years, and my experience has included some of the best mills in the United States; I have endeavored by study to acquire all' the knowledge possible, yet what I do not know about milling would fill a large volume." This doubtless would be true of this Committee. A large amount of the present knowledge of milling is experimental, and as these experiments have all cost the experimenter something, it is not more than right that he should receive some recompense. This, in this Association, it is to be hoped he will receive in a measure from the experience of others. It has been suggested that the National Association build an experimental mill in which experiments which promise good results might be tried at the common expense, and for the common benefit. This, practicable, might be the cheaper way.

The publication in the English language of a thoroughly practical work on milling that would contain so far as possible a complete history of the various processes now in use and also a history of the most interesting of the experiments that have led to these results would doubtless be a source of profit to the author and would receive the hearty support of all progressive millers. The milling interests of this State are largely of a local character and composed mostly of small mills, but the owners of these small mills should be en-couraged by the fact that as fine a grade of flour has been produced in small mills as in the larger ones, and in many instances at rela-

tively as good a profit.

In the first step of cleaning the grain there are those who advocate the use of the ending but the majority are of the opinion that the best results are obtained by a thorough cleaning and polishing of the berry, removing the fuzz by giving as much end scouring with as little side scouring as possible. chines will best accomplish this (leaving the bran in tact) will be left to the judgment of the miller, as it would not be within the province of this report; but it is thought that the rubbing of the wheat against itself with a final brushing will accomplish the desired re-

In the process of grinding it will probably be some time before millers in general will substitute any other device for mill-stones, and much has and much more will be done to bring them to perfection. Stones now in use can be fitted with adjustable drivers, of which a number are before the public-the more sensitive the better the result. Over grinding can in a measure be prevented by enlarging the eye so that the material be quickly disposed of. stiff spindle is giving excellent results when applied to small mills, but there seems to be certain mechanical difficulties in the way of its application to large mills. In regard to rollers, their use promises to become as general as that of the purifier, but in the most mills we think will be restricted to the removal of the germ and fine branny particles by flattening them.

The gradual reduction system for obvious reasons will be practiced in this State by but The nature of the wheat mostly ground well, we think, give the most generally satisfactory result of grinding high enough not to injure the germ, then remove the germ by flattening between rollers, purify and reduce these middlings on mill-stones. For this purpose the stiff runner is perhaps preferable. For cleaning the bran there are several machines which seem to promise better results than stones, as they remove most of the adhering particles in the form of middlings. In regard to bolting and purifying, the committee have little to add to their former report.

We would suggest that the possession of a good microscope, a set of small sieves, and a delicate scale, weighing say one pound by decimal division to one thousandth, would be of incalculable service to the miller. The scales can be procured of Brown & Sharp, Providence, R. I., and the sieves and microscope of almost any dealer in mill supplies. Armed with these simple appliances the miller can intelligently determine what proportions he is making in his products and the nature of each, and will develop a spirit of inquiry that cannot help but result in good.

The above report was received without discussion, and the committee on grain for milling asked leave to submit the following, which was read by Mr. Levan, of Lancaster, the Chairman:

The proper kind of grain for milling is of the greatest importance to the miller. Improved machinery and methods will of course remedy to some extent the defective qualities of the inferior wheats, but where the variety does not contain any good properties, all the machinery and methods obtainable cannot produce the desired result. In this State the Fultz variety is the principal "thorn in the miller's side," and is partly the cause of the low standard of Pennsylvania flour. Clawson wheat is also grown to some extent, but should not be recognized by millers as fit for flouring. We consider it of the utmost importance to millers to make it a special object to supply the farmers in their respective localities with the best seed wheat and at as low a price as possible. This can be done by united effort. Those in whose sections the proper kind or variety is raised can make it known, and supply others in localities where it is wanted. The Fultz wheat is grown most extensively throughout our State because of its good yield to the farmers, but, as before stated, it has been the

cause of much trouble to the millers. Dampening or heating no doubt improves it, and there are some of the fraternity who even advocated it at our last meeting. We think, however, that the resolution passed at that meeting covers the ground completely.

S. L. LEVAN. J. F. NEWMAN. H. M. GARBER.

There was an animated discussion upon the reading of the above as to the kind of wheat millers should endeavor to have farmers supplied with in order that better brands of flour may be manufactured by millers, and as to how the grades of wheat could be improved.

Mr. Pyle, of Bryn Mawr, was of the opinion that if one miller could make good flour from a certain kind of wheat there was no reason why another miller should not have the same success with the same kind. He believed this end could be attained if there were some uniform system of milling adopted. Mr. Pyle argued strongly in favor of the superiority of of the Fultz wheat, and when he sat down his argument was supported by many others, who said that, in view of the fact that there was a serious opposition to the Fultz, it would not be policy to condemn that grain at this time.

A number of other delegates would not be persuaded, however, and denied that the Fultz is a good grain, stating in fact, that it is not worth anything at all.

The discussion was continued pro and con for a while, and at its close the report of the Committee on Inspection and Grading of Grain was read by Mr. Hawbecker, the Chairman of the Committee:

Mr. President and Gentlemen of the Millers

Association of the State of Pennsylvania: We, the committee appointed to report upon the inspection and grading of grain, submit the following: First, that as the grading and inspection of grain is simply practiced in the city of Philadelphia, and there it is simply controlled by a municipal law. So far as the knowledge of your Committee reaches, we are not governed by any State or municipal law in commonwealth outside of the city of Philadelphia. We, therefore, can only say to the association on this subject that every miller engaged in the business of manufacturing flour is governed and controlled by one common law, and that is common sense. Every miller should know that it is prudent for him, in order to make his business of manufactur ing flour a financial success, that he should thoroughly educate himself in the matter of grading and inspecting wheat. The experi-ence of every miller is that in purchasing an inferior quality of wheat he can only produce an inferior quality of flour, which will always prove fatal to his flour trade. We therefore repeat that the law of common sense is the only one governing and controlling the grading and inspection of wheat for millers of this State, and, if thoroughly practiced by the fraternity, it will certainly be to their benefit. Respectfully yours, S. Z. HAWBECKER.

C. HEEBNER, L. W. PYLE,

A motion to adjourn until 7:30 p.m. was put and carried.

THE EVENING SESSION.

The milling machinery and improvements and specimens of flour, middlings, etc., that were on exhibition in the sample room of the Logan House and on the east portico attracted the attention of the millers during the greater part of the time between the afternoon adjournment and the hour for assembling in the evening, and it was past 8 o'clock when the Convention was called to order.

Although it was supposed that the passage of Mr. Hayes' resolution relative to the insurance company matter had disposed of that question, it sprang up in the Convention again, and its discussion was permitted to be continued.

A motion was made to take steps for the preliminary organization of the mutual com-

President Duncan, in answer to inquiries, said that it was desired to ascertain if the \$100,000 necessary before a charter could be obtained could be guaranteed, and for the purpose of learning this the Insurance Committee was expected to communicate with absent members of the Association, and to report what had been done to the next meeting.

Mr. Isenberg proposed that an election of officers be had, consisting of President, Adjuster, Board of Directors, etc., for the sake organization, and then give notice of application for a charter as soon as \$100,000 are guaranteed. In six months new and permanent officers could be elected.

The discussion was continued at some length, touching upon various phases of the situation, among others arising the suspicion of organizing in conflict with the State laws, which was quickly set at rest, and it was eventually moved that the President pro tem, Mr. Duncan, be clothed with power to appoint thirteen Directors (including five members of the Insurance Committee) for the insurance company, the Directors to elect the active tem-

porary officers. The motion was carried, and the matter was thus disposed of.

Secretary Schoch said that as due notice had been given of an intention to revise the constitution, two-thirds of the members could now proceed to do so if they deemed it advisable. The revision consisted of an amendment changing the reading of the article in regard to meetings from "semi-annual" to "annual." It seemed to be the opinion, from what he knew of the sentiments of the millers, that the annual meetings were sufficient.

A motion to strike out "semi-annual" from the constitution and insert "annual" was amended by Mr. Small so as to read "on the first Tuesday of September" (annually). An amendment to the amendment by Mr. Hawbecker, changing "first Tuesday of September" to "first Tuesday of October" was accepted by Mr. Small.

The proposed change in the constitution was objected to by a Philadelphia delegate, who argued in favor of semi-annual meetings; in order that those who may not be able to attend one meeting may succeed in attending another meeting the same year. Arguments were also made in favor of the social features of these occasions, and it was stated that much more benefit was to be derived from meeting twice a year than by assembling annually.

Mr. Hayes suggested that the whole question be postponed for six months. He fully believed, from the present outlook of affairs, that something would transpire in six months that would demand the attention of the millers, and they would desire another meeting by that time.

Mr. Hayes' suggestion, in the form of an amendment, after a lively oratorical tilt was put and carried by a large majority.

The discussion of the report on mill machinery, which had been postponed from the afternoon session, then came up. It proved of much interest to the millers, the subjects of millstones, rolls and purifiers receiving thorough treatment at the hands of Messrs. Hawbecker, Hayes, Brown, agent for the Garden City Purifier, and Forney, representing the Hunter Purifier. There was a great deal of instruction and information obtained from the views expressed, and the several gentlemen were listened to attentively.

The selection of a place at which to hold the next semi-annual meeting on the second Tuesday of January, 1880, then came before the Convention for disposal. Chambersburg, Wilkesbarre, Easton, Harrisburg and Philadelphia were named, and all were subsequently withdrawn with the exception of Chambersburg and Harrisburg, upon which a vote was taken, resulting in the selection of Harrisburg. At the January meeting officers of the Association are to be elected.

Mr. Pyle, of Bryn Mawr, asked for the passage of a resolution rescinding the resolution adopted at a previous meeting discouraging the growing by farmers of the Fultz variety of wheat. Mr. Pyle's proposition was almost unanimously voted down.

The Convention then adjourned.

A NEW CAR FOR TRANSPORTING GRAIN. Chicago exchanges describe at length a novel invention called Prosser's Twin Cylinder Cars, to be used for transporting grain. The cars consist of large cylinders made of boiler iron, about 6½ feet in diameter, to which are securely attached two tires of steel, made with a flange in the shape of the ordinary car wheel, with this difference—that they are very much larger. These tires are so placed as to fit the ordinary railway track, and really are the wheels of the car. Through the center of the cylinders passes a hollow steel tube, with perforations which admit air to the grain within, the air afterward finding egress through numerous small apertures in the body of the cylinders. By this means perfect ventilation is maintained, and, at the same time, the corn or wheat is thoroughly dried while in transit, preventing its molding, a not unfrequent occurrence by the ordinary methods of transportation. The hollow tubes or axles project far enough through the cylinders to allow the journals to revolve in a box, which in turn supports a frame-work and covering, enabling brakemen to pass over and operate brakes that are attached to these as to ordinary cars. When completed and ready for use, the cylinders are filled with grain, and in that condition the load is rolled on the track to its point of destination.

The Philip Best Brewing Company, of Milwaukee, are about to build an elevator 60 feet wide and 160 feet long, near their South Side Brewery.

Notes on the Uses of Wire Rope.

Two kinds of wire rope are manufactured. The most pliable variety contains 19 wires in the strand, and is generally used for hoisting and running rope. The ropes with 12 wires and 7 wires in the strand are stiffer and are better adapted for standing ropes, guys and rigging. Orders should state the use of the rope, and advice will be given. Ropes are made up to three inches in diameter, both of iron and steel, upon special application.

For safe working load, allow one-fifth to one-seventh of the ultimate strength, according to speed, so as to get good wear from the rope. When substituting wire rope for hemp rope it is good economy to allow for the former the same weight per foot which experience has approved for the latter.

Wire rope is as pliable as new hemp rope of the same strength; the former will, therefore, run over the same sized pulleys as the latter. But the greater the diameter of the sheaves, pulleys or drums, the longer the wire rope will last. In the construction of machinery for wire rope it will be found good economy to make the drums and sheaves as large as possible.

Experience has demonstrated that the wear increases with the speed. It is, therefare, better to increase the load than the speed.

Wire rope is manufactured either with a wire or hemp centre. The latter is more pliable than the former, and will wear better where there is short bending. Orders should specify what kind of centre is wanted.

Wire rope must not be coiled or uncoiled like hemp rope. When mounted on a reel, the latter should be mounted on a spindle or flat turn table to pay off the rope. When forwarded in a small coil without reel, roll it over the ground like a wheel, and run off the rope that way, All untwisting or kinking must be avoided.

To preserve wire rope, apply raw linseed oil with a piece of sheep skin, wool inside; or mix the oil with equal parts of Spanish brown or lamp-black.

To preserve wire rope under water or under ground, take mineral or vegetable tar, and add one bushel of fresh slacked lime to one barrel of tar, which will neutralize the acid. Boil it well, and saturate the rope with the hot tar. To give the mixture body, add some sawdust.

In no case should galvanized rope be used for running rope. One day's use scrapes off the coating of zinc, and rusting proceeds with twice the rapidity.

The grooves of cast iron pulleys and sheaves should be filled with well seasoned blocks of hard wood set on end, to be renewed when worn out. This end wood will save wear and increase adhesion. The smaller pulleys or rollers which support the ropes on inclined planes, should be constructed on the same plan. When large sheaves run with great velocity the grooves should be lined with leather, set on end, or with India rubber. This is done in the case of all sheaves used in the transmission of power between distant points by means of rope, which frequently run at the rate of 4,000 feet per minute.

Steel ropes are, to a certain extent, taking the place of iron ropes, where it is a special object to combine lightness with strength.

But in substituting a steel rope for an iron running rope, the object in view should be to gain increased wear from the rope rather than to reduce the size.

#### Head-Gates.

The head-gate is also an important feature of the arrangement necessary for utilizing the power afforded by a dam. Those of our readers who are familiar with the subject are well aware that an urgent need exists for a better plan of construction for head-gates than the old lift-gate, which has a troublesome peculiarity of being almost invariably out of order just when it is most needed. The majority of head-gates are hoisted and exposed to the warping influence of the sun and weather, so that in a short time it requires much effort to shut one of them down; and in some instances they can not be got down at all.

A gate arranged similar to a butterfly valve, and entirely under water, turning horizontally by means of an upright stem, could be constructed to good advantage. The stem or upright would serve as a pivot or hinge just above and below the gate, upon which it can turn or swing. It must not be in the precise center, which will admit of a little more pressure on one end than on the other, thus keeping it closed when not left or kept open. Another and somewhat similar method would be to let the pivots be at each end of the gate, and instead of swinging around horizontally as the

ether, it may turn down toward the inflowing water, laying entirely under water in a level or flat position. The stem or staff which is fastened to it instead of turning around, forming an axis as in the first case, swings down in the direction of the gate and lies in the water also. In either case, a fore-bay should be built of a greater length than width, planked up tightly on the sides and top, with trap doors in the top; the front and lower ends also closed by planking down to as much as six inches below low-water mark. The gate may then be set about the middle of this flume or fore-bay, in a strong partition, which is really the separation between the dam and race.

When the trap doors are kept closed, there is no danger of the water freezing, even in the coldest weather, in being entirely protected from exposure. As the gates are generally open, and therefore, of course, under water, they are not exposed to warping by the influence of the air and sun, but when needed are sure to fit and to be easily handled and effective. Many instances might be given in which defective head-gates have been the cause of the washing out and entire destruction of valuable mill property. Cases have also frequently occurred in which the head-gates, owing to their being either frozen up or warped to such an extent as to be unmanageable, could not be closed in time, and, as a consequence, a small wash or break in the head-race became the source of extensive damage, requiring a heavy outlay of money for its repair. It is easily seen, in such cases, after the catastrophe has occured, that true economy would have been consulted by providing in the first place a head-gate which could have been easily reached and promptly closed, thus preventing any material injury. The teachings of such an experience are of course useful in guiding the subsequent operations of the owner; but in this, as in many other matters, "an ounce of prevention is worth a pound of cure."-Leffel's Wheel Book.

#### South Australia's Yield of Wheat.

The Adelaide Observer, in accordance with its custom, anticipates the official statistics by furnishing an approximate return of the wheat yield of South Australia, derived from the harvest just completed: "Coming to the details of the harvest as furnished by our correspondent," says our contemporary, "we find that the total area reaped for wheat this season has been some 1,286,355 acres, or 122,709 acres in excess of 1877-8, which in its turn showed an excess of 80,697 acres over 1876-7. The total yield we estimate at 9,007,624 bushels, making 7 bushels and a fraction per acre. The fraction does not amount to 2 oz. per acre, so it is scarcely worth consideration. Last year the general average was 7 bushels 46 lbs. per acre, and the year preceding that, 5 bushels 24 lbs. Notwithstanding the fact that we have 122,709 acres more under cultivation, the gross yield of the current season does not reach, according to our calculation, that of last season by 27,068 bushels, the total then being 9,034,692 bushels. Out of the 9,007,624 bushels which we reckon to be the gross product of the harvest now gathered, there will be required for seed some 1,410,000 bushels. This at the rate of one bushel per acre. Formerly 11 and 11 bushels per acre has been allowed by statisticans; but as this sowing is now more generally adopted, it is believed that an allowance of one bushel per acre will be ample. We do not apprehend that the increase in the area cultivated in 1879-80 will much exceed that of last season, so that the gross requirements for the purpose of seed will, as we have said, be about 1,410,000 bushels. We set down 5 bushels per head as sufficient for food, and estimating the population at 260,000, this will absorb another 1,300,000 bushels. When the necessities have been provided for, there will be left available for export, 6,297,624 bushels, representing in round numbers from 150,000 to 170,000 tons of wheat."-Sydney Mail.

A LARGE FLOUR SHIPMENT TO IRELAND.—
The Old Globe Mills of Mr. Wm. Hayden,
Tecumseh, Mich., had been running, previously
to the 5th of June, several days and nights to
fill an order from Messrs. J. & E. J. Tighe,
Sligo, Ireland, for 32 car loads of flour. This
order had to be all sent at one time. This
shipment considerably exceeded the one sent
across the Atlantic by Mr. Hayden a few
weeks previously. It amounted to 4,572 barrels, and is the largest shipment of flour in
one order ever sent from Tecumseh. Mr.
Hayden had also received from the same Irish
firm an order for six hundred tons of flour.

Subscribe for the U. S. MILLER; \$1 per year.

#### Remarks on Grinding.

BY JAMES M'LEAN.

In the British town mill, grinding requires especial care and good judgment. Stone dressing, often the highest paid department, being mere slight of hand work compared to the skill and judgment required in a good grinder; carelessness or want of skill is easily checked with the stoneman, it is far otherwise with the grinder; negligence or bad judgment occasionally causing a serious loss, or altering the character of the flour completely, the master too often not having the skill to know what is wrong. There is little divergence in the practice of stone dressing, so that a little experience enables the master to know the good from the bad one. Grinders diverge widely in practice, not only individuals but whole countries, so that sometimes it is better to have a grinder with little experience under able guidance, than trusting wholly to one with a life-long experience.

The principal qualifications in a good grinder is to have the sense of feeling well developed; some individuals are remarkable for the extreme sensitiveness of their feeling, with others it is so dull that that they are in perpetual doubt as to whether they are right or wrong, others again have it better in one hand than the other; my own experience showing me this being always in anxious doubt for some years, when young feeling with the right hand as is customary (and grinders well know that whenever they begin to doubt and get anxious they make the sense of feeling still worse), till noticing the left hand had the sense more perfect, I rarely used the right one afterwards. It is well known how cold, dirt, or handling tools such as the pick handle affects the feeling, and they have to exercise it for some time after before they can trust it. Spouts are often badly arranged also for catching the flour. When the arrangement is bad, a piece of zinc can often remedy it a good deal, so as to throw it all into the hand in a gentle stream, aiding the feeling greatly, and

giving a guess as to the speed. The general practice in feeling the flour is to let the hand fill more or less, then press down the thumb through it and along the points of the fingers, that is, on the top of the pressed down stuff. Some press down the thumb, shutting the hand at the same time on a full handful. Inexperienced individuals sometimes imagine that rubbing small quantities between the points of the fingers and thumb is always sufficient, but practice teaches otherwise-the sense of feeling of very few being so perfect as to detect the sharpness or size of the particles in very close grinding, unless they are in number sufficient to cause a more or less thickness between the thumb and fingers; pressure seeming to aid the sensation without their contact. Thus, in close grinding, pressing the thumb repeatedly on the descending stuff on the points of the fingers, and then rubbing it along, enables one to feel a sharpness; when, by rubbing unpressed stuff, no sharpness or particles can be detected. With the most of wheats, however, it is safer to feel the particles with a loose, easy feel, on the points of the fingers, judging their size better thereby, and the pressing of the thumb down through a handful giving an idea as to the average sharpness, or if there is any or what amount of felled stuff. This is a term applied in Scotland when it is overcrushed or polished by the rotary motion being destroyed, and expresses the real injury, as it takes some time to recover; the atmosphere restoring its adaptability for fermentation, but it never fully recovers from the effects of the polishing. The experienced grinder readily detects it from its oily smoothness, and if the proportion is too great it begins to lie on the outside of the stone, it being unable to grip a portion of it at all. It thus cause increased pressure, heat, and moisture, and spreading over like paste, stops all air motion, and, if not checked, finally lifts the stone and rolls out in steaming worms. Even with a slight pasting over, it is better to lift the stone at once, as it takes a long time time of wasteful and injurious grinding to partially recover, and never recovers its full keenness till lifted. In choosing a medium betwixt over crushing and over sharpness, conjoined with their effects on the bran, lies the skill of the grinder-some wheats standing a considerable amount of each without injury, while with others no freedom

can be used either way.

As mentioned before, proper wheat grinding being the right approximation of the crushing and cutting process applied, I will endeavor to explain the different styles of grinding, and the effects of each.

Wheat for grinding purposes may be divided into four qualities namely, weak-soft and weak-hard, and strong-soft and strong-hard.

The first, or weak-soft, is easy ground in comparison to the moisture it contains, and can go over a great amount of face without injury to the bran, or over polishing of the flour, from the light pressure required to disintegrate it, and hence have broad, clean bran, can be free and easily dressed, and is not so apt to be injured as the others.

With the second, or weak-hard, practice differs more widely, and it is more often in-Grinders may be divided into two main classes. There are those who rule the feed chiefly by heat, and never vary the feed much, being determined, whatever the quality of the wheat, neither to have the stone what they consider too low, nor yet pressed with what they imagine too much feed, so as to avoid, in their opinion, overheating. These do well enough in country mills, where British wheat is always the ruling quantity in a grist, or town or country mills, where they keep the grist of an average softness; but where hard wheats are put often on by themselves they are total tailures. The other class are those who know there is a certain freeness whether on hard or soft wheats, which seems to suit the baker best; and to get this certain freeness, which experience alone can teach they vary widely, both with feed and closeness of grinding, and consequently with heat, and nothing is more common than for the latter, if strangers (unless they follow the hobby of the former), to be set down as knowing little about grinding; whereas, a little reflection would show that it is a very easy matter to grind on the former principle. The latter attempts the right approximation of cutting and crushing by the only means commonly available at their command, but they sometimes err by having too much heat on a heavy proportion of felled stuff, as a stone can work siderable amount of the stuff felled before pasting over, the part that hasn't the rotary motion destroyed, carrying it along with it: but from its injurious effects, a heavy proportion should always be avoided. Hard-weak wheats, however, if the stone is in good face, are not easily felled in the grinding, it taking a great heat and power to do so, as all millers avoid letting the stones smell or char from friction on each other. Although some scientific men say this is the cause of the heat, the experienced grinder knows it is nonsense, as with a three-horned rhynd he can run the stones clear, yet cause any amount of heat he wishes by varying the feed. Where there is clear face friction it soon warns him by the nose —such as the eye speed getting under three feet per second—losing centrifugal force, when they have to be wider separated. Hard-weak wheats can stand the greatest amount of crushing of all wheats without injury; but as some bakers treat flour pretty much alike, it is often safest to grind the strong-hard similar. It is the opinion of many that the sharper the flour the etter, but they often find themselves mis-Strong-hard may be ground as sharp as they please if properly pounded and watered by the baker; its strength or elasticity enables it to stretch into fine thin cells. different with weak-hard. If ground sharp it is what the bakers call short, it can't take the same amount of water without injury; want of elasticity won't let the large particles stretch sufficiently to make thin cells, and in this state it makes an inferior, troublesome It follows, therefore, it requires a heavy crushing power, provided there is not an undue amount of heat. It is the case also, the drier the wheat the less injurious the heat, and the less liability to be felled; splintering taking place till it is reduced to a very small and the heavy feed saves the bran from being cut up badly, as the sharp particles rolling out have a most destructive effect in pulverizing the bran. To so great an extent can subdivision be carried with some hard wheats, that, if the stone has a bad face or the slightest irregular escape, it will issue sharp, though the stone is charred in the attempt to soften it, which is often checked by putting on such a heavy crushing power, or large feed, that part of the flour is felled, which greatly retards its outward progress and hinders the too rapid escape of the sharp particles, the diminished air inlet allowing extra crushing at the rim to equalize them more.

It is a very common opinion also that hard wheats require a large amount of face; but this is most injurious to both flour and bran. former is acted on similar to the pease meal in the pease-stone, and issues in a polished state, or over free, or so short that, if weak wheat, the baker has the utmost difficulty in getting it to adhere at all; and though feeling sharp, the grinding is in reality very low, and the bran is subjected to a long destructive pulverization amidst the sharp rolling particles, and perfect separation afterwards is impossible. What is needed for hard wheat is as small and true a face as possible, with not the least escape, however, for irregular grinding; when free of overcrushed or felled stuff, it rolls rapidly outwards, and irregularities of escape or face tell seriously by unequal grinding from traveling over so little face

As an instance of extreme heavy pressure grinding, I will mention Californian and Australian practice. In both those countries, the majority grind low, and with a heat unknown in most British mills. The Australians have the British stonespeed and furrows, the Californians the American. In the drier parts of Australia, ten bushels an hour is not uncommon; in California, with the greater stonespeed, they are often forced to put through double that. In both, the stones are kept so low that there is often a portion of felled stuff. Then what occasions this low grinding and heavy pressure with the strong Australian wheat? It is to save the bran, and make the flour handier wrought and whiter; as especially clear or flinty wheats are like glass, the more they are ground down the whiter they

To show that even high ground strong get. flour is not always the most acceptable to the bakers, some of as disagreeable bread as ever I saw was in a district famous for its fine strong wheat—namely, Adelaide, in South Australia. The only reason I could imagine for it was that it was baked from the cheap coarse ground products of some of the country mills, with deficient power and coarse-clad wire machines, some of them at that time not going over 74 with their finest wire. The flour had any amount of strength, but some of the bakers, appearingly had not the judgment or industry to take full advantage of it by giving it sufficient time and water; and in thirty hours after it got almost like a biscuit, so that the low-ground, heavily-pressed stuff, with its attendant heat and better flour produce, obtained a superior price; on the whole, not that I approve of heat or violent pressure if it can be avoided, but with large stones and high speed to save the bran and obtain handy vrought flour, the miller can't do otherwise. Without doubt, the great heat has often a deleterious effect; as while in Australia, and as at that time it sometimes could not supply itself, they occasionally got Californian wheat and flour to make up the deficiency-noticing they could often make a superior article out of the wheat to the flour imported, and landing on the Californian coast afterwards.

Well do I remember the first mill in San Francisco I went into, the stones appeared to be four feet, flying about 200 revolutions putting my hand into the descending stream from one of them the heat was so intense that the thought occurred to me at the time, this explains the often inferior flour, but the miller could not do otherwise; the stone size and speed were there, and he must do the best possible; they were furrowed in the usual American system, which though forcing the the stones to do their utmost, is still the best for heavy pressure grinding (if the friction rate is low enough), giving the bran less face to travel over, and equalizing the pressure over the whole of the stone. Though the ripe wheat in the interior of these countries is exposed to the sun's rays, occasionally going over 140 degrees without injury, it is quite different to the heat produced by violent crushing, which raises it to a high heat in a moment. And though dry wheat can stand a much higher heat than soft wheat, still all experience goes to show the milder crushing is applied, the better the flour, if other circumstances, such as bran cutting and sharpness, do not counterbalance the advantage; and I have invariably found when the stone speed could be reduced to eighty or ninety revolutions on hard wheats, the baker was much better pleased with the flour. Heavy pressure grinding with hard wheats has an-other advantage besides saving the bran—that is the large yield of fine flour without regrinding the sharps. I have known them with a moderate stone speed to go over forty-seven pounds fine flour per bushel, with the silks highest number at 150, without returning any the sharps to help dressing at all. To obtain then for hard wheats a milderu shing pressure, the only alternatives are the Hungarian method of regrinding and separation to save the bran or a slow stone speed and small amount of travelling surface to preserve it. The rule is with wheat as with all other substances; the harder and less tough it is the more it is adapted for disintegration by crushing, and requires the more slow and less violent friction surface to avoid heat; likewise as little travelling surface as possible, to save the bran, rechipping being less required as the hardness

Strong soft is a most difficult wheat to deal with, and is the most apt to be injured for fermenting purposes; and as the nearer the flour and bran approach each other in toughness, the more difficult will be their separation; the liability to compression, which tells so seriously on fermentation, increasing with the toughness, the cutting principle has to be brought more into play to get clean bran and free flour, and it should be kept totally free of felled stuff if possible. Many British millers err greatly in trying to get broad bran with this wheat; far better have it cut up for the purpose of obtaining free flour. stones running under 120 revolution much of the grinding done near the eye, some tough foreign wheats defy them altogether to make a good job of them, even with as low a feed as three bushels an hour-the distance between the stones has to be so great-to avoid felling, or destroy the rotary motion of the flour, that the bran in spite of its long The slow stone passage issues badly cleaned. speed is not able to chip the tough fibrous particles enough, and the dressing is slow and difficult, and all this though it was ground almeans at the miller's disposal for increasing the cutting power, is by increasing the heart, fresh cracking, or increased stone speed. The latter, though it would be the most convenient, is very rarely available. On some of those wheats, so easy is the pressure required that the stones can make over 200 revolutions a minute without an injurious heat or much dust. The increased speed gives greater cutting power, the tough particles are rapidly chipped into shape, keeping up the rotary motion with the stones closer, thus cleaning the bran better, and though it is much cut up in appearance, there is little of that de structive minute pulverization to which the bran of hard wheats is subjected to, amidst the hard rolling particles of flour between close friction surfaces. With the soft wheats the pressure has to be light, with a considerable distance between the surfaces, to keep up the rotary motion, and the soft flour particles enable the bran to travel over a great extent of surface without affecting easy separation afterwards; when ground free with little pressure it is the bulkiest of all flours, and can be used immediately, requiring delay in using according to the extent of the crushing.

Strong hard wheat requires often almost similar treatment to the weak hard, the cutting power, of course, needing to be brought more into play with equal moisture, although there is the important difference that it can be ground as sharp as wished, if properly treated by the baker afterwards. For special purposes, such as pastry bakers often require it for, light pressure grinding, which, to save the bran, can only be done by the Hungarian method, or the slowest stone speed possible, tells greatly in its favor. The particles are then freer of dust (or [very small particles which abound in proportion to the violence of the shivering) in which state, with the superior time and labor bestowed upon it by the baker, it seems to attain the greatest amount of strength, but the miller, at the same time, is put to more expense from the regrindings required, or the greater amount of sharps resulting from the slow-stone speed.

#### Correspondence.

PAYNE'S DEPOT, Ky., July 29th, 1879.—Dear Sir: The fall meeting of the Kentucky Millers' Association takes place at Lexington, September 2d, immediately following the great Central Kentucky Fair, which closes August 30th, thus giving visitors to attend the Fair and Convention if they desire. President Geo. Bain and Vice-President D. E. Roberts, of the National Association, with our own President, W. N. Potts, are booked for addresses. An enthusiastic session is anticipated.

Respectfully, E. D. HIX.

A flour mill at La Crosse, Wis., was burned July 28th.

Evarts & Co., millers, Dexter, Mich., reported assigned.

Cartzendafner & Bro., millers, Frederick, Mo., have failed.

S. C. Thompson, of the milling and banking firm of S. C. Thompson & Co., Bomville, N. Y., is dead.

Messrs. Burroughs & Pierson, Flint, Mich., are rebuilding their flouring mill which was recently destroyed by fire.

Mr. Macomber's mill dam, at Elroy, Wis., went out in the late freshet. He has a large force at work repairing damages.

Thos. Schuetz, proprietor of the "Unnah Mills," St. Augusta, Minn., is changing his mill from a custom to a merchant mill.

Six thousand one hundred barrels of flour, 1,800 sacks of export flour and 11,000 bushels of wheat were exported from Duluth on the 23d inst.

The flour mills of M. Moak, of Lawrence, Kas., P. W. Connelly, of Bayonne, N. J., Cram & Smith, of Chester, Vt., have recently been destroyed by fire.

The Cincinnati Enquirer's special says that Hyart's flouring mills, together with 4,000 bushels of wheat, at Washington, Ind., were burned July 24th. Loss, \$16,000; insured in the Niagara and Franklin for \$9,000.

Brandt's steam flour mill, at Mount Joy, Lancaster County, Pa., is being improved and having new machinery placed in the different departments. It will be one of the largest mills in the country when completed.

August Zentner, while oiling the machinery in the mill of Fliegler, Wahle & Haupt, at Manitowoc, July 25th, was drawn into the machinery and terribly bruised and mangled. His injuries are very serious, possibly fatal.

J. B. A. Kerns' Eagle Mills, Milwaukee, are closed down to the 10th of the month, to admit of modern improvements, the importance of which the proprictor is always willing to introduce and acknowledge their merit thereof.

A great flour mill enterprise is in progress near Harrisburg, Pa. John Hoffer, the well and favorably known miller of that part of Pennsylvania, and others, are building an immense steam flouring mill, at a point on the line of the Pennsylvania railroad, just below the city of Harrisburg. The new mill is to be called the "Paxton New Process Mill." The building will cover 5,440 square feet of ground, being 85x64 feet, and will be built of stone. It will be supplied with the most improved "patent process machinery" for manufacturing flour. A portion of the apparatus will consist of 33 burrs and 32 or 33 bolting wheels, which will receive force from an engine of 200-horse power. The operations of the establishment will necessitate the employment of a large number of skilled hands. At present the two mills owned by Mr. Hoffer, one a water power and the other a steam mill. produce between 200 and 300 barrels of flour per day. The new mill when completed will, it is estimated, increase the daily production to between 500 and 600 barrels.

#### IT BEATS THEM ALL.

Lehmann's Method of Truing the Faces of Mill Stones.

Ever since the announcement was made of the novel and important invention by Wm. Lehmann, of Milwaukee, of a simple method of securing a perfectly true face on mill-stones, great interest has been manifested by millers all over the country. His method is so perfect that, after he has trued up the faces of the upper and lower stones, he can place a row of single thicknesses of paper all around on the lower stone, and then let down on it the upper one, and every piece of paper will be held tightly between the stones. This he has done frequently. Every miller knows the value of a true face. No patent staff of any kind is required. Mr. Lehmann's method has met with the warmest approval wherever introduced, as can readily be seen by reference to the letters which we append below. The first of which is from George G. Smith, the wellknown millwright, of the firm of Smith Bros., No. 454 Canal street, Milwaukee, a gentleman to whom the Millers' National Association are under no small obligations for efforts made in

MILWAUKEE, June 21, 1879.—Wm. Lehmann, Esq.—Dear Sir: I herewith give you my opinion concerning your improvement in staffing and truing mill-stones. I have seen the improvement used, and paid attention to the improvement it made in the grinding, and found it to exceed anything I have seen. I find that it is the best method so far invented, and find it entirely new and novel, and would cheerfully recommend it to all that have faith in a true face on a stone. Yours truly, GEO. S. SMITH.

GENEVA. III., May 23, 1879.—Wm. Lehmann, Milwaukee, Wis.—Dear Sir: Enclosed find Chicago draft for — dollars, as per agreement with our Mr. Bennett, for your patent for use in our mill—"Bennett's Mills," Geneva, Kane county, Illinois, 8 run of 4-feet stones. We consider it the best thing that ever was fer straightening the face of a mill-stone, and worth the money. Yeurs truly, BENNETT, BROS. & COE.

PLYMOUTH, Wis., May 9, 1879.—Mr. Wm. Lehmann: Heretofore we have used the old-fashioned long staff as well as the circular staff, but since testing the merits of your method of staffing mill-stones we are convinced that it is by far the best way yet discovered. Being millers of many years' experience we supposed we knew how to staff a stone, but we confess, we were wrong entirely. Your method of staffing is beyond any question the most perfect used so far, and in our opinion no mill can afford to do without it. Respectfully,

Beaver Dam, Wis., March 10, 1879.—Mr. Wm. Lehmann: Itwas as much a surprise as a pleasure that we witnessed your system of staffing a stone, and have become satisfied that it is the correct principle, and do hereby certify that we shall use Mr. Wm. Lehmann's device for staffing mill-stones in our mill, and do say that it is the best device we have seen.

E. R. HOYT & SON. G. S. Campbell, head miller.

Fox Lake, Dodge Co., Wis., March 26, 1879.—Mr. Wm. Lehmann—Dear Sir: We enclose a draft of — dollars, the balance due you for your method of staffing stones. We can resommend it as being a great improvement over anything we have seen. Yours truly, COMAN & MORKISON. J. W. Ashley, head miller.

WATERTOWN, Wis., Feb. 26, 1879.—This is to certify that we are using W. Lehmann,s method of truing and facing mill-stones in both of our mills, and find it superior to anything we have yet used or seen, and found on bringing the two faces of the stone together we could lay paper between each two separate lands and letting the stone down none of same could be withdrawn. F. MILLER & CO. W. H. Foote, head miller.

Letter from a millwright since 1840 and mill owner for the last 15 years.—This is to certify that I have used Mr. Wm. Lehmann's method for straightening or truing the face of mill-stones for the past four months, and am satisfied that it is far the best of any in use. For with the use of this method we are enabled to make more middlings and more uniform and of necessity a better quality of patent flour. And would recommend its use. Most respectfully yours. ORVILLE HATHAWAY. Dated Oconomewoo, Wankesha Co., Wis., Feb. 18, 1879.

Ogdensburg. June 9, 1879.—Wm. Lehmann—Dour Sir: Your favor and bill came duly to hand, your draft came and was paid. I am well pleased with the work. I have fixed 3 run; they do nice work. I hope you will make some money, as you have a valuable improvement to mill owners. Yours truly, HENRY RODER

Read Mr. Lehmann's advertisement on another page and send in your order. His terms are reasonable, and his method is well worth the money asked for it. Address all communications to Wm. Lehmann, 722 Fourth street, Milwaukee, Wis. U. S. A.

#### A CARD.

From Notbohm Brothers.

Impression having obtained that our machines are subject and liable under the Geo. T. Smith patents, we herewith append letters which will explain themselves, and can assure our patrons that ours is the safest regarding patents, and more reliable as to merits than any purifier.

NOTBOHM BROS., Milwaukee, Wis.

MILWAUKEE, Sept., 23, 1876. Col. Thos. S. Sprague, Attorney for Geo. T.

Smith, Plankinton House, Mitwaukee, Wis .: DEAR SIR-In your investigation into the validity of the patents of Geo. T. Smith on the construction of Middlings Purifiers, did you find any infringement in the construction of our machine, as covered by patents to E. N. LaCroix, assignor to us, and ourselves, upon any of Smith's patents upon the construction of his purifiers? Some of our customers using our traveling air blast machines have been threatened by different parties to pay tribute, two bringing their cases into the courts, one at Springfield, Ill., the other at Rochester, N. Y., both being defeated, and our patent sustained, and Mr. Smith acknowledging that our machines as now built, are not subject to his rights or claims. You will oblige by answering the above question, and thereby enable us to place ourselves right be-

fore the community. Very truly yours, NOTBOHM BROS.

PLANKINTON HOUSE, MILWAUKEE, September 23, 1876. Messrs. Notbohm Bros., Milwaukee, Wis.:

GENTLEMEN-Referring to your letter of inquiry of this date, I reply that upon a careful examination of the various patents issued for my client, Geo. T. Smith, Esq., for infringements in the construction of Middlings Puri fiers, I find no claims which would be infringed by the construction of such machines as described in the claims of the patents to E. N LaCroix, dated respectively June 3, 1873, and reissue of December 30, 1873, under which I am informed you manufacture your machines.

I am very clear on this point, and am happy to find one manufacturer in the United States who does not infringe Mr. Smith's patents upon the construction of Middlings Purifiers.

Respectfully yours, Thos. S. Sprague,
Att'y for Geo. T. Smith

#### Situations Wanted, etc.

Millers, Engineers, Mechanics, etc., wanting situations, or mill-owners or manufacturers wanting employes, can have their cards inserted under this head for 50 cents per insertion, each will 50 cents per insertion, cash with order.

WANTED—A situation as head miller. Am thoroughly competent. Address correspondence to EDWIN PRIEST, P. O. Box 618, Augusta, Ga.

WANTED—Two young Millers to work in a custom mill; must understand stone dressing and grinding; to work under a good Miller. Good references are required, and state what wages are expected. Address GLADE & SCHAUPP, Columbus, Nebraska.

SITUATION WANTED—An experienced head miller, having been employed for many years in the Austro-Hungarian steam flour mills, desires to make a new engagement. Address B. G. 938, care of Hasenstein & Vogler, Vienna, Austria.

WANTED—A young miller who is well posted to take charge of my mill. He must thoroughly understand dressing and keeping the stones in order. In answering this state how long and where you have worked, and what wages you expect. Address VARIETY WORKS, P. O. Box 29, Union Springs, Ala.

SITUATION WANTED.—By a practical miller in grist or grist and merchant work. Is a good stonesman. If no satisfaction can be given no pay is asked. Can give good references. Please state salary and address A. V. Kemerer, Waumandee, Buffalo Co., Wis. Respectfully, A. V. KEMERER.

SITUATION WANTED—In either a merchant or custom mill; have had eight years experience in the business and guarantee satisfaction in all branches of the business; am a single man; willing to go anywhere. Good references given if desired. Parties answering this advertisement please state terms All letters answered promptly. Address MILLER, Runch's Gap, Clinton county, Penn.

TO MILL-O WNERS—Situation wanted by an experienced Miller to take charge of a mill or stone dress-dressing in a new process mill. Have worked the new process since the beginning of manufacturing patent flour in this country, making from 20 to 68 per cent of patent flour. Reference furnished from the best of Milwaukee mill-owners if necessary. Any one in want of my services please address No. 221, Grand Avenue, third floor. Milwaukee, Wis.

SITUATION WANTED—In new process mill; have had valuable experience both in building new and remodeling old mills on the system of high grinding. I desire to make an engagement with parties about to build new mills or change old ones, and will guarantee satisfaction. Am a practical Miller, and can take the place of a millwright in every detail and have a number of improvements in connection with high grinding not generally in use. Have a good knowledge of all the latest milling machinery, and believe I can make myself profitable to any mill owner on the new process. Wages an after consideration. Correspondence solicited. Address H. B. SHEARS, North Lake, Wis. autf

#### For Sale or Exchange.

Advertisements under this head \$2 per insertion.

FOR SALE—One-half of 3-run, water power flour-ing mill, all in good order, and fully equipped with pur-ifier, brush, smutter, separator, Parker scales and good effice. Will sell easy on terms, and take part in good farm.

I. W DALLY, jy\*

Woodbine, Iowa.

FOR SALE—A small Steam Flouring Mill, 23 miles below St. Louis, on the Mississippi river and Iron Mountain Railroad. Everything in good running order. Will take part pay in country store goods. For particulars address C. W. FUNK, jy\* Sulphur Springs, Jefferson Co., Mo.

PARTNER WANTED—I have a good Grain Elevator, large enough to run a flouring mill. Would like a partner who can furnish the necessary machinery. Parties having mills not paying will find it to their interest to correspond with me. interest to correspond with me. je\* T. B. GALLAGHER, Larned, Kansas.

FOR RENT-I offer for rent my Grist and SawMill; 3 run of stone; House and Garden; Good Water Power; Water all year round; for term of years. For particulars call in person or by letter. M. HELD, je Erfurt P. O., Jefferson Co., Wis.

FOR SALE OR LEASE—For a term of years. The Cedar Street Flouring Mill, St. Louis, Mo. New, and in complete running order, having six runs of buhrs and a capacity of three hundred and fifty barrels per day. Adjoining this property we have large vacant lots, which we will sell on very reasonable terms. Apply to McCREEY & TOWERS, jy\*

705 Pine St., Street, St. Louis, Mo.

FOR SALE—I offer for sale a first-class modern flouring mill in this city, making 100 barrels a day; power-water and steam; have not stored a barrel this crop, selling as it arrives in New York; this is a fine opening for any one wanting a mill; property cost \$40,000, but will be sold cheap and on reasonable terms; reason for selling, belongs to an undivided estate. Address

J. D. GREENE, Administrator, ie\*

Faribault, Minn.

FOR SALE.—Wishing to concentrate my business, I offer for sale one of my flour mills situated at Breckenridge, Sangamon County, Ill., 14 miles from Springfield, on the Ohio & Mississippi railroad, in a good milling country. This is a good two-run mill, nearly new with latest improvements and elevator attached for handling grain. Mill cost over \$10,000; will sell low and on good terms. For full particulars, address T. J. McWANE, Versailles, Brown County, Illinois.

FOR SALE.—"Pearl Mills," at Columbia, Maury Co., Tennessee, are being offered for sale at about half cost. They were recently rebuilt, and been since run net more than twelve months, and the building and machinery are new and in first-class condition. The machinery is the latest improved. They are located in a good wheat section, and between and adjoining two railroads. Capacity, 150 or 200 barrels flour and two car loads meal in twenty-flour hours. Have a fine trade. Address.

O. W. STOCKWELL, Trustee, 19.

FOR SALE.—A bargain for someone with a little capital. Our steam grist mill with two run of burrs, 42-inch, and the necessary cleaning machinery, with planing mill attached, will be sold to a good party for a song, or almost given to him. Situation good, at the crossing of the C. & N. W. R. R., and the C., M. & St. Paul railway, in a rich farming country. Lands joining those of C. & W. Railway, about 1,500 feet from depot. Good run of custom. Reasons for selling, poor health and other business. Terms given on application to

I. D. TITSWORTH & CO.

jy\*

Milton Junction, Rock Co., Wis.

FOR SALE—The Flouring Mills at Troy, Kansas, known as the "Banner Mills," in successful operation, with well-established trade. Location unsurpassed. Railroads in every direction. Fine wheat and corn country. The best county in Kansas. Troy, the county seat, is a thriving town with good schools, etc. The mills have four run of burrs, and the machinery throughout is all first-class. Undoubtedly the best constructed mill in the West. The best opening for business. On account of the ill health of the managing partner the property will be sold at a great bargain. Address jetf TRACY & PARKER, Troy, Kansas.

GRIST MILL FOR SALE AT A SACRIFICE—Merchant and custom mill, situated in Bolvidere, county seat of Boone county, Iblinois. The mill has four run of French burrs, and all the machinery is of best class: driven by a never-failing stream of water (Kishwake river). Mills of this class are seldom offered for sale, but the proprietor is very aged, and wishes to retire. Would sell for one-third cash down, balance on suitable terms, or would sell one-half of mill property. A person with means would do well to investigate immediately. For further particulars apply to the owner or address Box 544, Belvidere, Illinois.

JAMES B. MARTYN.

FOR SALE.—At La Grange, Mo., A four-run, brick, steam mill, situated on the Mississippi River, and on the St. Louis and Northwestern Railroad. This mill is 60 feet square and four stories high; it also has an L 60 feet long by 30 feet wide, three stories high, furnishing storage room for 10,000 bushels wheat and 5,000 barrels flour; well and substantially built; boilers, engines and machinery almost new; contains 4 runs of old stock French buhrs and one pair for regrinding, with ample bolting capacity; I separator, 2 smutters, I brush scouring machine, I purifier, 3 pairs flour and wheat scales, and 1 six-ton wagon scales. This mill is situated irra splendid wheat region, and will be sold at a bargain. Address the

FOR SALE—A Texas flour mill and land; a rare bargain. I offer my steam flouring mill at Trinity Mills, a depot 16 miles from Dallas, Texas, and on the Dallas & Witchita Railroad, for sale at a great sacrifice. The mill has three run of stone, two for wheat and one for corn. It has a capacity of 100 barrels per 24 hours; fine tubular boiler and good but old style engine; stones driven by bevoled gear; mill built four years ago and cost over \$9,000. With the mill I will sell 429 acres or more of land, on which near the mill are two dwellings of four rooms each and a large store-house; about 50 acres of superior prairie soil for field crops, fruit and vegetables; the balance is in timber and will afford perpetual fuel for the mill and fine pasturage. It is located on the Elm Fork of Trinity River, and is exceedingly fertile. I will sell the whole to a CASH purchaser for \$15 per acremont more than the value of the land. There is plenty of wheat raised in the county. Satisfactory reasons for selling. Address immediately, aptf DR. ROY B. SCOTT, Trinity Mills, Texas.

FOR SALE—IMPORTANT TO MILLERS
AND CAPITALINTS.—The firm of Porter & Mowbray having been dissolved by limitation, and being obliged by the terms of their articles of nartnership to convert the property of the firm into cash, their Steam Flouring Mill and Elevator, situated and being on lots 1 and 2, block 163, and such part of lot 3 in said block 163, as the Elevator stands upon, being the easterly 30 feet or thereabouts of said lot, all running through to the river, in the city of Winona, Minnesota, will be of fered for sale to the highest bidder, on Saturday, August 9th, 1879. at 10 o'clock in the forenoon.

The Mill has been in successful operation for the past five years, has a capacity of 450 barrels per day, and an established trade for its flour in the Eastern markets, where the reputation of its brands stand second to none. The Elevator has a storage capacity of 50,000 bushels. The buildings stand on the banks of the Mississippi, and there is in connection with them a well-built and commodious dook, extending into the river. A railroad track runs to the mill doors, affording every facility for receiving and shipping by both rail and river, having choice of routes, and an unlimited supply of wheat, having the country tributary to the Winona & St. Peter, and C. M. & St. Paul R. R's. and the river to draw from.

An abundance of fuel at low cost can be had, and there is now on the ground, and will be sold at same time, sufficient for some months. There is a large home trade for offal, it being the only mill of any importance in the city. The mill is in good repair, and can be started as soon as the new crop is fit to grind. There will be sold at the same time, Horses, Harnesses, Wagons, Sleighs, a quantity of fuel, and other valuable property required in conducting the business.

To parties contemplating engaging in the milling business, this presents an opportunity seldom offered for securing a desirable property, and an established trade. Sale positive. For further particulars address au PORTER & MOWBRAY,

#### DISSOLUTION.

L. W. Smith, of the firm of Smith Bros., millwrights, steps out of the Company. The business in the future will be carried on under the old name, by Henry, Geo. G. and Fred. A. Smith.

SITUATION WANTED.—A practical miller of ten years' experience with winter wheat (best flour on new process) desires a place in a thorough new process mill in any capacity in which he can perfect himself in the art of high grinding (spring or winter wheat). Am 33 years old, industrieus and temperate in all things; wages no object; unexceptional references given. Address,

June tf. Care of Reamer & Co., Chetopa, Kansas,

#### Cut This Out.

"United States Miller" Subscription Blank.

We hope the milling friends of the United States Miller will be as liberal to it as it has been in the past, and will be toward them in the future. Subscription price, one year \$1,

We shall be pleased to have an early response to this. Fill out the blank below, enclose with money in an envelope, seal carefully and send at our risk. A receipt will be sent by return mail. Address all communications to the

United States Miller, Milwaukee, Wis.

Editor of the United States Miller, Milwaukee, Wis .- Sir: Send one copy of the United States Miller for one year, for which find enclosed \$1.00.

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FOR SALE.

## Second-Hand Engines,

MACHINERY,

LOW PRICES!

16x24 in engine with governor and fly-wheel. 22x34 in engine with governor, fly-wheel, counter shaft and pulley.
22x34 in engine with governor, fly-wheel and belt pul-

ley. 16x32 in. automatic cut-off engine with regulator and

lbx32 in. automated fly-wheel.

16x20 in. balance and valve engine, with governor, fly-wheel, pump, heater, stack and boiler, 54x14 in., and all pipes and connections.

10x30 in. engine, girder frame, governor and fly-

wheel. 12x12 in. upright engine with governor, fiy-wheel, and

12x12 in. upright engine with governor, fiy-wheel, and pulley.

One 7-in. Judson governor, bright finish.
One 2-in. Gardner governor and stop valve.
One 4-in. stop valve.
Three sets of Boss Dogs.
One No. 3 Blake boiler feed pump.
13½x28 in. engine with governor and fly-wheel.
A complete set of patterns for engines from 7 to 28 in. bore of cylinder, with rocking valves.

Address,

Ewd. P. Allis & Co., MILWAUKEE, WIS.

#### Bennett's Patent Elevator Bucket.



CHEAPEST

STRONGEST BUCKET

Manufactured. Made of either plain or galvanized iron. Send for Cir-culars and Price List to

BROWER & BENNETT, Fox LAKE, WIS.

## SMITH BROTHERS Practical Millwrights.

Plans, Specifications and Estimates made for all kinds of

### MILLWORK, MACHINERY, Etc., Etc.

Flour, Sawmill, Tanners' and Brewers' Machinery, and General Mill Furnishers.

No. 454 Canal Street,

MILWAUKEE, WIS.

### IMPORTANT TO MILLERS.

The principals of a Cork firm (Ireland), long established and largely connected, are desirous to treat with an extensive miller respectfully for supplies of Flour, Maize, Meal and Oaten-meal, for cash, or usual terms with bankers' guarantee. Prompt communication (including best terms) to B. H., office of this paper, respectfully requested.

# EXPORT FLOUR.

We are prepared to furnish the trade with any of our well-known brands of Flour, in sacks or barrels. Address all communications to

# MILWAUKEE MILLING CO.,

Milwaukee, -Wisconsin.

## Mill Pick Works

HENRY HERZER.

456 Canal Street,

MILWAUKEE,

WISCONSIN.

I desire to call attention to the durability of MILL PICKS made and dressed by me. I manufacture them of the best ENGLISH STEEL, and warrant all work to give satisfaction.

I shall be pleased to receive your orders, as I always have a supply of New Picks on hand, and give particular attention to dressing Picks.

#### GET THE BEST.



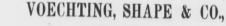
MILLER'S PATENT COMPOSITION BURR RUBBER.

For Cleansing, Sharpening, and Facing Burrs, and Smoothing Furrows.

Warranted to produce a better grinding surface than the Pick or Diamond and save 50 per cent of labor in dressing Burrs and expense for tools. Face Rubber 10 x 6 x 3 in., weight 12 lbs., price \$3.00. Furrow Rubber, 10 x 6 x 1 ½ or 1 ½, 1 ½ or 2 in. as required, price \$2.50 or both for \$5.00. Sent by express on receipt of price. Circulars free. Address all orders to the sole manufacturers,

MILLER & McCARTHY,
dec Mount Union, Penn.

### BOTTLED BEER.



Joseph Schlitz Brewing Company's Celebrated Milwankee Lager Beer Cor. Second and Calena Streets,

MILWAUKEE

BOTTLERS' SUPPLIES CONSTANTLY ON HAND Parties corresponding will please state where they saw this advertisement.

# ROLLER

## ENTIRELY SUPERCEDING MILL-STONES.

Wegmann's Patent Porcelain Rolls. Grooved or Fluted Chilled Iron Rolls. Smooth Chilled Iron Rolls.

All in our Improved Frames, which is the only one made which admits of perfect horizontal and vertical adjustment.

ALL LICENSED UNDER DOWNTON PROCESS PATENT.

## The Reynolds-Corliss Engine

Which has given on trial the best economy and regulation known in steam power.

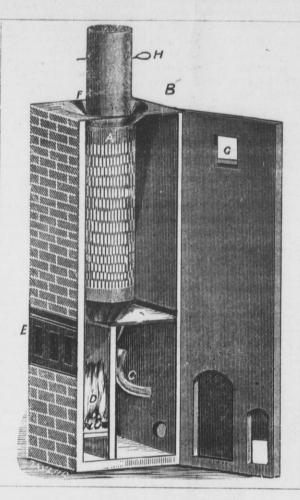
We shall be pleased to correspond with any parties desiring prices and information relative to mill machinery or steam power.

## Edw. P. Allis & Co.,

MILWAUKEE, WISCONSIN.

## Schroll's Improved GRAIN DRIER.

by DRIER America The Only Recognized GRAIN Brewers and Millers



The Millers and Brewers in America Recognized DRIER by

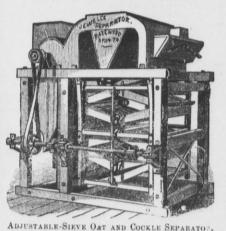
For further information apply to or address

## CARL SCHROLL,

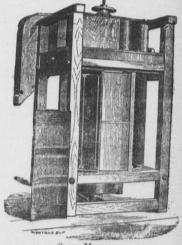
Care of C. Schotte.

24 and 26 S. Canal St., Chicago, III.

THE JEWELL



ADJUSTABLE RAKES'



SMUT MACHINE

C. RAKES, Lockport, N. Y.

### JOHN C. HIGGINS,



All work fully guaranteed. Responsible parties can have 30 to 60 days' trial on my new work, also on dressing where the Steel is of good quality, and has not been destroyed by working; and if not superior to any work produced in this country, there will be no charge for the same. A stronger warranty is unnecessary for any

ORDERS BY MAIL OR EXPRESS PROMPTLY ATTENDED TO Send for circular and reduced price-list. proper address is either on the box or inside When shipping, always see that your

PRICE LIST OF THE

### ${f RIVET}$ (Mill) ${f BUCKET}$



#### FLOUR TRIERS.

Of every description—Pearl, Ivory, Silver, Celluloid, Shell, Steel and Nickel Plated. As I am the only party in the world that makes a specialty of Flour Triers, and Patentee and Sole Manufacturer of the

BOARD OF TRADE

I can furnish them of any material, size or color known. I have the exclusive comtrol of the Celluleid Trier, and put them up in all colors and styles—Red, White, Blue, immitation of Malachite, Shell and Pearl. They are perfect beauties, as well as useful articles, as Celluloid is one of the hardest substances known after undergoing a certain process.

All orders promptly filled at wholesale or retail.

H. J. DEAL, Buoyrus, Ohio.

jy

Eastern office, 35 Union Square, N. Y.

British and Irish Flour Mills.
DEPTFORD BRIDGE MILLS, LONDON.

The owners of this establishment, the Messrs. J. & H. Robinson, have been long known in the trade in connection with the Lewisham Mills, and the success they achieved there naturally resulted in the further development of their business, which had taken place in the vicinity of Deptford Bridge.

Messrs. Robinson have been connected with milling and farming for many generations, the family having owned and occupied a farm in

the lower part of Surrey unin terruptedly since 1637, where the present members of the firm were born, and which they continue still to own and occupy. At the time the Lewisham Mills were started one of the members of the firm, Mr. Henry Robinson, now President of the London Millers' Association, and Treasurer of the National Association of British and Irish Millers, was in the United States. but soon after he joined his brother in the management of the Lewisham business, bringing to the work the experience & he acquired in America, and a large share of that sympathy with progress which a period of sojourn in that country usually inspires, more especially in those naturally endowed with progressive proclivities. At the time the site of the Deptford Bridge Mills was acquired by the firm one side of it was occupied by an old malt-house, and the other by an old floor-cloth manufactory. The site is convenient for milling purposes, being connected with the Thames by a tidal dock, navigable for barges for the reception of wheat. The west side of the building is washed by the small river Ravensbourne, on its passage to the Thames, but this stream is not available to a great extent as a means of transit, either for the produce of the mill or the material to be manufactured into flour. One portion of the site, which is all freehold, was purchased by the firm

about 1867, and the other 1870. It was originally intended to proceed with the building upon the portion of the site first acquired, but subsequently the other portion, that occupied by the floor-cloth manufactory, came into the market, and recognizing the advantage of the larger productive power which a more ample building space would place at their disposal, the firm deferred building operations until the additional site was secured.

The building was commenced in September, 1870, Mr. Edward Badger, Blackheath Road, who subsequently erected the fabric of the Royal Mills, Vauxhall, being the Architect. The style is a modification of the Lombard-Venetian, the material being white brick, with the exception of two stone courses, the window and door arches being composed of red brick, an arrangement which adds materially to the architectural effect of the structure. The extreme length of the building is 92 feet, the width 66 feet, the height to the eaves 56 feet, and to the peak of the roof 76 feet. The roof is surmounted by a vane 19 feet high, and the chimney stack rises from its floor line to a height of 114 feet. The building has seven stories, the two first, from floor to floor, being 10 and the others 9 feet respectively, and is

composed of two distinct parts, the western portion comprising the mill, and the eastern the granary, the two divisions being divided by a substantial brick wall and double iron doors. The floors are supported on cast iron columns about 9 inches diameter, and massive wooden beams, which, in the granary department, over the dock, are further strengthened by trussed wrought iron girders, firmly fastened into the side walls, and varying from an inch and a half to two inches in diameter. Although not fire-proof, technically speaking,

were excavated to the depth of about 20 feet, and rest upon a solid basis of dry gravel. The foot courses are about 7 feet in thickness, and the walls which rise upon them are of proportionate strength and solidity. In making the excavations the trunk of a tree was found at a depth of upwards of 20 feet, a human skull, and the skull of an animal of the deer species. A Roman coin was also found.

The boiler house is attached to the mill on the north side, as shown in our engraving. The boilers, which occupy a compartment by

about 6 feet 8 inches diameter, and 101 inches on face of cog, the second motion pinion on counter-shaft being about 3 feet 71 inches diameter. The first length of counter-shaft is 8 inches, and diminishes to 5 inches diameter, the counter-wheels being 4 feet 2 inches diameter, and the pinions 2 feet 1 inch, the mill-stones making 120 revolutions per minute. The hurst frames are of iron, with iron pans bolted to the top of the frames, and provided with levelling screws. The wheat-cleaning machinery is driven from an upright shaft,

[which is worked by gearing. The flour-dressing machinery is driven off a main shaft which runs through the entire mill, and is actuated by a strap from the counter shaft communicating motion to all the other shafts, sack hoists, etc., and to all the wheat-cleaning arrangements in the event of the gearing getting out of order, or should it be under repairs. The power of this purpose can be taken from either engine. Some of the counterwheels are interchangeable, in two halves, planed together, there being sixteen pairs at work. All the gearing, shafting, and erecting within the mill was done by Mr. John Smith, Grove Iron Works, Carshalton.

In describing the internal working of the mill we commence with the wheat, chiefly brought to the premises in barges by means of the tidal dock already mentioned, and which is continued under the first floor of the granary. The wheat-laden barge, by this arrangement, is brought immediately under the sack tackle by which it is raised to the various floors of the building. From the fifth floor of the granary the wheat is shot from the sacks into bins over the wheat-cleaning rooms, occupying, as has already been stated, two floors, and isolated as we have seen from the granary and mill by a strong party wall and double iron doors, with fire-proof roof and floors. The machinery here is driven by belts from an upright shaft,

and consists of two sets of machines which can be worked independently. The system of wheat-cleaning adopted is effective. All the dust attendant upon the operation is driven by the fans of the machines into stive passages, ventilated through air shafts surmounted by cowls, and a few seconds' residence in one of these passages while the machines are at work will convince the visitor that the work is being well done. These stive passages are perfect tempests of matter in the wildest state of commotion, the matter being the various finer impurities that have been taken from the wheat by the different processes of cleaning. From the cleaning machinery the wheat is elevated to the top of the mill, and run into the different bins connected with the mill-

Turning to the mill, we find in its internal organization evidences of that departure from English traditional methods of milling which have begun to make themselves manifest in this country. Here the departure is certainly not of that extremely radical type which indicates a complete severance from the anchorages which were formerly deemed alone safe.



DEPTFORD BRIDGE MILLS, LONDON.

care has been taken in the arrangement of the internal structure to minimise the risks from fire. As has been stated, the granary is divided from the mill by a strong brick wall and double iron doors, and the wheat cleaning department, which extends through two floors of the building, is completely isolated from the mill and the granary by similar means.

The advantages, so far as the safety of the general structure is concerned, of this isolation were strikingly exemplified in a fire which originated in the wheat-cleaning department of the mill on Sunday morning, September 16, 1877. The entire machinery contained in the department was destroyed, but, in consequence of the localization of the fire by the structural arrangement of the room in which it originated-from an unknown cause, the mill being standing still at the time-every other part of the building and its contents were untouched. In the building itself ample provision is made by means of hydrants, etc., for meeting any sudden outbreak of fire, while in the working of the establishment the greatest precautions are taken to obviate the peculiar dangers of conflagration that are incident to flour mills. The foundations of the building

themselves, are three in number, two being of the dimensions of 7 feet 6 inches by 20 feet, and the third 8 feet 6 inches by 20 feet. All these are used for the supply of steam for the engines. The motive power consists of two compound condensing beam engines, each of 40 horses nominal, manufactured and erected by Messrs. Wentworth & Sons, of Wandsworth. The slide valves are worked by a single eccentric in each engine. The fly wheels are 16 feet 9 inches in diameter, and each weigh about 10 tons. Each engine is controlled by a "Pitcher's" hydraulic regulator, which answers admirably. We may add that one engine was erected in 1872, and indicated by the makers in 1873, when the gross indicated power, with 50 pounds pressure of steam in the boiler, and 32 revolutions per minute, with all work on, was 74 horses, and the indicated power when running empty at the same speed and pressure was only 2.5 horses. The loss by friction, therefore, was under 4 per cent, which fact speaks for itself as to the efficiency of the engine. The second engine was erected in 1875, and has not been indicated.

The first-motion wheel oh the crank shaft is

[Concluded on page 74.]

### UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY. OFFICE, 62 GRAND OPERA HOUSE, MILWAUKER, WIS. AH Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker. Bills for advertising will be sent monthly unless other-wise agreed upon.

MILWAUKEE, SEPTEMBER, 1879.

WE are indebted to Messrs. Marshall Bros., of Milwaukee, Wis., for a number of late Australian newspapers.

SUBSCRIBERS changing their location and writing to us to send the MILLER to their new address, will confer a favor by stating what their former address was.

MR. L. O. DICKSON, of Athens, McMinn county, Tenn., would like to have manufacturers of mill machinery send him their catalogues. He desires to make some extensive improvements.

We will send a copy of the MILLERS' TEXT BOOK, by J. M'LEAN, of Glasgow, Scotland, and the UNITED STATES MILLER, for one year, to any address in the United States or Canada, for \$1.25. Price of Text Book alone, 60 cents. Send cash or stamps.

THE Milwaukee Chamber of Commerce has fixed the following as a car load of grain: Wheat, 20,000 pounds; corn or rye, 18,000 pounds; oats or barley, 16,000 pounds. These weights have been fixed upon to accomodate the varying bulk of different kinds of grain in proportion to their weight.

THE great Agricultural Fair will be held in Kalamazoo, Mich., Sept. 23d to 26th, in National Park. Hon. Frank Little, late Secretary of the Millers' National Association, is Secretary of the society, and that accounts in a great measure for its success. The UNITED STATES MILLER hereby returns thanks for compliments extended.

#### The Oesterreichische Gartenlaube.

The above named journal is published at Vienna, Austria. It contains weekly, chapters of excellent novels, with many beautiful illustrations of art and of the latest inventions in Europe and other countries. 'The circulation of this paper is very extensive (some 30,000 per week) wherever the German language is spoken. As an advertising medium, it is of great value. We would advise our German reading friends to send for a sample copy, and we think they will be sufficiently pleased to subscribe. Address as indicated above.

MONTANA.-Montana, during the past sixteen years, has produced \$153,000,000 of gold and silver. This makes Montana rank next to California as a producer of gold. There are already 200 quartz-mines in the Territory. Iron and lead mines have been opened, and coal is plentiful. It is claimed that the cost of keeping herds of cattle in Montana is only 60 cents a head. Including taxes, a 3-year-old beef steer, which will sell on the ground for \$30, only costs \$3 for feed and care. The losses in raising are 2 per cent, while the profits vary from 25 to 40 cents per annum. In 1873 there were 250,000 head, while 22,000, valued at \$440,000, were exported to Eastern markets.

STRUCK IT RICH.—We clip the following paragraph from the La Plata (Colo.) Miner:

John W. Collins, of Chicago, a member of the firm of Collins & Gathmann, dealers in flour mill machinery, has been spending several weeks in Silverton and vicinity, and left for his home last Monday. Mr. Collins has made a host of friends during his visit here, and what is better, has secured by purchase and bond \$150,000 worth of mining property, which includes some as fine lodes as there are in the country. It is the intention of Mr. Collins to return to Silverton this fall and he will open and develop several of his valuable mining interests.

We are glad to note this piece of good fortune to Col. Collins. There is no doubt but with his characteristic energy and unquestioned financial and executive ability, he will reap a rich reward.

No More Elevator Falls.—Chicago ingenuity seems to have invented a very simple and effectual method of preventing elevator accidents. The bottom of the elevator passage is made an airtank, and so arranged that a falling elevator cab compresses the air gently, but completely arresting the violence of the fall. At a trial made at the Chamber of Commerce, 5,000 pounds of pig iron

being placed on the floor of the cab, which weighs two tons, the eggs and glass globes placed on the floor with the iron were unbroken. Two men came down at another trial, one with a basket full of eggs and wine glasses, and one with a brimming glass of water; nothing was broken and but little of the water was spilled, and the passengers described the sensation as being like jumping into a hay mow. The rush of air caused by the falling elevator made an appalling noise, but did no harm. Such secure alacrity in sinking has never before been heard of. -Exchange.

#### Cream City Notes.

The Milwaukee Middlings Millstone Co. have just received a large supply of violet blocks direct from France.

The Milwaukee Middlings Millstone Co. are now making plans for a large mill in Russia.

Work is being rapidly pushed on the new mill which is being built in this city by the Milwaukee Middlings Millstone Co.

The Milwaukee Middlings Millstone Co. are now rebuilding the mill of Mr. R. P. Owens, at Auoka, Minn., which was destroyed by fire last spring.

The Milwaukee Middlings Millstone Co. are furnishing five sixteen-inch mills to Mr. C. L. Coleman, of LaCrosse, Wis.

The Milwaukee Middlings Millstone Co. are refitting the Northwestern Mills in this city.

The Milwaukee Middlings Millstone Co. have a number of heavy contracts in Colo-

The Milwaukee Middlings Millstone Co. are shipping a large number of mills to England.

The Cockle Separator M'fg. Co. are selling their machines as fast as they can make them, and are working their force to its utmost ca-

The Cockle Separator M'fg. Co. will have their machines on exhibition at Minneapolis, Minn., Cincinnati, O., and Louisville, Ky.

#### Walker's Belt Tightener.

WHAT JOHN T. NOYE & SONS AND THEIR SUPER-INTENDING MILLWRIGHT, MR. IRA WES-COTT, SAY ABOUT IT.

We are pleased to inform the milling fraternity that we have known Walker's belt tightener from the first, and that it bore an excellent reputation with millers of our acquaintance who were using it.

The material and plan of its construction insures durability, stability of form, ease, convenience, and economy in operation, and safety against the wear and tear of belts and heating of journals. We consider it a valuable acquisition in the line of mill fixtures, and recommend it as worthy of favorable consideration and liberal patronage.

Since in the spring of 1878 we have purchased tighteners of the inventor and proprietor, Mr. Geo. Walker, Hamburg, Erie County, N. Y., to supply mills of our construction in various parts of the country, and as yet having heard no complaint, we conclude that it gives general satisfaction. Mr. Walker is a skillful millwright, with whom we have been personally acquainted and had dealings in onr line, during the last twenty years or more; and we take pleasure in saying that we regard him as an honorable and fair dealing man, who is entitled to the confidence of all who have occasion to deal with him.

JOHN T. NOYE & SONS. IRA WESCOTT. Buffalo, N. Y., Aug. 28, 1879.

The German Millers' Verdict.

BODMER'S BOLTING CLOTH TAKES THE FIRST PRIZE.

The subjoined letter will show in what high estimation the Bodmer Bolting Cloths are held by the milling fraternity in Germany. These bolting cloths have given general satisfaction wherever used in this country. They are represented by Mr. H. Pestalozzi, of 11 Dey St., New York, who will be happy to furnish millowners with samples and price list:

Office of H. Pestalozzi, Importer of H. Bodmer's Bolting Cloths, 11 Dey St., New York, Aug. 13, 1579.

Editor of the United States Miller-Dear Sir: My Zurich house informs me of the agreeable news that the Bodmer Bolting Cloth was awarded the first prize at the recent International Exhibition of mill articles and machinery at Berlin, Germany. The verdict rendered by the jury was as follows: "For a very good silk bolting cloth." This is the highest distiction for this article. It is very gratifying for me to inform you that the sale of my fying for me to inform you that the sale of my cloth is rapidly increasing. Especially where strength and regularity of meshes is the chief requirement the Bodmer brand finds ready buyers, and I am glad to state that almost all important middlings purifier manufacturers ne. Very Respectfully HENRY PESTALOZZI. are customers of mine. Yours,

America, the Leading Wheat Country.

A little over thirty years ago the Republican notes that grain was imported to this country from the Black Sea. During the crop year on which the country is just entering it claims that it is certain that 160,000,000 bushels of wheat will be exported to Europe, and the amount may reach 200,000,000 bushels. The grain is in this country; the only question is one of demand. The demand last year from Europe was for 150,000,000 bushels, out of a crop estimated at 420,000,000 bushels. The production this year is larger. It is one-fourth larger in Kansas. In Minnesota the production this year is 40,000,000 bushels, a large advance over last year, the grain fields of Southern Ohio show an unprecedented yield, so do those of Iowa, and in Indiana the crop will, in some cases, pay for the ground on which it stands. The wheat acreage of the country is put at 32,000,000 acres, an increase of one-fifth in two years. The average yield is placed at 12 bushels an acre and the acreage at 31,000,000 acres, by Alexander Delmar, who wrote to the Times in the close of July, after a trip through the wheat fields of the West, ending at Ogden. The statistican of the New York Produce Exchange puts the average yield at from 11 to 12 bushels, other more sanguine estimates carry it up to 13 or 14 bushels an acre. The lowest estimate yet made places the crop at 360,000,000 bushels, the largest at 440,000,000, and a crop of 420,-000,000 may be reasonably counted upon. This is an increase in ten years of 133,000,000 bushels in the annual wheat production of this country, and an increase nearly equal to the total harvest of twenty years ago. Out of this year's harvest, reckoning the population in this country at 48,500,000, 194,000,000 bushels will be needed for consumption and 50,000,000 for seed; in all, 244,000,000; leaving, at the highest estimate, 196,000,000 for export, to which may be added 20,000,000 bushels left over from last year's crop. Whether the European demand will equal the amount of surplus wheat in this country is considered by the Republican as doubtful. It will unquestionably equal last year's demand, and the value of the breadstuffs exported during the coming year will probably reach \$150,000,000, and may rise to a higher figure. The unknown quantity in the wheat supply of the world is Russia. Its harvest has been pronounced far under the average for weeks past, but recent advices tell a different story. At best, however, nothing more than an average surplus for export is to be expected, not over 50,000,000 bushels; and if this is supplemented by the usual European import of 20,000,000 bushels faom Roumania, and 5,000,000 from Canada and Australia, the total wheat supply which Europe is likely to receive from points outside of this country may be placed at 75,000,000. The current deficiency in Europe is placed at from 225,-000,000 to 275,000,000 bushels. The demand in England is clearly known. It will amount to about 110,000,000 bushels. The demand in France can be less accurately estimated. All Northern Africa is in a state of famine, or is producing barely enough for its own supply, leaving nothing for export. This cuts off one French source of supply in Algeria. The crops in Northern Italy have failed, and Italy is importing grain already, instead of exporting it, which closes another region from which France obtains grain. The potato crop in Northern France has generally failed, and the local food supply all over the Republic is deficient. It is a low estimate, then, which places the French demand for wheat at 100,000,000 bushels. The rest of Europe will probably need 75,000,000 more, but may need less. The food supply of a continent is not a thing easily reduced to figures. Moderate estimates, hower, place the demand at a larger figure than the amount of the probable surplus in this country. It will probably all be needed, but our authority is not likely that it will be called for at high prices. This is the present outlook. Very trifling causes may change the existing condition of affairs in favor of high prices. One thing is certain; no crop of wheat ever harvested in this country will be carried to market more cheaply, and none, therefore, will leave a larger margin of profit in the hands of farmer. - Springfield Republi-

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 adN. F. Burnham's Turbine Wheel.

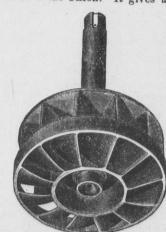
The economy in the use of water-power by the turbine wheel which always receives the full hydraulic pressure through a discharge tank above the wheel, has long ago superceded the more cumbrous and less economical modes where the old-fashioned breast and overshot wheels were used. The great saving in actual power, and certainty of action till the power is exhausted, is known to all practical machinists. Consequently upright wheels, running on pinions, utilizing the entire force of the water pressure, have become the only wheel in use when economy of power is desirable.



N. F. Burnham's Standard Turbine Wheel (vertical view).

N. F. Burnham, a scientific and practical millwright, has been engaged for the past 20 years in building water wheels on the turbine principle. Since 1860 his wheels have had a national reputation, and during the intervening period it has been his constant study tofurther utilize the known waste of actualpower arising from friction, and known mechanical imperfections in the modes of construction. His investigations have resulted in constant improvements, which have been patented from time to time.

He discovered at last the point where durability superceded in importance any possible increase of power, and knew enough to stop then. The result of his life work is the most perfect and durable wheel for the utilization of water power under all conditions-a tight head and great volume, or small volume and large-head, ever invented. His latest catalogue shows testimonials from first-class firms of undoubted judgment and integrity, from every State in the Union. It gives a detailed



N. F. Burnham's Standard Turbine Wheel (re-

description of its improvement and peculiar advantages over other wheels made on the turbine principle; full directions for its use, illustrated with cuts that will give any machinist a clear idea of the wheel and its peculiar excellencies, as compared with other upright submerged water-wheels.

The accompanying cuts give a vertical and reverse view of the wheel. For orders, catalogue, or illustrated pamphlet, address,

N. F. BURNHAM,

P. O. Box 513. York, Pa.

THE wheat crop is too large for grinding in the United States. It will do its work in the manufacturing of wheat into flour, and the millers will select the best samples possible for milling purposes. The hard varieties of spring wheat have heretofore furnished millers, under the patent process, with the only grain subject to successful use. With improvements in machinery, it is said that winter grown wheat, of hard varieties, are being successfully used, and yield a better and whiter patent flour than spring wheat. Clawson winter wheat seems to have all the requisites, so far as hard granules and thin skin go, to produce a good result from the im-proved process of manufacture. If winter wheats could render the proper yield under the new process, a new adjustment of prices would be inevitable.

WE call the especial attention of persons desirous of purchasing milling property, on reliable water-power, to the notice in our "Sale and Exchange" columns, of Matthew Bros. Furniture Co. The property they offer is in one of the most thriving villages in Wisconsin, the water-power is never-failing, the price and terms reasonable, and the title perfect

#### IMPORTANT NOTICE.

TO THE PARTY RECEIVING THIS PAPER WHO IS NOT ALREADY A PAID SUBSCRIBER.

We hereby extend to you a cordial invitation to become a subscriber to the UNITED STATES MILLER. We shall endeavor to make it of the greatest possible use and benefit to the milling fraternity, and no mill should be without it. The best talent that we can obtain in this and other countries will contribute to its columns, which will also be enriched by carefully translated articles on subjects of interest to the craft. Subscription price, \$1. Enclose money or stamps in an envelope, seal carefully, and send at our risk. By return mail you will receive a receipt therefor. Address

THE UNITED STATES MILLER,
Milwaukee, Wis.

JOHN BULL CONSIDERS.—The Pall Mall Gazette (London) gives the following serious solilloquy on the chances of paying the American granger for his wheat:

As the probability increases that all Western Europe will have to import largely from the United States during the next twelve-month, there is a speculation as to the means of payment that will be resorted to. When possible, we may be sure, gold will not be sent, and the experience of the past couple of years points to the employment of Stock Exchange securities. The supply of these, however, is now scarce, at least of the first class. But doubtless they will be used as largely as possible, and the opinion seems to be that the currency bonds of the better railways will come into favor. Already there is more inquiry for these. But this is another side of the question, which does not seem to be sufficiently attended to If the demand for American produce is as great as is now expected, prices must certainly rise, and American agriculturalists, who have now enjoyed two exceedingly good harvests in succession, will be enriched by the proceeds of a third, disposed of on exceptionally favorable terms. They will consequently have the means of expenditure on the old scale, and will naturally increase largely their purchases of English goods. This will directly stimulate English manufactures, and indirectly augment the means of paying for grain and meat—that is to say, it will diminish the margin to be paid for by either securities or gold The Board of Trade returns for June showed that the Americans are already increasing their purchases, and under the circumstances we are now supposing that they will certainly increase them still more.

#### The Pacific Wheat Fields.

The San Francisco Journal of Commerce, in viewing the future possibility of the great wheat fields on the Pacific coast, ruminates thus:

Europe requires 300,000,000 bushels of wheat this year, but she will not always require them—wet years and tempestous will not always destroy the harvest. Three hundred million bushels are more than the equivalent of a bushel for each individual of her immense population. One-half of all the people of Europe, however, never use wheaten bread—it is therefore the equivalent of two bushels per head of those who use wheat. The average per head is four bushels, so that this would indicate the production of not more than half enough by Europe to supply its people. Europe this year, therefore, if the 300,000,000 estimated be true, requires twice as much as she does in ordinary years; her ordinary need being 150,000,000 of bushels. Part. however, of this 60,000,000 of bushels is generally supplied as a surplus by Russia, which the statisticians do not seem to take into account when estimating the crop of Europe. With them Europe is Western Europe. The normal needs of the world, therefore, may be estimated at 150,000,000 bushels annually, of which California has never supplied more than 18,000,000—California and Oregon never more than 25,000,000.

But these two States have 43,000,000 acres of wheat lands—California, 25,000,000; Oregon, 18,000,000—of which not more than one-seventh has ever been under cultivation. We, that is California and Oregon, can therefore supply the world of Europe with 156,000,000 bushels, and the people of China and Central America, etc., with seven times as much flour as has ever been shipped there. That is to say, these two 'tates of the Pacific coast can supply all the usual needs of Western Europe. To do this, however, would require an agricultural population, or one devoted to the raising of wheat, about seven times as large as it now is. That is, a population of 350,000 workmen, or over a million of men, women and children, and 2,000,000 of general population. At a rate of increase of a hundred thousand population a year, it would take us twenty years before we reached that. But by that time the wheat eating population of the world would nigh have doubled; while a great deal of what are now wheat lands on this coast, one-third of them at least would have ceased to be used for that purpose. It does not therefore seem as if we should have much cause to fear that we shall ever be able to raise too much wheat.

THE INTRODUCTION OF WHEAT.—It is difficult in the present day to realize the fact that wheat was at one time unknown to America, yet prior to the discovery of this continent by Columbus there was no cereal in America approaching in its nature to the wheat plant. It was not, observes the American Miller, until 1530 that wheat found its way into Mexico, and then only by chance. A slave of Cortez found a few grains of wheat in a parcel of rice and showed them to his master, who ordered them to be planted. The re-

sult showed that wheat would thrive well on Mexican soil; and to-day one of the finest wheat valleys in the world is near the Mexican capitol. From Mexico the cereal found its way into Peru. Marie D'Escobar, wife of Don Diego de Chauves, carried a few grains to Lima, which were planted, the entire product being used for seed for several successive crops. At Quito, Ecuador, a monk, of the order of St. Francis, by the name of Fray Jodosi Bixi, introduced a new cereal; and it is said that the jar which contained the seeds is still preserved by the monks of Quito. Wheat was introduced into the present limits of the United States contemporaneously with the settlement of the country by the English and Dutch.

#### Latest Statistics of Foreign Trade.

From the monthly report of the United States Bureau of Statistics, presented to the Treasury Department Aug 29, 1879, we present the following:

The exports and imports of gold and silver coin and bullion were as follows:

The imports and exports of the United States for July, 1879, were as shown by the following table:

Customs Districts.	Imports.	Dom. Ex.
Baltimore, Md	\$ 1,421,962	\$ 6,147,933
Boston, etc., Mass	3,679,703	4,241,249
Brazos, etc., Texas	77,433	92,695
Buffalo Creek, N. Y	180,970	92,695 19,256
Cane Vincent, N. Y.	22,031	5,673
Boston, etc., Mass	180,644	73,844
Charleston, S. C	25	132,371
Chicago III	69,139	567,414
Chicago, Ill	25,559	24,782
Detroit, Mich	119,006	107,128
Galveston, Texas	4,484	86 506
Huron, Mich		86,506 301,701
Key West, Fla		111,180
	0.057	591,477
Miami, Ohio	2,257 1,753	383,501
Milwaukee, Wis	107,618	82,300
Minnesota		
Mobile, Ala	537	42,829
New Haven, Conn	76,973	1,119,806
New Orleans, La	428,215	844,820
New York, N. Y	28,985,636	28,468,272
Niagara, N. Y	213,087	1,906
Oswegatchie, N. Y	62,347	35,475
Oswego, N. Y	160,596	150,958
Passamaquoddy, Me	47.287	39,553
Pensacola, Fla	2,379	87,820
Philadelphia, Pa	2,060,724	3,413,161
Portland, etc., Me	72,078	101,078
Pudget's Sound, W. T	1,141	19,097
Richmond, Va	2,804	156,698
Saluria, Texas	2,539	61,853
San Francisco, Cal	2,733,409	1,558,925
Savannah, Ga	423	142,315
Wilmington, N. C	1,262	260,810
All other ports	477,322	511,083
Total	41,282,290	49,985,469

From the above it will be seen that the bulk of foreign export trade is done by the five ocean ports of New York, Baltimore, Boston, Philadelphia, and San Francisco. The volume of foreign trade is in the order of the places as printed. The favorable balance of trade as between exports and imports is decreasing, as compared with 1878.

The report shows the following comparative figures on excess of exports of merchandise: Excess of exports over imports for the month of July, 1879, \$9,573,174; for the past seven months, including July, 1879, \$124,609,785; for the past twelve months, ending July 31, 1879, \$263,572,039. For corresponding periods of 1878, the excess was for July, \$10,662,751; seven months, \$166,317,286; twelve months, \$270,893,055.

In regard to movement of coin and bullion the report shows as follows, for 1879, ending July 31: twelve months' exports, \$5,280,083, against imports of \$195,504 for corresponding period ending July 31, 1878. For the seven months ending July 31, 1879, the exports were \$7,583,681, against \$310,055 in 1878. For July, 1879, the imports of coin and bullion were \$59,924, against \$638,566 in July, 1878.

The total balance of foreign trade, including merchandise and specie, compares as follows: July, 1879, excess of exports, \$9,513,250; 1878, \$10,024,-185; for past seven months, \$132,193,466, against \$166,618,341 in 1878. For corresponding twelve months ending July 31, the excess is for 1879, \$268,852,172; for 1878, \$270,697,551.

From these figures, which are official, it appears that the balance of trade in favor of this country is not so large as one year ago, and that the influx of specie is less.

The following details of the cost of put lie buildings is interesting: The St. Louis building, commenced in 1872, which is now receiving its cornice, has cost \$4,700,000. The Chicago building, which was commenced in 1873, has already cost \$4,900,000, and the last Congress made an appropriation of \$525,000 to complete the building this year. The Cincinnati building, commenced in 1873, has cost to date nearly \$4,000,000, and is the least advanced. The Philadelphia building was commenced in 1873, and has cost thus far \$4,300,000. The Boston building is about completed, and the Chicago building will probably be completed next year. The other three large buildings are well advanced and ought not to be long in completing. When these five great structures are completed they will have cost the Government upwards of \$25,000,000, and their completion will save the Government from further appropriating on an average of from \$1,500,000 to \$2,000,000 a year.—St. Louis Journal of

#### Grain Mixers and Barley Doctors.

The grades of grain for storage in Milwaukee are more specifically described than in Chicago, and, on the description, are better than like grades in Chicago. Nevertheless they do not always sell for more, and in some cases fall to meet a consumptive demand here, when such is good in that city.

The difficulty is quite marked in barley. The Chicago elevators were, months ago, cleared of barley while a fair stock, in bushels, remained here, which nobody wanted. This little obstacle between the elevators and the consumers is apparent to us, and is to be removed in a very simple way by action on the part of the Milwaukee Chamber of Commerce. It should forbid the recieval, into the elevators, of all wheat or other grain, under grade inspection, known to have been manipulated or mixed, except it be put into special bins, and the receipts for the same so specified.

Chicago, with all her faults, and they are many, will not cut her throat by opening her elevators to either wheat mixers or barley doctors. The trade condemns itself in its inception. It is intended to make something bad appear good by hiding it. A person buys a carload of light, shrunken wheat, weighing 48 lbs. per measured bushel, and hides it by mixing with a sufficient quantity of a better grade, or if sprouted, smutty or cockled lots can be got, which millers have rejected, by scouring off the defects, and mixing, passes it as sound wheat on the very millers who had rejected it before. The deterioration of wheat for milling purposes by hiding the natural and apparent defects of the grain from the miller are so serious that no miller will order without personal inspection of a grade where professional scourers and mixers have been free to put the results of their skill in the same bin with virgin wheat that has not been manipulated.

It is worse with barley, as on the growing qualities of barley depend its only virtue for malting Shrunken or bleached grain that is smuggled in by professional mixers is a pure and unadulterated swindle on the malster. The receiving of mixed wheat and doctored barley into the ele vators under the established grades of the Chamber of Commerce, is destined to work great mischief to the trade in these two great staples. Why not stop it as they have already done in Chicago? It is useless to try to induce an immigration of all the men to Milwaukee who want to make something out of less than nothing, and that is what every wheat and barley mixer expects to do; since he pays full price for the raw staple, pays the cxpense of mixing and handling, thereby injuring the grain for practical purposes, and then gets a profit out of the Milwaukee Board of Trade inspection besides. The Board cannot afford to foster this peculiar branch of business.

#### Scoured Wheat.

The industry known as wheat scouring, is deprecated by all flour manufacturers. The Chicago Journal of Commerce goes for it in a style we most heartily endorse. It says:

The question of "scoured" wheat has again been brought to the attention of the Directors of the Chicago Board of Trade, and it is quite probable that steps will be taken to bring the matter before the State Board of Warehouse Commissioners, to whose action the millers will undoubtedly look for relief. Some time ago we made reference to the process of "scouring" wheat and its general practice among country shippers. The object of scouring the wheat is to clean it thoroughly, thus extracting from the grain every trace of what may be termed bogus kernels. "Grown wheat in a car at once deteriorates its value for milling. No manufacturer of flour who values his reputation, or the flour he makes, will touch wheat so tainted, but by the process of "scouring" all traces are obliterated, and it becomes impossible to detect the presence of objectionable matter in bulk. While we have already a very large number of grades of wheat, it is thought a separate grade ought to be established for this quality. For milling purposes it is practically useless, and if manufactured the flour made from it will not rise, even though the best hop yeast, Price's baking powder, or any other of the "rising" powders of the day are used, without stint in the kneading of it. The complaints of this scoured wheat are not confined to Chicago, by any means; they are frequent at Milwaukee, at Minneapolis and at other great milling centers, both East and West.

A WAR CLOUD IN RUSSIA -Russia is at this moment in the midst of great military preparations. Her arsenals are day and night at work. Private letters that come from perfectly trustworthy sources tell us that she has already a store of guns and amunition sufficing for 3,000,000 of men. Moreover, in a single year she has cast no less than twenty-five hundred cannons, on a model newly introduced from England. Against whom are these preparations levelled? Are they aimed at Austrian Hungary or at Germany? One is tempted for an instant to believe that the Russians mean to bring at once to a head the issue which is certain to rise between them and the Hapsburg dynasty, with reference to the limits of their respective spheres of activity in the East. But, if our news be true, the sentiment which really governs them is one of jealousy toward Germany, whose influence in Europe they view with distrust. Prince Gortschakoff cannot forgive himself for having with his own hands pushed the Iron Chancelior to power and having put within his grasp the incredible successes of to-day. Prince Bismarck, on the other hand, believes that his work would be incomplete unless he conquered the Baltic provinces. Thus the two great statesmen, allies in the past, rivals in the present, are linked by this common hope—that by creating a powerful division in a foreign country one may

contend with the socialism of Germany, the other with the nihilism of Russia. That is the duel which is now in the air, as surely as was that of France and Germany after Sadowa.—Le Messager de Vienne.

FASTING.—Hard on the heels of essays treating on the evil of over-eating, comes one which discusses the opposite error. A large list might be made out of eminent men who have died from not eating luncheon. Pitt ruined himself by long fasts while immersed in political affairs, oblivious to all else. If the machine is not kept well oiled it will surely run down. When we see men long past middle life able to cope with those in their prime, we may rest assured that they have not been negligent of their physical needs. Pitt died at fortyseven; Byron, who played tricks with his health, at thirty-six. Palmerston, who began official life nearly as young as Pitt, but played a noble knife and fork, died in harness at eighty, and rode twenty miles the day of his death. And as for Bismarck's appetite, he takes extraordinary care of it, either in peace or war. Nature is revengeful, and those who will not take the trouble to please her may rest assured that they will always have to pay the pen-

#### The Wild Animal Market.

A gentleman desirous of purchasing a lion or hyena might search the commercial columns of the apers in vain for information as to supply, demand, or price. Elephants, or even monkeys, have borne no quotable price. The shrewdest trading jockey never priced a camel or a rhinoceros. Nobody seemed to know what these outside animals, kept mostly inside cages, were worth. Hence menageries have flourished under a monopoly of mystery. Thanks to the Saturday Review, it lifts the veil and supplies a want long felt. Hereafter American citizens desirous of going into the menagerie or family pet business stand on solid ground. The market quotations are in pounds sterling. In order to get the animals in taxable shape in America, please multiply each £ wherever found by five, which gives the legal tender value of the animal in dollars. The latest quotations in London are as follows:

Lions or tigers, £80 each; pumas, £30; leopards, £20; cheetahs, £40; black panthers, £150; clouded tigers, £300; jaguars, £30 to £40; ocelots, £3 to £10, Vivierre cats, £10; servals, £4; lynx, £5 to £15; hyenas, £12 to £30; Aard wolf, £40 to £100; civet cats, £2 to £10; paradoxines, £2 to £5; ichneumons, £25; wolt, £5 to £10; silver fox, £10; coatimundis or raccoons, £2; Polar bears, £25; brown bears, £10; Syrian or black bears, £12; Japanese or Himalayan bears, £15; sloths, £10; beavers, £40 the pair; porcupines, £6 each; agoutti, £2. A rhinoceros costs from £400 to £1,000; the one now in stock is a young one, and worth about £500; it feeds, the attendant told us, on "sloppy food," which Mr. Jamrach interpreted to mean pig-wash, and passes a serene existence in confinement, dividing its time between consuming as much as it can hold and going to sleep. Elephants are cheaper in this country than in India, an African elephant being now worth only about £60, and an Indian elephant from £150 to £300. Indian tapirs cost about £150, and the South American specimens from £30 to £40; a llama or nylgherie will fetch £30 to £40, and a zebra is worth from £100 to £150, while kangaroos are sold from £10 to £600 the pair. Monkeys vary much in price, ranging from the tiny marmoset at £1, to the chimpanzee, or orang-outang, at £100. Most of the animals enumerated above might be found somewhat inconvenient in a private menage, but birds are more manageable pets. Those who fancy them may purchase Australian finches, wimbles, Tasmanian devils, etc., at from 8s to £2 a pair; while parrots, paroquets, lores, etc., range from 8s to £50 the pair.

ONE day a tramp walked into a bar-room out West, and, representing himself as the champion rat-killer of the States, told the proprietress that, in consideration of a good dinner, he would destroy every rat upon the premises. To this she readily consented, as the house was indeed terribly infested with the vermin. The tramp was marshaled into the dining room, and enough eatables before him for three ordinary men, which he went through in double-quick time; he then smacked his lips and called for something to drink to wash the food down. The landlady gave him a flask of "old rye," and by the time it was gone he declared himself satisfied, and said: "Now, then, clear the room of everything, get me a club, and I am ready for business." Curious to know how he was going to proceed, and chuckling to herself as she thought how cheaply she was getting rid of the rats, she soon placed a club in his hands. He rolled up his sleves, rubbed his hands together, and, holding the club aloft, yelled: "Now, then, old woman, trot in your rats; I feel like annihilating a couple of thousand of

#### Special Business Motices.

Do you need a good Saw Gummer or Saw Tooth Swage? If so write to J. W. Mixter & Co., Templeton Mass. Agents wanted.

NOTICE.—Owing to the death of Mr. Edward Harrison, we take this method of informing you that the business will be continued until further notice, and that all orders will receive prompt attention. Ectters should be directed to the "Estate of Edward Harrison," New Haven, Ct.

IMPORTANT NOTICE TO MILLERS.—The Richmond Mill Works and Richmond Mill Furnishing Works are wholly rem. ved to Indianapolis, Ind., with all the former patterns, tools, and machinery, and those of the firm who formerly built up and established the reputation of this house; therefore, t. save delay or miscarriage, all letters intended for this concern should be addressed with corrette Norsyke & Marmon Co., Indianapolis, Ind.

### UNITED STATES MILLER.

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MILWAUKEE, SEPTEMBER, 1879.

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We send out monthly a large number of sample copies of THE UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. We are working our best for the milling interest of this country, and we think it no more than fair that our milling friends should help the cause along by liberal subscriptions. Send us One Dollar in money or stamps, and we will send THE MILLER to you for one year.

M'LEAN'S Millers' Text Book and the UNITED STATES MILLER, for one year, for \$1.25. Order now. Send money or postage stamps.

R. L. DOWNTON, of St. Louis, has gone to Europe on a brief visit.

A DOUBLE cylinder (one inside of the other) bolting reel has been introduced in some flour mills in Germany.

GEO. KIEFER, of Stuttgart, has introduced a new millstone ventilator which is said to be a success.

ELEVATOR builders are all busy and will undoubtedly have more to do in the coming year than ever before in one year ..

A LEAVENWORTH, Kan., farmer persuaded Allison McKeehan to marry his daughter with a shot-gun. - Ev.

Why didn't he buy his other daughters shotguns and thus dispose of his entire family?

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 ad-

MR. BROWER and son, of Fox Lake, Wis., called on us Aug. 20th. Mr. Brower says the sales of his well-known elevator bucket are increasing rapidly. The bucket is constructed from one piece of metal and is strong and durrable.

A NEW USE FOR MAGNETS .- A French exchange has the following:

One of the most ingenious swindles yet attempted has recently been brought to light in Paris. Under the counters where goods were weighed in small shops were magnets, which, when placed in position by a movement of the foot, attracted one of the scales of the balance -the one on which goods were placed.

SOUTHERN people abhor the word "stone," and always say "rock." We were a little amused the other day by a letter from a Southern miller, in which he spoke of "the manner of dressing the MILL-ROCKS."

DAVID DOWS & Co,, of Brooklyn, N. Y., are about to build an elevator in that city to have a capacity of five million bushels. It will be the largest in the world, and will cost about \$1,750,000.

THE UNITED STATES MILLER has the largest circulation of any milling journal published in America, and was the first milling journal started in America entirely independent of connection of interest with some machine or mill-furnishing establishment.

RECENT correspondence with millers in Kansas indicates that the milling interests in that State are in an excellent condition. In some sections of the State the wheat crop is not as good as it was expected to be, but is still abundant. The corn crop will unquestionably be immense.

WE would esteem it a favor if some parties who have more than one copy of the UNITED STATES MILLER for July will send us one. The demand for that number has been so great that we have but two copies left-not enough to keep up our regular files.

On a recent visit to Delafield, Wis., we had the pleasure of meeting Mr. Buck, proprietor of the Stone Mills in that village. Mr. Buck has recently invented a new method of reducing wheat to middlings and thence to flour, which he will no doubt bring before the public in due course of time. He feels confident that he has made a valuable discovery.

WE call the attention of our readers to the new advertisement of Mesrrs, Howes, Babcock & Co., of Silver Creek, N. Y. addition to their grain cleaning machinery they are now manufacturing the SILVER CREEK FLOUR PACKER, which has already been introduced by many mill owners to their entire satisfaction. This PACKER is conceded to be the best in the market.

WE hope all who receive sample copies of the United States Miller will favor us with their early subscription. The price-one dollar per year-is a mere trifle, and ensures you a first-class paper containing a great quantity of matter of direct interest to your trade. Do not delay, but send your order now. Enterprising, go-ahead millers cannot afford to be without the current milling literature of the

MILLERS desiring to purchase middlings purifiers will do well to read the announcement of Andrew Hunter, of Chicago, Ill. Mr. Hunter has long experience in the manufacture of middlings purifiers, owns 15 different patents on them, and claims to manufacture a machine which does not infringe on outside patents, which he can sell for less money and do as good work as anybody. Our readers will do well to correspond with him on the subject.

GANZ & Co.'s ROLLER MILLS.-We desire to call the attention of our readers to the advertisement of Ganz & Co.'s Roller Mills, on another page. These Roller Mills have given great satisfaction wherever they have been introduced. Upwards of 2,000 setts are now in operation in European countries, and their extensive introduction here is only a matter of time. Millers desiring to purchase rolls would do well to write them for complete catalogues and prices. Letter postage to Hungary is 5 cents. Address, Messrs. Ganz & Co., Budapest, Hungary.

#### Again Endorsed.

Messrs. Collins & Gathman, manufacturers of the well-known GARDEN CITY Middlings Purifier, have lately received the following

letter which speaks for itself: NAUVOO, Hancock County, Ill., July 27, 1879. GENTLEMEN: I am happy to inform you that I started up the mill of P. Welter & Son, on the 21st, and everything worked splendidthe Becker brush, separator, and last but not least, the Garden City Purifier. I have run different makes, the \_\_\_\_\_\_\_\_, and others, but find the Garden City runs easy, without waste, and beats them all. There may be others that do as well, but I am looking for them. Mr. Welter is so well pleased with it on showing him the work that he concluded to send you a draft for the amount and not wait the thirty day's trial. \* \* one in this section wants to know how a Garden City Purifier works, let them come to me or to Nauvoo, and see for themselves. Respectfully yours, W. F. BRUNS.

#### Export Flour.

HOW TO INCREASE OUR TRADE.

To the Flour Mill Owners of the United States -GENTLEMEN: The already large exports of American flour to European countries, can, by a little exertion and a trifling expense, on the part of our leading millers, be largely increased during the coming year. We have in our possession a list of 604 firms of flour dealers in Liverpool, London, Manchester, Salford, Bristol, Hull, Carlisle, Reading, Glasgow, Birmingham, Dublin, Belfast, Sligo, Galway, Waterford, Londonderry, Limerick, Cork, Hamburg, Rotterdam, Antwerp, Havre and Paris, and it is our intention to mail the UNITED STATES MILLER to all those parties regularly for the months of September, October and November, and if we receive sufficient encouragement to continue it, to do so. You will readily see that by the insertion of your card in these three issues you will bring your names and goods before these foreign dealers in breadstuffs, and thereby open up correspondence which will unquestionably prove of great financial benefit. For this purpose we will make special rates to you. Our charge will be one dollar per column-inch, for each insertion of space occupied, as indicated by this diagram:

If desired you may send an electrotype of of your mill to be inserted in your advertisement. We hope you will respond immediately to this, with your copy for advertisement, so as to be in time for the October number. It would be well to mention the names of the different brands of flour manufactured by you. UNITED STATES MILLER, Milwaukee, Wis.

THE LONGEST TUNNEL IN THE WORLD, -The Joseph II mining adit, at Schemnitz, Hungary, begun in 1872 and finished last October, is now the longest tunnel in the world. Its length is 16,538 meters; that of the St. Gothard tunnel being 14,920, and the Mount Cenis tunnel being 12,233 meters, The object of the adit is the drainage of the important gold and silver mines at Schemnitz. It furnishes a geological section more than ten miles in length, and gives not only valuable information as to the downward prolongation of the lodes known in the upper levels, but some new ones have been traversed, and the entire series of rocks, with their mutual limits as well as modifications and occasional transitions, are disclosed without interruption. The entire cost of the tunnel was 4,599,000 florins-about \$2,300,000. Its height is 3 meters; width, 1.6 meter. By the methods of working employed during the last three years it would have taken twenty-seven years to do the entire work.

A REMARKABLE ESCAPE. - One day recently, as Frank Carr, of West Hopkinton, Mass., was engaged in sawing in his mill at that place, he had occasion to lift a trap in the floor, just over the flume which the water flowed into, and through a spout six feet long on to an iron wheel, revolving horizontally, and which furnished power to move the machinery. The water was about six feet deep in the flume, and the wheel was encased in a close, circular wooden box, within which it revolved with great velocity. Mr. Carr's attention being called away, he neglected to close the trap. His two little girls, the one six and the other three years oid, were playing in another part of the mill, but soon tripped along to the near neighborhood of the open trap, which they did not see, and the youngest accidentally fell into the flume and was carried through the spout into the revolving wheel. At the instant the little girl disappeared her sister exclaimed, "Papa, Sissy is killed!" Mr. Carr took in the situation at the first glance. He sprang and closed the gate which shut the upper water from the flume, then rushed below and, as soon as he could, removed the covering to the wheel-box. It took but a few moments to do that, but in the meantime the wheel had revolved one or two hundred times, and all the water had passed out of the flume. Strange as it may seem, he found the missing girl closely packed in the wheel-box, and uninjured without a scratch or bruise. It could not have been less than ten minutes that the little girl was in the flume, spout and wheel, and her escape from death seemed almost miraculous.

British and Irish Flour Mills.

[Continued from page 71].

The new departure is tentatively cautious, but still it is sufficiently pronounced to separate it by a wide interval from the old system. The initial driving machinery is situated on the first floor, and on the same floor are the meal troughs, provided with worms for collecting the meal. The millstones, sixteen pairs, are placed on the second floor, each provided with exhaust produced by an effective fan. On the third floor are five sets of Wegman's percelain roller mills, indicating that in the system of flour manufacture practiced here the production and treatment of middlings is an important element. On the fourth floor there are four sets of the same machines, making in all nine sets of rollers, employed in the softening of middlings. On the fifth floor the pastrys and wheat bins for the millstones are situated. On the sixth floor are the middlings purifiers, and on the seventh the silk flour-dressing machines. This is a general view of the mechanical organization of the mill; but in addition to the machines we have mentioned, several of the floors are devoted to storage and other purposes, including a workshop for the millwrights. The internal organization of the mill is compact and convenient, all space being rigidly economizeda remark that may also be made with regard to manual labor. From the meal troughs the meal is elevated to the silks, where it is separated into its different component partsflour, middlings, pollards, brans, etc.-Which are treated by the various machines adapted to each. The middlings, after dusting and purification in Nagel & Kaemp's centrifugal machines and middlings purifiers-the latter being Messrs. Childs & Sons' "Excelsior," and Messrs. Dell & Sons' "Economic"-pass to the rollers for softening, the flour being dressed by Nagel & Kaemp's centrifugal dressing machines. Such is a general view of the system of manufacture practiced at the Deptford Bridge Flour Mills. There are, of course, many details in the various processes connected with the work which, for obvious reasons, we have not touched upon. In notices of this description, indeed, there is no necessity for any minute particularization of processes, as they are addressed to readers whose practical insight is sufficient to enable them to infer particulars from a general exposition of the principal processes indispensable to the proper manufacture of flour. Our view of the mill is taken from the south-west side of the building, the point of view being the most effective that could be selected. It is a capacious and handsome structure, in all respects worthy of its metropolitan position and its enterprising owners .- London Miller.

How to Cook Crushed Wheat.—Two teacups of crushed wheat to four cups of boiling water. Stir it till all the lumps disappear, then put it into a steamer, or double boiler, or farina kettle. It can be cooked so as to be palatable iu thirty minutes, but it is much nicer cooked three or four hours, and in a steamer or double boiler it can be cooked that long without burning; but if simply boiled it cannot cook to perfection without drying on the kettle, occasioning much waste. Crushed wheat, if steamed, may be cooked in milk instead of water, and be improved. Serve warm or cold, and eat with sugar and cream. After it becomes cold it may be re-warmed in a steamer; but never break it up. It is not nice fried, but it may be cut in slices and put into a quick oven till brown. When cooking crushed wheat, whortleberries may be stirred in fifteen minutes before it is done; but do not break the berries while stirring. Dried berries can be used, but must cook an hour, and the wheat must be thicker than when made plain. Raisins and dates are sometimes used, but we do not think them very agreeable. Christian Union.

UNDER the present condition of affairs it is impossible for Great Britain or France to compete with the United States at wheat raising. Our fresh new soil will produce more and better wheat than the long tilled fields of Europe. Our labor-saving machinery for tilling, sowing, harvesting and handling grain, will offset the cheap labor and lack of use of labor saving machinery in Europe. The competition between transportation lines of all kinds between the West and the seaboard, and between the seaboard and Europe, puts the price of frieght to the minimum figure. If our wheat export can be changed to flour export we shall be happy yet.

#### GRAIN.

Peculiarities in its Normal and Manufactured State.

An Investigation Under the Microscope-Showing the Adulterations and Natural Evils to which It has been Subjected.

A COMPLETE INVESTIGATION OF THE SUBJECT BY ONE OF THE LEADING CHEMISTS OF EUROPE.

Flour in General-Wheat Flour-Rye Flour -Barley Meal-Oat Meal-Indian Corn-Rice Meal.

[Translated from the German of Dr. Herman Klencke expressly for the UNITED STATES MILLER,—cuts repro-duced by our special engraver from the original.]

[Continued from August number.] Fig. 18 is the microscopic representation of a sample of Cones Flour which consists of a mixture of wheat, rice and bean meal. (Compare the microscopic representations of the several pure flours.) The flour of "Durra" (Sorghum vulgare or Holcus sorghums. Durra sativus) called millet of Mauritania, negro or Caffrecorn, is used for the adulteration of flour, especially for that of wheat flour. This admixture is discovered by the microscopic examination of the starch particles and the fragments of the husks of this plant. The seed of this negro or Durra corn is surrounded by three membranes, the starch particles which are similar to those of maize are much larger, however, and in their center show a star-shaped figure. Fig. 19 is a representation of the husks and starch particles suitably enlarged. Flour in times of failure of crops or famine is often adulterated by the injurious admixture of the flour of the chestnut and acorn, but also of still less suitable materials. At the time of the famine in Koenigsberg in 1835, the flour for bread was mixed with the pollen of the aments of the hazel, and by the use of it a violent dysentery was caused; in India a kind of vetch (sweet vetch), Lathyrus sativus and cicera, was taken which caused a particular species of paralysis of the thighs, when more than a twelfth part of the flour consisted of this material. The wheat-flour destined for exportation into foreign countries is not unfrequently mixed with the ground kernels of buckwheat (Polygonum fagopyrum), millet (Panicum miliaceum), cow-wheat (Melampyrum arvense), horned or yellow medic or kidney-vetch (Trifolium arvense), and of cock's comb (Rhinanthus major). The adulteration of wheat-flour with that of buckwheat may already be discerned by the external appearance of the flour; it is less velvety and soft to the touch, dryer, adheres less to the fingers, and has a less agreeable and much more acrid odor; here and there small fragments of a blackish color, are observed which are owing to the seed husk of the buckwheat. In general the flour appears of a soiled dull white color and will pass through the hairsieve, in washing out the gluten, more readily than pure wheat-flour. When the flour that settles first which is that of buckwheat is examined with a microscope, it will appear as is represented in Fig. 20, slightly magnified. It forms those small lumps and 59 of the buckwheat flour which has been washed out, will, when dry, yield 0.120 grammes ashes. The separated gluten of such a mixture of wheat and buckwheat flour, when moist, will appear of a blackish gray color, when dry it looks black. A chemical examination has also been tried, especially since rye, barley, etc., contain much albumen but less gluten; so Rodriguez has recommended a process which we need not here explain, however, since it is not exact. To discover an admixture of Indian corn meal, if a microscope is not at hand, the method of Manviel Lagrange may be applied, whereby it is rendered possible to discover, an admixture of Indian corn up to 4 to 5 per cent. Namely, when to such suspected flour diluted nitric acid is added, and then a solution of carbonic kali, if there is any maize present, yellow flakes will form themselves which after the escape of carbonic acid are surrounded by orange colored spots. In the same way the addition of a very much diluted solution of corrosive kali to the suspected flour will render the color of it yellow as soon as there is maize in it. Chemically to discern rye-flour in wheat-flour, Cailletet recommended the following process: 40 to 60 g. of the flour are well shaken with double the volume of ether, and then the latter is separated by filtration and evaporation of the residuum in a porcelain plate. A greasy solid mass will then remain; a mixture is made of one volume of nitric acid of 1.35 with the same volume of

peated until 20 g. of the flour have been treated; it will then be seen that a yellow color will appear from the fatty oil of the wheat, but a dark red color from the fatty oil of the rye, a

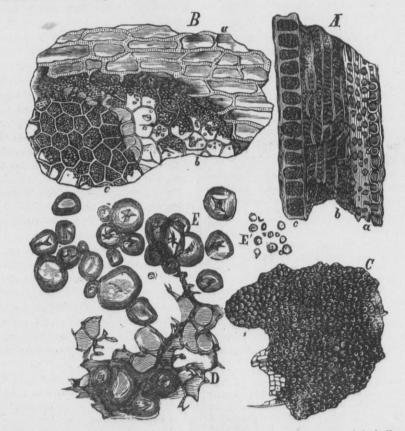
1,84 and then this is added to the greasy resi- | the form of a plate when put in a saucer, has duum in the ratio of 1 kcm., and this is re- a yellowish light color and resembles purified glue. If there is rye-flour among it, the gluten will appear slimy, uneven and blackish, become porous, adhere to the fingers, and when put on a saucer runs over the whole surcolor ranging between the two on the other face of it. If there is barley meal among the



Fig. 19. Cone's flour magnified 225 times.

mixed. It has further been discovered that by the quantity of ashes contained in the different kinds of flour, foreign admixtures may be discerned, since good bolted wheat-flour, previously thoroughly dried at a temperature of 100 ° Celsius and then burned to ashes, will give a fixed and definite percentage of it. its surface. If the wheat-flour contains an

hand, when wheat and rye-flour have been | wheat-flour the gluten will appear dry and not slimy, will not combine, form worm-like cords twisted and wound about themselves and has a brown soiled reddish color. If the wheatflour is adulterated with oatmeal, the gluten will appear of a blackish yellow color and have a large number of small white spots on



Starch particles and fragments of the hull of Durra or African wheat. A, sectional view of the hull magnified 200 times. a, outer; b, middle; c, inner membranes of the hull or cover of berry. a b c, outer, middle and inner hull membranes. C, substance of the body proper of the berry, showing cells wherein are the starch particles, magnified 100 times.

more than 0.045 g. Louyet has tabulated this, which is all the more valuable, since it must really be admitted that the quantitative examination of ashes allows one to judge pretty 5 per cent of foreign flour are mixed with the accurately of the kind of the flour. Dried at a temperature of 100° C., and burned to ashes, the following results will be obtained:

5 g. of wheat-flour	.0,045	g.	of	ashes
5g. of maize or Indian corn	.0.068	g.	of	ashes
5 g. of rye-flour 0.;	000-000	16 *	O.L	CREDITY 2010
5 g. of barley	0.119	g.	of	ashes
5 g. of sifted oat meal	0.100	g.	of	ashes
5 g. of husked rice meal		g.	of	ashes
5 g. of potato starch		g.	of	ashes
og. of potato starcu			200	

A mixture of wheat and rye-flour will not yield more ashes than pure wheat-flour on account of the similarity of their contents of ashes, but these ashes possess a slight alkaline reaction. Barley meal contains very much silicic acid (from 21 to 29 per cent), and by chemical analysis the presence of barley meal may be assumed by the presence of much silicic acid. We shall speak hereafter of the method of the incineration of the flour for the purpose of detecting foreign mineral admixtures. The condition and quality of the gluten has also become a means of thereby discerning the different kinds of flour. Villaine especially has made many comparative experiments thereupon. We have already mentioned by what method the gluten may be separated from the flour. The gluten of wheat-flour is thoroughly uniform, spreads in water and two volumes of sulphuric acid of

So 5 g. of flour, for instance, will never give | admixture of maize, the gluten is yellow, not slimy, but rather compact and will not spread itself over the saucer. These differences in the gluten may already be discerned even when wheat-flour. Very often wheat-flour is mixed with the flour of the legumes, peas, lentils and beans. In general there is already cause

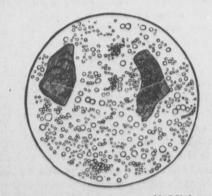


Fig. 21. Buckwheat flour magnified 50 times.

for suspicion when the flour looks uncommonly glossy, the smell and taste also indicate the presence of flour of legumes. The microscope is a safe and infallible expedient in this case, and we refer to the picture of the starch particles of peas, lentils and beans and Fig. 16. Chemically a great number of methods have been recommended, but these are partly entirely unreliable, partly they are only means

of assistance for the microscopic examination. Galvany who first practically busied himself with the subject already observed that the flour of legumes deprived the gluten of grain of its adhesion, and took away its elasticity rendering it capable of passing through a hairsieve which it can otherwise not. Orfila repeated these experiments, and discovered that the gluten was put into a state of great divisibility by the legume of flours. Galvany also observed that a mixture of 7 g. of bean meal or 8 g. of vetch meal with 20 g. of grain flour was already sufficient to make it impossible to distinguish the gluten. We omit the methods of examination of Rodriguez and Cavalie recommended in France since they are neither precise or satisfactory, but we will here men. tion several other methods which by comparing their respective results may become pretty safe expedients.

#### Selection of Burrs for Grinding Wheat. BY J. W. TRUAX.

Among the many things in building a flour mill, and one which is of importance, is the selecting of the burrs. Millers may differ somewhat about this, but at the same time there is a common sense view that should govern. My view is, a rather gritty, tough, closed, light cream-colored, old stock is the best for wheat. This quality of burrs is the most preferable because it is more free from openness, or what is called honey comb, and is of fine texture, and is posessed of tough nature, and will not shell or crackle when being cracked. It is one grand point gained, to be sure, to have a mill-stone that can be cracked fine, and not crackle the face of the stones between the cracks. Not so with the light blue flint stone. The blue stone will crackle when being cracked, and is void of a grit or sharpness, and will easily glaze over and become slippery. A slippery stone rubs and heats the grain, but does not granulate; flattens the particles, but does not round them. Good flour is composed of rounded particles, while flattened flour is clammy and dead.

A porous or open stone is also a bad quality of burr for wheat, and for the reason that the bran turns and returns over in the honey comb cells, and is caught edgewise and sheared to atoms, and is bolted in with the flour. This open quality of stone wiil grind faster, perhaps, than most other kinds, but will put more specks in the flour than any other, and the blue flint will make a more brown, dead flour, while the tough, gritty, light cream stone is a stone that is the most free from cells or glossy surface, and will grind the meaty part of the kernel into a fine, round flour, and leave the bran broader and cleaner than any other quality of burr. My experience has taught me this, and I am warranted in recommending what my experience has taught. I recommend that every miller and mill-owner be wise, and use with their experience a good degree of practical judgment, when selecting burrs for flouring mills. Common sense and good judgment will go a good ways, with the help of experience, in filling the pockets of the mill capitalists in this direction. Every miller desires to get rich. To do so he must make the best possible selection of mill materials, materials the most skillfully made up, and use the best tools to do it.

VELOCITY OF WATER IN SIPHONS .- The velocity of water in a siphon does not depend upon the depth of a well, or the length of the siphon under water, but on its height and the difference between the height of the water in the well and the lower opening of the siphon from which the water discharges. If there were no friction or inertia, the velocity would always be equal to that obtained by a body falling freely through that height. For instance, let the discharging opening of the siphon be 15 feet below the surface of the water in the well, then the water flowing out would have a velocity of 30 feet per second; but it is always considerably less by reason of the inertia and friction of the water against the tube. The amount of this retardation is difficult to determine exactly, as it depends upon the width of the tube, the smoothness of its interior surface, its more or less sharp bends, and the height of the siphon. Thus, a siphon that discharges the water 15 feet below its surface, will discharge most and be nearest to the above statement when it is very wide and very smooth interiorly, when the bend is like the arc of a large circle, and also when the bend does not rise much above the surface of the water. On the contrary, the velocity named is more or less retarded by the pipe being more or less narrow or rough, bent at sharp angles, and by having to raise the water to a greater or lesser height before the descent begins/

#### Ohio Millers' State Association

The third Annual Convention of the Ohio Millers' State Association was held at Akron, on July 8, the President, Ferd. Schumacher, in the chair. About twenty-five members were present.

The President opened the meeting with his address, which was as follows:

Gentlemen: In this, our third Annual Convention, the one important feature to be considered is the compromise by the Sub-Executive Committee of the National Millers' Association with the Consolidated Middlings Purifier Co. It was reported at Chicago to the Convention within half an hour of its adjournmeet, and although indorsed almost unanimously, has been, and is now the cause of considerable dissatisfaction. If the Executive Committee had left the whole matter, as well as the Downton claim, subject to the final decision of the Supreme Court, no fault could have been found. It must be admitted, however, that the interest of the members of said committee is identical with our own, that undoubtedly they have acted in accordance with their best judgment, and having once indorsed and thus morally strengthened and sustained the claims of the Consolidated Middlings Purifier Co., we have have no choice but to sanction the arrangement, or bid farewell to the National Millers' Association. For one, I am not prepared to do this, but to guard against a similar state of affairs in future, and to preserve the integrity of our National Association, I deem it my duty to add that by the terms of its new constitution the "Sub-Committee of three" is virtually clothed with such arbitary executive power that this should be modified or its decrees ought not to be binding until after due and mature consideration, they shall be endorsed, not only by the Executive Committee as a whole, but also by twothirds of all State organizations, or two-thirds of the number of burrs represented by the National Association. An amendment to this effect to the National Constitution seems advisable.

To those who appreciate the value of the National Association it is no satisfaction to be told that they may reject the proposition and contest singlehanded, claims, the merit of which the National Association was formed and supported to establish or reject.

If you look upon these questions as I do, it will be your duty to indorse a constitution upon a strictly legal basis, for the defense of its members, so as to be in harmony with the the National Constitution adopted at Chicago, and also to elect a member of the Executive Committee, as well as a new presiding officer of this Association, from the duties of which I earnestly desire to be relieved, that an abler man, who can and will devote more time to the duties of the office, may be elected, for I am free to admit that the millers of the great State of Ohio are not as fully represented as it would seem their own interests would suggest.

According to Toledo estimates, Ohio is yet in arrears, which may and should be covered. But, as I said in Chicago, this failing, I am convinced that the only true way is to reassess all States in accordance with the actual number of burrs represented.

I desire to refer this whole matter, with some important correspondence, touching upon these several subjects, to a committee, which also might be intrusted with the nomination of officers. It is to be hoped that this and our several standing committees will report promptly; but if some of the latter are not prepared to do so, the very full reports of the Chicago and Indianapolis Conventions are available for discussion.

The President's address was adopted by the Convention, after which he read a very lenthy private correspondence which had passed between himself and Mr. Seamans and Mr. Seybt. These letters were in reference to the compromise, and tried to more fully explain the position of the Sub-Executive Committee of the National Association. After these were read, a Committee was appointed to report upon the adoption of a constitution to conform with that of the National Association. The Committee was composed of the following gentlemen: Mr. Baldwin, Mr. Camp, Mr. Griffith, Mr. Colton and Mr. Schumacher.

A Committee on Nominations was also appointed, consisting of Mr. Hardesty, Mr. Brown and Mr. Turner.

The Treasurer then made his report, which showed a balance on hand of \$297.46. No new members have been added since last report, and but 23 of the 68 members have paid the assessments made by the National Association. One hundred and seven run of stone is represented in the Association, fully paid up.

The Treasurer's report was adopted. The meeting then adjourned until half-past one o'clock.

On reassembling, the President called for the report on transportation, which was read by Mr. Barney, as follows:

The following resolutions on the subject of railway discriminations were adopted by the New York Board of Trade and Transportation at a regular meeting, June 10:

Whereas, The general prosperity of our country is largely dependent on a system of railway transportation fair and equitable in its operations to all classes of citizens and business; and

Whereas, Through combinations and consolidations of the principal railroads of the United States, which have not infrequently been effected through corrupt and unscrupulous methods, a comparatively few persons have secured almost absolute control of these highways of commerce, and have, to a great extent, used them to further their private ends, ignoring the rights of the public; therefore

Resolved, That this Board affirms its convictions that Federal and State railroad commissioners should be appointed at the earliest practical day, clothed with such legal power as would enable him to protect the rights of the people.

Resolved, That this Board tender its thanks to the Hon. John H. Reagan, of Texas, for the reintroduction of his bill, appointing United States commissioners to regulate inter-State commerce, and that this Board will use its influence in aid of its passage.

We extract this brief quotation from a speech of Edmund Smith, Vice President of the Pennsylvania Railroad Company:

"The great cardinal principle which should pervade this question of rates is that the rate on the same class of goods for the same quantity for the same distance should be the same

to every one. We cheerfully indorse the above, and add that however low a rate we may secure, if lower are granted from distant points West of us, it does not benefit us. We hold that all through transportation should be based on so much per ton per mile. Every shipper and locality are then protected. Protective rates are what we desire more than low rates, and we hope to be able to show the different transportation companies how this can be accomplished, and that, too, without loss to themin fact with mutual benefit. In our locality, where there is no great capital invested in elevators and warehouses, place wheat in a different class of freight than flour and feed, only a slight figure higher; this would give the mills the chance to manufacture all the wheat in our State, and we have the ability to do so, but, under the present state of facts, the mills cannot sustain themselves against wheat buyers, who can order in cars on any siding, fill them, and on the receipt for same get a discount on the bill of lading, and so proceed. In this instance, not a dollar of capital is required. The millers have large capital permanently invested, subject to ruinous risks, constant expenditures for improvements, patents, and handicapped in many ways. This arrangement would give the railroads double freight on the same goods, both to and from our mills, then, too, we could furnish constant regular freight the year round. As it is now, a few days of commotion, unusual demand for cars, and the wheat has left our country, and our mills must lie idle much of the time-all this can be adjusted by placing wheat in a different class from what it is now rated. We demand this on the assurance that we are not protected in our interests, and that our business is not paying us in proportion to the risks and expenditures we have to incur; or if the present classification is maintained on wheat and flour, then give us a rebate of freight paid by us on wheat to our mills. We ask only for equal status, then if we cannot sustain ourselves as individuals and associations we will not demand assist-We repeat our recommendation as expressed to you one year ago, for a through rate of freight on wheat from the West to the seaboard at the customary rates, with permission to manufacture it in transit, paying for all delay incurred. With such an arrangement every mill in our State could and would run full time the year round. We entertain the opinion that the action of our association the last year benefitted us to an extent hardly to been anticipated; that our rates for transportation are better than ever before; that with slight modification we will secure such rates as are satisfactory, protective and mutually beneficial

Mr. Barney's report was voted upon and adopted without any further remarks being made on this subject.

The new constitution was the next business before the meeting, and the new constitution, as adopted by the Minnesota State Association was taken as a basis. Copies of this constitution were circulated among the members. This constitution which is the same as has been adopted by all of the State Associations that have met since the last National Convention in Chicago, was read by the Secretary, Mr. Colton, and was voted upon by sections first, and was then adopted as a whole. The only changes made were in Section 2, which was amended so as to give the power of setting the time and place of the meetings into the hands of the President and Secretary; in Section 4, in adding to the clause. "The Executive Commitmittee be authorized to arrange with the owners of meritorious patents for reasonable terms for the use of the same by members of this association," the words, "Subject to the approval of a two-thirds vote." Further alterations, consisted in changing Article 9 so as to give members the privilege of withdrawing from the agreements contained in the constitution at any time, provided that said member has paid up all assessments made for the year then pending. Article 10 of the constitution, as adopted, and which refers to the admittance of new members was changed to read:

"No member shall hereafter be admitted to this association, except as provided in the last preceding section, without paying in full the amount of all assessments theretofore paid by the then existing members, including the amounts paid by the members of the State Association as heretofore organized; provided, that the Executive Committee shall have the full power to admit as members any mills not benefited or protected by the expenditure up to January 1, 1879, on such terms as they may deem equitable, and also to reject any applicants for any cause which they may deem sufficient.

After adopting this constitution, which harmonizes the Ohio State Association with the National Association, the report of the Committee on Nominations was called for. The committee recommended that the old officers be reappointed, and this recommendation meeting with the approval of the millers, the old officers were all re-elected by popular voice. The business of the Convention then being at an end, after some informal and friendly talk the President announced the meeting adjourned sine die.

#### THE WHEAT BOOM.

How It Is Affecting Philadelphia Shipping Interests.

Startling Figures Which Evidence This Year's Cereal Wealth.

"There has been a heavier wheat export business this year from the port of Philadelphia than ever before," said Collector of Customs Tutton yesterday. "To be more explicit, and as a fair sample of the tonnage sent abroad," he continued, "there were exported from this port during the month of July, 1878, 265,790 bushels of wheat; for the same month, 1879, the amount has increased to 1,064,549 bushels, or more than four times as much as during the previous year. Vessel owners are in such a hurry to reload that they have asked this office for the privilege of unloading at night."

The subject of Collector Tutton's remarks was corroborated by shipbrokers. Some of them admitted that there were not enough vessels in port to supply the demand for wheat abroad—a demand that was due to the failure of the wheat crop in France, the United Kingdom, Italy and Portugal. In the first-mentioned country alone the Minister of Commerce estimates that the expenditure of £20,000,000 will be required to make good the deficiency in the wheat crop.

THE WHY AND WHEREFORE.—Many of the vessels, also, that usually anchor at this port have gone to New York and Baltimore, where, it is said, a larger sum is paid for chartering them. The present scant supply of wheat in Europe is owing to the small stock of last year's crop on hand, and the "scarcity is increased" by, as has been said, failures in the crop, and although the latest advices are more cheerful regarding the harvest, on the Continent, still the falling off from the average crop will necessitate a vast consumption of American breadstuffs.

The wheat now being exported from the United States is chiefly last year's crop. The product of 1879 will not be put upon the market in any considerable quantity before the 1st of November. Minnesota, Iowa, Illinois, Ohio and Indiana furnish the larger part of the wheat in elevators and on cars in the seabord cities, and it is estimated by statisticians that if the entire surplusage of the wheat crop of the United States for the present year were shipped it would, without addition, feed twice the entire population of the Eastern Hemisphere.

REGARDING TRANSPORTATION. -- Naturally the price asked by shipowners for the loan of their vessels has advanced with the foreign demand for wheat. The ship is hired or chartered by its capacity to carry so many quarters-eight bushels-of wheat. A vessel carrying 3,600 quarters could last year be obtained for 5s 6d per quarter, to go to a Continental port, Cork, Portsmouth, Falmouth, or Plymouth for orders—the last two words mean ing that the vessel must stay at either one of the three last mentioned ports until she receives orders to go elsewhere. Possibly the Kamschatkans may have run out of wheat or cultivated an appetite for biscuits, and the charter-party may think there is much profit in sending a cargo of breadstuffs to that bleak and sunless territory. If so, the captain weighs anchor for Kamschatka. If he is not ordered to go somewhere within a certain time the party chartering pays him for "lay" days -in other words, the owner is paid for his

An Official Opinion.—There are no vessels at present to be chartered. At least, this is what was told a *Press* reporter yesterday by several gentlemen interested in the business—an opinion that was corroborated by numer-

ous disinterested landsmen. It was further remarked that a 3,600 quarter vessel would command from "5.9 to 6.6, possibly 7, spot, and 5.4 to 6, to arrive."

An enthusiastic broker explained the algebraic quotation as follows: It meant that a ship carrying 30,000 bushels of wheat, if at this port now, on the spot, would be paid from 5s 9d to 6s 6d per quarter to carry a cargo of wheat to a direct continental port, Cork, Portsmouth, Falmouth or Plymouth for orders.

"Supposing they carried more than 30,000 bushels?"

"Then the rate is generally lower; but it is about the same whether they carry 30,000 bushels or less."

"To any port ?"

TRICKS OF THE TRADE.—"Oh, no; distance has something to do with it. The price is greater to the ports of Spain, Portugal and those on the Mediterranean coast, than to Antwerp, Bordeaux or the Hague."

"How many days will an average sailing vessel consume in going from Philadelphia to Liverpool and back?"

"Barring accidents, seventy days; ten of which will be devoted to loading and unloading, and sixty to her trip across the ocean."

"The broker doesn't own the cargo?"

"No; he simply acts as middle-man between the speculator and the owner of the vessel. If a bargain is made, a contract cements the obligations of both. Once clear of this port, the broker has nothing further to do with the vessel. Everything is under the captain's orders, subject to the conditions of the contract."

"Is this activity likely to be prolonged?"

"I think so. However that question can be more satisfactorily answered when the status of the foreign wheat crop is more a matter of fact than of speculation."

"Then Mr. Keene, the great wheat cornerer, has not been the only fortunate adventurer in wheat?"

How to GET RICH ON WHEAT .- "Not by any means. While he has been the most extensive, there are other millionaires who have also profited to an agreeable extent. Lucrative business? You can make the calculation for yourself. Here are to-day's 3 o'clock Liverpool quotations: California wheat averages, 8s 6d to 9s 7d; red Western spring wheat, 7s 10d to 8s 9d; red winter, 9s 2d to 9s 3d. In other words, wheat sold in Liverpool yesterday at from \$2.04 to \$2.22. Here the range is from \$1.08 bid to  $$1.08\frac{7}{8}$  asked. Take 6s as the average cost of transportation per quarter, which would be about \$1.44 for eight bushels, or 18 cents a bushel. This would make wheat delivered in Europe cost \$1.26 for every four pecks-about 96 cents a bushel profit by that calculation. Of course, there are other items of expenditure that will reduce the figure, but not a great deal-not below 85 or 86 cents, I should think."

THE DANGER'S OF THE DEEP.—"A wheat cargo is liable to all kinds of accidents, ship foundering, heating the grain, etc., is it not?"

"Of course there is a risk that the ship will founder. But that may happen whenever an incompetent officer, a rough sea and sharp rocks come together. But this is not taken largely into account by mariners. The great fear is that the wheat in bulk will heat, and instead of selling for No. 2 red Western, go on the market as damaged and only fit for the distillery."

"Can America compete with Russia in the Buropean grain trade?"

"That depends. I think she can. If, however, Russia this year raises a crop of wheat beyond her own demands she will, of course, look out for some other market. How far she will carry her search for that other market depends upon the amount of stock she has on hand. The United States, because of the immense crop of this year elsewhere unsalable, can afford to risk largely in finding an outlet for her cereals."

And thus, from imformation obtained, therefore, it appears that not only the iron and sugar market are on a boom, but also that the wheat market, like this year's growing crop, is heading out tremendously.—Philadelphia Press.

THE newest thing in machinery is a device for tracklaying. It has been successfully used on the Central Pacific and other railroads. It consists of an application of a system of adjustable ways, on each side of a train of flat cars, by means of which the rails are brought forward on one side and ties on the other, in a continuous stream, and delivered to the trackmen on the exact part of the road bed where they are to be laid.

#### Durant's Adjustable Tally.

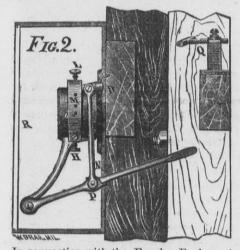
The inventive genius of millers has been exercised during the past decade more than for the preceding century, and anything possible to save or lighten the labor of the miller is considered of importance. Among the many inventions of real value, we are pleased to note the Adjustable Flour Tally, invented and manufactured by Mr. W. N. Durant, of Milwaukee, Wis. Mr. Durant has studied and experimented for a long time in order to produce a machine which would be simple and durable in construction, and register accurately and automatically, eighths, quarters, halves and barrels of flour, as it comes from the flour packer. We present herewith two illustrations, Fig. 1 showing the interior view of the Tally, and Fig. 2 the Tally in connection with the Eureka Flour Packer.



lever secured to shaft B: E. spring-

pawl attached to shaft B, and oper-

ating the ratchet-wheel; F, spring-pawl to prevent ratchet-wheel from slipping back; G, a U shaped plate operated by a rod connected to knob H, and used to throw the pawl E out of gear, and prevent the machine from tallying while setting it from barrels to halves, quarters or eighths; I, pinion wheel connecting a chain of gear wheels with C, and operating the hand on the dial indicating fractional parts of a barrel; J, wheel operating hand on dial indicating whole barrels; K operates hand indicating tens, the next wheel hundreds, etc.; L, pin placed in guage M to regulate the stroke of lever D; N, rod connecting D with lever O (lever O is provided with an elbow joint at P, Fig. 2); Q, an adjustable bolt attached to platform of packer, and operating the Tally; R, box enclosing



In connection with the Eureka Packer, the Tally works as follows:

As the platform of the Packer moves down, the bolt, the catches on the point of the gauge, M; a spiral spring connected to shaft B, back of the ratchet-wheel, brings D and connection back to its former position. Lever D, moving from the top to the bottom of guage M, causes the ratchet-wheel and wheel C to make one-fifth of a revolution. The pinion I being one-fifth as large as C, makes one revolution; J being ten times as large as I will make one-tenth of a revolution, and tally one barrel.

If the pin L be placed in the hole marked %, lever D will vibrate only from the pin to the bottom of the gauge, and cause wheels A and C to make only one-tenth of a revolution, the pinion I will move one-half around and tally half a barrel. If the pin be placed in the % hole, wheels A and C will make one-twentieth of a revolution, and I will move one-quarter around and tally a quarter of a barrel. The same proportion for eighths.

As the platform of the Packer goes up, the boltstrikes on the bottom of lever  $\Phi$ , and lifts it up sufficient to let the bolt pass.

The device for changing these machines to tally barrels or fractional parts of a barrel is very simple, and it takes but a few seconds to make the change. It is impossible to set these tallies back, and when they have tallied up to their capacity, they will set themselves and commence over again. They are made entirely of metal, which renders them strong and durable. These machines are made of the best material, and by good workmen, and, if properly adjusted, each machine is WAR-RANTED to tally ACCURATELY each barrel or sack as it is being packed. An attachment for the Packer accompanies each machine; the wooden box that covers the tally is secured by lock and key. This box prevents strangers from meddling with the machine, and it also forms a guard around the connection. With these tallies you are able to see, at a glance, the exact number of barrels packed each day, month or year, and in taking a yield much time and trouble is saved. They can be attached and put in accurate working order in fifteen or twenty minutes.

Subscribe for the U. S. MILLER; \$1 per year.

It has been estimated that Europe will pay out, during the coming year, \$600,000,000 to foreign countries, and of that, one half at least will be sent to this country. This is an encouraging prospect for the United States. Among the industries which will receive the largest benefit is the flour milling industry. Already our flour exports have reached enormous proportions, and they are steadily increasing. It is said that a successful bran packer and package have been invented and that exports of bran have already been made. Should this prove true, it will be a very important trade in the near future.

#### A Mammoth Grain Depot.

In San Francisco, from which point our bulk of the grain is shipped, huge warehouses are placed at available points on the city front, convenient to the shipping, and in positions where grain may be landed from barges wifhout too much handling. The most extensive and complete enterprise of this character is the warehouse and grain depot, owned by the California Dry Dock Company, and situated on Mission Rock, an Island about 600 yards from the city front, near the Pacific Mail Steamship Co.'s wharves.

The whole property owned by the company aggregates 14 acres, of which  $8\frac{1}{2}$  acres are covered by wharves, the warehouses covering over  $2\frac{1}{2}$  acres. At any point of the wharf there is sufficient depth of water to load and float the largest ships at extreme low water, and the warehouses are accessible to receive or ship grain from all sides. There is room at the wharves to accommodate a dozen large ships at one time. The company have a small steam ferry boat, making half-hourly trips, free, to and from the landing at the foot of Second street.

We made a visit to the warehouses recently and were impressed by their great size and the extreme neatness and thoroughness of the structures and all their appointments. At convenient points encircling the warehouses are placed tanks, numbered, which are kept filled with water for the extinguishment of fire. Rows of fire buckets are placed about in different directions. The engine houses are intended for sheltering the hoisting engines when not in use, these engines being used for loading or discharging cargoes.

The grader is the only appliance of the kind on the coast, and was but recently introduced here. This new and improved machinery, for cleaning and grading wheat for export, has a capacity of 50 tons per hour.

It is well known that the San Francisco Produce Exchange have a standard of Nos. 1, 2 and 3, by which grain is bought and sold, according to quality. This grader is intended for procucing either of these grades, according to the desire of the owner. For instance, a buyer purchases a number of lots of wheat, some good and some poor, some dirty and some clean. He may have seven or eight varieties. From his samples he makes a grade which suits him, and then directs the Superintendent of the warehouse to grade the wheat in accordance with the samples sent. That is, take two sacks of the first class, three of the second, eight or nine of third, and so on. The proportionate quantity of each lot is put into the grader. This machine takes the grain, mixes it thoroughly, takes out more or less dirt, chaff, straw, etc., so as to bring the batch to the required grade. If it is wanted thoroughly clean, it can be made so. If only a second or third grade is wanted, the machine is arranged to take out more or less foreign substances as desired.

The wheat is put into a hopper and elevated to the top, where it falls into a series of shaking screens where it is cleaned and mixed, and comes out below again prepared to required grade, and is then sacked for market. Buyers can in this way average their purchases so as to bring them to suitable standards. This machine is available for cleaning wheat where it is not desired to grade it.

Grain stored in these warehouses is always accessible to the market and high rates may be obtained at all times. The warehouses are light, airy, clean and free from rats. Danger of fire is very slight, the insurance being only 1 per cent per annum. Grain consigned to this company by water is insured in open policy at special rates. Wheat shipped by railroad via Stockton care of the California Steam Navigation Company will be received by them at Stockton and delivered at Mission Rock warehouse at same rate of freight as to Oakland wharf.

Season storage ending June 1st, 1880 is \$1 per ton. Short rates of storage are, for first month, 30 cents per ton, or 40 cents per ton, if delivered. Each month thereafter, 20 cents

per ton. The weighing in is free, but weighing out is charged 10 cents per ton.

The company are prepared to advance money at bottom rates, with interest payable at end of loan. Freight is paid, and fire insurance and loans are effected free of commission. The premises of this company are a model of neatness, and it is really worth a visit to inspect the mammoth warehouse and grain depot of the coast. The little ferry steamer carries passengers free, and Mr. Sinclair, the Superintendent, will take pleasure in showing visitors around. The wharves are built over the old Mission rock, and the area under the warehouses is filled in so that the superstructure is solid and substantial. The officers of the company owning this property are: Oliver Eldridge, President; W. C. Gibbs, Secretary; and Chas. H. Sinclair, Superintendent. The office is 318 California street. The entire storage capacity for grain, at present, is 40,-000 tons, which can be easily increased .-Mining and Scientific Press (San Francisco).

#### Shall Our Houses Be Painted or Plastered?

Of course, says the American Builder, everybody knows, or ought to know, that walls and ceilings are finished with plaster. But everybody may not be aware that plaster has the property of absorbing moisture. This, perhaps, will not take place in rooms where a fire is kept steadily; but in rooms left, as is often the case, for weeks without a fire, the walls will take up a considerable quantity of damp. The effect will be injurious to the health of the inmates. There are few persons who have not suffered from a mysterious cold, caught they know not how, though, perhaps, damp in the plaster had something to do with it.

The extent to which damp is absorbed in a plastered wall may be discovered by noticing what so often takes place in the rooms where the walls are painted and have become chilled by a season of cold weather. As soon as the temperature becomes warmer the atmosphere is condensed on the walls, and at times in such quantities as to run off in streams. Now, had it not been for the paint, the greater portion of this moisture would have been absorbed by the plastered walls. And as a consequence the quality of the plaster would have been impaired and the room made unwholesome. In view of this defect in plastered walls, it becomes a question well worth considering, whether, in finishing a house, the walls should be papered or painted. If paint is decided on, it is highly necessary that the painting be properly done and good materials employed. White lead, which is the chief ingredient of all paint used is of late years heavily adulterated-a season why some painters can do work so much cheaper than others. There are also dishonest painters who will lay on nothing but "whiting" and size for the first coat, and finish off with one coat of oil paint. It is not easy to detect the fraud at the time, but as such paint soon wears off the wall, and attaches itself to the garments of those who rub against it, the customer speedily finds out that he has been cheated. It takes three or four coats of good oil paint honestly laid on to make good work of painting plastered walls.

In painting walls there is ample scope for taste, and such colors may be chosen as are most suitable for each apartment, and in harmony with the furniture. Apartments lighted from the south and west, particulary in a summer residence, should be cool in their coloring; but the apartments of a town house ought all to approach toward a warm tone. In a drawing room the coloring should be characterized by vivacity, gayety, and light cheerfulness; by light tints of brilliant colors with a considerable degree of contrast and gilding -the walls being kept in due subordination to the furniture, though partaking of the general liveliness. The characteristic coloring of dining rooms should be warm, rich and substantial, without vivid contrast, and gilding should be avoided, unless in small quantities for the sake of relief. Parlors ought to be in a medium style, between that of drawing room and dining room. Libraries should be solemn, grave and quiet in color and finish, while bedchambers should be light, cleanly and exceedingly cheerful: A greater degree of contrast een the room and its furniture may be admitted in the chamber than in any other apartment. Stairways, halls and vestibules should be of a cool tone and simple in their style of coloring, being in that what they are in utility—a link between the exterior simplicity of a house and its interior richness and comfort.—Mnnufacturer and Builder (N. Y).

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#### Oatmeal as Food.

BY D. G. F. MACDONALD.

There is no question that perfect health and a robust constitution are best secured and retained by plain diet, in which the nitrogenous, saccharine, amyloid and saline matters are in proper ratio.

I would urge upon the attention of the laboring classes oatmeal as a cheap and nutritious food. Ample testimony has been borne to its value as a wholesome article of food by the most eminent medical and scientific authorities. In short, its nutritious and sustaining qualities are now beyond a question. Practical experience has shown that it possesses in an eminent degree the ingredients essential to the composition of health—that it helps largely to develop the body, to make blood and tissue, muscle and bone, besides being easy of digestion. Oats, owing to their chemical nature, exceed all other cereals in nutritious properties, amounting to 77 per cent of heat-forming principle, with 91 of solid matter. Wheat has only 62 per cent of the former and 85 of the latter. A man of average weight requires about 22 oz. of dry food per day, distributed as follows in round numbers: 41 oz. of albuminous substances, 3 oz. fat, 14 oz. carbo-hydrates-starch, gum, etc .- and 1 oz. of salts.

Liebig shows oatmeal to be nearly as nutritious as the best beef or mutton, and that it excels wheat-flour in forming bone and muscle. Surely, then, on such authority oatmeal should be more used by the English people. For the working classes it forms a meal of porridge or brose, with milk, butter-milk, treacle-beer, treacle or sugar, much more nourishing than the wheaten bread and fat so much used by them. In Scotland oatmealporridge, with milk, is not only in great favor with the poor, but likewise with the well-to-do classes; and where is there a healthier. stronger and more stalwart people? The cynical lexicographer, Dr. Johnson, defined oats as "food for horses in England, and men in Scotland;" but he met with the just and terse retort, "And where will you find such horses as in England or men as in Scotland?"

Porridge made from wheatmeal is much dearer, though greatly inferior, to that made from oatmeal. Four ounces of oatmeal, costing about one halfpenny, makes a large plateful of thick porridge, superior to the Sheffield meat soup, costing about threepence a plateful. Physiologists and physicians tell us that the human body must have its various cousti tuents presented to it in food. Oats contain all the nutriment and stimulant to be found in flesh food. Beef and mutton are supposed to be more nourishing, but this is not the case. Porridge and milk, vegetables and all farinaceous foods, will support life as well, if not better, at much less cost. For children oatmeal quickly develops their frames, forms their teeth and keeps them in vigorous health. As articles of diet, more might be done with barley-meal, bean and pea-meal, maize, haricot beans, rice, pearl barley and split peas, all of which are nutritious and cheap.

In Scotland the men breakfast and sup on porridge and milk, and dine at midday upon "brose" and milk, or herrings and potatoes, with oat or barley bread; and their fare scarcely varies from one end of the year to the other. Herrings and potatoes compose an almost perfect diet, supplying the carbonized food requisite to balance the farina in the potatoes. A Scotchman expressed the general opinion when he said, "I have lived 36 years on meal and milk, and I do not like anything else half so well."

There are many races of men whose food is as simple and unvaried—the South Sea Islander with his bread-fruit and cocoa-nuts, the Hindoo with his rice, the Arab with his milk and dates and the Neapolitan with his macaroni. These are plain dietaries; yet not more so than the primitive "milk and meal" of the stalwart Scotch peasant, who will bear comparison with any race for splendid physique and robust health.

I would recommend the numerous benevolent associations formed throughout the country to make greater use of oatmeal, as, in consequence of its cheapness, the funds at their disposal would be capable of greater benefit to a greater number.

THE adoption of the cental system in this country has been agitated for some time, and in the East has met with success. The Boston and New York Produce Exchanges have passed resolutions adopting it, and after Oct. 1st, all articles of produce in those markets will be bought and sold by the 100 hs. or fraction thereof.

#### A Subscriber's Soliloquy.

To pay, or not to pay, that is the question Whether 'tis better for me to refus To take a trade paper, and deprive Myself from reading all the news, Or pay up promptly what the printer asks And, by such payment, cheer him? No payment n

Then no more shall I be posted on the news And trade haps throughout the world And divers topics-'tis a consummation That I long have feared. To pay, or stop ? To stop! perchance to lose—ay, there's the rub; For in that stop no interest do I take In any of th' affairs which move the trade, And such a shuffling off of all that's good Must make me pause. There's the respect Which every editor maintains for those Who come down with the cash and ne'er delay To settle up "that little bill." For who would bear The pointed squibs and pungent paragraph Which far too of 't reflect upon the man Who fails to settle his subscription bill? I'll haste me now unto the editor, And, with my purse plethoric in my hand, Will settle up in full, one year from date, By paying to him from my ready cash The sum which is his due in advance.

#### Foreign Commerce of the United States for 1878-79.

A compilation of statistics by the New York Grocer of Aug. 2nd, from the annual report of the United States Bureau of Statistics, fiscal year ending June 30, 1879, shows the balance of foreign trade to be decidedly in favor of this country. The information gleaned from the report is invaluable to students of the subject of inter-national commerce. The condensed report is as follows:

There has been a falling off in the exports during the month as compared with the same period last year of \$1,672,525, the figures being \$45,062,373 for last month, and \$46,734,898 for the month ending June 30, 1878. On the other hand, the imports for June were \$38,909,645, against \$35,506,288 for the same month in 1878—a gain of \$3.403,357. the same month in 1878-a gain of \$3,403,357. Since December, 1878, the imports have shown a steady gain over those for 1877-78, while there has steady gain over those for 1871-18, while there has been a continued falling off in the exports. The great preponderance of the exports during the first half of the last fiscal year, more than counterbalanced the falling off in the latter half, and so, as will be seen by the following figures, the balance of trade shows largely in our favor even over last year. trade shows largely in our layor even over last year. The imports for the year ending June 30, 1879, were \$445,800,000, against \$437,000,000 last year—a gain of \$8,800,000. On the other hand, the exports for the year just past were \$710,400,000, against \$694,800,000—a gain of \$15,600,000. These figures show a balance of trade in our favor for last year of \$264,636,602, against \$257,800,000—a net increase of \$6,822,368. The following table gives a view of the relative value of imports and exports of merchandise during the last fifteen years:

IMPORTS AND EXPORTS OF MERCHANDISE, 1865 TO 1879.

Year ended	Exports.	Imports.	Excess of exports over	Excess of imports over	1
	Gold value.	Gold value.	imports.	exports.	ı
1866	\$166,029,303	238,745,580	**************	72,716,277	ı
1867	348,859,522 294,506,141	434,812,066	**************	85,952,544	l
1868	281,952,899	395,761,096	**************	101,254,955	ı
1869	286,117,697	357,436,440 $417,506,379$	***************************************	75,483,541	ı
1870	393,771,768	435,958,408	*************	131,388,682	
1871	442,820,178	520,223,684	***************************************	43,186,640	
1872	444,177,586	626,595,077		77,403,506	
1873	522,479,922	642,136,210	***************************************	182,417,491 $119,656,288$	
1874	586,283,040	567,406,342	18,876,698	110,000,200	,
1875	513,443,711	533,005,436		19,562,725	b
1876	540,384,671	460,741,190	79,643,481		
1877	602,475,220	451,323,126	151,152,094	***************************************	
1879	694,865,766	437,051,532	257,814,234	***************************************	
***************************************	710,428,743	445,792,141	264,636,602	***************************************	١,

It will be seen by the above table that we have changed the balance of trade from \$72,716,277 against us in 1865, and \$182,656,288 against us in against us in 1865, and \$182,656,288 against us in 1871, to \$264,636,602 in our favor in 1879. Our exports show a steady increase since 1865; the figures running from \$166,029,303 in that year to \$710,428,742 in 1879—an increase of \$544,399,440 in the yearly exports. In connection with the above table, the following table of the exports and imports table, the following table of the exports and imports of bullion and gold and silver coin will prove in-

IMPORTS AND EXPORTS OF SPECIE, 1865 TO 1879.

Year ended	Excess of
June 30. Exports.	exports
	Imports. over Imports.
Total Control of the	\$ 9,810,072 \$57,833,154
	10,700,092 75,343,979
1867 60,868,372	22,070,475 38,797,897
1868 93,784,102	
1869 57,138,380	
	19,807,876 37,330,504
1870 58,155,666	26,419,179 31,786,487
1871 98,441,988	21,270,024 77,171,964
1872 79,877,534	13,743,689 66,133,845
1873 84,608,574	01 100 000
1874 66,630,405	
1875 92 139 149	
1876 56,506,302	20,900,717 71,231,425
1877	15,936,681 40,569,621
1877 56,162,237	40,774,414 15,387,823
1878 33,740,125	29,821,314 3,918,811
1879 24,996,641	00 000 000
	20,293,000 4,703,641

The daily Bulletin adds the following: This comparison shows that, for the nine years preceding the panic, the net export of specie averaged \$58,500,000 per annum: while for the subsequent \$58,500,000 per annum: while for the Salastanansix years, the yearly net export has averaged \$29,000,000—the extremes being \$71,000,000 in 1874-5 and \$4,000,000 in 1877-8. Adding these factors to the merchandise movement, we have the following results for each of the two periods:

NINE YEARS PRECEDING THE PANIC

Excess of goods imported over goods	
Deduct het export of specie	527,000,000
Commercial balance against U. S	\$363,000,000
SIX YEARS FOLLOWING THE PAN	10
Excess of goods exported over goods imported	

Commercial balance credit of U. S...... \$924,000,000

Of course there are sundry items which cannot be taken into consideration in these calculations, and the balances are consequently more or less approximated, but still they are sufficiently accurate to form a reliable basis for comparisons. From the balance of \$924,000,000, shown in our favor by the above table, some \$420,000,000 must be deducted in payment of interest due European holders of our bonds. This would leave us with a balance to our credit abroad of some \$500,000,000, which will wipe out the balance against us which accumulated during the first nine years of the period under review, and leave us a pretty good balance to boot. the balances are consequently more or less approxi-

EIGHT LITTLE PIGS .- While men were laying a pipe in the street near Mr. Grau Larrabee's shop yesterday, they left the ditch open for a while, and a sow, with a family of eight while nosing around, got into it. The small pigs could not get out, and the mother tried her best to help them. She would get down in the ditch, grab a pig, but could not toss them high enough. Failing in this, she went to the pavement and tried to attract the attention of the passers-by by running up to them and squealing, and then going back to her imprisoned family, showing the way. Some boys finally helped them out, and the mother hog grunted her applause and mouthed each youngster fondly as soon as it was safely out .-Madison (Ind.) Courier.

#### Grades of Wheat.

The grades of wheat in Chicago and Milwaukee for 1879, are established as follows:

MILWAUKEE.

Spring Wheat.—No. 1 Spring Wheat—Must be sound, well cleaned, weighing not less than fiftyeight pounds to the measured bushel.

Extra No. 1 Spring Wheat-Shall be composed of plump, sound, well cleaned spring wheat, bright in color, and weighing not less than sixty pounds to the measured bushel.

No. 1 Hard Spring Wheat-Shall be composed mostly of the hard varieties of spring wheat, which must be sound, well cleaned, and weigh not les than fifty-eight pounds to the measured bushel.

No. 2 Spring Wheat-Must be sound and reasonably clean, and weigh not less than fitty-six pounds to the measured bushel.

No. 3 Spring Wheat-Shall comprise all wheat fit for warehousing, weighing not less than fifty-four pounds to the measured bushel.

No. 4 Spring Wheat-To be fit for warehousing, otherwise unfit for the higher grades, weighing not less than fifty-one pounds to the measured bushel.

Rejected-Shall comprise all wheat fit for warehousing, but too low in weight, or otherwise unfit to pass as No. 4.

WINTER WHEAT.-No. 1 Winter-To be sound, well cleaned, reasonably plump, and composed of the white varieties.

No. 1 Red Winter-To be sound well cleaned, reasonably plump, and composed of the red varie-

No. 2 Red Winter-To be sound, reasonably clean, and composed of the red varieties.

No. 1 Winter-To be sound, well cleaned, reasonably plump, and composed of mixed white and red

No. 2 Winter-To be sound, reasonably clean, and composed of mixed white and red winter.

No. 2 White Winter-To be sound, reasonably clean and composed of the white varieties.

No. 3 Winter-Shall comprise all winter wheat fit for warehousing; weighing not less than fiftyfour pounds to the measured bushel; not sound enough or otherwise unfit for No. 2 of the other grades.

Rejected Winter-Fit for warehousing, but othervise unfit for No. 3

Mixed Winter and Spring Wheat-In the case of a mixture of any considerable or material quantity of winter wheat with spring wheat, it shall be called mixed wheat, and graded according to the quality thereof, as provided for in the rule governing the inspection of spring wheat with reference to weight and condition.

Rice Wheat-Will in no case be inspected higher than rejected.

#### CHICAGO.

SPRING WHEAT-No. 1 Hard Spring Wheat-Shall be sound, plump and well cleaned.

No. 2 Hard Spring Wheat-Shall be sound, reasonably clean, and of good milling quality. No. 1 Spring Wheat-Shall be sound, plump and

No. 2 Spring Wheat—Shall be sound, reasonably

clean, and of good milling quality. No. 3 Spring Wheat-Shall include all inferior,

shrunken or dirty Spring Wheat, weighing not less than 53 pounds to the measured bushel. Rejected Spring Wheat-Shall include Spring Wheat damp, musty, grown, badly bleached, or for

any other cause which renders it unfit for No. 3. In case of mixture of Spring and Winter Wheat, it shall be called Mixed Wheat, and graded ac-

cording to the quality thereof. Black Sea and Flinty Pfife Wheat-Shall in no case be inspected higher than No. 2, and Rice Wheat no higher than Rejected.

WINTER WHEAT .- The Board of Railroad and Warehouse Commissioners have adopted the following rules for grading winter wheat, for 1879, with the following provisio: "These rules shall be in force on and after July 29, 1879, but it is provided that all wheat in store on said date, inspected as winter wheat under the rules hereby amended, shall be inspected out in accordance with the provision of said rules as winter wheat."

No. 1 White Winter Wheat-Shall be pure white winter wheat, sound, plump, and well cleaned.

No. 2 White Winter-Shall be pure white winter wheat, sound and reasonably clean.

No. 1 Amber-Shall be pure amber winter wheat ound, plump and well cleaned.

No. 1 Long Red Winter Wheat-Shall be pure red winter, of the long-berried varieties, sound, plump and well cleaned.

No. 2 Long Red Winter-Shall be of the same varieties as No. 1, sound and reasonably clean.

No. 1 Red Winter-Shall be pure red winter wheat of both light and dark colors, of the shorterberried varieties, sound, plump and well cleaned.

No. 2 Red Winter-Shall be of the same varieties as No. 1, sound and reasonably clean.

No. 2 Winter Wheat-Shall include all northerngrown winter wheat and all mixtures of various descriptions of winter wheat, and shall be sound, reasonably clean and of good milling quality. No. 3 Winter-Shall include winter wheat not

clean and plump enough for No. 2, and weighing not less than fifty-four pounds to the measured

Rejected Winter-Shall include all winter wheat damp, musty or from any cause so badly damaged as to render it unfit for No. 3.

#### Death of Geo. C. Stevens.

Geo. C. Stevens died in Milwaukee, Aug. 14th, 1879, at the age of 49 years. He was, though only of middle age at the time of his decease, an old resident of Milwaukee, having come here in his vouth. His father, the late Horatio Stevens, was one of the pioneers, and was engaged in the transportation business at an early day, owning one of the old Milwaukee piers, before the straight cut was opened, or the harbor otherwise improved. Here young Stevens learned thoroughly the business of transportation, and followed it, and that of advancing on shipments of grain till 1868. In 1870 he was appointed Collector of the Port of Milwaukee under Grant's administration. After retiring from that position he confined his business efforts to the old Empire Mills, which he owned, and run, in partnership with M. B. Medbury and H. S. Seamans, till his death. His home, during the later years of his life, was on a beautiful stock farm, a short distance from the city, where surrounded by all that nature and art could combine, he kept open house for his host of friends.

He was a member of the Milwaukee Chamber of Commerce, and the following action taken on the occasion of his demise shows the estimation in which he was held by that body.

The special committee named to prepare a testimonal to the character and personal worth of the late Geo. C. Stevens reported as follows:

The announcement of the death of Geo. C. Stevens, who, from boyhood, has been active and prominent in business and social affairs in this city, has cast a gloom upon the whole community. Educated in our midst, and one of the oldest of our members, we can recall the energy and activity with which in years past he conducted his large business transactions. years past he conducted his large business transactions; we recall, also, the ability with which he discharged the duties of Collector of this port, and we follow him into his late life of comparative retirement from the busy hum of our chamber. In his quiet attention to the business of his mill, and in his more congenial occupation of rural pursuits the quiet attention to the business of his mill, and in his more congenial occupation of rural pursuits, the last years of his life were entirely spent. As a writer or debater he was able to cope with the ablest in the field of discussion. In his social qualities he had scarcely an equal, and to those who enjoyed his society he will be an irreparable loss.

While thus testifying to the many good and marks

While thus testifying to the many good and manly qualities of the deceased, and lamenting his loss, we qualities of the deceased, and lamenting his loss, we would tender our sympathy to his bereaved family, and, as a token of respect to his memory, send a delegation of our Board to attend his obsequies.

Resolved, That the Secretary be directed to send a copy of these proceedings to the family of the

SAMUEL M. OGDEN, DAVID FERGUSON, EWD. SANDERSON, WM. YOUNG, C. J. CARY, Committee. On the adoption of this expression of the sense of the Chamber of Commerce, Acting President Brigham named Angus Smith, J. F. Hill, S. M. Ogden, O. J. Hale, Chas. Andrews, C. J. Cary, David Vance and Robert Eliot, as representatives of the Board at the funeral.

As an executive business man he was a model; in all the walks of private life irreproachable; and, as a friend, true as tempered steel. His virtues are feebly expressed in this imperfect record of a much nearer perfect life.

#### The Great Farm of the Northwest.

"Peace hath her victories no less than war," what greater contrast to the ravages of war can be imagined than such wonderful farming as is carried on by Oliver Dalrymple in Northern Dakota. For four miles on both sides of the railroad and as far as the eye can reach, stretch the largest wheat fields under one management on this side of the Pacific coast, the point of commencement being sixteen miles west of Fargo. In this tract are included 14,000 acres under cultivation, comprising the Cass, Cheney and Alton farms, while away to the north, forty miles across the country, but reached by the Red River, is the Grandin farm, 6,000 acres under cultivation, and managed by Oliver Dalrymple precisely as are the others, making a grand total of 20, 000 acres under one man's power. In 1875 Mr. Dalrymple induced Geo. W. Cass, President, and B. P. Cheney, one of the Directors of the Northern Pacific, with the Grandin brothers of Pennsylvania, to enter upon the scheme of a grand wheat farm, not only as a matter of profit. but as the best possible advertisement of the capabilities of this section of country, and two sections (1,280 acres) were broken in that year and cropped in 1876. From that time the progress of the enterprise has been sure and rapid, until to-day it stands as the most remarkable instance of successful

farming on a grand scale known on the conti-

Imagine yourself approaching the farms from the east; "o'er all those wide extended plains" stretches one sea of wheat as smooth as our great lake when the winds and waves are at peace. To the left rise the buildings of the Cass farm, beyond and on the same side of the track the Alton buildings, while on the right are those of the Cheney farm to which we ride rapidly for a nearer survey; 115 selfbinding reapers, each cutting fifteen acres per day, are laying low the golden grain on the various farms, and one who has seen twenty of these in line, moving along with almost military precision, will never forget the sight. The whole work in fact has to be managed with the utmost minuteness of detail, for 400 men are now employed, while during threshing the number will be increased to between 500 and 600. At ten minutes to five breakfast commences, and at 6 o'clock the teams must be all ready and every man in his place; at 11 o'clock comes dinner, and at 3 o'clock lunch, and work finally ceases about eight. The men hired by the month receive \$20 and board, but during harvesting and threshing are paid \$3 per day and board, the time occupied in these two branches of work being about five weeks; 450,000 to 470,000 bushels is the estimated crop for this year, Mr. Dalrymple putting the average yield at form 23 to 25 bushels per acre, and as the present value of No. 1 wheat is \$1.25 in New York, we have left, after deducting 35 cents per bushel for freight, insurance, commission, etc., over \$400,000 as the value of this years

Facts and figures are dry reading, yet it may be interesting to most of our readers to know some further details of the management, expenses, etc., of this monster farm. Each 2,-000 acres constitute a sub-division, with a superintendent for every 5,000 acres. On each sub-division is a complete set of buildings, including a house for superintendent, boarding house, buildings for sheltering machinery, etc. The different kinds of work are allotted to different squads of men, with a superintendent for each, and while harvesting is going on a repairer, on horse-back, follows each harvester, to make any needed repairs with the least possible delay. The cost of the first crop has averaged \$11 per acre, and of subsequent crops \$8, including interest on machinery, and the landed investment. This is about a dollar and a half less than it costs the average farmer. From a bushel and a quarter to a bushel and three-eights of wheat is sown per acre, one span of horses or mules (of which there is about an equal number on the farm) sowing 80 acres, the plowing is done by the gang plew, and to the depth of fourteen inches. In plowing, seeding and harvesting (provided in the latter case the grain is equally ripe) a mile square is taken and finished up by itself. Each of the self-binding reapers saves the work of five or six men over the old style of reapers.

On reaching Dalrymple station, one naturally looks for an elevator or warehouse for the handling of this great crop, but in vain, for none is needed. The steam threshers, twenty in number, follow in a few days the harvesters, threshing the wheat from the shock, the grain is hauled at once to the cars standing on the sidetrack, and when twenty-four cars are filled they are started for Duluth without delay. Mr. Dalrymple's invariable custom for has been to sell his grain as soon as it could be got to market, and this year will be no exception in this respect.

The parties interested in this vast tract of land, 66,000 acres all told, of which less than a third is yet under cultivation, have paid on an average between four and five dollars per acre for their land, buying the railroad land with bonds when the latter were low, and the alternate sections of government land with Indian scrip. No other scrip is available, and no opportunity now exists for locating such immense farms. Mr. Dalrymple after carefully examining the land finally selected, madeup his mind that the intrinsic value of it for farming purposes was not less than \$25 per acre, and he estimates the present value considerably in excess of that sum.

THE Eureka Manufacturing Company, of Rock Falls, Ill., manufacturers of the Becker wheat brush have met with wonderful success. Their sales this season are largely in increase of those for 1878. The Eureka brush gives unqualified satisfaction wherever used. All mill-owners who have not yet introduced the Eureka in their mills should lose no time in investigating the subject. Write them for their circulars and price lists.

#### NEWS.

#### EVERYBODY READS THIS.

ITEMS GATHERED FROM CORRESPONDENTS, TELE-GRAMS AND EXCHANGES.

The following parties are engaged in building new flour mills: John Wallace, Modell, Ks.; A. J. Stroup, Elk Mills, Mo.; Wm. Adair, Parkinsville, Ind.; Joseph McGee, Perry, Ill.; Camanche Mill Co., Camanche, Iowa; J. W. Pickle, Medicine Creek, Neb.; J. A. Baker, Cedarville, Ks.; M. Watrous, Ft. Collins, Colo.; A. Bertelson & Son, Elsinore, Sevier Co., Colo.; Mr. Eitel, Chaska, Minn.; Skenworthy & Co., Rapidan, Minn.; Mr. Phippen, Dundas, Minn.; G. Cooper, Martinsville, Ill.; John Hoffer, Harrisburg, Pa.

The flouring mill of Porter & Mowbray, at Winona, Minn., was sold at auction August 9, the partnership having expired by limitation. The property was bid in by Mr. Porter at \$64,000.

The following is the list of parties who have bought the Becker wheat brush the past few days : E. P. Allis & Co., Milwaukee, Wis.; Bradford Mill Co., Cincinnati, Ohio; Nordyke & Marmon Co., Indianapolis, Ind.; Hoogland & Tresselt, Ft. Wayne, Ind.; Whitmore & Benyon, London, England; W. Gilbreath, Elkville, Ill.; John T. Noye & Son, Buffalo, N. Y.; J. N. Smith & Bro., Brown's Mill, N. J.; Straub Mill Co., Cincinnati, Ohio; Sinker, Davis & Co., Indianapolis, Ind.; Thos. Bradford Co., Cincinnati, Ohio; M. S. Rexford, Fargo, Dakota; C. H. Guenther, San Antonio, Texas; H. A Hayden & Co., Jackson, Mich.; A. Millot, Zurich, Switzerland; John P. Dale & Co., Louisville, Ky.

The grist, saw and planing mills of Letter & Appleton, at Black Creek, about twentytwo miles east of Green Bay with contents, and about one million feet of lumber, were totally destroyed by fire. Fears were entertained for the safety of the village, and, in response to a telegram for assistance one of the fire steamers from Green Bay was sent by special engine over the Green Bay & Minnesota road. However the fire was confined to the mill property. The loss is estimated at about \$20,000. No insurance. The mills had been shut down four days previous to the fire, and the origin of the latter is unknown. It is understood that the firm will rebuild immediately.

It is estimated that the crop of corn in Kansas for 1879 will be 125,000,000 bushels.

Baltimore is now the second largest grain shipping port on the Atlantic coast. The receipts during July were five million bushels, and exports nearly four million bushels.

The Quincy, Ill., coopers have struck for higher wages. The introduction of the use of sacks for flour instead of barrels has made a sad inroad in the coopers trade.

The flour mill at Sauk Centre. Wis., is exporting flour to Germany.

G. W. Van Dusen & Co. are building an elevator at Chatfield, Minn.

Mr. E. L. Baker, of Red Wing, Minn., while in Europe last winter, purchased six bushels of Hungarian winter wheat at a cost of \$7 per bushel. This wheat he hired Mr. Seth Lyons to put in on his farm, in Wisconsin, and the crop turns out first rate, standing up much better than other wheat. This variety of wheat is said to be the only hard winter wheat, and possesses properties peculiarly adapted to making a high grade of flour.

A grain elevator will be immediately built in Little Falls, Minn., by C. S. Barnes & Co., grain buyers.

A correspondent from Des Moines, Iowa, says: The oatmeal mill which started here a few weeks since already has a demand for its product exceeding its capacity, and will be doubled in size the present year. It has a permanent contract for four car-loads of meal per week from Glasgow, Scotland. Another mill will soon be in operation. Buyers are out contracting with farmers throughout Central Iowa for their entire crop at from 20 to 22 cents per bushel. Quite a contrast with a year ago, when oats were a drug in the market at from 12 to 16 cents per bushel, and no sale at that, when anything else could be got to ship.

The new Hubbard mill at Maukato, will start up Sept. 1st.

The citizens of Monument, Colo and Ada, Dakota, want some one to come and build a flour mill.

Yeo & Clark will soon erect a new mill at LaCrosse, Wis.

Messrs. Schloth & Gray will start up their new oat-meal mill at Dubuque Iowa, Sept 1st.

Donly and Harris' elevator at Columbus, O., burned Aug. 21st. Loss, \$25,000. Insurance, \$16,000.

S. C. Barton & Co. are about to build a new mill at Peterson, Minn. It will have a capacity of 200 barrels per day.

The iron trade in England is said to be improving, but the cotton trade is in a bad condition.

Wages at the Indianapolis Rolling Mills will be increased ten per cent, September 1st. This is one of the signs of the times.

The Illinois wheat crop for 1879 is estimated at 45,417,661 bushels.

Smith Bros., of Milwaukee, are rebuilding the mill at Saukville, Wis. It will have five run of stone.

Smith Bros., of Milwaukee, are rebuilding the mill at Scott, Sheboygan Co., Wis. It will have 3 run of stone.

Smith Bros. have just completed plans for a 10-run mill on the canal, Milwaukee.

Smith Bros., of Milwaukee, are making plans for a 6-run mill at Fox Lake, Wis.

Smith Bros. are putting in another run of stone, bolts, etc. for the mill in Peshtigo, Wis.

The Star Mills, of Milwaukee, (Nunnemacher Co.) after being shut down for some time has started up. Eighteen setts of rolls and much other machinery has been added.

Jonathan Mills is now busily engaged in putting in his new method of gradual reduction and machinery in the mill at Terre Haute, Ind.

More milling projects are talked off in Milwaukee by capitalists. Milwaukee is now one of the most important milling and grain centres in the world.

Mr. Brower, of the firm of Brower & Bennett, Fox Lake, Wis., will soon commence the erection of a flour mill at that place. Their mill at that place was burned some time ago.

J. B. A. Kern's Engle Mills, of Milwaukee, have started up again. The new engine and other machinery work finely.

The electric light has been introduced at Niagara Falls. This magnificent waterfall presents an appearance of sublime grandeur when illuminated by this brilliant light.

J. G. Lawrence, of Wabasha, Midn., has shut down to make some extensive improvements. He will add several setts of rolls and other machinery. He has a 5-run mill.

The corn crop in Bulgaria is a failure.

Peoria's (Ill.) new corn-sugar factory is to be an immense affair, the dimensions of the building being 104x293 feet, and seven stories high. It will require 370,000 bricks in building, and is expected to consume 6,000 bushels of corn daily, employing 250 men.

The proprietors of the starch factory recently burned at Vicennes, Ind., are talking of rebuilding at Danville.

The corn crop in South Carolina is said to be a failure generally throughout the State.

Minnesota millers claim that the wheat crop of 1879 will make the best flour of any crop ever before harvested in that State.

Mr. Mowbray, formerly of the firm of Porter & Mowbray, is organizing a stock company for the purpose of building a large flouring mill at Winona, Minn.

Oshkosh is building an exposition building 400x40, for exhibitors at the Northern Wisconsin Fair.

S. C. Barton & Co., will build a new mill at Peterson, Fillmore county, Wis., on the site of Barton & Easton's mill, destroyed by fire in 1877. The new mill will have a manufacturing capacity of 200 barrels per day.

The severe storms of wind, rain and hail, about the middle of August, injured the corn crop in many sections of the country, but notwithstanding that the crop will be the largest ever harvested in the United States. Corn dodgers and mush and milk will be plenty throughout the land.

L. W. Smith, formerly of the firm of Smith Bros,, has taken charge of a Jefferson county flour mill.

Walter Crawford's mill at Paris, Tenn., is being extensively overhauled by Nordyke & Marmon Co., of Indianapolis, Ind.

Miller & Harvard, of Howard, Neb., are fixing up their mill to the new process. Nordyke & Marmon Co., of Indianapolis, Ind., furnish the machinery.

The Corydon (Iowa) Elevator Co. have contracted with Nordyke & Marmon Co., of Indianapolis, Ind., for a large elevator.

Numerous car loads of machinery from the

works of Nordyke & Marmon Co., at Indianapolis, Ind., have been shipped to Davenport, Iowa, for the new 250 barrel roller or Hungarian mill which is being built for H. P. Beattie. A large force of millwrights follow to set the work in place.

D. C. Smith, of Waco, Texas, is commencing to put up a flour mill.

S. Tallman, of Brunswick, Minn., is building a flouring mill.

The large mill-furnishing establishment of Nordyke & Marmon Co., of Indianapolis, Ind., now employs 250 men, and owing to press of orders, runs from 6:30 a.m. to 10 p.m. (15 hours). Nothing but flouring mill machinery is made there.

A correspondent from Knoxville, Ill., states that the mill of Eiker & Warfel at that place, which was remodeled to the new process by Nordyke & Marmon Co., of Indianapolis, Ind., is now running night and day, and the results are beyond what was expected. Their flour commands the highest market price.

H. Kreisher & Son, of Frankfort, Ind., recently had their mill changed to the new process by Nordyke & Marmon Co., of Indianapolis, Ind. Their business now enables them to add two additional run of burrs to their mill which they have done recently, so that orders for their excellent flour can be promptly filled.

Colton Bros.' five-run new process mill, being furnished and set up by Nordyke & Marmon Co., of Indianapolis, Ind., is receiving the finishing touches, previous to starting up. The mill presents a fine appearance.

S. P. Heacock, of Chillicothe, Iowa; Parker & Bowdell, of Leighton, Iowa; Whitmore & Son, of Oskaloosa, Iowa and J. Bosley, of Walnut, Iowa, all have ordered of Nordyke & Marmon Co., of Indianapolis, Ind., the machinery for making new process flour.

A two-run water mill is being built at Lenora, Kas, by Charles Lathrop.

Nordyke & Marmon Co., of Indianapolis, Ind., have under contract the machinery for a two run water mill which will be put up at Hutchinson, Kas., by B. J. Potter.

Tibbott & Son, of Harlan, Iowa, have ordered of Nordyke & Marmon Co., of Indianapolis, Ind., the entire outfit for a two run water mill.

Peter Faber has contracted with Nordyke & Marmon Co., of Indianapolis, Ind., for an outfit for a three-run steam mill to be built at Wheatland, Minn.

Millers passing through Orrville, Ohio, may notice the handsome six-story brick building which is being built along the P., Ft. W. & C. R. R. Messrs. Williams & Griffith are preparing this building for 14 run of 48-inch burrs, bolts, purifiers and all the latest improved appliances of the process system of milling. The power will be a handsome 250 horse-power Corliss engine. All the machinery will be furnished and set up by Nordyke & Marmon Co., of Indianapolis, Ind.

J. A. White, of Shibley's Point, Mo., are remodeling their mill to the new process with machinery made by Nordyke & Marmon Co., of Indianapolis, Ind.

The new elevator in Milwaukee, being erected by Angus Smith, will probably be ready to receive grain by the middle of October. Its capacity will be 800,000 bushels of wheat.

Messrs. Henk & Co., of Chaska, Minn., are building a new 3-run mill. The building is already up, and Messrs. Wilford & Russel, of Minneapolis, Minn., are furnishing the machinery,

Messrs. Hulbert & Paige, of Painesville, Ohio, have just completed a flour mill for R. D. Hubbard, of Mankato, Minn., and are just commencing to build another at Appleton, Wis.

D. J. Tew, of Rushford, Minn., has purchased Mr. Valentine's interest in the Rushford City Mills.

The Mazeppa Mill Co., in addition to adding steam power to their mill, have been largely increasing the capacity by adding rolls, bolts, purifiers, etc. The work is being done by W. F. Gunn, of Minneapolis, Minn.

Beynon & Maes are operating the Diamond Mill at Owatonna, Minn. very successfully. It is a 5-run mill. Mr. Beynon is now traveling in Europe for the benefit of his health, and also to examine European methods of milling.

Mr. E. W. Pride is furnishing bolting cloths, etc., etc., for the repairs on the mills of Messrs. O. Klingholz Bros., Manitowoc, Wis

Indiana estimates her wheat crop for 1879 at fifty million of bushels.

Messrs. A. Mill & Co., Centerville, Manitowoc Co., Wis., are adding new and important improvements to their mills, in the way of a new run of stone for middlings, bolting cloths, proof staff, etc., etc., the same being furnished by E. W. Pride, of Appleton, Wis.

Messrs. Trieman & Cooper, Manitowoc, Wis., are placing in their mills a sett of chilled iron rolls, bolting cloths, etc., etc., the same being furnished by E. W. Pride, of Appleton, Wis.

E. W. Pride, of Appleton, Wis., has the contract for the furnishing of a 2-run mill to Ener Birum, Reed Wood Falls, Minnesota, the stones and machinery from the celebrated house of J. T. Noye & Sons'.

E. W. Pride, Appleton, Wis., is furnishing Mr. Charles Richards, Oxford, Wis., 1 run, 36 inch portable mill, to complete his new 2-run custom mill.

W. H. Stacey & Co., Clintonville, Wanpaca county, Wis., have their mills now in complete order for the new crop, having recently added new and important improvements. Rebuilding entirely their bolting chest, adding also new cloth and 1-run stones, Punfin's rollers, Becker brush, cockle separator, etc., making their mill first-class in all respects. The entire outfit for repairs was furnished from the celebrated mill-furnishing house of J. T. Noye & Sons, Buffalo, N. Y., through E. W. Pride, Appleton, Wis.

Capt. E. W. Pride, Appleton, Wis., is placing a pair of  $12 \times 20$  rolls in the mills of Arthur Kellogg, Fort Howard, Wis., furnished from the house of J. T. Noye & Sons, Buffalo, N. Y.

Capt. E. W. Pride, representing J. T. Noye & Sons' at Appleton Wis., has the contract for a new 3-run mill for Ferdinand Rank, Brown Co., Wis. The work is now fully under way. J. S. Lampher, of Depere, Wis., is the superintending mill-wright.

Messrs. Nofftz & Ebling, Green Bay, Wis., are adding to their mills one of J. T. Noye & Sons' Model Middlings mills, new bolting cloths, and other important improvements, the same being furnished by E. W. Pride, of Appleton, Wis.

Capt. E. W. Pride, of Appleton, Wis., is furnishing Messrs. Rublitz Cloves, Menasha, Wis., the machinery for their improvements, consisting of stones, bolting cloths, belting cups, etc., etc. These mills are being put in first-class order. T. S. Bennett, of Oshkosh, is the superintending mill-wright.

Messrs. Hanert & Co. are making new and important improvements in their mills at Appleton, Wis., adding a new purifier, manufactured by Huntly, Holcomb & Heine, Silver Creek, N. Y.; also new and important improvements in their manner of bolting. Their cloths, etc., were furnished by E. W. Pride, of Appleton Wis. Their mills are under the efficient charge of Mr. E. Whitmore, superintending miller.

E. W. Pride, of Appleton, Wis., is furnishing from the house of John T. Noye & Sons, to Thos. Smith, of Green Bay, Wis., one pair 12x24 chilled iron rolls, bolting cloths, etc., etc. The mills are under the efficient charge of G. B. Hess, as superintending miller.

E. W. Pride, of Appleton, Wis., is furnishing the machinery from the house of J. T. Noye & Sons, to B. Miller, of New London, Wis., who is rebuilding his mill entirely, adding new and additional stones driven upon the reel belt system, also bolts, rolls, purifiers, etc., etc. These mills will be new and entirely first-class, consisting of five-run of stones, arranged for custom and merchant work. O. W. Burns, of Appleton, Wis., is the superintending millwright.

Skinner & Adams new flouring mill at Kirwin, Phillips Co., Kan., was burned Aug. 23d.
No insurance. Parties will probably rebuild at once.

A stock company is being organized at Cawker City, Kan., to erect a 300,000 bushel

The machinery is being placed in the mills now being built by M. T. Boult, of Appleton, Wis.

Work is being rapidly pushed on the mills of Clark, Kimberly & Co., of Appleton, Wis.

The repairs on the mills of S. R. Nilty, of Appleton, Wis., is rapidly drawing to a close. Those mills are first-class in all respects and are under the efficient charge of Mr. Thomas Reese as head miller.

The Winnebago Mills, Neenah, Wis., moved off on the 19th, under new and important improvements.

Edward P. Allis & Co. have closed a contract with the Minneapolis Elevator Company for a 24 x 48 Reynolds-Corliss engine and all the machinery for their large elevator now being built.

Angus, Smith & Co., of Milwaukee, have ordered a 26 x 48 Reynolds-Corliss engine and independent condensing apparatus of Edward P. Allis & Co., who are furnishing the machinery as well for the new one million bushel

The Reliance Works of Edward P. Allis & Co. are running night and day with a force of over 550 men, and can turn out work on very short notice.

Edward P. Allis & Co. have received orders for over one hundred Wegmann's patent porcelain roller mills in the past thirty days. Many of the finest mills, both East and West, are grinding all their middlings on these valuable machines.

Dillon & Carpenter, of Carpentersville, Ill., are remodeling their mill and putting in four porcelain roller mills. Edward P. Allis & Co. are doing the work.

Jere Ames & Sons, of Northfield, Minn., and E. T. Archibald, of Dundas, Minn., are putting in the Allis rolls.

Edward P. Allis & Co. have the large fine mills of E. V. White & Co., at Minneapolis, and White, Listman & Co., at LaCrosse, well on to completion, and are pushing vigorously the new Hungarian mill of E. T. Archibald at

Edward P. Allis & Co. have just sent a beautiful Reynolds-Corliss engine to Louisville, Ky., to drive the machinery in the Exposition building.

The Milwaukee Milling Co. have ordered a  $28 \times 60$  Reynolds-Corliss engine and condenser for their new mill, of Edward P. Allis & Co.

Valier & Spies, of Marine, Ill., are putting in Wegmann porcelain roller mills, bought of Edward P. Allis & Co, the sole manufacturers.

Stuart & Douglas have ordered a 20 x 48 Reynolds-Corliss engine, with condenser, of Edward P. Allis & Co., for their new oat-meal mill being built in Chicago.

James Campbell, of Litchfield, Minn., is putting in a 12 x 36 Reynolds-Corliss engine, built by Edward P. Allis & Co.

Ames & Hulbert, of Hutchinson, Minn., have ordered of Edward P. Allis Co. a 12 x 30 Reynolds-Corliss engine.

J. N. Foster & Co., of Ripon, Wis., are putting in Wegmann porcelain rolls, ordered of Edw. P. Allis & Co.

Thos. Ruddock, of Eureka, Wis., has ordered 3 Wegmann patent porcelain roller mills of Edw. P. Allis & Co.

H. P. Beattie, of Davenport, Iowa, has ordered 3 Wegmann patent porcelain roller mills of Edw. P. Allis & Co. This makes 7 of these machines in all that he has ordered, all to be used on patent flour.

La Grange Mills, at Red Wing, Minn., are putting in the Allis rolls.

Lincoln Bros., of Olivia, Minn., have ordered a four-run mill complete and Reynolds-Corliss engine of Ewd. P. Allis & Co.

A. C. Godshall & Bro., of Lansdale, Pa., have given Ewd. P. Allis & Co. an order for porcelain rolls.

The Phœnix and Reliance Mills, of Milwaukee, are putting in the Allis rolls.

Horace Davis & Co., of Golden Gate Mills, San Francisco, Cal., have ordered six roller machines, three porcelain and three iron, of Ewd. P. Allis & Co., Milwaukee.

The Milwaukee Mills are putting in large numbers of the Wegmann Patent porcelain roller mills for grinding patent flour and cleaning bran.

A THREE-MILLIONTH OF AN INCH .- One of the most singular mechanical operations imaginable is the making of gold-wire for what is known as gold-lace. The refiner first prepares a solid rod of silver about an inch in thickness; he heats this rod, applies upon the surface a sheet of gold-leaf, burnishes this down-applies another coating, burnishes this down-and so on, until the gold is about one hundredth part of the thickness of the silver. The rod is then subjected to a train of processes which brings it down to the state of fine wire, when it is passed through holes in a steel plate, lessening step by step in diameter. The gold never deserts the silver, but adheres closely to it, and shares all its mutations. It is one-hundredth part the thickness of the silver at the beginning, and maintains the same ratio to the end. As to the thinness to which the gold-coated rod of silver can be brought, once."

the limit depends upon the delicacy of the human skill. It has been calculated, however, that the gold actually placed on the very finest silver wire for gold-lace is not more than onethird of one-millionth of an inch in thickness; that is not above one-tenth the thickness of ordinary gold-leaf.

#### Bi-Metalism in Germany.

Germany has been brought to a halt in the work of demonetizing silver. It must be remembered that all the old silver still in circulation remains a legal tender for its par value as before. This silver is substantially all in the form of thalers, which have never been presented, but are in general circulation at full value. In point of fact, therefore, Germany has reached the point where bi-metalism is as practically in operation as it is in the United States. The old silver thalers with which the German people have so long been familiar remain the legal tender and general currency of the people.

The Government is met by the astounling figures of the loss already sustained by the calling in of the smaller coins. The loss sustained already in the silver demonetized and sold, that is, sold for gold,—is somewhere about \$23,000,000, and this without any possible hope of compensation. There are now outstanding silver thaler pieces to the amount of 415,000,000 marks. This is about equal to 100,000,000 of our American silver dollars. The bullion value of these coins as compared with their coin value is 7 per cent less than our silver dollars. Considering that Germany has yet in circulation 100,000,000 of silver dollars of full legal tender, and that the Government has postponed indefinitely calling them in, there certainly can be no fear apprehended in this country from any excess of silver money. In addition to the \$100,000,000 of silver in thaler pieces, Germany has in circulation \$50,000,000 in subsidiary silver coin. The population of Germany is not greater than that of the United States, and yet Germany keeps \$150,000,000 of silver coin in circulation, and \$100,000,000 of that sum a full legal tender on a par with gold.

Germany has paid dearly for the demonetization of silver, and has given two official notices: (1) That the calling in of the thalers has been postponed indefinitely, and (2) that even the silver called in and melted down into bars will not be sold, at least during 1879. The demonetization has, therefore been brought to a close, and Germany has now practically in force the policy of bi-metalism, the proportion of silver in the form of thalers being equal to \$100,000,000 of our money. This action of the Government is, however, considered insufficient, and it is now strongly urged that there be an increase of silver coinage, and that the silver now held by the Government and heretofore offered for sale be re-coined and put into general use and circulation. This is but another step in the direcof bi-metalism. With \$150,000,000 of silver already coined and in general use, a withdrawal of all silver from sale, and a resumption of silver coinage, Germany shows how severely she has suffered from demonetization and how firmly she arrests its progress and inclines to the adoption of bi-metalism. The banks and bankers of Germany, as well of those of France, seem to differ widely from the gold ring in New York, and from Zach Chandler as to the advisability of the largest possible use of silver as money. They do not seem to be afraid of ruining the country by an increase of metallic money in the form of legal tender silver, and yet Germany has four times as much silver in general use as exists in this country. It does not seem to terrify the German banks or the German Government that silver exists in such enormous quantities there in the form of money, while the comparative pittance of 30,000,0000 of silver dollars locked up in the Treasury at Washington is regarded in New York as some terrible menace to the country. Chicago Tribune.

AMERICAN TRADE IN AUSTRALIA.-The following is a significant extract from a Melbourne merchant to his Birmingham correspondent: "We are very sorry to say that our American trade grows daily at the cost of our English department. Your English manufacturers must employ more labor-saving machinery, and not try to meet this American competition by reducing the wages of your workmen. We have noticed of late that in some cases the Americans, under the pressure of keen competition, are sending goods of inferior quality. Nothing will help the English more than this. It is quality alone that has put the Americans where they are in these markets-their quality keeps them there; if this falls off they will lose their hold at

#### The Patent Laws.

There seems to be a concerted attempt throughout the West to break down our present patent laws, or at least to so modify them as to leave them powerless as an inspiring motive to inventive thought.

The crusade against these laws is led on by a few aspiring politicians, numbering among them certain Congressmen, who hope to curry favor with the masses by their course. The destruction of our patent system is urged for the most ignoble purposes. The men who are the active participants in the crusade are those who hope to receive the benefits of the toils of the inventor without returning to him an adequate recompense. Our patent system is the growth of ages and the result of the best thought not only of this country, but of Europe. Chancellor Kent, as high a judicial authority as can be quoted upon this subject, says: "It has been found necessary for the promotion of the useful arts and the encouragement of learning, that ingenious men should be stimulated to the most active exertion of the powers of genous in the production of works useful to the country and instructive to mankind, by the hope of profit as well as by the love of fame, or a sense of duty. It is just that they should enjoy the pecuniary profits resulting from mental as well as bodily labor. We have accordingly, in imitation of English and foreign jurisprudence, secured by law to authors and inventors, for a limited time, the rights to the exclusive use and profit of their productions and discoveries." In pursuance of this pre-eminently just doctrine the United States Courts have always liberally construed the rights of inventors under the patent laws. In the case of Turrel vs. Michigan Southern & Northern Indiana R. R., I Wall 491, and in numerous other cases of later date, they take the ground that patents for inventions are not to be treated as mere monopolies, and therefore odious, but are to receive a liberal construction, or, as held in Carr vs. Rice, 1 Fish, 198, patents are dealt with by Courts as a grant by the Legislature, in exchange for the free enjoyment of the patent discovery, after the inventor's exclusive privilege expires.

The country is greatly indebted to-day to its inventors. To our patent system, perhaps, more than any other have we been enabled to thus rapidly advance from a weak colony in 1776 to one of the most powerful nations of the earth at the present day. As England, by her system of trained labor, could successfully compete and outbid the continent in her many lines of manufactures, so by the aid of our mechanical inventions have we been enabled not only to compete with England, but are now fast becoming the master of almost every foreign market. No country has ever been so noted as this for its inventive skill. The number of our patents are more than double those of England, and are rapidly increasing. This is the result of that beneficent law which is now so vigorously attacked. If protection to inventive rights shall be withdrawn, the swift progress we are making will be checked. The inventor is inspired to labor for the reward. As the American Manufac turer justly says: "This is a terribly practical age, and the American people are the most practical portion of the human race. They pursue the business of invention as they do any other business, as a means of gaining a livelihood or making money. And that is the secret of the practical nature of their inventions. Take away the stimulus of protection in the property-right and ownership of their inventions, and all that kind of work would be laid aside at once. We would soon find as great a dearth of inventions and improvements as the most conservative could wish.'

The men who are at work tearing down our patent system would not care to do without the steam engine, the cotton-gin, the telegraph, the loom, the sewing-machine, or the myriads of other inventions that have multiplied the hands of industry into a thousand fold power, but they would quietly recline upon their couch of ease until the inventor had expended a life of incessant toil, and brought them forth; then they would rob him of his property, and leave him, as has too often been the case even under our present laws, to die in poverty and want. We hope the day will not come when true inventive genius will fail to receive a due recognition and reward at the hands of the American people. There may be some modifications needed in our present system, but certainly the door should not be thrown open for a general and unrestrained piracy of the works of the inventive mind of

Subscribe for the U. S. MILLER; \$1 per year.

Mr. Chas. Howard, of Neenah, Wis., is making some necessary repairs to his mills, making them first class in all respects.

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#### The Weather as a Pain-Producer.

It is a familiar experience that certain bodily pains vary according to the weather. A series of observations on this subject, made with much ability and perseverance, has lately been reported to the American Academy of Science by Professor Mitchell. They are by Captain Catlin, of the United States Army, who lost a leg during the war, and since that time has suffered a good deal from traumatic neuralgia. He carefully noted, during five years, the effect produced on him by changes of the weather. For the first quarters of these five years there were 2,470 hours of pain, for the second quarters, 2,100 hours, for the third quarters, 2,056 hours, and for the last quarters, 2,221 hours.

The best "yield of pain" is in January, February and March, and the poorest in the third quarter-July, August and September. During these five years, while the sun was south of the equator there were 4,692 hours of pain, against 4,158 hours while it was north of the equator. The average duration of the attacks for the first quarters was 22 hours, and for the third quarters only 17.9 hours. Taking the four years ending Januray 1, 1879, it is found of the 537 storms charted by the Signal Bureau, 298 belong to the winter quarters, against 230 for the summer quarters. Hence we have the ratio of the number of storms of the winters and summer quarters corresponding to the ratio of the amount of neuralgia for these respective periods; and the ratio of the average duration of each attack for the same time corresponds closely with the ratio of the respective total amount of neuralgia for the same periods. The average distance of the storm-center at the beginning of the neuralgic attacks was 680 miles. Storms from the Pacific coast are felt further off very soon after or as they are crossing the Rocky Mountains, while storms along the Atlantic coast are associated with milder forms of neuralgia, which are not felt until the storm-center is nearer. Rain is not essential in production of neuralgia. The severest neuralgic attacks of the year were those accompanying the first snows of November and December. One other interesting observation is as follows: Every storm sweeping across the continent consists of a vast rain area, at the center of which is a moving space of greatest barometric depression. The rain usually precedes this storm-center by 550 to 600 miles, but before and around the rain lies a belt, which may be called the neuralgic margin of the storm, and which precedes the rain about 150 miles. This fact is very deceptive, because the sufferer may be on the far edge of the stormbasin of barometric depression, and seeing nothing of the rain, yet have pain due to the

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We hope the milling friends of the UNITED STATES MILLER will be as liberal to it as it has been in the past, and will be toward them: in the future. Subscription price, one year \$1, We shall be pleased to have an early response to this. Fill out the blank below, enclose with money in an envelope, seal carefully and send at our risk. A receipt will be sent by return

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#### Situations Wanted. etc.

Millers, Engineers, Mechanics, etc., wanting situa-tions, or mill-owners or manufacturers wanting em-ployes, can have their cards inserted under this head for 50 cents per insertion, cash with order.

WANTED—A situation as head miller. Am thoroughly competent. Address correspondence to EDWIN PRIEST, P. O. Box 618, Augusta, Ga.

WANTED—Two young Millers to work in a custom mill; must understand stone dressing and grinding; to work under a good Miller. Good references are required, and state what wages are expected. Address GLADE & SCHAUPP, Columbus, Nebraska.

situation wanted.—By a practical miller in grist or grist and merchant work. Is a good stonesman. If no satisfaction can be given no pay is asked. Can give good references. Please state salary and address A. V. Kemerer, Waumandee, Buffalo Co., Wis. Respectfully, A. V. KEMERER. autf

WANTED—A situation by a miller of 18 years' experience, understands thoroughly both merchant and eustom work—either old or new process; am industrious, honest and temperate; have a family. A place likely to be permanent preferred; do not like to be changing. Address, stating terms, C. C. ARNOLD. Jefferson, Jefferson Co., Wis.

TO MILLWRIGHTS—Wanted a situation at Millwrighting. I understand a part of it. Wages no object. I have three inventions, and am working at two more, all connected with the milling business. To the man that will take hold of me and give me work for one year I will give him an interest in my inventions. Address JOHN W. PERTER, Belleville, St. Clair Co., Ill In care of M. F. Seifert.

SITUATION WANTED—In either a merchant or custom mill; have had eight years experience in the business and guarantee satisfaction in all branches of the business; am a single man; willing to go anywhere. Good references given if desired. Parties answering this advertisement please state terms. All letters answered promptly. Address MILLER, Runch's Gap, Clinton county, Penn.

SITUATION WANFED.—A practical miller of ten years' experience with winter wheat (best flour on new process) desires a place in a thorough new process mill in any capacity in which he can perfect himself in the art of high grinding (spring or winter wheat). Am 33 years old, industrious and temperate in all things; wages no object; unexceptional references given. Address,

A. D. REAMER,

June tf. Care of Reamer & Co.. Chetopa. Kansas.

TO MILL-OWNERS—Situation wanted by an experienced Miller to take charge of a mill or stone dress-dressing in a new process mill. Have worked the new process since the beginning of manufacturing patent flour in this country, making from 20 to 68 per cent of patent flour. Reference furnished from the best of Milwaukee mill-owners if necessary. Any one in want of my services please address No. 221, Grand Avenue, third floor, Milwaukee. Wis.

SITUATION WANTED—In new process mill; have had valuable experience both in building new and remodeling old mills on the system of high grinding. I desire to make an engagement with parties about to build new mills or change old ones, and will guarantee satisfaction. Am a practical Miller, and can take the place of a millwright in every detail and have a number of improvements in connection with high grinding not generally in use. Have a good knowledge of all the latest milling machinery, and believe I can make myself profitable to any mill owner on the new process. Wages an after consideration. Correspondence solicited. Address H. B. SHEARS, North Lake, Wis. autf

#### For Sale or Exchange.

Advertisements under this head \$2 per insertion,

FOR SALE—One-half of 3-run, water power flour-ing mill, all in good order, and fully equipped with pur-ifier, brush, smutter, separator, Parker scales and good office. Will sell easy on terms, and take part in good farm.

I. W DALLY,
by\*

Woodbine. Iowa.

FOR SALE—A small Steam Flouring Mill, 23 miles below St. Louis, on the Mississippi river and Iron Mountain Railroad. Everything in good running order. Will take part pay in country store goods. For particulars address

C. W. FUNK,

jy\* Sulphur Springs, Jefferson Co., Mo.

PARTNER WANTED-I have a good Grain Elevator, large enough to run a flouring mill. Would like a partner who can furnish the necessary machinery. Parties having mills not paying will find it to their interest to correspond with me.

je\* T. B. GALLAGHER, Larned, Kansas.

FOR REST—I offer for rent my Grist and SawMill; 3 run of stone; House and Garden; Good Water Power; Water all year round; for term of years. For particu-lars call in person or by letter. M. HELD, je Erfurt P. O., Jefferson Co., Wis.

FOR SALE OR RENT—A two-run mill at one of the best points and wheat sections in Southern Illinois, with good railroad facilities for shipping to all markets. Mill new and in good running order, will sell or lease on reasonable terms. Address P. O. Box 204, Mt. Vernon, Illinois.

FOR SALE OR LEASE—For a term of years. The Cedar Street Flouring Mill, St. Louis, Mo. New, and in complete running order, having six runs of buhrs and a capacity of three hundred and fifty barrels per day. Adjoining this property we have large vacant lots, which we will sell on very reasonable terms. Apply to McCREEY & TOWERS,

jy\* 705 Pine St., Street, St. Louis, Mo.

FOR SALE—I offer for sale a first-class modern flouring mill in this city, making 100 barrels a day; power-water and steam; have not stored a barrel this erop, selling as it arrives in New York; this is a fine opening for any one wanting a mill; property cost \$40,000, but will be sold cheap and on reasonable terms; reason for selling, belongs to an undivided estate. Address

J. D. GREENE, Administrator, je\*

Faribault, Minn.

FOR SALE.—Wishing to concentrate my business, I offer for sale one of my flour mills situated at Brecken-ridge, Sangamon County, Ill., 14 miles from Springfield, on the Ohio & Mississippi railroad, in a good milling country. This is a good two-run mill, nearly new with latest improvements and elevator attached for handling grain. Mill cost over \$10,000; will sell low and on good terms. For full particulars, address T. J. McWANE, Versailles, Brown County, Illinois.

FOR SALE—At Chipnews Falls Wish

Versailles, Brown County, Illinois.

FOR SALE—At Chippewa Falls, Wis.—A great bargain. The flouring mill property formerly owned by H. S. Allen. The mill was destroyed by fire two years ago. This property consists of an excellent never-faciling water-pewer, a good substantial dam, a very heavy stone foundation for a mill. two good turbine wheels, three village lots of land, etc. This property has just come into the possession of the undersigned by foreclosure, and they will sell it for the amount of the claim, which is much less than the value of the property, and will give a perfect title to the property. An investigation will satisfy any one that there is a bargain in this property. Address

MATTHEWS BROS., FURNITURE CO., Sep MATTHEWS BROS., FURNITURE CO., Milwaukee, Wis.

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TO MILL PURCHASERS—Reason for Wishing to Dispose—Too Much Business.—For Sale, a desirable grist and saw mill together, both doing a good business. In good location for increasing business as well as sufficient power and population to make and dispose of 100 barrels of flour per diem, (t. e. with few additions and improvements). Situated in the pleasant Chenango Valley, and known as "Rebinson's Mills," midway between the wealthy villages of Oxford and Greene, in Chenango county. Can be purchased with the above a comfortable dwelling house with each business, if required. Also a few acres of land. Water at all times; wheat or buckwheat and one run of feed stones; two good bolts, elevators, smutter, sheller, etc., and the circular saw apparatus, etc. Both mills, as well as the gear, are in good condition. The saw mill has earnde \$1,200

a year. This a good offer ror a reliable gentleman of means. Address,
B. A. N., care United States Miller,
Milwankee, Wis.

FOR SALE.—A bargain for someone with a little capital. Our steam grist mill with two run of burrs, 42-inch, and the necessary cleaning machinery, with planing mill attached, will be sold to a good party for a song, or almost given to him. Situation good, at the crossing of the C. & N. W. R. R., and the C., M. & St. Paul railway, in a rich farming country. Lands joining those of C. & W. Railway, about 1,500 feet from depot. Good run of custom. Reasons for selling, poor health and other business. Terms given on application to

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FOR SALE—The Flouring Mills at Troy, Kansas, known as the "Banner Mills," in successful operation, with well-established trade. Location unsurpassed. Railroads in every direction. Fine wheat and corn country. The best county in Kansas. Troy, the county seat. is a thriving town with good schools, etc. The mills have four run of burrs, and the machinery throughout is all first-class. Undoubtedly the best constructed mill in the West. The best opening for business. On account of the ill health of the managing partner the property will be sold at a great bargain. Address jetf TRACY & PARKER, Troy, Kansas.

GRIST MILL FOR SALE AT A SACRIFICE—Merchant and custom mill, situated in Belvidere, county sent of Boone county, Illinois. The mill
has four run of French burrs, and all the machinery is
of best class; driven by a never-failing stream of water
(Kishwake river). Mills of this class are seldom offered
for sale, but the proprietor is very aged, and wishes to
retire. Would sell for one-third cash down, balance on
suitable terms, or would sell one-half of mill property.
A person with means would do well to investigate immediately. For further particulars apply to the owner
or address Box 544, Belvidere, Illinois.
au2t

JAMES B. MARTYN.

FOR SALE.—At La Grange, Mo., A four-run, brick, steam mill, situated on the Mississippi River, and on the St. Louis and Northwestern Railroad. This mill is 60 feet square and four stories high; it also has an L 60 feet long by 30 feet wide, three stories high, furnishing storage room for 10,000 bushels wheat and 5,000 barrels flour; well and substantially built; boilers, engines and machinery almost new; contains 4 runs of old stock French buhr's and one pair for regrinding, with ample bolting capacity; 1 separator, 2 smutters, 1 brush scouring machine, 1 purifier, 3 pairs flour and wheat scales, and 1 six-ton wagon scales. This mill is situated in a splendid wheat region, and will be sold at a bargain. Address the

FOR SALE—A one-half interest in a Grist Mill. Size, 25 x 35 feet; wing, 12 x 20. Mill is two and a half stories high. Two run of burrs; size, 3 and 4 feet. Two new Leffel wheels. Fifteen feet head in a never failing stream. Ten acres of land, a house, barns and mill sheds. School and church near by. Is located on a main road, and within 2 miles of a city of 8,000 inhabitants. Mill is in good repair and doing a fine business. Object in selling is, I am blind and want a good steady man to take entire charge of the mill. Price \$2,700, with \$1,000 down. Possession given in 60 days from time of sale. Address with stamp, Box 1462, Battle Creek, Mich.

FOR SALE, AT PUBLIC AUCTION—Valuable property, houses, and lots and salt stores. I will offer at public aucton on Saturday, October 11th, the Enterprise Steam Mill, situated in the village of Enterprise. half a mile from the river, and just out of the corporation of the city of Pomeroy. Coal in abundance; costs from 2% to 3 cents per bushed delivered at furnace door. Parties desiring to purchase are invited to correspond with the Subscriber at Enterprise Mills, near Pomeroy, Meigs county, Ohio. Terms of sale 10 per cent of purchase, money in hand; balance in ten equal yearly payments, with six per cent interest.

August 12, 1879.

Septf.

FOR SALE—A splendid chance for a man to locate in the "Land of Flowers." A 25-horse power saw mill, with blacksmith shop and wheelwright shop attached, 3 log carts and 3 yoke oxen, a homestead covering 160 acres of land, a dwelling house located on a river, ten miles from where it empties into Charlotte harbor; plenty of water to lumber yard. This mill is situated in the thriving village of Fort Ogden, where all semi-tropical fruits are raised. Being down on the Gulf Coast we never have killing frost. Two churches and schools and good seciety are some of the inducements. I will sell one-half interest of the above so as to increase works. To any one wishing to come to Florida and wishing a business will do well to correspond with the undersigned. CHAS. B. PENDLETON,
Fort Ogden, Manatee Co., Florida.

FOR SALE—A Texas flour mill and land; a rare bargain. I offer my steam flouring mill at Trinity Mills, a depot 16 miles from Dallas, Texas, and on the Dallas & Witchita Railroad, for sale at a great sacrifice. The mill has three run of stone, two for wheat and one for corn. It has a capacity of 100 barrels per 24 hours; fine tubular boiler and good but old style engine; stones driven by beveled gear; mill built four years ago and cost over \$9,000. With the mill I will sell 429 acres or more of land, on which n ar the mill are two dwellings of four rooms each and a large store-house; about 50 acres of superior prairie soil for field crops, fruit and vegetables; the balance is in timber and will afford perpetual fuel for the mill and fine pasturage. It is located on the Elm Fork of Trinity River, and is exceedingly fertile. I will sell the whole to a CASH purchaser for \$15 per acre—not more than the value of the land. There is plenty of wheat raised in the county. Satisfactory reasons for selling. Address immediately, aptf DR. ROV B. SCOTT, Trinity Mills, Texas.

property of the result of the property and the protection with the mass of the mass of the protection of the past five years, has a capacity of 50,000 bushels. The buildings stand on the banks of the Mississippi, and there is in connection with the mass where the property of the firm into cash, their Steam Flouring Mill and Elevator, situated and being on lots 1 and 2, block 163, and such part of lot 3 in said block 163, as the Elevator stands upon, being the easterly 30 feet or thereabouts of said lot, all running through to the river; in the city of Winona, Minnesota, will be of fered for sale to the highest bidder, on Saturday, August 9th, 1879, at 10 o'clock in the forenoon.

The Mill has been in successful operation for the past five years, has a capacity of 450 barrels per day, and an established trade for its flour in the Eastern markets, where the reputation of its brands stand second to none. The Elevator has a storage capacity of 50,000 bushels. The buildings stand on the banks of the Mississippi, and there is in connection with them a well-built and commodious dock, extending into the river. A railroad track runs to the mill doors, affording every facility for receiving and shipping by both rail and river, having choice of routes, and an unlimited supply of wheat, having the country tributary to the Winona & St. Peter, and C. M. & St. Paul R. R's. and the river to draw from.

An abundance of fuel at low cost can be had, and there is new on the ground, and will be sold at same time, sufficient for some months. There is a large home trade for offal, it being the only mill of any importance in the city. The mill is in good repair, and can be started as soon as the new crop is fit to grind. There will be sold at the same time, Horses, Harnesses, Wagons, Sleighs, a quantity of fuel, and other valuable property required in conducting the business.

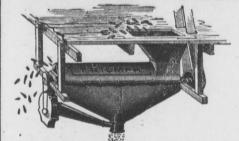
To parties contemplating engaging in the milling business, this presents an opportunity seldom offered for securing a desirable property, and an established tra

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Wayman's Bolting Cloth BUG AND MOTH

PREVENTIVE.

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This composition is put up in boxes sufficient to dress a four-reel chest, at \$5 per box. It will clean the cloth of all such pests as cause so much trouble in patching. It will not affect the flour nor damage the cloths, and is free from poison.

poison.

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### HENRY HERZER.

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MILWAUKEE,

I desire to call attention to the durability of MILL PICKS made and dressed by me. I manufacture them of the best ENGLISH STEEL, and warrant all work to give satisfaction.

I shall be pleased to receive your orders, as I always have a supply of New Picks on hand, and give particular attention to dressing Picks.

the stones are once put in order. One great trouble with millers now is that they dress their burrs too much. Stop cutting out and putting in patented dressef. Half land and half furrow; same at eye as at the skirt is what you want. It is the face and not the furrow that makes Middlings, and hundreds of Millers are to-day spending time and money and ruining their burrs by over dressing them. Secure a true face and the proper slant from the eye to the skirt and the results will be all that can be wished. The foundation of successful milling is in the grinding and if this is properly done no amount of subsequent treatment will turn out good flour. I earnestly invite your attention to my inventions, and solicit correspondence. My price for license to use my PATENTED METHOD with full printed directions, is Five Dollars per run, er, if I am requested to come personally, \$10 per run. Price for BOSOM STAFF \$35. Any quantity of references from leading mills furnished upon application. During September I shall be in the States of Wisconsin and Minnesota, and Mill-owners wishing to have me call upon them for the purpose of explain.

LEHMAN'S

Patent Method for Truing the Faces of Mill-stones,

Will insure to the user a perfectly true granulating face for Mill-stones and with the use of my BOSOM STAFF the object secured by the

use of rollers can be perfectly attained, and as great a quantity of Middlings and clean

Bran made as can be made by the Hungarian process, when used to perfection. With my PATENTED METHOD and BOSOM STAFF

but very little stone dressing is needed after

Wm. Lehman,

me call upon them for the purpose of explaining my inventions, will address me early, as below. I guarantee satisfaction or ask no pay.

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Of every description-Pearl, Ivory, Silver, Celluloid, Shell, Steel and Nickel Plated.

As I am the only party in the world that makes a specialty of Flour Triers, and Patentee and Sole Manufacturer of the

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I can furnish them of any material, size or color known. I have the exclusive control of the Celluloid Trier, and put them up in all colors and styles—Red, White, Blue, immitation of Malachite, Shell and Pearl. They are perfect beauties, as well as useful articles, as Celluloid is one of the hardest substances known after undergoing a certain process.

All orders promptly filled at wholesale or retail.

H. J. DEAL, Bueyrus, Ohio.

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## Export Flour.

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Address,

We are prepared to furnish the trade with any of our well-known brands of Flour, in sacks or barrels. Address all communications to

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Janesville, Wis.

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We are prepared to furnish the trade with any of our well-known brands of Flour, in sacks or Address all communications to barrels.

## T. F. HERSEY,

Cawker City, Kas.

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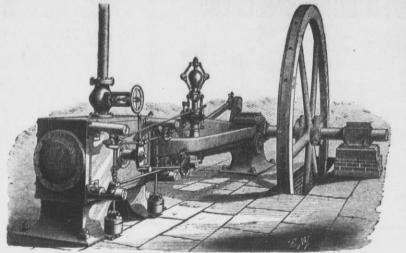
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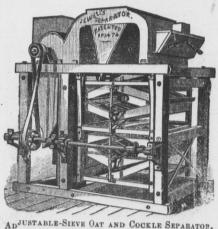
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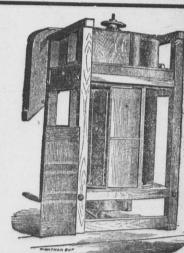
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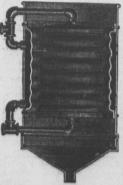
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Volume 7.—No. 6

MILWAUKEE, OCTOBER, 1879.

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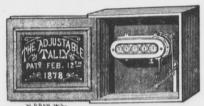


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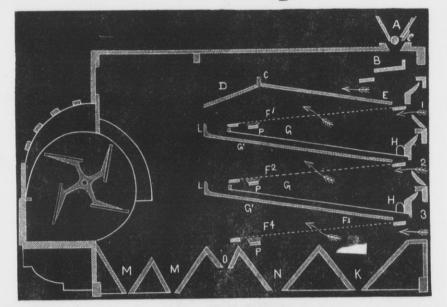
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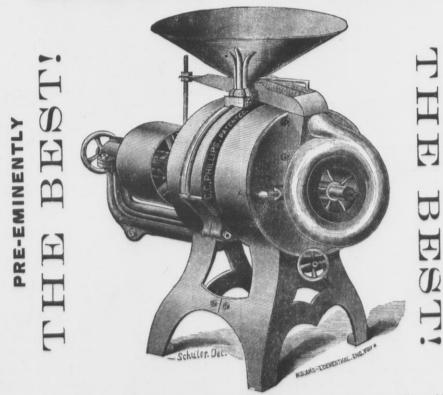


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Miller's Patent Composition Burr Rubber for cleaning, sharpening and facing burrs and finishing furrows, has been thoroughly tested in first-class mills. Warranted to produce a better grinding surface than the Pick or Diamond and save 50 per cent of labor in dressing Burrs and cause a greater yield and higher grade of flour with less power, will not glaze by use nor injure burr. Face Rubber 10 x 6 x 3 in., weight 12 lbs., price \$3.00. Furrow Rubber, 10 x 6 x 1 ¼ or 1 ½, 1 ¾ or 2 in. as required, price\$2.50 or both for \$5.00. Sent by express on receipt of price. Send for Circular. Send orders to MILLER & McCARTHY, Sep Mount Union, Penn.

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BUG AND MOTH PREVENTIVE.

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This composition is put up in boxes sufficient to dress a four-reel chest, at \$5 per box. It will clean the cloth of all such pests as cause so much trouble in patching. It will not affect the flour nor damage the cloths, and is free from poison.

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STOP STOP! STOP!

# Purchasing Middlings Purifiers ROLL

Until you send your address to Andrew Hunter, who will explain the reason why and show you how to save from \$50 to \$300 on the purchase of each Machine. "A dollar saved is a dollar earned." members and those who are not members of the Wegmann's Patent Porcelain Rolls. Millers' National Association will hereafter reap the benefit of the decision.

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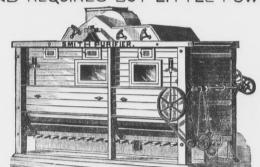
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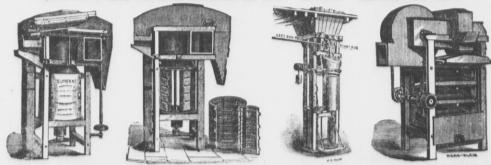
We manufacture eight sizes, adapted to the smallest or largest mills. Our prices range from \$225 to \$600, and cover a license under all of the patents owned by the Consolidated Middlings Purifier Company.

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Geo. T. Smith Middlings Purifier Co..

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### Established in 1856.



THE " ENTREMA" THE SHIVER CREEK THE "EUREKA" SEPARATOR Brush Finishing Machine FLOUR PACKER.

We have added to our list of specialties in the line of manufacturers the Silver Creek Flour Packer, which, with our full line of wheat cleaning machinery, we sell at greatly reduced prices. We also keep full stocks of the

Genuine Dufour and Dutch Anchor Bolting Cloths.

Cloth made up on short notice in the best manner. Send for pamphlets, circulars and price list Address

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All in our Improved Frames, which is the only one made which admits of perfect horizontal and vertical adjustment.

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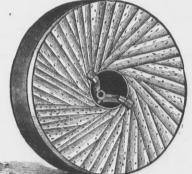
VOECHTING, SHAPE & CO.,

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BOTTLERS' SUPPLIES CONSTANTLY ON HAND Parties corresponding will please state where they saw this advertisement.

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## Becker Brush!

Is now Receiving More Attention than any other Machine known to Millers, for Brushing and Polishing Wheat.

The superiority of the Becker Brush over all others consists in the following points:

Conical Shape Brush.

Combination Jacket of Punched Iron and Steel

Raising and Lowering the Brush when in motion. An Adjustable Fan, to run with or against the sun.

It Scours, Polishes and Separates at same time. Takes the dust out of the crease of the berry. Takes the furze off the end of the wheat.

It does not disturb the bran. It greatly improves the color of the flour. Millers say it is a good Buckwheat Cleaner.

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Eureka Manufacturing Co., Manufacturers, ROCK FALLS, ILL.



Volume 7.—No. 6.

#### MILWAUKEE, OCTOBER, 1879.

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

British and Irish Flour Mills. WAVENEY FLOUR MILLS, YARMOUTH.

We have frequently had occasion to contrast the mode of flour manufacture practiced in former times, before the revolutionary force of steam was introduced and the development of the mechanical contrivances for the treatment of grain to be converted into flour, and of the latter before being sent to the flour merchant or the baker-with the mode of manufacture now in use. The interior of our flour mills, more especially those of them in which the manufacture of the article is pursued on a large scale, have been almost revolutionized, while as regards their exteriors quite as marked a revolution has taken place. The old

powers, judging from the relics of them which have escaped the ravages of time and the unsparing hand of . improvement, were quaint and picturesque features of landscape, or townscape, which were attractive alike to poets, painters and musicians, as songs, pictures and musical compositions abundantly attest. In our last technical issue, a correspondent, Mr. George Allsop, referred, in a brief communication, to the favors that had been conferred on "Mills and Millers" by painters and poets. They are the old mills, and the old millers chiefly, who are thus enbalmed on canvas and in song. Who has not heard of the jolly miller who lived on the river Dee, who taught one of our ancient kings a few valuable lessons in the philosophy of common life? "The Lass o' Pattie's Mill" is equally well known; an old poet has sung "Merry may the maid be that marries the miller;" and all readers of Burns know the mercenary instincts of "Meg o' the Mill," who broke "the heart of her barley miller." One of the mest beautiful of the earlier lyrics of the Poet Laureate has for its subject "The Miller's Daughter," and in the same poem the miller himself as well as the mill are touched off with a truly artistic hand. One of the most powerful of our living writers, George Elliot, has adopted a

mill as the title of one of her most powerful | the building has a highly effective appearance. | in the endeavor to effect some fancied economy works-we refer to "The Mill on the Floss,"and in and around the miller and his family the main interest of the story is concentrated. Who ever entered a picture gallery, or an exhibition of pictures, without finding amongst its leading attractions landscapes in which a mill was a chief feature? In short, the mill of earlier times than the present is surrounded with a halo of poetry and romance; but our modern millers are more generally associated with economic questions, which, however intrinsically important, are as dry as the dust that floats in the atmosphere of their mills.

Structurally speaking, the typical modern mill is a much more spacious and convenient affair than the typical ancient mill, loved by poets and painters. It is a building of many stories dominated by a towering chimney, frequently, as has been seen by the recent examples we have given of it in The Miller, of considerable architectural attractions, filled with an elaborate system of machinery. The Waveney Mill which we describe and illustrate in our present number belongs, we need not

say, to the modern class of mills, and is a good specimen of its class. It occupies an excellent site for milling purposes near Yarmouth Bridge, by the side of the harbor of that ancient port, on the bar of which there are 16 feet of water at neap tides. Ships of seven or eight hundred tons burthen can come alongside the mill with grain cargoes, and smaller vessels and wherries have direct communication with the principal towns on the tributary streams, Bure, Yare and the Waveney,-viz., Norwich, Acle, Aylsham, North and South Walsham, Loddon, Mutford, Lowestoft, Beccles, Geldeston and Bungay. Our illustration of the mill is taken from the northwest, and it will be seen that although it has mills, when wind and water were the motive no pretentions to great architectural beauty in case of repair. This is often lost sight of

inches, and both have a length of stroke of 2 feet 6 inches, making 62 revolutions, or a piston speed of 310 per minute. There is a separate expansion valve working at the back of the train valve of the high pressure cylinder, arranged to be adjusted by hand in a very simple manner whilst the engine is running. The low pressure cylinder has but one valve; all are worked by separate excentrics, direct, so that each is susceptible of a separate adjustment, and being outside the cylinders at the sides of the engine, can at any time be most readily got at; the whole arrangement of the details of these engines having been most carefully studied with a view to this most important feature, viz., easy access to all parts

well as the difference between the weights of the two connecting rods, so that a very uniform motion is the result. The fly-wheel is very heavy-a great advantage in flour millsweighing seven tons, and is 14 feet in diameter; the periphery of the fly-wheel outrunning the periphery of the millstones by about 1,000 feet per minute. This fly-wheel is of greatly improved construction, and well calculated to resist its great momentum, the boss, arms and rim being in parts, the latter in six segments. The arms, being turned at their lower ends, are fitted into the boss, which is bored to receive them, by strong folding cutters; these, when all fixed, are put into a large wheel lathe and the upper ends of the arms carefully turned also. The segments of

> the rim having been accurately planed at their ends are then fitted to the arms by strong bolts and nuts; the whole rim is then turned and polished on face and edges, and a thoroughly good job is the result. The condensing apparatus, with air pump, is arranged at the back of the low pressure cylinder, and is worked by a gun metal rod in a line, vertically, from the low pressure piston, but about 8 inches below the piston rod. The air pump is double acting, all of gun metal, with its bucket and valve seats, guards, bolts, and nuts; to resist the action of the salt waters used for condensation, six valves are used for the suction and six also for the delivery, and the vacuum is, with a fair supply of water, most excellent. Steam is supplied from a "Galloway" boiler, 18 by 6 feet, and provision is left by the side of it for one of the same make, but 24 by 6 feet, when the engine will be able to run fifteen pairs of stones if needed, or a corresponding amount of other work. There are at present put to the engine twelve pairs of 4-feet stones arranged in two rows of six pairs each, worked right and left from off two drum pulleys on the end of fly wheel shaft projecting into the mill. These drums are each 7 feet diameter and 13 inches wide on face-well

rounded driving on to drums -one to each lay shaft under the stones-6 feet 9 inches diameter and 13 inches wide on face. On the lay shafts (which are of wrought iron, turned and polished throughout) are bevel wheels, geared with wood and working into "heels" of iron teeth on the stone spindles. The hursts are strong cast iron standards, with brays and bridetrees all fitted by planing, metal to metal, the stones resting on pans of cast iron faced and turned and fitted to the turned ends of the standards and to each other, metal to metal, the whole arrangement being of a most rigid and substantial and rigid character and working exceedingly smoothly and satisfactorily; each pair of stones has a separate governor to regulate them. This arrangement of driving the stones has the merit of obtaining by its adoption large strap power, a better distribution of the strain from the engine shaft, and a minimum of vibration from the gearing; no upright shaft is used, as there is an additional

WAVENEY STEAM FLOUR MILLS, YARMOUTH.

The mill is eighty feet long by thirty-eight feet wide, sixty feet high, and comprises six stories. It was commenced in the summer of 1877, and is built of red brick, the floors being laid on wooden beams twelve inches square, which are supported by seventy-two massive iron pillars.

The engine, which is of the compound high and low pressure expansive and condensing class, is of horizontal construction, and of 30horse power nominal, and is of ample strength and capacity for working up to 100 indicated horse power, with a steam' pressure of 70 lbs. on the square inch. It was made by Messrs. Riches & Watts, and is of similar pattern to many constructed by the same makers, which are most successfully working at many of the largest flour mills and other establishments in the county of Norfolk. The steam cylinders are placed close together side by side, are both steam jacketed, as also are the covers, supplied by steam direct from the boiler. The diameter of the low pressure cylinder is 24 inches, and that of the high pressure cylinder 14

of detail. The guides to the piston rods are of the "slipper" kind, with adjustable shoes of hard cast iron fitted to gun metal blocks. These shoes, which are of large surface, work in cast iron channels accurately planed and fitted to the bed plate, and are provided with oil pans or dishes at each end for the effectual lubrication of the guides. The connecting rods are of the best forged Yorkshire iron, and are fitted at the crank end with heads of "marine" type forged with the rod, the caps of which are securely held by strong screw bolts and lock nuts. The crank shaft is also of the best forged Yorkshire iron, formed solid, and the iron slotted out; it is 64 inches diameter in the neck and the main bearings, and is coupled to a short wrought iron shaft 7 inches in diameter, on a swelled part of which is keyed the fly-wheel. The other end of the crank is fitted with a cast iron disc crank (which is actuated by the high pressure piston), having a crank pin of cast steel. This disc is so formed as to accurately balance the weighty arms of the low pressure crank as

nto the mill, 6 feet diameter and 101 inches Concluded on page 92.]

pulley on the end of the crank shaft projecting

#### UNITED STATES MILLER.

#### E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY. OFFICE, 62 GRAND OPERA HOUSE, MILWAUKEE, WIS. 

All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker. Bills for advertising will be sent monthly unless other-wise agreed upon.

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

#### MILWAUKEE, OCTOBER, 1879.

WE are indebted to Messrs. Marshall Bros., of Milwaukee, Wis., for a number of late Australian newspapers.

COL. GRATIOT, of Platteville, Wis., called during the month. He reports orders lively for the well-known Gratiot heaters.

JONATHAN MILLS is heartily pleased with the final result of his milling experiments at Terre Haute, Ind. He is confident that there is "millions in it."

SUBSCRIBERS changing their location and writing to us to send the MILLER to their new address, will confer a favor by stating what their former address was.

ANOTHER member of the British Parliament -Hon. John Henry Puleston-is en route for this country to investigate the subject of agriculture in America in its relation to British interests.

THE aggregate internal revenue receipts of the United States, since June 30, from all sources, up to and including last week, show an increase of \$72,000 over the corresponding period of last year.

MR. ALBERT HOPPIN, of the Northwestern Miller, Minneapolis, made a pleasant call during the month. Although the weather was rainy during most of his sojourn, he expressed himself as having well enjoyed his visit. Come

We will send a copy of the MILLERS' TEXT BOOK, by J. M'LEAN, of Glasgow, Scotland, and the UNITED STATES MILLER, for one year, to any address in the United States or Canada, for \$1.25. Price of Text Book alone, 60 cents. Send cash or stamps.

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 ad-

THE Kingdom of Greece, according to a recent census, has a population of 1,679,775, being an increase of 221,771 since 1870. The city of Athens has a population of 74,000. Since the liberation of Greece from Turkish rule in 1837, when her population was only 850-000, she has doubled her numbers.

CROPS in Italy, like those in England and other parts of Europe, are of a very low grade this year. The Italian Government has issued a circular to the Prefects of the various provinces directing them to call on property-owners for work for needy laborers. The wheat crop of Italy is estimated to be 15,000,000 bushels short of the average this season.

A JOINT COMMISSION, appointed by the Governor of New York and the Canadian Government, has commenced its session at Niagara Falls, for the purpose of devising means by which to prevent the destruction of the wondrous natural scenery there. How the action of the mighty forces of nature there at work may be arrested is not easy to conceive, but pernaps the commission may hit upon it. It has many times been proposed to turn this tremendous water-power to very extensive practical use.

THE Chicago Inter-Ocean says: "The question is, What are we to do with our gold? Nobody wants to take it, and yet the stream from Europe continues in a steady flow, \$33,000,000 and over having been received since the first of August. Silver is also bothering us, though not to anything like the extent of gold; beside there is a demand for silver, and a great deal of it keeps in circulation, while gold is shunned by everybody. The probabillity is that the silver certificates that are being issued by the Government will soon have the effect of adding the entire silver coinage to the active circulation of the country, and this being so, a natural expansion of the currency will result." We would just say to the Inter-Ocean man that if he can't get rid of his gold any other way, he can come to Milwaukee and buy beer.

#### The Question Answered.

In the June number of this journal, in which was published the condensed statement furnished to the milling press of the receipts and expenditures of the Millers' National Association during the progress of the celebrated Cochrane suit, it appeared that George Harding, counsel for the Association, had received over \$40,000. As there was no explanation furnished, many members throughout the country wrote to us inquiring if this fee was not a "leetle too high," as one of them put it. In order to answer the question, we addressed a note to Mr. Seamans, the Secretary of the National Association, to which we have received the following reply, which we think will be read with interest by millers generally:

MILWAUKEE, Wis., Sept. 30, 1879.—Editor United States Miller-DEAR SIR: In answer to your inquiry in relation to the apparently large amount of \$40,000 paid Judge Harding in the Cochrane case, as per Executive Committee's published report, I beg leave to submit the following condensed list of expenses paid out of this sum by Mr. Harding, as per his report on file at my office. You will see by this account that the actual amount received by him thus far for professional services is less than \$12,000, instead of \$40,000, as you infer. I will also take the liberty of quoting the following extract from the letter received from him enclosing the annexed statement:

"I know that in traveling expenses, hotel bills, telegrams, etc., I have paid out between \$2,000 and \$2,500 more than this. I have labored at this case to the exclusion of the greater part of my other business for more than seventeen months. During that time, my office rent, organization, and expenses in New York and Philadelphia necessary to my business has been \$6,000 or \$7,000 a year. I congratulate the millers on their victory, but to me it has been a matter of honor rather than

List of Expenses paid by Judge Harding in connection with the suit Consolidated M. P. Co. vs. Millers' Na-

tional Association:		
To amount paid for expert testimony and other witnesses	\$13.781	34
To traveling and hotel expenses of Harding		
and other attorneys	2,625	23
neys	3.311	00
To am't paid for printing testimony, press, etc.		
lo am't paid stenographers, taking testimony	711	66
To telegraph bills to date	234	15
use in Court	266	50
Γο paid for purifier machinery, models, etc Γο books and publications relating to purifying	928	88
middlings	345	02
To investigations at the Patent Office neidental expenses, including items paid at	531	86
N. Y. office, notary fees, Clerk of Court, etc	783	15

.... \$28,030,33 Yours respectfully, F. B. MILLS, Asst. Sec'y.

#### Correspondence.

Mansfield, Ohio, Sept. 26, 1879.—Editor United States Miller—DEAR SIE: In compliance with your frequent request for persons interested in milling to contribute something for publication in your paper, I will say that, as the opportunity is presented, I will occasionally give my views on the subject of milling in its different departments, and in each article I shall endeavor to confine my remarks to some one special topic. And as the millstone is universally acknowledged as the basis or foundation of successful milling, it would seem to claim my attention in this article.

Uniformity of the blocks is a matter of great importance, and one which is overlooked by very many millers in making selection of ing, the artificiality, the capriciousness and millstones. Where one block is hard, another the capaciousness or immensity of grain specsoft; one open, another close, it will be impossible to keep the burr in true face. And if the face of the stones are uneven, the result will be uneven granulation, poor quality of flour, and waste of product. As to the best style of dress, the opinions of our best practical millers differ widely. In my opinion, there are at least three different modes, either of which does well, viz., the three-quarter, the two-quarter, and the equalizing dress.

The three-quarter dress has the objection of too much draft in the short furrows, and makes it necessary to give the leading furrows less draft than they really should have, so as to prevent the product being thrown off too rapidly or from being delivered before being thoroughly granulated. The two-quarter dress is preferable, because there is less difference in the draft of the furrows, and consequently more uniformity in delivery.

I prefer the equalizing dress, because each furrow may extend nearly or quite to the eye of the stone, thereby securing greater uniformity to face, furrow and draft, and the result will be more perfect granulation. As to proper draft, width, number and depth of furrows, no fixed rule can be adhered to strictly, as size of burr, quality of stock, and kind of work to be done must be understood before

direction can safely be given in a matter so important. The number furrows necessary in a millstone of any size depends upon the condition of the stone (whether open or close) and upon the kind of work to be done. Suppose I have a 48-inch best old stock French burr, medium close, which I wish to put in order for granulating wheat. I will first put this stone in perfect face, or as nearly so as possible. I will then lay off my furrows, say forty in number, of such width as to divide the surface equally between face and furrows, giving one a quarter inch draft per foot to the furrows, and making the depth at the eye one-fourth of an inch, and at the skirt oneeighth, taking the same care to have the furrow true, as I have taken to true the face, dressing it to a perfect feather edge. being careful to avoid leaving a shoulder, even of the very slightest depth, as it would have a tendency to cut the bran and make the flour impure. Having dressed the burrs as above indicated, I would place the bed-stone perfectly level on a solid base, and have the runners so perfectly balanced as to entirely avoid danger of the surfaces running together, except by carelessness of the operator. With the wheat in proper condition, I would expect to granulate thoroughly 6 to 7 bushels per hour, with my burrs running at a speed of 140 revolutions per minute. For granulating middlings I would use stones of same quality of stock as for wheat, but smaller, and very close, with less furrow surface.

For grinding corn and feed I would use 48inch stones, built of the quality of edge blocks, quite open, using the equalizing dress with more furrows, narrower, and some deeper than for wheat, giving my furrows 11 inches draft per foot of the diameter, and run them at a speed of at least two hundred revolutions per minute. I consider the edge block burrs much more valuable for grinding corn and chop than those built in the ordinary way, for the reason that they require much less dressing, are naturally sharper, and grind more rapidly, requiring much less power to do a given amount of work.

#### Should Millers Speculate in Grain?

Whether the number of millers who are engaged in grain speculation is large or not, the thoughts advanced by the St. Louis Miller, in a recent editorial, are well worthy of consideration. It is certainly true, as that paper intimates, that the miller who speculates enjoys no immunity from criticism not possessed by the Wall street stock broker or any other gambler. A person, it says, should not pursue an outside policy to the general detriment of the trade to which he belongs. Now, pure and undefiled milling we believe to be inherently as safe and sure a business as there is in the country. True it has had a small margin of profits for some years past, but in that re gard it has surely been upon a par with every other line. Other things being equal, if one miller can grind with a profit so can the mass of millers. Per contra, the mass of millers will not grind without a reasonable profit. Millers could approximate in advance very closely to the amount and character of their year's business were it not for the uncertain devices of one class of traders-grain speculators. The element of hazard would be very largely eliminated from milling were it not for the shifting values, the bulling and the bearulation.

For a miller with a large outside capital to buy a vast amount of wheat on speculation, sell his flour as fast as he grinds it, until wheat has reached the desired figure, and then by throwing it upon the market help to create a tumble, he thenceforward hangs on to every barrel of flour he grinds until the market recovers from the revolution which he has aided to bring about—is right enough to himself, but wrong to the milling fraternity. The process unsettles values, and is necessarily detrimental to the general trade. It shakes the very foundation of the business, and lessens the stability and integrity of the otherwise sound superstructure.

Comparing the effects, loosening the cornerstone of his neighbor's mill would be no more demoralizing. It is proper and prudent for a miller, if he have the means, to store grain enough one harvest to run his mill until the next, if in his judgment prices and market prospects justify such a course. But when a man stores grain to the amount of ten, a hundred, or five hundred times the grinding capacity of his mills, he ceases to be a legitimate miller, for he has raised his hand against the regular business; and if the blow does not fall upon the mass of the fraternity, it is only

because he has made a miscalculation, and in stead of biting is bitten.

The extent to which this super-milling, this foreign anuex, this exterior mill attachment is operated is not likely to be overestimated either by us or by any one who chooses to consider the matter. It is not confined to great cities. Many a town in a good wheat district has its speculative miller who helps to lock up the grain of the country and prevent a natural and equal distribution of milling profit. Some of the nicest, most honest and most reputable men, gentlemen of the strictest integrity and most public-sprited impulses, are continually engaged in this sort of speculation, but they are not regular millers, although they may grind a great deal of flour annually.

#### An Electric Railway.

THE LATEST USE TO WHICH ELECTRICITY HAS BEEN PUT.

Many attempts have been made to apply the motive power obtained from electricity to the working of locomotives, but no satisfactory result was obtained. However, a step forward has been made in this direction, in Berlin, with apparent success. There are two lines of rails laid down, which, as in a narrow guage line, return in themselves in a ringshaped curve. The length is about 300 metres. In the middle is an isolated third line, consisting of an upright, continuous iron plate. The locomotive carries two rollers, with which it stands in connection with the isolated middle line. The essential portion of the locomotive is formed by an electro-dynamical machine, one pole of which connected with the middle line, and the other with the pair of outer rails, through the outer wheels. Similarly the machine which produces the current stands in the machine-room in connection through one pole with the middle line and through the other with the outer pair of rails. When, therefore, the dynamical machine in the locomotive is on the railway, the electric current produced in the machine soon runs through it and causes it to rotate and to impart its rotary motion to the wheels of the locomotive, and the latter continues to move until the current is interrupted. Even an imperfect state of isolation on the part of the rails does not materially affect the action of the machine. When the locomotive is moving, its conducting wires form much better conductors than the damp earth. If the current is interrupted the damp ground is not a sufficient conductor to keep the dynamo-electrical action going. The magnetism of the machines producing the current consequently disappears, and the result is that the subordinate stream through the earth is also interrupted. A great advantage is possessed by the transmission of electric force from the fact that the locomotive, whether moving slowly or quickly, always works up to its full power-an effect which has hitherto been an unsolved problem in mechanics. When the machine that gives the power has to do much work, and so goes slowly, the counter-currents it produces are also correspondingly weak, and the current through the conductors thereby undergoes an increase in strength to a similar extent. By this means the electro-magnetism, and, corresponding to this, the attractive power of the machine, are increased. The dynamo-electric locomotive has the further advantage that it carries in itself the power which can be employed as a brake, inasmuch as it becomes itself the primary or currentproducing machine when it rotates more rapidly than the actual machine. In judging of the performances of the electric locomotive in the Berlin exhibition, it must be remembered that it was not constructed for the purpose to which it has been applied—that is, to propel the three elegant little passenger carriages which are attached to it. Each carriage holds from eighteen to twenty persons, and all three are drawn in from one to two minutes round the circular railway of 300 metres in length. The locomotive was originally made for the purpose of drawing up coals out of the pit. Nevertheless, its performances are very remarkable, and render it certain that there are many cases in which electric locomotives may be employed with advantage. The question of the extent to which electro-dynamic locomotives may possibly be employed is as yet difficult to decide. Apart from the question of the possibility of a sufficient isolation, it depends on the conductive resistance of the rails. According to Dr. Siemens' view, this requisite on long railways may be partly satisfied by setting up from time to time new primary dynamo-electric machines, which would maintain the necessary electric tension between the middle and the outer rails .- Gal-

ignani's Messenger, Paris.

#### The Old Miller.

BY W. N. DAVIDSON.

I knew an old miller in boyhood, In the sound of the falling waters, And nigh by a clattering mill.

I remember the low ancient cottage, The clustering ivy that clung To the stately and olden linden That over the gable hung.

A pathway led down through the garden And out through a latticed gate, That swung on its wooden hinges With a sad and complaining grate.

And on through a little meadow, Where cattle used to graze, And a spring-brook used to babble Through long, bright summer days,

Till it joined the highway to the village, That ran at the foot of the hill; And there stood the bourne of my travels-The dingy and clattering mill.

How lofty it was, and so narrow! The rafters how peaked and tall! The angles so crooked and leaning, Men said the old building would fall.

The miller but smiled at the warning, And unto them, gaily, he said: "My friends, the old mill will be standing Long years when the miller is dead."

"Oh, give me the clash of the gearing, The buzzing, and whirring, and jar Of the stone," he would say, "I would rather Have these than the wealth of the Czar.

Ah! well I remember the miller; In fancy I see him to-night, As I saw him in the days of my childhood, His clothing all mottled with white.

And his musical accents are ringing In memory's galleries still, As away in the past I have heard them, Above the loud clang of the mill.

Thrice Famine had spread his dark pinions And Want brooded sore in the land, And oft were the poor and the widow Relieved with a bountiful hand.

For never, when hunger oppressed them, And dreary and dark was the day, Went they to the miller for succor And came empty-handed away.

remember the high and wide door-way, The form that led up to the sill, The hook and the ponderous cable That hung from the top of the mill.

And the queer oaken doors as I saw them, The upper one ever ajar; I wondered with innocent wonder What so many nails could be for!

One night when the river was swollen And Thor was abroad on the blast, Recording his journey in lightnings, And bowing the woods as he passed.

The family up at the cottage Were praying the God of the storm, Whatever of ill should betide them, To shelter the good miller's form.

But, oh! as their prayers were ascending High up to the radiant Hill Of Promise for aid and protection, They heard the loud fall of the mill!

"The chastening hand of our Father In wisdom is over us all!" Cried the reverent dame; but its shadow Lay over her soul as a pall.

The glorious eye of the morning Looked down on the olden scene-The cot, the brook, and the garden, And meadow so quiet and green.

But where was the dingy old building, So leaning, and narrow, and high, With roof all so lofty and peaked, It seemed to be piercing the sky?

Down under the wide-scattered ruins The miller lay rigid and still. And the heart that beat warm for his fellows Was bloodless forever and chill!

They buried him nigh by his cottage-His tomb could be seen from its door, And graved on it: "Here lies a miller; He never took toll from the poor!

TOOTHPICK AGITATION.—The toothpick market is agitated. Those chiefly in use are of white wood and pointed at both ends. A patent for fourteen years was obtained for them in 1866, and the factory of the Boston owners at Bucksfield, Me., used from 3,000 ta 5,000 cords of wood yearly, and turned out incalculable quantities. A box of 2,500 sold for 25 cents, and the profit was large. A log 6 feet long and about 18 inches in diameter was placed in a machine where bevel knives cut it each direction, and turned out the toothpicks ready for market. About eighteen months ago another Boston firm started a factory in the woods of Ohio and used similar machinery. The price then began tumbling, and fell to 20 cents at retail, then to 18, 14, and 12. Of late the original manufacturers have reduced the figure to 10 cents, or 8 cents at wholesale, and report their antagonists to be on the verge of stoppage.

The well known firm of Z. M. Davis & Co., of Canton, O., have lately made quite extensive improvements in their mill, putting in new middlings purifiers, and also changing their system of bolting so as to conform to the new process, and putting on new bolting cloth, furnished by C. F. Miller, of Mansfield,

#### The Hungarian Milling Trade.

[By Leopold Brull, Director of the U. A. C. B., United Steam Mills, Buda-Pesth, translated from the Oesterr. Ungar. Mueller Zeitung.]

The flours made in Hungary by the highclass mills are only to a small extent disposed of to its inhabitants, the greater part being exported. To enable them to do this, they must be in a position to sell their products in the respective countries abroad at prices which will stand competition or the rates there current, and they are, therefore, forced to carry on business on a grand scale, and to have the rates of freight reduced to a minimum.

The main basis of the Hungarian milling is, therefore, the manufacture in vast quantities. The business flourishes as long as large quantities of wheat are available, and it ceases completely as soon as unfavorable commercial influences force the mills to reduce the scale on which they would otherwise work. Fortunately for the trade, all those conditions would nearly always exist in Hungary, which enable mills, by working on a large scale, to bring a considerable part of the raw product on the market in a manufactured state.

There are no reliable statistical data published of the quantity of wheat grown in Hungary, as is done in France, England, etc. It is therefore not possible for me to say in what proportion the manufacture of flour stands to the wheat and corn production of the country; nor has it ever been ascertained what quantity of flour the Hungarians are on an average able to produce annually. Approximately, it may be said, that the mills grind about thirty to thirty-five million cwts. of wheat and rye in the year, the products made therefrom being worth from 350 to 400 million florins.

The mills in the town of Buda-Pesth may be considered as equal in grinding capacity to one-sixth of the whole milling trade of Hungary. As previously mentioned, the home consumption is of little importance to the large Hungarian mills. If Hungary has a harvest which is at all favorable, but a small part of the flour made goes to satisfy home demands, while the greater part by far, particularly of fine and medium sorts of flour, is a surplus, and is exported. The farmer, in accordance with his general mode of living, buys none but inferior qualities of flour, a great part of the same being ground in the most primitive manner at the nearest water or other small mill, where he takes his wheat and gets a proportionate quantity of the low qualities of flour in exchange. The requirements of the larger districts and towns are also far too small to fully occupy the mills. Of fine flours the home consumption is very small; these qualities of flour, destined for fancy baking, are not adapted to the mode of living in our country, and their sale is restricted to foreign countries, particularly England.

With the prices of wheat at the figure at which they are at present, and have been since the last harvest, we are able to compete with the respective foreign manufactures, although on the various markets, particularly those of England, the millers have made astonishing progress in their powers of competition, although there are some obstacles already existing and some about springing up which may prove injurious to this branch of trade. Whether the import duties which Germany has in view will prove of continually extending influence to Austrian millers, is a question which necessarily remains undecided at present. But there can be no doubt that the price of the low kinds of flour formerly sent to Germany can bear the duty of two marks (2 | ) actually imposed with difficulty, and that generally the introduction of these duties will act unfavorably on our trade.

For the past two years Hungarian flour has been made exclusively from Hungarian wheat. Formerly, in years of bad barvest, important quantities of wheat were imported from Roumania for the manufacture of flour, but now the Hungarian wheat, which of all kinds in the world is the most suitable for our system of milling, is alone used, as it can be had in sufficiently large quantities.

The wheat used by our mills is grown in different parts of the Kingdom. The Theiss wheat is best conditioned and ranks highest for the manufacture of good flour. Next stand the Weissenburg and Pesth, as well as the Banate, Marose and Bacska wheats. Generally these kinds of wheat are used for the manufacture of flour in the following propor-

Thirty-five per cent, Theiss wheats; 25 per cent, Banate and Marmarose; 25 per cent, Pesth and Weissenburg; 15 per cent, Bacska

The markets for Hungarian flour are: At home and Austria, Hungary, principally for

low quality flour. Upper and Lower Austria, Bohemia, Moravia, etc., white flours of medium quality and bread flour. Abread: Southern Germany, bread and low quality flours for brown bread. North Germany (Berlin), exclusively fine quality flour. Switzerland, Belgium, Holland, generally bread and low quality flours. France and Italy mostly import small quantities of various sorts. England, fine and medium sorts, sometimes also bread flours. Turkey and Greece, low qualities of flour. The Brazils, fine flour. Egypt, fine and medium flour. East Indies, fine quality flour. The export to England and Germany was greatest in 1878, and these countries are our two most important customers.

Formerly our flours were forwarded to England by way of Northern Germany and the North Sea. In consequence, however, of the well-known innovations in the German customs policy, and the raising of the railway freights which was connected therewith, the Hungarian mills were obliged to look out for another route of transport. They found it in the way by the Southern Railway to the Adriatic Sea, and thence from the port of Trieste, so also from Fiume to the United Kingdom.

Thus we have placed in safety this branch of the export trade, and if the parties concerned will now see that the railway freights to Trieste and Fiume respectively, are fixed at as low a figure as possible, and that the shipping between Fiume and England gets more regular and frequent, we may be assured that we need not be displaced in the English markets by American competition.

A new and more direct railway communication between Pesth and Fiume is proposed; it would make the latter the only port on the coast of the Adriatic Sea for exports from Hungary.

The duties recently imposed by Germany affect our home trade to some extent. Pretty large quantities of common wheat and rye flour are sent from Germany, chiefly from Saxony, to the north of Bohemia and Moravia, being very cheap, and, consequently, easy of sale. Now, in my opinion, an end should be made to this competition, for competition it is after all-by imposing, in our turn, a duty on this flour. We certainly need not now abstain from doing this in consideration of the interests of our German competit-

#### How to Interpret Dreams.

Many great men have been superstitious. Dr. Johnson believed in ghosts, and, had he lived today, would have been a modern Spiritualist. The Cocklane ghost story was exploded, but Johnson believed it till the last. Napoleon was a fatalist, and believed that dreams gave reliable forecast of future events. The following are from his dreambook:

ALMS.—To dream that you deny, indicates want and misery to the dreamer; that you bestow, signifies joy and long life, either to the dreamer or some particular friend.

APPAREL.-To dream that your clothes are good, denotes prosperity and happiness; of white apparel, is good only for clergymen; to others it is a sign of trouble; to mechanics, decline of business; to the sick, death. If of black, however, it is of their recovery; of rich scarlet apparel, is good for rich men and servants, signifying honor, dignity, and liberty—but is death to the sick, and loss or captivity to the poor; to dream of women's apparel, is good for the unmarried—but to a married man, loss of his wife or sickness

APPARITION.—If attired in white signifies deceit, and temptation to sin.

BARKING OF DOGS .- Detraction and insult.

BATHING -In a clear fountain, joy; in stinking water, shame and false accusations.

BEARD.—To dream of a large beard is good for any of the learned professions, denoting eloquence and success; to a maid, an early marriage; to a married woman, widowhood; to a widow, second marriage; to a young child it is death; to a youth, promotion. Loss of beard denotes misfortunes.

BROTHERS -To see the deceased, denotes long life; that you discourse with your brethren, vexa-tion—for in dreams brethren denote enemies. Timo-crates dreamed that he had buried his deceased brother, and soon after one of his greatest enemies

CARDS.-Playing at, deceit and craft, success in love and gambling

CATTLE.—Fat, denote fruitfulness; lean, a scarcity. CAT.—Denotes a thief; to fight a cat, affliction,

CHILD.—If a man dream he is with child, increase of riches, loss of a wife, sickness, revealing of secrets. To a maid, it denotes nuptials, joy, and reveling—yet sometimes grief and fear to the

CHILDREN.—That many are born denotes joy and good success. To dream of your own children is a bad—but of other persons is a good—omen; better of boys than of girls.

COMBATS.—Shame, strife and contention.

COMBING.—Happy change of affairs

DANCING.—Denotes good, and mirth to those in health; but death of the sick; to dance to music indecates activity and mirth, but without music denotes poverty. Dogs.-Denote fidelity, affection and courage, if they are our own. Strange dogs imply enemies; that our clothes are torn by, slander. Greyhounds import actions and employments. Household dogs, farms and servants. Lap-dogs, delight and pastime. A mastiff, a potent enemy; the result of a fight with, denotes your success with opponents.

DEVIL—To dream of, implies punishment, and is an ill dream; to see him, intends—to the healthful, melancholy and sickness—to the ill, death. To talk to him indicates temptation and treachery, despair, and ruin.

DRINKING.—Is a sign of sickness.

EARTHQUAKES —Change of estate, injuries, death; to see a town destroyed by, famine, war, and

ECLIPSE OF THE MOON—Death of a mother; of the sun, death of a father.

ENEMY.-To dream of, intimates caution.

FACE.—Of a fresh smiling face, friendship and joy; pale or meagre, trouble, poverty, and death; black face, long life; washing, repentance.

FALLING FROM HIGH PLACES -Imports loss of

FIELDS.—Indicate an early marriage, attended with much happiness.

FIGHTING.-Denotes contention, and a wound by

FLOODS.—Denote rigorous judges, angry masters, seemblies, and noise. FLOWERS.—Pleasure and consolation. Yellow flowers denote obstruction. Red flowers, still greater: to wear them, short-lived joys; to gather

them, mirth and jollity. FORTUNE.-To dream of acquiring, is good to the poor, but bad to the rich.

FRIEND.—To see him dead, denotes joy; but to a lover, inconstancy.

FRUIT.—Signifies profit and gain. FUNERAL -Acquisition of an estate, marriage.

GIFT .-- To bestow, loss and damage; to receive, oy and gladness.

Gold.-On clothes, denotes joy and honor; a crown of favor and promotion; to gather, deceit and loss.

GRAIN.-To see and gather is profit and advantage; to eat, bad, except peas.

HAIL.—Sorrow and tribulation.

HAT.-To be torn or dirty, damage and dishonor. A new hat, profit, joy, and success

HATRED.—To dream of, indicates misfortunes. HEAVEN .-- To ascend into, grandeur and glory.

Hell.-To see, and hear of, denotes repentance, sorrow and melancholy. Horses.—To dream of a horse has ever been held to be a fortunate dream, one of a very happy omen,

whether the horse is taken, mounted, or merely A running horse indicates prosperity. Riding on a tired horse, falling in love. KEYS .- To lose, denotes anger. A key is good to a lover, but bad to a traveler.

KILL.—That you kill a man, prosperity in busi-Kissing.—Denotes loss. To kiss a dead person, long life. That you are kissed by persons of qual-

LICE -To dream of having many, imports sick-

ness; of destroying them, increased riches LIGHT -To hold one in the hand, implies success in love, honor, and good will.

LIGHTNING.—Without a tempest, denotes change of place; to be smitten by, is good for the poor; it imports also marriage to the single.

LINEN.-To dream of washing, is loss to the rich, but profit to the poor.

LOOKING-GLASS.—To look into, denotes to the single, sweethearts; to the married, children. MARRIAGE.—Denotes danger and death, damage,

sickness, and melancholy Money.-Loss of, indicates to the old, death; to the young, immodesty and dishonesty.

MOTHER.-To see her alive, is joy; dead, is mis-

Music —Sweet, intends good news; discords, bad news. Mysterious music, unexpected happiness. The hymns and music of the angels, devotion and

NAKEDNESS.-To see a man naked, fear and terror; a woman, honor and joy. NAVIGATION.—To be sailing in smooth waters,

indicates comfort and success; in rough waters, disappointment and trouble. NIGHT-BIRDS.—Denotes misfortune and portends

Of this class are the owl and the bat. OIL .- Is good fortune to women; to men, shame. ORCHARDS.-Pleasures, riches, and plenty.

ORGANS.—The sound of, joy. PAPER.-To write on, news; to blot, or tear, regularity in business

Peacock.-Implies a fortunate marriage. PERFUMES.-That you are perfumed, vanity and

PICTURES.—Joy, without profit.

POND. - The love of a beautiful woman.

PRAYERS -Imply happiness.

PRECIPICES — Injury and danger; loss by fire.
PURSE —To lose, is a good and auspicious dream.
RIDE. — With men, is profit; with women, deceit
and trouble; in a coach, pride.
SAIL—To, is a good dream; it denotes prosperity,
especially if at sea.

SEA.—Denotes good to travelers and servants. SEAT.—To fall from, disgrace. SLIPPERS.—To the rich, decay and poverty.

SMALL-POX -Profit and wealth. SNAKE.-A cowardly enemy.

SWEETHEART.—It she look fair, that she is constant; if pale, that she has broken her faith. SWEETMEATS.—Token of being invited to a feast.
THEFT.—To dream of having committed, implies danger.

THIEVES .- To dream of driving them away, is a good dream; to be robbed by, portends mishief.
THIRST.—and quenching it, portends jollity.
THUNDER.—Is affliction to the rich; joy to the

TRAGEDY.—To see a, loss, grief and sorrow. TRAVELING.—In a wood, misfortunes; over hills, advancement.

TREASURE.—To find hidden, imports evil.

TREASURE.—To find hidden, imports evil.
VELVET.—Profit and joy.
VIOLIN.—Concord and good news.
WALKING.—In the dirt, sickness; in the water, grief; in the night, adversity.
WASHING.—Riches; that you bathe, prosperity; that you swim, danger and sickness.
WEDDINGS.—Denote death.
WEEDING.—Denotes joy and mirth.
WELL.—To draw water from, marriage.
WIFE.—That she is married to another, signifieth change of affairs.

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#### MILLERS' ASSOCIATION DIRECTORY.

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We send out monthly a large number of sample copies of THE UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. We are working our best for the milling interest of this country, and we think it no more than fair that our milling friends should help the cause along by liberal subscriptions. Send us One Dollar in money or stamps, and we will send THE MILLER to you for one year.

M'LEAN'S Millers' Text Book and the UNITED STATES MILLER, for one year, for \$1.25. Order now. Send money or postage stamps.

R. L. DOWNTON, of the firm of Downton & Miller, St. Louis, Mo., is now at Langham's Hotel, London, England.

WE have received the first number of the Chromatic Art Magazine, published by John Henry, 9 Spruce street, New York. It is one of the most beautiful specimens of typography we ever saw, and practical printers know how to appreciate it.

THE UNITED STATES MILLER has the largest circulation of any milling journal published in America, and was the first milling journal started in America entirely independent of connection of interest with some mackine or mill-furnishing establishment.

WE call the attention of our readers to the advertisement of Lehmann's method of staffing millstones and Lehmann's patent bosom staff in another column. Where he has introduced his inventions they have given unqualified satisfaction, and many of the leading mills are now using them. When a miller once becomes acquainted with his inventions, he will not do without them.

WE hope all who receive sample copies of the UNITED STATES MILLER will favor us with their early subscription. The price-one dollar per year-is a mere trifle, and ensures you a first-class paper containing a great quantity of matter of direct interest to your trade. Do not delay, but send your order now. Enterprising, go-ahead millers cannot afford to be without the current milling literature of the

NORDENSKJOLD, the Swedish Arctic explorer, has succeeded in making the passage through the Arctic Ocean from the Atlantic to the Pacific, and has arrived at Yokohama,

Japan. He sailed from Norway in July, 1878, and was detained by the ice at East Cape for 264 days. Scientists are anxious to learn the result of his explorations. Commercially, this northern passage can never be of use.

WE have been requested in some half dozen letters during the past month (principally by Western subscribers) to quote mining news. To these we would say it is entirely out of our line of business, and we do not pretend to be authority on the subject. We would advise our inquiring friends to send for a sample copy of the Chicago Mining Review. It will probably answer all the questions propounded

THE WESTERN CORN CROP.—The Western corn crop of 1879 is immense. The acreage in the States of Illinois, Missouri, Kan-as, Nebraska, Iowa, Wisconsin and Minnesota is 23,000,000 acres, which, at the estimated yield of 40 bushels per acre, will produce 920,000,000 bushels. The crop in those States last vear aggregated 700,000,000 bushels. The increase is not less than 200,000,000 bushels this year, an amount nearly equal to all the surplus wheat crop of the United States. This increase in the corn crop is an essential element in the produce trade of the country. It tends to keep the price of wheat steady, or to increase the supply of cattle and hogs. If fed to stock and swine it will insure a large increase and low prices; if shipped it will give such cheap food to starving Europe as to prevent famine prices on wheat.

THE SLOW MOVEMENT OF THE WHEAT CROP.-The lowest estimate for the European demand for American wheat for the coming cereal year 1879-1880, is 200,000,000 bushels, which, it is generally believed, the late bountiful harvest, will be abundantly able to supply. The wheat will, of course, become first visible at a few great primary centres. Seven-eighths of the surplus will pass through the cities of San Francisco, St. Louis, Chicago and Milwaukee. To insure the European consumption of its immense requirements, average daily receipts and shipments at these four primary wheat markets of 750,000 bus. are necessary. As up to the present time the aggregate receipts and shipments have been not quite 300,000 bushels, the average amount now required is nearly 800,000 bushels per day. The movement of new wheat, thus far, has been entirely inadequate to fill the prospective demand, and accumulations are smaller than usual. It has, however, been sufficient to supply all immediate demands on foreign account.

Another Court Decision Against Short-Sellers -A suit was brought before the Philadelphia Court of Common Pleas by John J. Thomas, a stock broker, to recover from the executor of John B Dixon for cash advanced during the lifetime of the latter for the purpose of "selling short"? in stocks. On the trial of the case in November last, the jury found a verdict in favor of the plaintiff for \$3,938 86. The case was carried before the full bench by the defendant's counsel, who argued that the plaintiff could not recover, as the contract was in law a "gambling contract." Judge Thayer sustains the claims of the defendant, and grants a new trial, upon the ground that the recent decision of the Supreme Court in the case of Fareira vs. Gobell is conclusive upon the point that where a broker, employed to effect wagering contracts on the prices of stocks, advances his own money at the request of a defendant to settle differences in stocks, the broker in such cases cannot recover from the defendant the amount advanced for such a pur-

A WARNING TO WHEAT EXPORTERS.-We clip the following paragraph from the Corn Trade Journal of London, England, to which we would call the attention of wheat shippers:

"A miller, a native of England, writing to the Mark Lane Express from Indiana, U. warns buyers of American cargoes about the condition of the same. He says that large quanwheat, perhaps millions are threshed out when quite damp, and taken by shippers without the slightest scrutiny or objection. This grain goes eastward quickly, and is at once, doubtless, shipped from New York, reaching Europe in a state unfit for human food, the object being simply to fill old contracts. The moral of this appears to be purchase only on sample, except from well known shippers.

This is the first complaint we have heard on this subject in a long time. We scarcely believe it; but if it is true even occasionally, it is to be regretted. Wheat should be in a thoroughly dry condition when shipped. Grain driers of any capacity can be procured, and, if the wheat is in the least moist, it should be put in proper condition before shipment. Let no fault of ours damage our growing trade.

Bringing iron to Pennsylvania seems a proceeding as superfluous as carrying coals to Newcastle, but it is being largely done. Fortyfive thousand tons of Bessemer pig have been ordered from England, and heavy shipments from Africa are announced. This makes another among the many signs of the business revival which is following in the wake of resumption.

#### A School for Millers.

The above subject has been before the millers of this country for a long time, and the idea has met with general approval, but as yet nothing tangible has been done. It is about time that the matter was practically taken up and a fund raised, a location selected, teachers employed, and the work of instruction prosecuted. A successful school for millers has been in operation in Germany for some years and is self-supporting. If a school of the kind was established in this country, it would have no lack of patronage. Millowners who have sons that they wish prepared to succeed them in business would not hesitate to pay a liberal sum for the purpose of proper theoretical and practical instruction. Mr. Frank Chamberlain, of Albany, N. Y., has taken a sincere interest in the project, and we hope he will continue his work until a Millers' School is in actual operation. We have no doubt if a subscription paper was started out by Mr. Chamberlain (the Chairman of the Committee on the Millers' College of the Millers' National Association), but what it would meet with numerous liberal subscriptions,enough to give the enterprise a fair start. We shall be pleased to hear from our readers on this subject.

#### Dakota Territory-Facts in Relation to Its Early History.

The Winona Republican publishes the following letter from Judge Flandrau, which confains some interesting historical reminiscences of the Territory of Dakota, the most of which will be new and interesting to the gen-

Dear Sir: In response to your letter of August 15, 1879, asking me for information concerning the origin and early history of the town of Flandrau, in Dakota Territory, I am glad to say that I am in possession of the facts you seek to know, and that I give them to you with pleasure, because there seems to be a good deal of misapprehension among the be a good deal of misapprehension among the people of that place as to its origin. Being somewhat of an "old settler," I take great interest in all that concerns the history of this portion of the Northwest, and like to see the facts correctly stated. It happened thus:

In the early part of the year 1857 we all felt pretty sure that the State of Minnesota would be admitted into the Union which

would be admitted into the Union upon what we then called the "North and South" line of division, which was the line finally adopted. There was a strong party in favor of a State upon an East and West line of division, which would, if adopted, have cut the Territory in two, on a line just north of Minne-apolis, making the State out of the south portion, and leaving the Territory or remnant north of that line.

You will remember that when Wisconsin was admitted on the western boundary of the St. Croix, it left all the courtry west of that river in an unorganized condition, and that the inhabitants held a convention and elected Gen. H. H. Sibley as a delegate to Congress as an experiment, and that he was admitted to a seat, and the act of Congress of 1849 was soon after passed, organizing the Territory of Minnesota. We anticipated just such a con-dition of things on the admission of Minnesota, and concluded we would occupy the Territory west of the new State, send a delegate to Congress, secure the capitol, university, penitentiary and other public buildings at our own towns, and make a good speculation out of the enterprise. To enable us to accomplish this a corporation was organized under an act of the Legislature of the Territory of Minneof the Legislature of the Ferritory of Minnesota, passed May 23, 1857, which was entitled "An act to incorporate the Dakota Land Company." The original incorporators were, W. H. Nobles, J. R. Brown, A. G. Fuller, S. A. Medary, Samuel v. Brown, James Lynd, N. R. Brown, F. J. DeWitt and Friedenrich. The corporation was vested with full powers for the purchase and entry of land, and the doing of anything that was necessary to establish towns and cities anywhere in the Territory or future State.

Under this organization agents were sent into the Southwest and the sites for several cities selected, among which were Sioux Falls city, Medary and Flandrau, all on the Big Sioux. Sioux Falls was designed for the capital of the future Territory, and the other places were to share the governmental prizes. Mr. A. G. Fuller was elected a delegate to Congress, and went to Washington, but was never admitted to a seat, notwithstanding the precedent of General Sibley's admission in 1848 from Minnesota. Sioux scrip was laid upon lands, but at a subsequent date was withdrawn. Very considerable improvements were made by the company at all the places, but especially at Sioux Falls city, where a capitol building was erected, a hotel built, and a printing office established, with Sam Albight as editor, and a very hardsome reverse. Albight as editor, and a very handsome newspaper was published there, called the Dakota Democrat, of which I now have a copy of the issue of August 5th, 1879, being Vol. 1, No. 2, of the paper.

The efforts of Mr. Fuller in Washington, and other friends of the organization, failed to procure a Territorial Government for Dakota for several years, and my opinion has always been that the delay was on account of all the members of the Dakota Land Company being Democrats, and Congress expecting a change of administration in 1860, destined to post-pone the erection of the Territorial Govern-

ment until the other party could control it.
At any rate they did postpone it until March
2, 1861, when the act was passed organizing
Dakota Territory and leaving the selection of
the saat of Government to the Governor.

Description of the party of the saat of Government to the Governor.

During this delay, however, a serious state of things existed. The people of the Territory, becoming impatient at the delay, organized a State Government, elected first Henry Masters and then Sam Albight, Governor, chose a Legislature, which assembled at Sioux Falls and passed laws which were duly printed and approved by Gov. Albight, and demanded admission to the Union "on an equal foot. ed admission to the Union "on an equal footing with the original States;" but Congress was inexorable, and all the time and money spent by the company and others in this direction were lost.

When the Sioux outbreak occurred in August, 1862, all the improvements at Sioux Falls, Flandrau and Medary were burned by the Indians, and the places were virtually abandoned by the company. The United States Government made reparation to the company for its losses, which enabled it to make its first and only dividend on its capital stock.

This is briefly the history of the town of Flandrau, up to the time when its present title was made by new comers, and about which I know very little. Sioux Falls city, as its name indicates, was called after the fall in the Big Sioux, at which place it is located. Medary is named after Governor Samuel Medary, who was then Governor of the Territory of Minnester and the Detects. Tand Company did no sota, and the Dakota Land Company did me the honor to name the town of Flandrau after

The facts given you are largely from recollection, but they are substantially correct in all essential particulars. I would suggest, however, that Mr. Alphens G. Fuller, who now resides at or near Yankton; Mr. F. G. DeWitt, who, I believe, also resides in Yankton, or some-where on the Missouri, in the territory; Captain Fisk, who is now in Pembina; and Daniel F. Browley, who, I believe, resides in Winnepeg; all were intimately connected with the operations of the Dakota land company, and can undoubtedly give you accurate informa-tion as to the history of the town of Flandrau, and being old settlers, they will willingly recount the experiences of the past. Respectfully yours, Chas. E. Flandrau.

In practice 100 pounds of flour will make from 133 to 137 pounds of bread, a good average being 136 pounds; hence a barrel of 196 pounds should yield 266 one-pound loaves.

A SCIENTIFIC BIBLE. - An English religious pa per says: The preparation of the new Bible has not made much advance yet. We lay before our readers the improved version of the first chapter of Genesis: 1. There never was a beginning. 2. And Cosmos was homogeneous and undifferentiated, and somehow or another evolution began and molecules appeared. 3. And molecule evolved protoplasm, and rhythmic thrills arose, and then there was light. 4. And a spirit of energy was developed, and formed the plastic cell whence arose the primordial germ. 5. And the primordial germ became protogene, and protogene somehow shaped eozoon; then was the dawn of life. 6. And the herb yielding seed and the fruit-tree yielding fruit after its own kind, whose seed is in itself, developed according to its own fancy. 7. The cattle after his kind, beast of the earth after his kind, and every creeping thing became evolved by heterogeneous segregation and concomitant dissipation of motion. 8. So that, by survival of the fittest, there evolved the simiads from the jelly-fish, and the simiads differentiated themselves into the anthropomorphic primordial types. 9. And in due time one lost his tail and became man, and behold he was the most cunning of all animals. 10. And in process of time, by natural selection and survival of the fittest, Mathew Arnold, Herbert Spencer and Charles Darwin appeared, and behold it was very good.

How OLD IS GLASS?—The oldest specimens of pure glass bearing anything like a date is a little molded lion's head, bearing the name of an Egyptian king of the eleventh dynasty, in the Slade collection at the British Museum. That is to say, at a period which may be moderately placed as more than 2,-000 years B. C., glass was not only made, but made with a skill which shows that the art was nothing new. The invention of glazing pottery with a film or varnish of glass is so old that among the fragments which bear inscriptions of the early Egyptian monarchy are beads possibly of the first dynasty. Of later glass there are numerous examples, such as a bead found at Thebes, which has the name of Queen Hutasoo or Hashep, of the eighteenth dynasty. Of the same period are vases and goblets and many fragments. It can not be doubted that the story prepared by Pliny, which assigns the credit of the invention to the Phænicians, is so far true that these adventurous merchants brought specimens to other countries from Egypt. Dr. Schliemann found disks of glass in excavations at Mycenæ, though Homer does not mention it as a substance known to him. That the modern art of a glass-blower was known long before is certain from representations among the pictures on the walls of a tomb at Beni Hassan, of the twelfth Egyptian dynasty, but a much older picture, which propably represented the same manufacture, is among the half-obliterated scenes in the chamber of the tomb of Thy, at Sakkara, and dates from the time of the fifth dynasty, a time so remote that it is not possible, in spite of the assiduous researches of many Egyptologers, togive it a date in years .- The Saturday Review.

#### GRAIN.

#### Peculiarities in its Normal and Manufactured State.

An Investigation Under the Microscope—Showing the Adulterations and Natural Evils to which It has been Subjected.

A COMPLETE INVESTIGATION OF THE SUBJECT BY ONE OF THE LEADING CHEMISTS OF EUROPE.

Flour in General—Wheat Flour—Rye Flour

-Barley Meal—Oat Meal—Indian

Corn—Rice Meal.

Translated from the German of Dr. Herman Klencke expressly for the United States Miller,—cuts reproduced by our special engraver from the original.]

[Continued from September number.]

According to Robine, the flour which is to be examined is grated for five minutes in a mortar of porcelain (16 g. of it for instance) together with 16 g. of pulverized sandstone, and then gradually and in small portion 1-16 L\* of water is added. Then the liquid is filtered. If it has been obtained from flour which has been adulterated with the flour of white beans. it will pass through the filter more slowly and always remain turbid. If 1-32 L of iodine water is now added, the liquid will become of a rosy reddish color if the flour is pure, and will only appear somewhat darker when the flour has been made of other grain than wheat, or when this had been reaped during a wet season; but if the liquid becomes fleshcolored, more or less deep, and if this color disappears quickly, it contains bean-meal. By the same treatment pure bean-meal will give a slate-color. But it is not necessary to be as circumstantial as Robine; one may simply dissolve 8 g. of the suspected flour with 1-32 L of water ln a glass until it is no longer lumpy, and then add 1-32 L of iodine water. and the same result will be obtained. Several chemists have tried to determine the presence of legumine, that is, the peculiar nitrous component of legumes, which is very similar to caseume and which as nutritious matter supplies the gluten in them, so as thereby to prove the presence of the flour of legumes. But these modes of examination are too difficult for men who are not professional chemists, and still are no decisive test when practically applied for the discovery of adulterations. But in order to state how legumine may be found, we will describe the mode of of treatment recommended by Lemenant des Chenais, a mode of proceeding which is in fact only a modification of the method of Martens. To wit: A dough is made of the suspected flour and some tepid water which is thoroughly kneaded over a hair seive beneath a fine jet of water, gradually applied, just as is done when the gluten is to be separated from the flour. In this case, too, a similar mass will remain on the seive while the liquid filters through. The liquid thus obtained is now treated with ammonia, which is an excellent means of dissolving the legumine. The liquid is left untouched for some time until the starch is separated from it, and is then filtered. Into the filtrated liquid a very diluted numeral acid is poured, which will cause the legumine to precipitate if there is any flour or legumine present. This legumine is collected on a filter that has been previously weighed; it is then dried and weighed, while on the filter and the weight of the latter is substracted from the entire weight; the remainder will be the weight of the legumine. To discover the bean and vetch-meal (of Vicia sativa, the flour obtained from which is often mixed with grain flour) the method of examination recommended by Donne, but improved and simplified by Martens, may be applied, namely: An alcoholic extract is prepared of the suspected flour, this is poured in a thin layer on the surface of a small porcelain plate, heated to 100 ° C., and then exposed for one or two minutes, first to the vapors of concentrated nitric acid, and then to ammonia; if there is any bean or vetch-meal present, the mass will become of a very fine red color. The method of Donne, applied for the same purpose, is based upon the experience that the vapors of nitric acid and subsequently of ammonia give to bean and vetchmeal a beautiful bright red color. A mixture of both will consequently show more or less bright red spots tn the yellowish mass. This experiment is very striking and reliable and since it enables us, with a little practice, to detect an admixture of but 4 per cent of the flour legumes in the grain-flour without difficulty. We will here let the method follow for those fond of chemical experiments. From one to two grains of the flour which are to

be examined are taken, spread over the sides of a small porcelain plate, which had been previously moistened with a little water. Care must be taken, however, that the flour is not put upon the bottom of the plate, for into it is put a little nitric acid, which dare not come in contact with the flour. The plate is now covered with a glass plate, and is slowly heated over a spirit lamp, but so that the acid does not begin to boil. The nitric acid evaporating in this way will now begin to color the flour spread over the sides of the plate; it will become yellowish and turn darker the nearer it is to the acid, while higher up on the rim of the plate it will remain lighter. This process is discontinued while the flour on the rim is still white; then the acid is carefully removed from the bottom of the dish, which is best done by abosrbing it with blotting paper, and in its place some ammonia is poured, the glass plate is then again put over it and now the vapors of ammonia are allowed to act upon it. It will soon be observed that in the middle of the sides of the dish a beautiful red color is appearing, especially in places where the nitric acid had acted neither too strong nor too feebly on it. The red color indicates the presence of bean or vetch-meal. It is to be remembered, however, that pure wheat-flour will assume the same orange-red color when the nitric acid is over-heated. A very simple process to detect bean-meal among grain-flour is founded on the presence of tannin in the husks of beans and the absence of it in grain: About three to four drops of a solution of sulphate of iron are put into a saucer of porcelain, a small quantity of flour is dissolved therein by stirring it with a glass tube, so that a thick, mass will be formed thereof, to which, if necessary, a drop of distilled water may be added, so as to make it less tenacious. It is then noticed whether a particular color will show itself on the dull white porcelain. Pure grain-flour will become of a delicate straw-color, flour of phasels or French beans, an orange-yellow, and flour of white beans, a delicate bottlegreen color. The latter will even be discernable when only 10-16 per cent of the flour of white beans are present in the grain-flour. Wheat-flour imported from the Caucasus and brought into commerce under the name of "Cubanca," and which is principally in demand in France, always has a considerable admixture of the flour of white beans. By the same method by which Villain taught us how to judge the quality of the grain-flour and its adulteration with potato-starch from the nature of the gluten, as has been stated above, he was capable of finding the different adulterations of the flour of legumes. From a mixure of wheat-flour and peas-meal the gluten may be easily separated in the wellknown manner, but the dough made thereof has a greenish coloor, and a peculiar taste and smell, the same as the water used for washing out the gluten. Even when only 3 per cent of the peas-meal has been added, the greenish color appeared, which, when the gluten becomes dry, will be even more marked. If there is any flour of phasels or French beans among the wheat-flour, the gluten can only be extracted with difficulty, and very often disappears entirely; the mass feels slippery in the hands, but when dried become of a light yellow color. A mixture of wheat-flour and lentil-flour forms a residuum of gluten which will leave a yellowish-brown bran on the hairsieve, the gluten separates easily and when dried will also become of

\*Litre.

brown color.

[To be continued.]

### Prevention of Fire and Explosion in Flour Mills.

One of the most destructive explosions and conflagrations that ever occurred to the manufacturing industries in this country, was the result of an explosion of mill dust in a large flouring mill. The destruction of several Minneapolis mills, one of them being the largest flouring mill in America, is still fresh in the minds of our readers. Previous to that and since, there has been several smaller and less destructive explosions, in each case involving the total destruction of the mills in which they occurred. These dust explosions have formed the subject of several elaborate papers read before Millers' Conventions in this country, as well as others published in milling and scientific journals, but we are not aware that any definite practical plan has been adopted by our millers, for the prevention of explosion. We have hitherto referred to this matter and given the methods of prevention suggested by several eminent scientists and

practical millers. We find in an English scientific and industrial exchange the following account of a recent and valuable invention by Mr. W. Swain, of Newport-Pratt, Ireland, designed to prevent or diminish the destructive effects of fire and explosions in mills, and at the same time to purify the air, so that the health of persons employed therein may not be endangered, as it is when the hot air, dust, and floating particles of flour are allowed to remain. It is stated, that

"In order to carry this invention into prac-

tice, there is constructed at any convenient

place outside the mill, a shed or similar build-

ing-or if desirable, more than one such shed

-of suitable size according to the size of the mill in connection with which it is to be employed. This shed should be constructed of non-inflammable materials, such as bricks, or of wood or other substance rendered inflammable by the application of a coating of asbestos or the like, and its walls should be made as thin and slight as is consistent with sufficient strength to support the roof and stand firmly, for the reason that if it should be destroyed by fire the loss would be insignificant. In the case of mills not provided with ground space outside the same, piles or pillars of a suitable height from the ground may be employed, upon which the shed may be supported. The latter may, in some cases, be placed on piles or pillars above the roof of the mill, or in any place which may be found most convenient for any particular mill to which the present arrangement may be applied The separate shed or building may be situated at a considerable distance from the mill if more convenient in any particular case; a suitable air-passage flue being provided to connect the mill with the shed, which passage or flue may be entirely underground if desired. It is better for this outside structure to be placed at as low a level as is practicable, and for the passages or other connections leading form the mill to the shed, to incline at an angle downward from the mill. Pipes or tubes lead from the stones, and from any part of the mill or apparatus therein where heated air and dust are most likely to accumulate-such, for instance, as the middlings purifiers, and elevators. These pipes should be carried to the wall, and out through the same by the nearest practicable route; and they may all be either continued direct to the outside shed separately, or may be made to unite in one larger tube or shute leading to the shed. It is better that the tube in connection with the elevators should be placed on that side of the latter which carries up the meal, flour, or grain. By thus carrying off the current, the upward draught which travels along most elevators-and which in the case of fire assist combustion-is counteracted, and a downward current is created. which is led by the pipes or tubes to the outside of the mill. If desirable, these pipes or tubes may be provided with suitable checkvalves to prevent any chance of fire being communicated to the mill along the tubes-in the event of an explosion taking place in the outside structure- In some cases a valve or valves are provided in the pipe or pipes outside the mill to admit fresh air therein, which may mingle with the air or dust going to the shed, thus rendering the mixture of air and dust from the mill less dangerous. Within the outer building a cylinder or drum is fixed, to which the pipes coming from the mill lead. This cylinder is constructed with a covering of some suitable material, for the purpose of aresting the particles of dust, whilst the air can pass through the same. This covering may consist of wire-gauze underneath flannel, serge or similar material; or, if desirable, the latter only may be used. The air cannot enter the cylinder except through the said covering, the ends of the cylinder being provided with air partitions or leather curtains, which prevent the air from entering at those parts. At a suitable distance beyond the cylinder, a suction or exhaust fan is placed, by means of which the air, dust, etc., are drawn or exhausted from the mill along the channels provided for that purpose. The fan and cylinder may be operated in any suitable manner, by means of a strap or band leading from the mill, and driven by the steam or other motor used in the mill; or by a separate motor provided for the purpose. The fan having been put in motion, a strong draught is created in all the pipes or tubes, which draught collects and draws with it the air, dust and other light floating particles within its reach, and conveys them to the outer circumference of the cylinder. The dust and other floating particles are here obstructed, whilst the air-freed from the same -is drawn into the cylinder, whence it goes on to the fan, and is blown out or discharged into the atmosphere outside the shed. The year.

cylinder or drum is caused to rotate slowly; and at one or more parts of its periphery a brush or leather flap-or both-are provided for the purpose of ensuring the falling of the dust or other matters which may collect on the surface of the cylinder. These brushes may be caused to rotate, or may be stationery. Any ordinary fan suitable for the purpose may be used, but care should be taken that it is large enough, and that it is not driven at too high a speed. Although it is very advantageous to cause the heated air to be filtered or separated from the dust and other light matters before it reaches the fan, if desireable in any particular case, and said filteration or separation may be effected afterwards as usually practiced, but by means of the cylinder above described. It may sometimes be necessary to provide more than one cylinder and more than one fan for each mill, and these may be placed in the same or in separate sheds; and sometimes an intermediate fan or exhauster may be employed at some part of the pipe leading from the mill in order to create a stronger draught. The cylinder above described may be used with advantage, even within a mill, for separating the air and dust, in place of the woolen-covered frames above named. In order to provide additional security against fire and explosion in flour and other mill, the same are best illuminated (when working at night, or at any time when artificial light is necessary) from the outside, by means of lamps placed outside the windows. These may be gas, paraffin or other lamps and should be furnished with powerful reflectors, to reflect the light to the interior of the mill; or the electric light may be advantageously employed for such exterior lighting. Footways or balconies may be erected outside the mill, extending partly or the whole way around the latter, by means of which an attendant may walk round the exterior of the mill walls, for the purpose of inspecting the pipes, etc., and of lighting and attending to the lamps or other lighting apparatus. By means of the arrangements we have described, the danger of fire and, explosion from the cause above mentioned is reduced to a minimum; and in case a fire should occur, it would not be nearly so destructive in its effects as such fires now are' as it would in all probability be confined to the outer shed or building, which could be readily replaced without a large cost."

#### Petroleum for Fuel.

A part from the local use of petroleum for lighting purposes, and its exportation for a similar use, comes its application to steam navigation. With the old-fashioned boilers in use, with a central running opening longitudinally, no modification is necessary for the application of the new fuel. A reservoir containing some hundred pounds weight of the refuse (astalka) is furnished with a small tube, bearing another at its extremity a few inches long and at right angles with the conduit. From this latter it trickles slowly. Close by is the mouth of another tube, connected with the boiler. A pan containing tow or wood saturated with astalki is first introduced to heat the water, and once the slightest steam pressure is produced a jet of vapor is thrown upon the dropping bituminous fluid, which is thus converted into spray. A light is applied, and then a roaring deluge of fire inundates the central opening of the boiler. It is a kind of self-acting blowpipe. This volumne of fire can be controlled by one man by means of the two stop-cocks as easily as the flame in an ordinery gas jet. This I have repeatedly witnessed on board the Caspian steamers. As regards the expense, I give the following data on the authority of a merchant captain who has used naphtha fuel for years. His steamer is of 450 tons, and of 120-horse power. He burnes thirty pood per hour of astalki to obtain a speed of thirteen nautical miles in the same time. One pood is about thirty-three pounds, and costs on an average from 5 to 6 pence. Thus a twenty hours' voyage at full speed for such a vessel costs £12. The fuel is as safe and occupies much less space than the amount of coal necessary to produce a similar effect, not to speak of the enormous difference in price and the saving of manual labor. Two engineers and two stockers suffice for a steamer of a thousand tons burden. With the immense supply of natural petroleum, as yet only very slightly developed, and its application to the already guaranteed railway from Tiflis to Baku, and to the inevitable future ones beyond the Caspian over the plains of the far East, I think the subject is worthy of every attention .- Correspondent London Daily News.

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#### British and Irish Flour Mills. [Continued from first page.]

wide on face, driving by belt a cross shaft on the stone floor, which drives all the machinery for cleaning and dressing the wheat and flour. The engine has at present not been "indicated," but judging from the results obtained from a similar but smaller engine erected by the same makers at Mr. Clarke's mill at Earsham, the consumption of good coal, it is stated, will be about 21 lbs. per horse power per hour.

The wheat cleaning and flour dressing machinery was supplied by Messrs. Whitmore & Binyon, engineers, Wickham Market. The former consists of a Child's aspirator, through which the wheat is first passed. Its next treatment is by a Murdoch smut machine, and the cleaning process is completed by a Throop's brush machine. The flour is dressed by the ordinary silk reels, the later developments of the art of flour manufacture necessitating a more complicated system of machinery, not being adopted at this mill. The mill takes its name from the river Waveney, which divides Norfolk from Suffolk, and which runs through the Earsham Flour Mill, which was first built in the reign of William the Conquerer, and which has been occupied for many years by Mr. R. H. Clarke, the proprietor of the Wavenev Mill

Yarmouth is an excellent centre for the flour milling industry. As already indicated, its facilities for the inward transit of grain and the outward transit of its products are of a superior order. The town is a rapidly growing one, the population being 41,819, so that the local demand for flour is constantly on the increase. In addition to the local demand, a large portion of the produce of Mr. Clarke's mills goes to Newcastle-on-Tyne and other places in the North of England.

#### Citico Steam Flouring Mill, Chattanooga, Tenn.

Messrs. H. C. Evans & Co. have their new process mills in operation and are turning out a most excellent quality of flour. These mills have a capacity of 150 barrels of flour and 500 bushels of meal per 24 hours. The machinery is all of the best and latest improved. They have five run of stones, viz: 3 sets of 42-inches French burr stone for grinding wheat; 1 set 30-inch stones for grinding middlings, and 1 set 30-inch stones (under runner) specially for grinding corn. They have six bolting reels or chests-2 for flour, 2 for returns, 1 dusting and 1 reel for middlings. These reels have all been clothed with "Dufour's" best bolting cloths, and with numbers specially adapted for the work they have to do respectively. One J. W. Pyne's purifiers is used for the middlings. This is said to be the best purifier now in use; an improvement on all others. They are manufactured and sold by the Bradford Mill Co., of Cincinnati. The "Great Western Bran Duster" is used for cleaning the bran. The flour is delivered into three separate and distinct bins-one specially for the "patent" flour, one for custom and one for the packers. The Eureka Flour Packer is used for packing the flour for shipment, which is done in sacks of 24 lbs., 49 lbs., 98 lbs., or barrels, as the market may require. The bran is all conveyed into a room that has a capacity of several car loads, where it may accumulate and be sacked at convenience, for sale or ship-

These mills claim to have the best cleaning nachinery for wheat to be found—the wheat is elevated from the sinks and delivered upon a separator screen and shaker, where all the chaff and light material is driven off by a fan. Then it passes through one of Kurth's cockle machines (which for itself is a wonder), removing all cockle and wild onion seed. Thence it passes into a Eureka smutter and scourer which runs at a speed of 625 revolutions per minute, driving all dirt and smut out. After all this fanning and scouring, it passes into and through the wonderful Becker Brush where every individual grain of wheat is brushed. This last process is for the purpose of removing the fuzzy and remaining portion of the blossom. Then the wheat is elevated and spouted to the grain bins over the stones ready for grinding.

All this cleaning machinery is placed in a closely ceiled room separate and apart from the milling room, thus keeping the dust and dirt entirely away from the flour.

This mill also has the best and most complete machinery for cleaning corn preparatory to grinding, and being provided with a corn bolt, will furnish their customers with bolted and unbolted meal as required.

from Chestnut street along 7th to Railroad avenue, affording extensive storing capacity.

They now have in store about 10,000 bushels of selected wheat and engagements out for large amounts. Owing to the continued low water in the river, but a small pertion of the wheat crop along the river has yet been brought into the market.

This mill is strictly a new process. The mill and all the machinery has been carefully selected and placed under direction and supervision of skillful millwrights, and it promises good results. Mr. P. W. Tyson, late of Danville, Ky., an experienced new process miller, is in charge. He bears the reputation of being at the head of his profession.

Mr. W. R. Carlisle of the firm has the management of the business, and has his office in the mill, corner of 7th and Chestnut streets. -Times (Chattanooga).

#### A Few Words to Young Steam Fitters.

BY A STEAM FITTER.

Feed Pipes .- The feed valve should be a globe or angle valve placed near the boiler, with the fewest possible joints in the feed pipe between it and the boiler. If it is a loose or swivel disk valve, it should be secured with solder (sweated in) in the threads of the double part of the disk, so as to make it almost impossible to lose the disk from the stem; a mark with a center punch or chisel is not enough. The valve should be so turned toward the boiler that the inflowing water will be under and against the disk, so that in the case of the loss of the disk it will not act as a check valve against the influx of the feed water. This arrangement will bring the pressure of the water in the boiler always against the stuffing box of the valve; but all things considered, it is best.

The check valve should be close to and outside the feed valve, with only a nipple between them. Always use horizontal check valves, as they admit of easy cleaning. With the ordinary vertical check it makes it necessary to take down some part of the feed pipe to clean

When two or more boilers are fed from the same pump, or when the pump is used for pumping water for some other purpose, it is well to have a stop valve on each side of the check valve, as it will enable the engineer to get at his check without stopping the water to the other boilers or elsewhere.

In passing through the boiler walls or cast iron fronts, care should be taken that the feed pipe does not nest, or the settling of the boiler will break it off.

Use a flange union on the feed pipe instead of the common swivel union; the engineer can take it apart with a monkey wrench, and it makes a more permanent job and it will not

Never put a T in the feed pipe inside the feed valve for the purpose of a blow-off; make a separate connection to the boiler.

Blow-off Cocks.-Never use anything but a plug cock of the best steam metal throughout. The reasons for using a cock are that the engineer is always sure when he looks at it whether it is shut or open. It gives a straight opening; if chips, packing or dirt gets into the cock it will shear them off when closing, or if the dirt does not, the engineer knows it is not shut. Do not use an iron body cock with brass plug, for when the cock is opened to blow down a little the hot water expands the plug of the cock more than the body, and it is almost impossible to close it. Do not use a globe or angle valve, as you cannot always tell when it is shut; a chip or dirt getting between the disk and seat will prevent it from closing. I have seen two fine boilers destroyed from this cause. Gate or straight-way valves are subject to the same objections as globe or

When it is practicable there should be a T with a plug in it in the blow-off pipe outside the blow-off cock, the plug to be removed when the cock is closed. By this means the engineer can always tell if he is losing water from his boiler.

The blow-off pipe should be large, with few bends in it, and fire bends are better than elbows. It should be attached to the bottom of the shell of a horizontal boiler, and not tapped into the head a few inches up. When there is a mud pipe, attach it to it at the opposite end from the feed pipe.

Safety Valves.-They are the main stay of the engineer, acting both as a relief and a warning signal. They should be attached to the steam dome up high. At the side is better than at the top, as they are not so liable to draw water when blowing off in that position.

connection all to themselves. The ordinary cross body safety valve is very much to be condemned, and I think in some countries there are regulations against their use; they are constructed to save making an extra connection for the main steam pipe, thereby drawing the largest amount of steam directly from under the disk of the safety valve. A weighted safety valve is better than a spring valve when it can be used, as the lifting of the valve makes practically no difference in the leverage; not so with a spring valve, for the higher it is lifted the more power it takes to compress

Guage or Try Cocks .- Guage cocks are various in style, the wood handle compression guage cock being a very good kind for all purposes. When setting guage cocks, care should be taken that they are not too low, and that the drip will not flow over the person who tries them. They should be tapped directly into the boiler if possible; but when it is necessary to use a piece of pipe to bring them through a boiler front of brickwork, give the pipe an inclination backward, that the condensation may run back and into the boiler. When the pipe inclines outward and down, the condensation remains in it and the cock, and will deceive the unwary, giving the appearance of plenty of water, with a short blow.

Glass Water Guages.-Water guages are best set when attached to a vertical cylinder at the front of the boiler. The cylinder should be connected to the boiler with not less than one inch pipe, top and bottom; the top or steam connection should be taken from the boiler shell near the front head, and not from the dome or steam pipe, as the draught of steam in either will cause the glass to show more water than the boiler contains. The bottom or water connection should be taken from the front head at a point where about twothirds of the water in the boiler will be above it and one-third below; this will lessen the chances of the pipe stopping up with mud, etc., and it should also be provided with half inch pipe at the lowest point for a blow-out. When guage glasses are set in this way the condensation in the cylinder is downward, and the flow of water being toward the boiler through the bottom pipe, the tendency is to cleanse the glass and cylinder and keep them

Steam Guages should never be set much above or below the boilers to which they are attached, as each two feet of fall or elevation from the direct connection is nearly equal to a difference of one pound on the steam guage; always when the guage is below, for the condensation in the guage pipe fills it with water, which leaves a pressure on the steam guage equal to the hydrostatic head, which is a little over two feet perpendicularly to the pound per steam guage, giving the guage the appearance of being weak. When the guage is above it is not always so, though generally, the pipes being long and of small diameter or trapped, which prevents a circulation of steam in them, they fill with water, which acts against the pressure from the boiler and gives a guage the appearance of being strong. A good way is to connect the guage pipe to a boiler below the water line, say 12 or 18 inches and the guage on the boiler about 10 inches above the water line, using no water trap or siphon, that the water may run back from the guage when there is no pressure in the boiler, thereby preventing the possibility of freezing or of getting steam to the spring of the guage.

Sometimes a steam fitter has to run a guage pipe a long distance to an office or engine room. When such a guage is far above the boiler he should run a large pipe direct from the steam dome and give it sufficient pitch to clear itself of water; it should be covered with some non-conducting material, and be of such size that the flow of steam through the pipe to supply the loss by condensation will be so slow as not to interfere with the flow of water along the bottom of the pipe in a contrary direction, and it should have a siphon immediately under the guage.

When it is necessary to have a guage very much lower than a boiler, fill the pipe with water, but before doing so remove the glass and lift the hand or index over the stop-pin, and mark where it remains stationary; now fill the pipe to its highest point with water. then with two knives draw the index from its spindle and set it back to the mark where it remained stationary before the pipe was filled, and press it on; then bring it to its normal position on the stop-pin and adjust the glass.

The Main Steam Pipe for Heating Apparatus should be high up on a boiler, and any pipe larger than 2 inch should not be tapped in, but connected with a flange bolted or riveted The mill building is 50x225 feet, extending They should be large and have a large pipe to the boiler. Two and a half inch pipe and

larger sizes have eight threads to the inch, and will not make a good job otherwise.

Automatic water feeders, combination water guages, or steam guages, should not be tapped into the steam heating or engine pipe, as the draught of the steam through the pipe interferes with their proper working.

Engine or pump pipes should not be taken from the steam heating pipe, as the draught they cause relieves the pressure in the heating apparatus and spoils the circulation, especially if it is a direct return gravity circulation.

With an automatic return steam trap applied to an old job, it will not be necessary to move the engine pipe, but should the circulation be still defective, remove the engine pipe to shell of boiler remote from heating pipe .-Scientific American.

#### Russian Wheat.

THE EXTENT TO WHICH AMERICAN COMPETITION IS INJURING BUSSIA'S WHEAT TRADE.

Robert Orbinsky, a representative of the Russian Government now in this country for the purpose of investigating the grain interests of the West, with especial reference to elevator construction and operation, and question of railroad transportation and rates, has written a communication in which he says: On the English market the wheat of southern Russia appeared the first time in the winter of 1802-3, when the prices, under the influence of bad crops for several years and under the then existing corn law, had raised to exceptional height of 110 shillings per quarter. You know, sir, that under this law foreign grain trade was nearly impossible in England beyond exceptional circumstances as that I mentioned. In the following years we continued to export from southern Russia, but it was rather to Spain, France and Italy that we did so, than to England. Then the bad crop of 1817 again opened to us the latter market, and from that time we have not ceased to occupy there a place rising every year. In 1847 we were actually the first furnishers of bread for the English nation. We could do so because the production of our country was not limited there, and the prices for grain in southern Russia were lower than anywhere in the world. There have been years when in the market of Odessa, itself pretty far from the places of production, a bushel of wheat of no bad quality could be sold with profit for the seller, for fifteen cents, and that in moments when the average price in London market was sixty shillngs per quarter, And yet the distance from Odessa to London is somewhat shorter than the distance between London and New York. You can see by it, sir, how much money under such circumstances could be made by foreign merchants in our southern country, and you will understand how a great part of the Greek insurrection has been paid off by Russian wheat.

Since that time prices certainly have changed, become lower in England and higher in Russia, but still Odessa remained the queen of the grain trade of the world, growing to an average amount of twenty millions of bushels per year. America, as the French used to say, was not yet invented for grain trade. That happened only about 1830, and since that time the role of America is increasing from year to year, so that now it becomes truly overpowering. The last year your country has furnished no less than 51 per cent. of the want of England and we only 22. Ten years ago it was exactly the contrary of that proportion.

I can say I was the first man in Russia that had foreseen and foretold such a result. In 1875 I published a brochure on that subject, and was laughed at by our press. It was considered a product of my imagination. I was called an incorrigible pessimist and my pessimism not worthy of attention. So I was, indeed, but events have proved that truth was on my side. Then it was very natural for my Govenment to inquire in what manner and by what way such a change could take place. With this inquiry I had the honor to have been charged.

Till now the productive power of Russia is great as that of America; perhaps even greater. In 1870 your wheat crop arrived to the cipher of 230,000,000 bushels, and the amount of ours was not beyond 325,000,000. But our population, however, in the greater part fed by rye, is nearly twice that of yours, and consequently the surplus we can sell abroad is less than yours. But it is not the quantity that decides the question, but the kind of use which is made of it, and on this behalf certainly nothing can be more instructive for us than the example of America.

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#### The Baker's Art.

(Translated for The Miller from "Le Meunier.")

Bread, as we are all aware, is obtained by baking dough made from flour and water. In most cases wheaten flour is employed, but other cereals, as for instance corn or rye, furnish flour suitable for baking purposes. The theory of the manufacture of bread has been thoroughly explained of recent years, and practical men have turned their attention to introducing mechanical power into this industry to replace the manual labor which has hitherto been employed. Although the results obtained by the use of mechanical means are still questioned by many, and the machines have not attained the popularity counted upon by their inventors, the problem will no doubt be satisfactorily solved ere long.

In its ordinary state, wheaten flour contains a proportion of water varying from 12 per cent to 18 per cent, according to the kind of wheat and the nature of the crop. This proportion can be regulated in the flour by the process of drying, and the quantity of water need never vary, no matter what the nature of the wheat has been from which the flour has been obtained. This process is an important advance in the art of milling, and one in which many improvements have been made. Besides water, which we have just mentioned, flour contains:

Total (exclusive of water)...... 84 to 87

If we wish to obtain the greatest amount of neurishment from all the elements of the flour they must be rendered soluble, and the process of baking, by acting principally on the gluten and starch, has precisely the preparation of this dissolution in view. The grains of starch are swollen by the absorption of the flour in the water, and the baking causes them to burst by breaking the lining of the cells in which they are confined. The process of fermentation stretches the gluten to allow of its being more easily attacked by the gastric juices of the somach. Thus the manufacture of bread comprises three distinct operations:

- 1. The absorption resulting from the knead-
- 2. The fermentation which renders the dough less dense by increasing the surface presented by the gluten to the gastric juices of the stomach.
- 3. The Baking.

The richness of the flour in gluten renders the dough more plastic, and the bread is consequently more nourishing. Several kinds of apparatus have been invented with the view of determining this richness, among which may be mentioned Boland's "Aleurometer," and Robine's "Appreciatuer." The richness of flour in nitrogenous matter varies according to the kind of wheat from which it has been made, as may be seen from the following table which we extract from a work published by Mr. B. Corenwinder, Director of the Society of Science and Agriculture at Lille:

	Composition of the flour-			ery
Origin and denomina- tion of the wheat.	Water.	Gluten and albuminoids.	Starch and salts.	Nitrogen in eve 100 parts of d flour.
Galland (French)	13,15 12,61 13,00 12,04 13,20 11,00 13,75 11,85 12,00 14,00	6.81 6.28 7.56 7.75 8.03 8.23 8.17 8.98 8.52 11.18	80.04 81.11 79.44 80.21 78.77 80.77 78.08 79.17 79.48 74.82	1.14 1.16 1.39 1.41 1.48 1.49 1.51 1.63 1.70 2.08

The Galland wheat furnishes a larger proportion of flour than the other wheats, which may be attributed to the exceptionally large size of the grain; unfortunately the quality of the flour leaves much to be desired in some respects-it is wanting in whiteness, poor in nitrogenous matter, the dough does not knead well, and it produces a bread without cohe-

The blue wheat, so called from the bluish tint of the husk, is sometimes known by the name of Australian wheat, although, strictly speaking, the term is incorrectly applied. The grain is pretty large, and of a brownish color; the flour is short, as it does not contain a sufficient quantity of gluten.

The Chilian wheat has a white grain, well formed, regular and moderately large. It produces a flour very similar to the second quality French wheat in respect to the richness in nitrogen, and it is classed in the second rank perish under the action of the atmosphere.

among the products of America. The different varieties of wheat from Armentieres, Estraives, Bergnes, Meraille, and other localities of the North of France, are, in general, more highly prized than the Californian wheats.

The Oregon wheat is of superior quality; the grain is white, clear and regular, and it gives a large proportion of superior flour. It takes its place in the first rank among the soft wheats.

The New Zealand wheat is white, pretty regular and produces a flour rich in nitrogen.

The American winter wheat grown in Ohio and Michigan gives a very fair quality of flour. The grain is of a brownish color, small, translucent, rough in appearance, and rich in nitrogenous matter.

The Australian wheat is of a superior class, and maintains its reputation both with regard to its suitability for sowing or for consumption. Its grain is clear, regular and of moderate size. The proportion of flour obtained is large, the quality good, and it is richer in nitrogenous matter than any other kind of wheat. In short, the fertile soil of Australia produces the finest wheat in the world.

The best kinds of flour, and those which are best liked by bakers, are of a dull white color, slightly approaching to yellow, unctuous to the touch, do not contain a single particle of bran, and possess an agreeable and characteristic odor. When mixed with half their weight of water, and thoroughly kneaded, they produce a homogeneous dough (containing neither lumps nor foreign bodies) which may be drawn out in thin sheets, possessing a certain degree of elasticity.

If flour is submitted for a certain time to a temperature of 100 ° C. (212 F.) it loses a large portion of its hygroscopic water, generally from 12 to 18 per cent, according to the manner of, and the time employed in, the drying; and it is on this property that the various means employed for the preservation of flour are based-processes which have long been the object of important improvements at the hands of C. Toualion. When again exposed to the action of the atmosphere, the flour reabsorbs the water which it previously lost. One of the chief causes of change in flour is the excess of humidity contained therein; therefore millers cannot guard too much against the inconvenience arising from excessive or irregular damping of the wheat. A slight damping issometimes necessary, but if the flour is destined to be kept for a lengthened period it must be dried. Flour, when too moist, agglomerates, and sometimes becomes quite hard. Fermentation is hereby engendered, and the gluten undergoes certain changes which render the flour unsuitable for producing a white, light bread, agreeable to the taste. An excess of humidity also favors the development of certain cryptogams (fungus), which impart a disagreeable odor to the flour and give it unhealthy or even poisonous properties.

#### Triumph of Electrical Science.

In the cable news of a few days since it was stated that the French Atlantic cable was "broken 161 miles from St. Pierre Miquelon, in 500 fathoms of water." These few words show one of the many triumphs of modern electrical science. Here is a wire cord buried in three-fifths of a mile of the water of the ocean, and 180 miles from land-and yet the people on shore can exactly locate the points at which it is broken. Strange as that seems, it is actually done, and has been time and again. The repairing vessels will go out to the indicated point, throw over their grappling hooks, and within affew hundred yards will find the broken ends and splice them. This wonder is accomplished, first, by exact knowledge of the laws of electricity, which make known what amount of currents a wire of given dimensions will carry, and the resistance it must overcome in going a given distance, and next, by the instruments made by the mechanicians of the present day which will make the operation of both laws visible to the experienced observer, even if the brake in the cable is a thousand miles away and two miles under the sea.—Philadelphia Ledger.

A New Process of Glazing, -A new process of glazing has been introduced by which putty may be altogether dispensed with. Vulcanite is the substance that is to take the place of the old material. The window sashes under the new system are to be so arranged that the glass may be fixed into the grooves prepared for it, and, coming into contact with a strip of vulcanite attached to the frame, the glazing is complete. Any unskilled workman can fix the glass, and when fixed, there is no putty to

#### Balancing Millstones.

[Translated from the Austro-Hungarian Miller for the UNITED STATES MILLER].

Every miller ought to know how very important it is that the runners of millstones be exactly balanced.

There are, however, many millers who bestow little or no care thereto, and think it is quite sufficient that the stones are at a standing balance; but it is just in the accuracy of the running balance that the great secret of manufacturing good and wholesome flour lies.

Even in the smallest and most imperfect mill the greatest care should be bestowed upon the stones, that is: First, to have a level grinding surface, and second, an accurate standing and running balance.

We hope there are not many millers who do not understand how to balance the stones: but for the benefit of those who are not posted we make the following explanation:

To begin with, the bed-stone must lie level; then the spindle must be brought to a perpendicular.

This having been done, the runner is laid upon the cock-head of the spindle, however, without laying the driver upon the spindle. We can now find out whether it is in standing balance or not.

To this end we press with our hands in various places on the outer edge of the stone, and, if the stone leans to one side, it is a sign that it is the heaviest on that side; then we take weights, in preference scale-weights, and lay them upon the opposite side, that is, upon the lightest, close to the edge, and test them until the stone is balanced.

Having succeeded in this, we, with a chisel, make a longitudinal hole close to the edge, large enough to contain the necessary amount

The hole should be wider at the bottom than at the top, in order that the lead may not fall or fly out when the stone is put in motion.

The weights used and the pieces of gypsum or stone chiselled out are now weighed together, and an equal amount of lead is poured into the hole or holes. (This treatment is not necessary with some stones of modern construction, they being already provided with shot or balance holes.

The runner is now taken off and the driver put on, in order to see if the stone runs true. If the stones strikes when in motion, it is not in running balance.

We now procure two thin, well-planed boards, three-eighths of an inch thick and 4x6 inches wide, and long enough that the ends may be made fast to the floor outside of the stone.

These boards are fastened on each side of the spindle, midway between the spindle and the outer edge of the stone.

The stone is now put in motion, and lowered down, so that it runs tight upon the boards; but beforehand a platform is constructed above the stone, preferably of a plank three inches thick and 12 to 14 inches wide, the ends of which are fastened to solid supports, so that we can easily work thereen.

This plank should be about 1½ to 2 inches above the stone. With a chisel we now accurately turn or true the back of the stone.

As soon as this has been accomplished, we test the standing balance again, for it often happens that it changes again after the turn-

The stone is put in motion, however, first screwed up, so that it does not touch the boards, and the motion gradually increased until it attains the number of revolutions used in grinding.

We now take a sharp-pointed lead pencil and hold it tight against the upper plank in such a maner that it lightly touches the stone about six inches from the edge. This is the side that runs the highest.

The reason that the stone runs high on the heaviest side is that the centre of gravity or weight is too low on that side, that is, lies under the point of suspension, while, on the other hand, the centre of gravity of the opposite side lies above the point of suspension.

In order to change this we must try to bring both centres of gravity in horizontal position to one another.

After ascertaining which side runs high, we take a certain quantity of shot, lead, or pieces of iron, that is, where balance-boxes exist, (some stones are provided with solid cast-iron balance-weights, that may be screwed at pleasure) and, screwing the box on the high side up and on the opposite side down, divide the weight in two equal parts and fill each box with one-half thereof.

We must be very careful in weighing the weights that each side receives the same

be destroyed. We continue this manner of

procedure until the true balance is obtained. In old stones without patent balances we always try to affix the lead under the lowest band; of course we can pour the lead in the top of the stone, as mentioned in speaking of the standing balance.

Various patent balances have been inserted into the old stones, which have all, more or less answered their purpose.

A standing balance is simply an equal weight on all sides. In a running balance the centre of gravity must be just exactly as far removed from one grinding face as from the other.

#### An Infamous Business.

May the curse of God rest upon an impious traffic which is robbing our State of its manhood; turning the feet of our sons away from the paths of industrious fathers into condemned criminals. It certainly would seem that enough of disgrace and destruction has already been visited upon our homes to warn all those who have anything of self-esteem and family love remaining, to shun an indulgence which saps their strength, distracts their minds, casts to the winds the fruits of a life-time's labors, and leads them to deeds which bend their heads with shame and plunge their families into the depths of despair. But the end is not yet. Infatuations still lead men to pursue gain, even where loss and ruin are surest to be found, and the community, while it pours out its sympathy for the fallen, still accords respectability to a traffic which should be held in the deepest detestation for the evil which it brings upon

Instances recur which are so like hundreds which have gone before that the details need hardly be recited. A man, with a beautiful home, a devoted wife and group of lovely children; a man who, by nearly 20 years of constant devotion to the interests of his employers, had won their fullest confidence, and who stood before the community as a model of unyielding industry, suddenly appears a confessed criminal, and in a day is transformed from an apparent promoter of public virtue to an enemy of society, who has his liberty only at the price of pledges from his friends. Does any one need to be told the cause of the transformation? Is it necessary to tell again how the glittering snares of the stock gambler entrapped the feet which trod so firmly the path of virtue and industry; how the mind was turned from its sober thoughts and honorable ambitions by the visions of shortcuts to fortunes; how the blinding promises were false as perdition, and yet so alluring that he who pursued them was led in the deeper, until the funds of employers, confidently entrusted to his care, were secretly appropriated to feed the unholy fire of the gambling passion; how the theft was ere long discovered, and how the bars closed in the wreck of reputation and honor, while tears flow in the home and heartfelt sympathy and regret fill a neighborhood.

But what use is it to recite such painful incidents when the evil seems to grow the while? No sooner does some wretched conspiracy of impious men fall into the hands of the police than another, even more glaring, springs into view. And the people-poor, senseless throng -crowd the counters of the swindling cormorants giving their hard-earned savings in return for naught but worthless promises. For a few days the gold pours in, and then the throng comes some morning to find the doors closed and their treasures gone beyond recovery. One would think that these specious frauds

would be recognized by the shallowest brain, and yet experience proves that victims are always ready to jostle one another in the rush to ruin. It is plain that there should be some power to guard the people against these coarser forms of fraud, for these are the traps that catch the poor and the unwary. There is one thing that the public should demand from the press, and that is, that the insidious snares should not be spared in the public prints.

What use is it that the editorial columns of our dailies warn people against them so long as their glittering advertisements are received by the publishers? What use to preach virtue when the hands are filled with the rewards from vice? The press is a sharer in the fortunes made by ruining homes and wrecking lives, and so long as this is true, the friends of humanity will have cause to mourn.

The public has its eye open to the evil, and yet it lives. In the city, some business houses which employ many men have their spies abroad, and as soon as any man in their employ takes a hand in stocks, he is watched and his accounts scrutinized. What better evidence could be had of the way in which the business is regarded by our leading men? And yet the evil grows. Not satisfied with the gambling amount, otherwise the standing balance will in railway and other securities at the East,

they have introduced the California system, and already victims are falling just as men fall when plague settles down upon a city. Only last week it was a bank officer who went down to perdition in New York, by breach of trust, through gambling in stocks. Thus, East and West, the evil spreads, and distrust rises as virtue sinks. What can save the people? Nothing, unless each one works to save himself, and to spread a truer idea of the danger. Let it be understood that whoever enters the business in any form places his foot upon dangerous ground, which may ere long part and engulf him. As a man values his reputation ; as he loves his home, his wife, his children as he values a right life here and cherishes a hope beyond, let him shun the evil-the crowning evil of the day .- Pacific Rural Press.

#### Winding Up a Horse.

The Rev. Dr. Chamberlain, in a letter to the American Missionary, from Mudnapilly, India, gives the following singular experience he had with a balky horse:

Nineteen years ago, says the venerable divine, I bought in Madras a peculiar kind of horse. He had to be wound up to make him go. It was not a machine, but a veritable live horse.

When breaking him to go in the carriage he had been injured. An accident occurred in starting him the first time, and he was thrown and hurt and frightened. It made him timid: afraid to start. After he had once started he would never balk, until taken out of the carriage. He would start and stop and go on as many times as you pleased, but it was very difficult to get him started at first each time he was harnessed in the carriage.

He was all right under the saddle, an excellent riding horse, and would carry me long distances in my district work, so that I did not wish to dispose of him; but I could not keep two; whatever I had must go in carriage as well as ride, and I determined that I would conquer.

How I have worked over that horse! At first it sometimes took me an hour to get him started from my door. At last, after trying everything I ever heard of, I hit upon an expedient that worked.

I took a strong bamboo stick, two feet long and over an inch thick. A stout cord loop was passed through a hole two inches from its end. This loop we would slip over his left ear down to the roots, and turn the stick round and round and twist it up.

It is said that a horse can retain but one idea at a time in its small brain. Soon the twisting would begin to hurt. His attention would be abstracted to the pain in his ear. He would forget all about a carriage being hitched to him, bend down his head, and walk off as quiet as a lamb. When he had gone a rod the horse boy would begin to untwist, soon off would come the cord, and the horse would be all right for the day. The remedy never failed.

After having it on two or three times he objected to the operation, and would spring about and rear and twitch and back, anything but start ahead, to keep it from being applied. We would have, two of us, to begin to pat and rub about his neck and head. He would not know which had the key. All at once it would be on his ear and winding up. The moment that it began to tighten be would be quiet, stand and bear it as long as he could, and then off he would go. It never took thirty seconds to get him off with the key. It would take any hour without. After a little he ceased objecting to have it put on. He seemed to say to himself, "I have got to give in, and may as well do it at once," but he would not start without the key. In a few months he got so that, as soon as we got into the carriage, he would bend down his head to have the key put on, and one or two turns of the key would be enough.

Then the key became unnecessary. He would bend down his head, tipping his left ear to the horse boy, who would take it in his hand and twist it, and off he would go.

My native neighbors said, "That horse must be wound up or he cannot run." And it did seem to be so.

When he got so that the "winding up" was nothing but a form, I tried to break him of that, but could not succeed. I would pat him and talk to him and give him a little salt or sugar or bread, and then step quietly into the carriage and tell him to go. "No." Coax him. "No." Whip him. "No." Legs braced, every muscle tense for resistance. A genuine balk. Stop and keep quiet for an instant, and he would hold down his head, bend boy appealingly, saying very earnestly by his mended.

actions, "Do please wind me up. I can't go without it, but I'll gladly go if you will." The moment his ear was touched, and one twist given, off he would go as happy and contented as ever horse could be.

Many hearty laughs have we and our friends had over the winding up of that horse. If I were out on a tour for a month or two and he were not hitched to the carriage, or if he stood in the stable with no work for a week or two during the monsoon, a real winding up had to take place the first time he was put in. We kept him six years. The last week I owned him I had to wind him up. I sold the patent to the man that bought the horse, and learned from him that he had to use it as long as the horse lived.

SIR HENRY BESSEMER has had an experience that few inventors are allowed to have, in living to see the world-wide results of his invention, and to realize the economy in resources which has been made possible by its use. The sewing machine and electric telegraph have been labor-saving in their effect to an enormous extent, but with these it would have been difficult for their originators when alive to estimate the monetary value to mankind of the discoveries. With the making of steel the case, however, is different, for the saving can be figured down to a nicety on every ton made, and the annual product of the various civilized countries is pretty accurately known. From data thus collected it is estimated that in labor and material the world is a gainer to the amount of \$100,000,000 a year by using the Bessemer process in converting ore into steel. Or considered in another way, the advantage of a low-priced enduring material, such as Bessemer steel, when compared with iron, has been made a matter of calculation, as far as railroad tracks are concerned, with the following astonishing results: Mr. Price Williams, who is an expert in matters of this kind, has stated that by substituting steel for iron a saving in expenditure will be made during the life of one set of steel rails on all the existing lines of Great Britain of not less than \$850,000,000. In view of these facts, says the New York Sun, if Sir Henry has obtained in royalties the sum of \$5,250,000, most persons will concede he has got no more than he deserves.

#### Eight Points in Bread-Making.

We sum up briefly eight essential points in bread-making, as gathered from recent contributions on the subject and formed from the inter-editorial consciousness, to-wit:

1. Good wheat for flour. Some varieties of wheat, such as are deficient in gluten, will not make good flour.

2. A good miller to grind the wheat. The bread-maker should be sure to find the good miller.

3. The wheat should not be ground when very dry. Choose a "wet spell" for the grinding.

The flour should be sifted before using, to separate the particles.

5. Good yeast. This is made from new hops. Stale hops will not, with certainty, make lively yeast.

6. Thorough kneading. After it has had enough, knead it a while longer.

7. Do not let the dough rise too much. Nine out of every ten bread-makers in this country let their bread "rise" until all its sweetness has been destroyed.

8. The oven can be too hot as well as too cold. The "happy medium" must be determined upon and selected.

There are three kinds of bread, to-wit: sweet bread, bread, and sour bread. Some housewives make sour bread, a great many make bread, but very few make sweet bread. "Sweetness" in bread is a positive quality that not many bread-makers have yet discovered.

CONSUMPTION OF TIMBER BY RAILROADS.-The consumption of timber for railroad ties has reached enormous dimensions. The Lumberman's Gazette estimates that as we have now about 90,000 miles of railroad the annual consumption of ties or sleepers alone is 40,-000,000, or thirty years' growth of 75,000 acres. The tremendous destruction of crosstie timber, only certain kinds and sizes of which can be used for the purpose, is using up the stock within reach so fast, and good ties are in consequence becoming so hard to get, in many quarters, that railway managers are seriously turning their thoughts towards some substitute. Some railroad companies advocate tree planting, and others iron sleepers, which are now extensively used by Belgium roads, and which are being adopted by the German and some English roads. Glass

The "Washburn A" Mill.

The following description of the Washburn A mill we take from the Pioneer Press: Among the giant mills which rise on every hand about the milling districts of Minneapolis, the great "Washburn A" looms up conspicuously. Beside it the Humboldt and the Pettit and the Arctic and others in that vicinity look like pigmies. From the canal way back to Second street, a distance of 250 feet, and with a frontage of 100 feet on the canal, the solid walls of limestone are slowly rising under the skillful guidance of Mr. McMullen, the builder of the "B" mill. These are to be carried to the height of eight stories, thus making the building not only the largest mill on the ground, but the highest of any in the city, for the distance from the level of the canal to the cap stone will be 114 feet. To gain an idea of its size one needs to walk about it, both outside and in. The railroad which runs through the building on the second story seems to take up but little room, and yet think of a train of cars passing through any other of our public buildings, how much room would there be left besides? The height of the basement story seems considerable to look at, yet one gets but an imperfect idea of the vast amount of space until he is told that the western half, which is to be used for storing, will hold 100,000 bushels. He can get another idea of its size by figuring the area, when he will be astonished to discover that there are enclosed 8,850,000 cubic feet. How much flour this monster is to turn out when completed, is a secret which Mr. Washburn keeps to himself. It certainly is large enough to make from 2,500 to 3,000 bbls per day, for it will contain twice as much room as the old "A" mill, on whose site it stands, and that mill the last day it run made over 1,500 bbls. In regard to the process to be used it is premature yet to speak, but this much can safely be said, it will be the most approved now in use. Mr. Washburn has been testing the Hungarian process in the "B" mill for some months pass, and the conclusion has been reached that the exclusive Hungarian system has some disadvantages connected with it. A portion of the walls are now up to the third story, and the entire building will be under roof by the first of December. When completed, there will be nothing to compare with it in the United States as regards size, and if there is anything across the water its equal, we should be very glad to hear from it."

THE TONGUE AND THE SENSE OF TASTE .-The tasting power of the tongue is not regularly distributed over all parts of that organ. According to the unanimous judgment of physiologists the back part of the tongue is best qualified for this function, while there is a difference of opinion as to the tip of the tongue. The older observers have repeatedly said that a tasting power in the tip is limited to certain persons, whereas more recent ones affirm its presence in all men. In experimenting on the so-called "reaction-time," Herr Vintchgau lately met with a case of limited tasting power in the tongue-tip, and this led him to a thorough investigation of the subject. The observations were made with solutions of chloride of sodium, sugar, quinine and citric acid. The results were as follows: There are persons who are capable of acurately distinguishing all principal tastes with the tip of the tongue alone; others perceive with certainty the qualities of sweetness, saltness, acidity, but less distinctly bitterness. Others, again, can only with great difficulty distinguish tastes with the tip of the tongue; and, finally, there are individuals who cannot do this in the least.

BORAX AND NITRE FOR HOARSENESS .- La France Medical remarks that these two salts have been employed with advantage in cases of hoarseness occurring suddenly from the action of cold. The remedy is recommended to singers and orators whose voices suddenly become lost, but which by these means can be recovered almost instantly. A little piece of borax, the size of a pea, is to be slowly dissolved in the mouth ten minutes before singing or speaking. The remedy provokes an abundant secretion of saliva, which moistens the mouth and throat. This local action of the borax should be aided by an equal dose of nitre, taken in a warm solution before going to bed.

A NEW automatic pumping engine is in operation at the Providence (R. I.) water works. It has ten cylinders, five for water and five for steam, arranged alternately in a circle. It possesses an enormous capacity, but it will, without attention from the attendant, do the duty of pumping either for a single faucet or for a dozen steam fire engines. The cylinders

are all connected to a single central upright shaft, which automatically either maks one revolution in five minutes or twenty-five in one minute, according to water required. If the fire burns low, the engine will open the damper; if this is not sufficient, it will put on the blower.

"You don't seem to have made much money in bringing your hogs down here ?" was the casual remark of a bystander to a speculative agriculturist, who had driven his hogs seven miles to the market town and sold them for precisely what was offered him before he left home. "Well, no," said the agriculturist, pensively, "I hain't made no money, but then",-brightening up-"you know I had the company of the hogs on the way down."

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#### Great Wheat Farms.

Ninety years ago, Arthur Young, writing to President Washington, expressed considerable doubt whether agriculture would ever be a paying occupation in the United States. He elaborately calculated that the net profit from 300 acres of land in England, after the deduction of taxes and other expenses, was £323 10s, or 5.15 per cent on the combined capital of the landlord and tenant (£6,240); whilst in America the net profit, after similar deductions had been made, was £206 14s, or 10.55 per cent on the capital of £1,951, the farmer being his own landlord. It is curious to study the figures in the light of present events, when the English farmer is making a very different complaint, and from causes of which the author of "Agricultural Survey" never even dreamed. If any one had told Washington's correspondent of 1789 that in 1879 the American wheat growers would threaten ruin to the English farmers, he would doubtless have been called a madman. Yet ninety years ago American agriculture was infinitely more promising than that of Australia less than twenty yers back, though the Southern Continent now competes with the New World for the profits of feeding the old one. When the first European landed in New Holland they found a land producing no vegetable fit for food, no animal akin to those in the regions they had left, and no domesticated cattle of any kind. Repeatedly the convicts were on the point of starving, and probably would have perished had it not been for the abundance of kangaroos, and the fortunate arrival of a ship from Java. In 1804 flour was quoted in Van Dieman's land at £112 per ton; three years later wheat was £4 a bushel, and appeared so likely to rise to a still higher price that a garrison order was issued making it a penal offence for the settlers to charge for it more than £32 a quarter. But times have changed. Last year New South Wales alone had feeding within its borders over twentyseven millions of sheep and four million of horned cattle, while the colony of South Australia alone in this year prepared to export, after satisfying her own demands and those of her immediate neighbors, no less than 170,-000 tons of wheat. In America, however, there was always some agriculture. The Indians cultivated maize from the earliest period, and among the first plunder of Miles Standish and his companions was the corn which the "red sons of Balial" had stored away for winter use. The Aborignes taught the Virginians and New Englanders to cultivate this grain, and, as mines were not worked in America for long after its first colonization, the earliest settlers depended on farming as their main resource. Yet, for one century at least, wheat-growing was on its trial in America, and so little progress did tillage make, that we find, as late as 1660, the Massachusetts townships paying a bounty to any one who would buy and keep a plow in repair for use of the neighboring farmers. The stony New England clearings required all the aid of art; but they got so little that the narrow-minded Puritans looked upon a man who ventured to make improvements as a reckless innovator, certain to come to grief himself and bring ruin to the commonwealth. A century ago, if he did not plant just as many acres of corn as his father did, and that, too, "in the old of the moon," if he did not sow just as much rye to the acre, use the same number of oxen to break up the soil, and to carry home the crops on exactly the same day as his neighbors did, he was shunned in company by old and young, as a visionary who imagined that the wisdom of his ancestors was not good enough for him.

Last year the United States sent to Europe over nine million quarters of maize, and this year the amount of wheat to be exported cannot amount to much less than 190 million bushels. No sterile Northern State ever made much advance in grain growing, and though Virginia and Maryland were rich, the amount of land capable of raising wheat was but limited, and on the rich river "bottoms" the exhausting tobacco culture for a time paid much better. Even there the expense of clearing the soil was so great that the fact of its costing little to buy the freehold did not counter-balance this original disadvantage to the farmer. But when Illinois, Iowa and Missouri became opened up, in the treeless prairies of this farther West, the corn grower revelled. The soil was rich—there were no forests on it-and the plow was merely required to be run through its stoneless extent to prepare it for grain. When the Indianswho, it must be allowed, were a drawback to the delights of the new Cereal Paradise-were removed across the Mississippi, settlers and Their farms were, moreover, small, and their

cultivation spread still more, and when railways were run through these prairie States, it was not long before even the highly-colored advertisements of the companies which had "donations" of land to induce them to build these iron roads could convince the most sanguine farmer that between the Ohio and the Platte there was much space for a newcomer who was not enamored of extracting grain out of sage-brush and alkali wastes. Meantime, St. Louis and Chicage became great "wheat centres," and prospered as the cities of the middlemen who tithe the farmers' grain before it reached the Eastern States and Europe. In some quarters, indeed, it was found that to grow a surplus crop would not pay. It is not thirty years since that, in some parts of Illinois, maize brought only five cents per bushel, so that, after all the pigs that could be purchased had been fed on it, the remainder was burnt as fuel. But though this practice is now only tra-

ditional, it has been found by those who have

carefully watched the progress of events that

the "wheat centre"-or the central point around which cluster the largest production of that cereal - has been gradually shifting farther and farther West. Within this century, the six New England States grew the wheat for their own bread. They could not now, as Mr. Manegault has clearly demonstrated, feed themselves with wheat flour for a fortnight. Once the "wheat centre" stood in New York; then it migrated to Pennsylvania, a State which can now eat up all it can produce in ten months. Virginia was never wheat centre, but in 1860 it produced 12 bushels for every person in it; whilst in 1870 it only raised 6, and probably the return per head is at present very much lower. Ohio, Indiana and Illinois were successively for a time the States in which wheat culture centered, but successively the yield fell off in these regions, until at the present time the "centre" is stationed somewhere between Iowa, Wisconsin and Minnesota. There are, however, already signs that, true to its previous history, the farinaceous metropolis will not long stop there, but-as its migration has always been westward—that it will progress stil further towards the setting sun. To do so it must take a long leap, a fact which those who have made their calculations as the wheat-producing capabilities of the States have generally failed to enlighten their victim regarding. The reason is this. East of the Rocky Mountains is a country comprising seven-sixteenths of the United States, which is a desert, with not five per cent of improvable land. The cold during the winter is intense, and the summer heats correspondingly great. During a short season it affords a little pasture for stock but, as its capabilities for feeding cattle are only during the season of greatest plenty, not during that when other food is scarce, even as a grazing region it can never be of much value, and on its soilless surface the wheat culture will never linger. The reason for this migratory character of the "wheat centre" is plain. The soil is getting exhausted with continuous cropping. The same crop is grown year after year on the same fields, because it pays best. The land is rich. but it cannot bear this constant exhaustion, The farmer cannot afford to buy artificial manure to fertilize it; while this system of tillage allows of no domestic manure being made, so that in time everything is taken out of the soil and nothing put back into it. The end is a decreased yield of wheat, and the nesity for the thriftless cultivator seeking fresh virgin soil on which to resume his old unscientific and wasteful but, for the time being, profitable agriculture. He is, in a word, not charging to revenue alone the interest of his money; he is every year adding to it a part of the principal also, with the result that in time he finds that he has no capital with which to work. If he sold every year an acre of his farm, and ate, drank, dressed with the sum received, he could not more effectually accomplish his ruin than by the method he is adopting. However, this is not patent to him, for so long as land is plentiful in America-and in a few years tillable soil will be very scarce-the farmer "moves West." This is no theory. New York, Pennsylvania and Virginia have been "worn out" as completely, as wheat growing regions, as whole tracts of country along the Mississippi have been rendered useless by continued tobacco cropping. The early settlers in New England, and even in Maryland and Virginia, were not so thriftless, for though land in those days was cheaper than it is now, it cost too much labor to clear it for them to think of rendering their farms unfertile by this modern fashion of killing the goose that lays the golden egg.

agriculture mixed. They consumed the straw grown on the soil and returned it again in the form of manure. Artificial manures were not then known, but the sea was not far off, and accordingly fish and seaweed supplied admirable fertilizer, to the thin soil on which were reared the pioneers of the Great Republic, while rotation of crops allowed a field rest until it had again recuperated its feeding properties. Even the Indians knew better. They fertilized their maize crops with the horse foot or king crab, and until this crustacean became scarce the Massachusetts farmers followed their example so satisfactorily that, early in the century, ground which would ordinarily return only 10 bushels of "corn" to the acre was stimulated by the free use of the crab and fish manure into yielding double that crop. The Virginians made much merriment out of this New England culture, but they have since discovered that it would have been better for them to have followed so good a practice.

What has been the result of this wearing out of the soil? In Illinois-no less an authority than Abraham Lincoln used to assertthe wheat fields of that once fertile State had sunk as early as 1863 to an average of 8 bushels per acre. The wheat centre has thus traveled 1,200 miles from the Atlantic seaboard, but for the present has been stopped by the barren central deserts of the Continent. Even on the extreme confines of that region wheat is beginning to prove by no means such a profitable crop as it once did. The last four seasons' bad crops in England have stimulated wheat-growing in the States to an abnormal extent. But when we reduce the boastfulness of the Western "rancher" to the hard prose of figures, we find that Great Britain, though not over one sixty-fourth part of the size of the United States, produced not much less than one-half as much wheat as did the States in 1870, and though this year the disproportion will be much higher, there is little ground for believing that it has not attained its maximum. Even France, never looked upon as especially a wheat-growing country, has in 20 years contributed more of this grain to the world than the United States during the same period. The crops even in England are more certain than across the Atlantic. Droughts, grasshoppers and rust seize the wheat of Western America something, on an average, like twice in five years; and, owing to the grain maturing so rapidly, it is rarely as heavy as that ripened more slowly in our milder climate. Maize is really the crop which suits North America best, and were it not for "corn," as the Indian grain is called, the United States would require to import part of its bread.

It may be said that in time the Americans will learn a better system of farming, and "feed the land," in order that the land may, according to the English axiom, feed them. But it is doubtful whether the average Western farmer will ever attain this stage of agricultural wisdom. In the first place, he will never bring himself to do so as waste land is to be had. He will rather sell out and "move West," or "go into business," for agriculture is not the industry which the average energetic American affects. In the second place, he cannot for the present afford to manure his land. To bring fish refuse from the coast, or town sewage from the cities, would cost too much, while guano, superphosphates, and other artificial fertilizers—the use of which at once abridges the English farmer's profits and keeps his land in a condition fit to make these profits, such as they are, permanent-would be still further beyond the Illinois, Nebraska and Missouri grain grower's reach. To use them would so decrease his moderate returns as to put it out of his power to land wheat in England, even in the best of seasons, without a loss to himself or to the exporter. But every year that he hesitates about putting back into the soil what he is taking out-and is content with the profit which the difference between these two extremes represents-will make it more and more difficult for him ever

Oregon and California have been represented as countries likely in time to be "wheat centres." This is, perhaps, a sanguine prospect. Oregon has no great extent of land capable of growing grain, except in the Willamette and a few other valleys, chiefly to the west of the Cascade Mountains, and in these regions the farms are all small, and devoted—luckily for their owners—to mixed agriculture. Hence the settlers are prosperous, though not very wealthy. In 1878 about seven millions of bushels of wheat were received in Liverpool from the country of California. The best lands will yield 30 bushels to the acre. But the farmer is not content with this,

for having reaped his 30 bushels at a profit of about \$10, he depends upon nature for returning him the next year a volunteer harvest of some 18 bushels, in addition to the plentiful crop of weeds, which cost him double plowing and absolute rest the third year, in order to extirpate them, and at the same time raise the soil to something like its old fertility. Still, owing to the use of manure, the Oregon and Washington Territory farms have not been worn out to anything like the extent which the larger ones in California and the "Western States" proper have.

The Californians love to do things on a grandiose scale—the greater the more pleasing to them. Hence large wheat "ranches" are the rule in that State, though the amount of soil capable of being tilled is much less than in many districts in the Mississippi Valley, and the cost of land very much higher. In consequence of the existence of old Mexican grants, there are still large tracts in California held in the hands of single proprietors. For instance, Mr. Mitchell, in the San Joaquin Valley, has 90,000 acres under wheat, and is ambitious to have 100,000; and Dr. Glen, in Colusa County, has 45,000 acres under the same crop; and another tiller named Reavis has a modest little farm of 15,000 acres. But though these "ranchers" get 85 cents per bushel for their wheat, they do not find their business so profitable as imagined. Indeed, some of them have in ten years cleared nothing, but have managed to get into debt on a scale quite as gigantic as their farms,

Large wheat farming does not pay. It is too precarious, as is proved by the failure of those who have tried it in Minnesota and other States. To use a familiar phrase, the large wheat grower puts his eggs all into one basket. If wheat is high, he makes a great profit; if, on the other hand, wheat-his only crop-fails, then he is ruined, for he has no reserve, as have those who practice mixed farming. These miles of wheat have a bare, ragged appearance. There are no barns or farm buildings. 'The ears are snipped off by a wonderful machine, which also threshes and sacks the grain on the field. The straw is then either burnt or disposed of in various ways, none of which allow of the soil reaping any advantage from it. The same plan is pursued in South Australia. In the colony there are no large farmers, but the "cockatoos," or little cultivators, are equally thriftless. They use no manure, but burn off the stubble, and, as a result, are so impoverishing the soil that in a few years its fertility will have greatly decreased. Of course, some soils, both in Australia and America-but in America more than Australia-will bear continual cropping for a long time. But the tales of 80 bushels to the acre must be received with many grains of salt, and-at best-as relating only to special patches of land, and not as anything like an average of even a single State. Even in California all "pumpkins" are not so gigantic as those which about this time of the year begin their perennial rounds in the American newspapers. The truth is, that the average return of wheat land in America is only eleven bushels per acre, lower than in any country except Russia, where it is only five and a half, and only one-third of what the little Danish farms, on which all the straw is consumed, yield to the more thrifty cultivator. The outlook of the British farmer is not quite so bad as he imagines, or as some dubious friends of his would have him to believe. All things, it is said, come to the man who can wait; and if the English agriculturhent staying power, the facts above narrated indicate that, in all likelihood, he will again have his day.—Standard.

The following is a list of parties who have recently ordered the celebrated Becker Wheat Brush: Thos. Magee, Perry, Ill.; S. W. Hickox, Springfield, Ill.; Eby & Stehman, Manheim, Pa.; J. M. Brant, Mt. Joy, Pa.; Jerre Witter, Upton, Pa.; Thos. B. Bryson, Mechanicsburg, Pa.; W. H. Elder, Turin, Ga.; H. Merrill, Newman, Ga.; J. H. C. Curtis, Oregon, Mo.; East Forest Mill Co., Forest City, Mo.; C. C. Buzby, Jerseyville, Ill.; D. O. Johnson, Perry, Ill.; Thos. Williams, Pontiac, Ill.; Grant & Troster, Meoresville, Ind.; Wysor, Kline & Co., Muncie, Ind.; Jos. N. Brooks, La Porte, Ind.; Nordyke & Marmon Co., Indianapolis, Ind.; Simpson & Galt, Cincinnati, Ohio; Straub Mill Co., Cincinnati, Ohio; E. P. Allis & Co., Milwankee, Wis.; J. F. Ellsworth, Williamsburg, Pa.; Thos. Henderson, Spruce Creek, Pa.; Henry & Co., Huntington, Pa.; Schenk & Sowers, Ovid, Mich.; Jos. Marriott & Bro., Long Grove, N. Y.; Bramble & Miner, Yankton, Dakota; Jos. M. Lee, Chattanoga, Tenn.; E. W. Jaqui. Morris Plains, N. J.; Hugh Bartley, German Valley, N. J.; Joseph Courand, Costroville, Texas; Sills Bros., Meyersburg, Canada.

#### NEWS.

#### EVERYBODY READS THIS.

ITEMS GATHERED FROM CORRESPONDENTS, TELE-GRAMS AND EXCHANGES.

The Cockle Separator Mfg. Co., of Milwaukee, Wis., is crowded with work, and their sales have been heavier during the past month than in any other month this year.

The Cockle Separator Mfg. Co., of Milwaukee, Wis., has sold in the past month 18 of their largest size machines in Minneapolis,

The new crop in the different States is so full of cockle that millers say they could not do without the cockle separator, manufactured by the Cockle Separator Mfg. Co., of Milwaukee, Wis.

The Cockle Separator Mfg. Co., of Milwaukee, Wis., are building their machines with a capacity from 15 bushels up to 240 bushels per hour.

Messrs. Stewart & Douglas have ordered three cockle machines from the Cockle Separator Mfg. Co., of Milwaukee, Wis., for their new oat-meal mill at Chicago.

Messrs. E. Woodyear & Co., of Baltimore, Md., have purchased one of the largest size cockle machines with oat separator combined from the Cockle Separator Mfg. Co., of Milwaukee, Wis.

The Wells Flouring Mill Co. at Wells, Minn., have put in one of the Cockle Separator Mfg. Co.'s largest size cockle machines with oat separator combined.

The Kurth cockle separator, manufactured by the Cockle Separator Mfg. Co., of Milwaukee, Wis., is an indispensible machine in every mill, and all mills in course of construction are puttting it in.

Millers will save the cost of buying a special oat separator, when purchasing the combined oat and cockle separator manufactured by the Cockle Separator Mfg. Co., of Milwaukee, Wis.

Write to the Cockle Separator Mfg. Co., of Milwaukee, Wis., for their illustrated catalogue, which gives a full description of their machines.

The Philadelphia Commercial Exchange has passed a resolution adopting the cental system for all transactions in grain, flour and seeds, from the 1st day of January, 1880.

An elevator was burned at Hastings, Neb., Sept. 16th.

Peter Provost, of Appleton, Wis., patentee and manufacturer of the Victor wheat heater and drier, has just furnished four of his excellent heaters to Barney Demoss & Co., of Roscoe, O.

The Russian Minister of Finance recently declared publicly at Nijni Novgorod that he intends very soon to prohibit the importation of iron into Russia duty free.

The oat meal mill of Kiser & Pierson, of Ottumwa, Iowa, burned Sept. 12th. Loss, \$18,000; insured, \$15,000. The fire was first observed by a sheet of flame bursting through the roof of the drying kiln, and it burned down in just thirty-five minutes.

New flouring mills are being built at Olivia, Minn.; Jasper, Ga.; Holmes City, Minn.; Comanche, Ia.; Evansville, Ind.

Exportation of American whisky to foreign countries has increased very largely during the present year, as the cheapness and abundance of the raw spirit has offered to merchants large opportunities of profit. It is the most compact and condensed form in which grain can be sent abroad.

The revival in the iron industry has sent a good many vessels into carrying iron ore that ordinarily belong to the grain fleet, thereby cutting down the supply of grain vessels so largely as to allow owners to advance freights to paying figures.

The man that secures the right to construct an aqueduct around the falls at Sault Ste. Marie, for water power purposes, may find himself in possession, a few years hence, of a franchise worth a pretty penny.

Henry Schultz, of Scott, Sheboygan Co., Wis., is building a new 3-run mill. Smith Bros. are doing the work.

A. M. Grau, formerly of the firm of Asmuth & Grau, of Milwaukee, is locating at Fargo, Dakota, and intends to build a flour mill.

The 4-run mill of A. B. Rarey, Grove Port, O., thoroughly overhauled, refitted and refurnished by C. F. Miller, of Mansfield, O., and started about Aug. 20th, is running to its full

flour made by this mill is not surpassed by any straight grade in that State. This mill is near the city of Columbus, and we are told there is no brand of flour in the city so much sought after, and appreciated as the Grove Port Mill's flour. The millwright work was done under the superintendence of Mr. G. W. Bliss, of Mansfield, O., and Mr. D. D. Van Degrift, formerly of Zanesville, O., is head

Edward P. Allis & Co. have closed a contract with the Winona Mill Co. for a 600-horse power compound engine and steel boilers. This will be the finest steam power possessed by any flouring mtll in the United States.

The Star & Crescent Mills, of Chicago, have ordered an outfit of porcelain rolls from Edw. P. Allis & Co.

S. B. Pierson, of Lawrence, Kansas, has purchased the magnificent roller mills which Edward P. Allis & Co. had on exhibition at the St. Louis Fair.

A. Fredenhagen, St. Charles, Ill.; M. Range, Raymond, Ill.; and Mr. Kertochwell, of Dayton, Ohio, have ordered porcelain rolls of Allis & Co.

Edward P. Allis & Co. have orders for over 100 porcelain roller mills during the past

The large elevator at Minneapolis is well along. All the machinery is furnished by E. P. Allis & Co., and the power will be a 24x48 Reynolds-Corliss engine.

E. T. Archibald, of Dundas, Minn., are putting in an 18x48 Reynolds-Corliss engine, built by E. P. Allis & Co.

Edward P. Allis & Co. are remodeling the Star & Crescent Mills, Chicago, to the roller

Edward P. Allis & Co., of Milwaukee, have shipped two car-loads of machinery a day for the past 60 days. They are running day and night with a force of 700 men, aud have now orders for 23 Reynolds-Corliss engines, besides their large milling contracts.

Edward P. Allis & Co. have been engaged to entirely remodel one of the largest mills in England. This mill now has 48 run of stone, and Allis & Co. will change it entirely to their roller system, which is being universally adopted by the larger mills of this country.

At a recent trial of one of Allis & Co.'s Reynolds-Corliss engines a duty was obtained of 1 90-100 pounds of coal per indicated horse power per hour. This is the every-day work of the engine, and there are but few, if any, engines in the country that can equal it.

The Milwaukee Middlings Millstone Co. are furnishing a 5-run mill for Messrs. Schlegel & Koenig at Saukville, Wis.

The five hundred barrel mill being built in Milwaukee by the Milwaukee Middlings Millstone Co., is progressing rapidly. This will be, when finished, the most complete flour mill in this country.

The Milwaukee Middlings Millstone Co. are furnishing twelve 16-inch mills to Messrs. Mc-Moran & Co., at Port Huron, Mich., and overhauling their mill generally.

The Milwaukee Middlings Millstone Co.'s business still increases, and their little mills are becoming more popular every day.

The Milwaukee Middlings Millstone Co. will start up Mr. R. P. Owen's mill, at Anoka, Minn., some time during October.

The Milwaukee Middlings Millstone Co. are & Son, Sauk City, Wis.

The Milwaukee Middlings Millstone Co. have orders for over one hundred and fifty little mills.

The Milwaukee Middlings Millstone Co. are enlarging their stone shop again in order to keep pace with their orders.

Mr. Geo. A. Granger, of New Lexington, O., whose new 4-run mill has been running about a month, is proving a success, and he thinks it is second to none in his part of the state. The burrs, bolting cloth and all the machines and materials were furnished by C. F. Miller, of Mansfield, Ohio.

Mr. Henry Wolf, of Plymouth, O., has lately made additional improvements, and his mill, as furnished and arranged by C. F. Miller, of Mansfield, O., is doing first-class work, running almost entirely on custom grinding.

C. F. Miller, of Mansfield, Ohio, has by special contract made very extensive improvements in the flour mill owned and operated by the Brewster Mill Co., Akron, O., putting in new burrs, separators, smutters, brush machines, bran dusters, wheat heaters and other materials, also has re-clothed their bolts, making the necessary changes, so as to concapacity night and day, and the quality of form to the improved system. Mr. Wm. Man-

der is head miller, and with his experience and capability as a miller we may expect good results. Mr. C. Parker, millwright, of Mansfield, O., has had charge of the work. The work is about completed, and the mill will be running by Sept. 25th.

Messrs. Pickering, Grant & Co., of Zanesville. O., are determined to be up to the times in mill improvements, and having from time in the the last two years added purifiers and other new improvements, now have their mill in condition to make, and are turning out the best quality of flour made in that city. Their bolting cloth and other materials were furnished by C. F. Miller, of Mansfield, O. These mills are in charge of Mr. Bower, who has become noted as a miller of the first class.

Messrs. Commins & Allen, of Akron, O., are among the leading millers of Ohio, and seem determined to avail themselves of every advantage to be gained in the improved mode of milling. They are making some changes in their system of bolting, and adding some new machinery, also adding 2-run of Munson's 48-inch best selected millstones, supplied by C. F. Miller, of Mansfield, O.

The flour mills of Mansfield, O., though constantly running night and day, are unable to supply the demand for their flour. The mill of Messrs. Hicks, Brown & Co., formerly a 6-run mill, have lately added two run of 48inch Munson burrs, and contemplate adding three or four more run of the same size, which they feel compeled to do to meet the increasing demand for their product. The "City Mills," Messrs. Gilbert, Waugh & Co., proprietors, have also found it necessary to increase their capacity, and have lately added another run of 48-inch Munson burrs, supplied by C. F. Miller, of Mansfield, O.

#### Pulleys and Belts.

The evil of sliding or slipping of the belt on the pulley is experienced by all who use them, and various means have been devised to avoid it for years past.

One method is to cover the pulley with wood, another to strew powdered rosin on the inside of the belt. The latter is soon pressed into the leather, and contributes largely to its speedy destruction. A wood covering gets polished in a short time and is then as slippery as iron. A convexity of the rim of the pulley is very effective to prevent the dropping off of the belt, especially when the pulley has a horizontal position; but it only counteracts the slipping to a very small extent. Some years ago, it was found that leather completely prevented the sliding of belts on pulleys. The reason is obvious. The friction of leather on leather is more than five times that of leather on iron, and as leather can be roughened and easily kept in that condition, it is very evident that the sliding of belts cannot easily take place on pulleys covered with leather, not even when the belts have to transmit the very highest amount of power.

Besides the evident advantage that results from the avoidance of the slipping, a leather covering on the pulley preserves the belt; in the first place the belt does not require tightening so hard, the friction being considerably increased; and in the second place because there is no necessity for a rapid trotting of the belt. This rapid trotting is generally caused by the fact that, under the influence of the heat produced by friction, the tannic and other acids contained in the leather of the building a new 3-run mill for Messrs. Lodde belts combine chemically with some of the iron of the pulleys, forming a hard compound on the belts which produces rottenness. The operation of covering is very simple and can be done and renewed by every intelligent miller.

> BIG WORDS -Big words are great favorities with people of small ideas and weak conceptions. They are sometimes used by men of mind, when they wish to use language that may best conceal their thoughts. With few exceptions, however, illiterate and half educated persons use more "big words" than people of thorough education. It is a very common but egregious mistake to suppose that long words are more genteel than the short ones-just as this sort of people imagine high colors and flashy figures improve the styles of dress. These are the kind of people who don't begin but always "commence." They don't live, but "reside" They don't go to bed but mysteriously "retire." They don't eat or drink, but partake of "refreshments." They are never sick, but "extremely indisposed;" and instead of dying, at last, they "decease." The strength of the English language is in short words -chiefly monosyllables of Saxon derivation; and people who are in earnest seldom use any other. Love, hate, anger, grief and joy express themselves in short words and direct sentences; while cunning, falsehood and affectation delight in what Horace calls verba sesquipeddlia-words "a foot-and-a-half"? long .- Exchange.

#### Conundrums.

What is that which a cat has, but no other animal? Kittens.

What did Queen Elizabeth take her pills in? Incider (inside her).

Why is a dead doctor like a dead duck? Because they both have done quacking.

If I were to see you riding on a donkey, what fruit should I be reminded of? A pair. How is it that a man more thoroughly appreciates

good coffee when he's smoking than at any other time? Because then he's smoker (mocha) himself. Why was Blackstone like an Irish vegetable?

Because he was a common tatur. Why is an egg like a colt? Because it isn't fit

for use till its broken. If a Colt's pistol has six barrels, how many ought a horse pistol to have? Give it up.

Why is a professional thief very comfortable? Because he takes things easy.

Why are cowardly soldiers like tallow candles? Because when exposed to the fire they run.

When does a man have to keep his word? When no one will take it.

When are kisses sweetest? When sirup-titiously

Why are two young ladies kissing each other an emblem of Christianity? Because they are doing unto each other as they would men should do unto-

Why are pipes all humbug? Because the best of them are meer-shams.

How can you get a new set of teeth inserted gratis? Go into somebody else's garden wherethey keep a big dog, and kick him.

Why is a good husband like dough? Because a woman needs him.

State the difference between a grocer selling a. pound of sugar, and an apothecary's boy with a pestle and mortar? One weighs a pound, the other pounds away.

Why is it easy to break into an old man's house? Because his gait is broken and his locks are few. When does a son not take after his father? When

his father leaves him nothing to take. Is there a word in the English language that

contains all the vowels! Yes, unquestionably. Why is a woman's beauty like a \$10 greenback?

Because when once changed it soon goes. Why should not ladies and gentlemen take castor oil? Because it is only intended for working

people. How many sides has a pitcher? Two; inside and outside.

What is the proper length for a ladies' crinoline? A little above two feet.

#### Friendly Counsel.

1. Resist the temptation of circulating ill reports; spread them not at all.

2. If you cannot speak well of another, at least do not speak ill of him. 3. Never speak ill of another behind his back.

Why should you consider his character of less value than your own? 4. Speak of others as you would were they present; speak as a friend of him who is absent

and cannot speak for himself. 5. Consider yourself the guardian of the character of those who may be absent, as you would wish others to guard your character in your absence.

6. Whenever it may be needed to mention anything to the disadvantage of another, let it be done with truthfulness, tenderness, humility, and with the recollection of how much has been forgiven. thee.—Ex.

A CURE FOR DRUNKENNESS .- The Scientific American contains an account of an experimental test of Liebig's theory for the cure of habitual drunkenness. The experiment consisted of a simple change of diet, and was tried upon twenty-seven persons, with satisfactory results. The diet proposed is farinaceous, and in the cases reported was composed of maccaroni, haricot, beans, dried peas and lentils. The dishes were made palatable by being thoroughly boiled and seasoned wilh butter or olive oil. Breads of a highly glutinous quality were used, care being taken to prevent their being soured in course of preparation. In this explanation of the theory, Liebig remarks that the disinclination for alcoholic stimulants, after partaking of. such food, is due to the carbonaceous starch contained therein, which renders unnecessary and distasteful the carbon of liquors. If this plan proves successful, it will be the medium of effecting a more thorough reform than years of legislative enactment or spasms of social work can possibly ac-

A LUMBER PRESERVATIVE.—Quicklime, as a preservative of timber, has been made the subject of experiment by M. Lostal, a French railway contractor, who applied it to railway sleepers. He puts the sleepers into pits, and covers them with quicklime, which is slowly slacked with water. Timber for mines must be left for eight days before it is completely impregnated. It becomes extremely hard and tough, and is said never to rot. It is also stated that beech-wood prepared in the same manner has been used in several ironworks for hammers and other tools, and is reputed to be as hard as iron, without losing the elasticity peculiar to it. The Builder (London) says that according to the Kurze Berichte, lime slacked in a solution of chloride of calcium is used at Strasburg as a fire-proof and water-proof coating for wood.

The Grain Trade of New York.

One cannot cross either of our river ferries. still less circumnavigate the city or take a few hours' sail up the Hudson, without being amazed at the movement of breadstuffs visible en all sides. On the Hudson River Railroad, and all the other iron thoroughfares converging upon this city, long trains of grain cars are almost constantly in sight, while on the river vast rafts of grain laden canal boats more than rival the railway trains in carrying capacity. It is no uncommon thing for one of the large towing steamers to bring down the river fifty, sixty, or more canal boats, each carrying from eight to fourteen thousand bushels of wheat, corn, or other grain. In single file, one of these vast tows would make a continuous line of canal boats more than a mile in length; while an equivalent tonnage in cars would require twenty-five or thirty 40-car trains, or from six to seven miles of cars, according to the nature of the grain.

Not unfrequently four or five ocean steamers, and a fleet of other shipping, may be seen about the great railroad elevators at 65th street, receiving cargoes of grain and cattle. At each of the piers of the numerous European steamship lines, floating elevators are busy transferring grain from canal boats; others are at work in midstream alongside ocean steamers and sailing ships at anchor; and at the extensive warehouses along the shores, permanent or floating elevators are similarly engaged in the rapid handling of the staff of life, brought to their doors either in canal boats and barges, or in cars floated, on boats made for the purpose, from the piers of the Erie and other railways.

The magnitude of this grain trade of New York may be judged from a few statistics. During the week ending September 6, the receipts at this port were: Flour, 112,124 barrels; wheat, 2,271,492 bushels; corn, 1,327,-014 bushels; oats, 279,355 bushels; rye, 139, 886 bushels; barley, 1,100 bushels-about as much as was received at all the other ports together. During the same week the exports of breadstuffs from New York included 113,-224 barrels of flour, 2,519,409 bushels of wheat, 914,623 bushels of corn, 2,996 bushels of oats, 103,701 bushels of rye. At the last date named, September 6, the amount of grain in our city granaries and affoat in our harbor, embraced in round numbers, 3,750,100 bushels of wheat, 3,100,000 bushels of corn, 810,000 bushels of oats, 160,000 bushels of rye, and 26,000 bushels of barley. The grain of all sorts in store at New York was 6,332,035 bushels. The storage capacity of the port is about 12,000,000 bushels, but the present active demand for grain for foreign shipment, due to the general deficiency of European crops, prevents any large accumulation here. Indeed, the bulk of shipping devoted to the transportation of grain from this to foreign ports is at this season something unprecedented in the history of the world. During the week ending September 10 (six days), the clearances of flour and grain for Europe alone embraced eighty-five vessels (45 barks, 30 steamships, 4 ships, 5 brigs, 1 schooner), carrying a grand total of 78,112 barrels of flour, 1,942,248 bushels of wheat, and 1,249,092 bushels of corn. The promise for the current week is still greater.

During the year 1878 the receipts of grain alone at this port were, by canal, 63,663,049 bushels: by vessels, coastwise, 1,090,236; by rail, 63,960,486 bushels—a total of 128,613,-771 bushels. Changing flour and meal to their equivalents in bushels, the receipts of grain, flour, and meal were, during the year, 152,862,170 bushels. During the same period the export of cereals from New York amounted to 107,819,044 bushels, the exports from all the other Atlantic ports together (including Montreal) being 104,678,187 bushels-evidence enough that our city still holds the lion's share of this trade. To describe in detail the manner in which the grain trade is conducted here would require a volume. A rough outline of it will have to answer.

As already indicated, the vast stream of lifesustaining wealth flows to us through channels of two distinct sorts-by water and by rail. The inflow coastwise is too small, relatively speaking, to demand especial notice. The Erie canal, with the Hudson River on one side and the railways on the other-chiefly the New York Central and Hudson River Railroad, the Erie road and the Pennsylvania Central-divide the traffic about equally. And the grain received by each route has, speaking generally, its particular treatment. That which comes by rail is graded according to rules agreed upon by the New York Produce Exchange, and is sold by grade, the identity | ing the foreign demand unimpaired); besides,

of the grain being lost. The grain received by water, on the contrary, is chiefly handled without grading, the identity of lots being preserved. In the latter case the consignee receives the identical grain shipped to him, say from Buffalo or any point farther West; in the former, he receives not the grain billed to him, but a certificate for so many bushels of wheat, corn, or other grain of a specified grade, his particular shipment being, for economy in warehousing and handling, mixed with other receipts of the corresponding kind and grade after it has been officially inspected, graded and weighed. The quantity of grain represented by each certificate is limited to 8,000 bushels, except for oats, for which the certificates are not to exceed 10,000 bushels each. These certificates, which are dated and numbered consecutively, state in detail the kind, grade, and quantity of grain represented by them, and are furnished to the consignee before noon of the same day, at which time the business of the Produce Exchange begins. On the floor of the Exchange all ungraded grain is sold by sample, the various samples being exhibited on their proper tables, in small paper boxes duly labeled, the amount of the lot, and the place where it is stored or afloat, being fully set down.

The graded grain is represented by type samples, so that dealers can see exactly what their certificates call for. A buyer purchases for exportation from various sellers, say, 100,000 bushels of No. 1 white winter wheat, or any other of the dozen different grades of winter wheat. He handles no grain, but receives instead certificates representing that amount of grain of the specified kind. On the presentation of such certificates to the railway company or companies issuing them, freight and accrued charges being paid, the eompanies deliver the grain out of their general stock of that grade, at such point in the harbor as may be designated.

A vast amount of loading is done at the elevators at 65th street and North River. A larger amount is transferred by floating elevators, which draw up alongside the great steamers as they lie in their accustomed slips, receiving or discharging their freight. There are besides numerous stationary elevators belonging to large grain-dealing firms, at the lower end of New York Island and along the Brooklyn shore; and the Erie Railroad Company are building at the Jersey City terminus of that road an elevator which promises to more than rival those of the New York

The speed at which grain is transferred at these elevators is amazing to one not familiar with their management. A shaft inclosing an endless chain of buckets is thrust into a laden car or canal boat, and instantly the grain begins to travel up the long incline to be delivered on the opposite side at a rate often exceeding fifty bushels of wheat a minute, or a larger quantity of lighter grain.

The report of the Produce Exchange for 1878 shows the authorized charges for handiing grain at this port to be, per bushel: weighing, ½ cent; elevating from canal boats, ½ cent; for delivering on board single deck ocean vessels, \$8; on ocean vessels in bags, \$6.25; on coastwise vessels, \$2.50. The expenses on grain to shippers by rail from the interior are: for inspection, 25 cents a car; elevation, ½ cent a bushel; half weighing, ‡ cent a bushel; storage, 1/4 cent a bushel. the New York Central elevator the charge for bulking grain with storage (10 days) is 1 cent a bushel. The Erie and the Pennsylvania Central Companies charge, for holding grain on storage in lighters, † cent a bushel for each 10 days. The charge for delivering afloat ungraded grain in railroad lighters, including elevation from boats, ranges from 3 cents to 11 cents a bushel, according to the bulk of the lots handled. The authorized charge for towing laden canal boats about the harbor ranges from \$5 to \$11, according to distance. The freight tariff from the great grain-distributing point of the West, Milwaukee or Chicago varies with the season, the style of carriage, the degree of competition between the railways, or between water and rail carriage. In the winter, when the lakes, the Erie canal, and the Hudson river are closed, the rate rises as high as 25 cents a bushel. On the opening of the water routes the rates fall, dropping at midsummer as low as 8 or 9 cents by rail and 6 cents by water. The average rate by water during 1878 was 71 cents; by all rail routes, 12 cents. As an important link in the water route, the Erie canal is of infinite importance. The existing railways alone would be incompetent to do the carrying required at the time required (assum-

by having the monopoly, their rates would not only be made higher than now obtains, but possibly so high as either to destroy the possibility of our competing the price with Russian wheat in Liverpool, or to make competition possible only at the sacrifice of all profit to our wheat-growers. It is worth noting in this connection that during the present year average cost of transporting wheat from northern Minnesota to New York-26 cents a bushel-is less than was the cost of the carriage of wheat by lake and canal from Chicago twelve years ago.

#### IMPORTANT NOTICE.

TO THE PARTY RECEIVING THIS PAPER WHO IS NOT ALREADY A PAID SUBSCRIBER.

We hereby extend to you a cordial invitation to become a subscriber to the UNITED STATES MILLER. We shall endeavor to make it of the greatest possible use and benefit to the milling fraternity, and no mill should be without it. The best talent that we can obtain in this and other countries will contribute to its columns, which will also be enriched by carefully translated articles on subjects of interest to the craft. Subscription price, \$1. Enclose money or stamps in an envelope, seal carefully, and send at our risk. By return mail you will receive a receipt therefor. Address

THE UNITED STATES MILLER,

Milwaukee, Wis.

Christian Bros. & Co. have ordered 80 pairs of rolls of Edward P. Allis & Co.

#### Situations Wanted, etc.

Millers, Engineers, Mechanics, etc., wanting situations, or mill-owners or manufacturers wanting employes, can have their cards inserted under this head for 50 cents per insertion, cash with order.

SITUATION WANTED—The advertiser wishes an engagement as Book-keeper in a mill or any other manufacturing business in any part of the country, is a thorough and practical Book-keeper and can be well recommended. Address O. P., United States Miller Office, Milwaukee, Wis.

WANTED—A situation by a miller of 18 years' experience, understands thoroughly both merchant and custom work—either old or new process; am industrious, honest and temperate; have a family. A place likely to be permanent preferred; do not like to be changing. Address, stating terms, C. C. ARNULD. Jefferson, Jefferson Co.. Wis.

TO MILLWRIGHTS — Wanted a situation at Millwrighting. I understand a part of it. Wages no object. I have three inventions, and am working at two more, all connected with the milling business. To the man that will take hold of me and give me work for one year I will give him an interest in my inventions. Address JOHN W. PERTER, Belleville, St. Clair Co., Ill. In care of M. F. Seifert.

SITUATION WANTED—In either a merchant or custom mill; have had eight years experience in the business and guarantee satisfaction in all branches of the business; am a single man; willing to go anywhere. Good references given if desired. Parties answering this advertisement please state terms All letters answered promptly. Address MILLER, Runch's Gap, Clinton county, Penn.

TO MILL-O WNERS—Situation wanted by an experienced Miller to take charge of a mill or stone dress-dressing in a new process mill. Have worked the new process since the beginning of manufacturing patent flour in this country, making from 20 to 68 per cent of patent flour. Reference furnished from the best of Milwaukee mill-owners if necessary. Any one in want of my services please address No. 221, Grand Avenue, third floor, Milwaukee, Wis.

SITUATION WANTED—In new process mill; have had valuable experience both in building new and remodeling old mills on the system of high grinding. I desire to make an engagement with parties about to build new mills or change old ones, and will guarantee satisfaction. Am a practical Miller, and can take the place of a millwright in every detail and have a number of improvements in connection with high grinding not generally in use. Have a good knowledge of all the latest milling machinery, and believe I can make myself profitable to any mill owner on the new process. Wages an after consideration. Correspondence solicited. Address H. B. SHEARS, North Lake, Wis. autf

#### For Sale or Exchange.

Advertisements under this head \$2 per insertion,

FOR SALE—A new Steam Merchant Mill, with 4 and 3 feet burrs. Everything in good running order, so as to make the best flour. Will sell below cost price. Enquire of H. EULER, Desota, Jefferson Co., Wis. oc

FOR SALE—At a ruinous price—My Water Power Grist Mill. On investigation their mill will be found to be the cheapest property ever offered. For particulars address L. K. VAUGHAN, Farragut, Fremont Co.,

FOR SALE—At a great sacrifice—One of the best 4-run New Process Flouring Mills in Illinois; 4 stories, brick and stone; slate roof, brick smoke stack. Been running 18 months; everything is new, complete and in excellent order. Has side track, cooper shop, wagon and stock yards, and an inexhaustable fresh water pond. Wood is delivered at \$1.25, and the best coal at 8 cents and less. Fuel costs only \$2 per day of 24 hours. Have fine trade and custom. Give 35 pounds of flour and 10 pounds of bran for 60 pounds of wheat. Vast quantity of No. 1 winter wheat are raised here. I am 65 years of age and know nothing about milling, so will sell to responsible party on decidedly easy terms. No others need apply. Title is perfect. Call or address of C.H.HEARD, McLeansboro, Ill.

FOR SALE OR RENT—A two-run mill at one of the best points and wheat sections in Southern Illinois, with good railroad facilities for shipping to all markets. Mill new and in good running order, will self or lesse on reasonable terms. Address P. O. Box 204, Mt. Vernon, Illinois.

GRIST MILL FOR SALE AT A SACRIFICE—Merchant and custom mill, situated in Belvidere, county seat of Boone county, Illinois. The mill has four run of French burrs, and all the machinery is of best class; driven by a never-failing stream of water (Kishwake river). Mills of this class are seldom offered for sale, but the proprietor is very aged, and wishes to retire. Would sell for one-third cash down, balance on suitable terms, or would sell one-half of mill property. A person with means would do well to investigate immediately. For further particulars apply to the owner or address Box 544, Belvidere, Illinois.

JAMES B. MARTYN.

FOR SALE—A one-half interest in a Grist Mill. Size, 25 x 35 feet; wing, 12 x 20. Mill is two and a half stories high. Two run of burrs; size, 3 and 4 feet. Two new Leffel wheels. Fifteen feet head in a never failing stream. Ten acres of land, a house, barns and mill sheds. School and church near by. Is located on a main road, and within 2 miles of a city of 8,000 inhabitants. Mill is in good repair and doing a fine business. Object in selling is, I am blind and want a good steady man to take entire charge of the mill. Price \$2,700, with \$1,000 down. Possession given in 60 days from time of sale. Address with stamp, Box 1462, Battle Creek, Mich.

FOR SALE, AT PUBLIC AUCTION—Valuble property, houses, and lots and salt stores. I will Saturday, October 11th, the FOR SALE, AT PUBLIC AUCTION—Valuable property, houses, and lots and salt stores. I will offer at public aucton on Saturday, October 11th, the Enterprise Steam Mill, situated in the village of Enterprise. half a mile from the river, and just out of the corporation af the city of Pomeroy. Coal in abundance; costs from 2½ to 3 cents per bushel delivered at furnace door. Parties desiring to purchase are invited to correspond with the Subscriber at Enterprise Mills, near Pomeroy, Meigs county, Ohio. Terms of sale 10 per cent of purchase, money in hand; balance in ten equal yearly payments, with six per cent interest.

August 12, 1879.

septf.

FOR SALE—At Chippewa Falls, Wis.—A great bargain. The flouring mill property formerly owned by H. S. Allen. The mill was destroyed by fire two years ago. This property consists of an excellent never-failing water-power, a good substantial dam, a very heavy stone foundation for a mill, two good turbine wheels, three village lots of land, etc. This property has just come into the possession of the undersigned by foreclosure, and they will sell it for the amount of the claim, which is much less than the value of the property, and will give a perfect title to the property. An investigation will satiffy any one that there is a bargain in this property. Address

MATTHEWS BROS., FURNITURE CO., Milwaukee, Wis.

TO MILL PURCHASERS—Reason for Wishing to Dispose—Too Much Business.—For Sale, a desirable grist and saw mill together, both doing a good business. In good location for increasing business as well as sufficient power and population to make and dispose of 100 barrels of flour per diem, (i. e. with few additions and improvements). Situated in the pleasant Chenango Valley, and known as "Robinson's Mills," midway between the wealthy villages of Oxford and Greene, in Chenango county. Can be purchased with the above a comfortable dwelling house with each business, if required. Also a few acres of land. Water at all times; three reaction wheels by Stratton. Two good, thick wheat or buckwheat and one run of feed stones; two good bolts, elevators, smutter, sheller, etc., and the circular saw apparatus, etc. Both mills, as well as the gear, are in good condition. The saw mill has earnde \$1,200 a year. This a good offer ror a reliable gentleman of means. Address,

B. A. N., care United States Miller,

FOR SALE—A splendid chance for a man to locate in the "Land of Flowers." A 25-horse power saw mill, with blacksmith shop and wheelwright shop attached, 3 log carts and 3 yoke oxen, a homestead covering 160 acres of land, a dwelling house located on a river, ten miles from where it empties into Charlotte harbor; plenty of water to lumber yard. This mill is situated in the thriving village of Fort Ogden, where all semi-tropical fruits are raised. Being down on the Gulf Coast we never have killing frost. Two churches and schools and good society are some of the inducements. I will sell one-half interest of the above so as to increase works. To any one wishing to come to Florida and wishing a business will do well to correspond with the undersigned. CHAS. B. PENDLETON, Fort Ogden, Manatee Co., Florida.

### AUSTRIAN GARTENLAUBE,"

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and industry'.

On receipt of a Post-office order, for only \$2.25, the "Australas Garrenlaube," will be sent postpaid for one year to the United States or Canada. Every merchant and technical man should advertise in the "Austrian Garrenlaube," as the small expense hereto will be richly repaid.

Newly patented inventions are promptly made known in Austria, Germany and Switzerland through this useful medium. Post-office order to be made payable to the Redaction of the "Austrian Gartenlaube," Vienna, (Austria).

### TO THE MILLING PUBLIC!

C. F. Miller, of Mansfield, Ohio, is eminently successful in planning, arranging and refurnishing flour mills to operate on the improved systems, and is prepared to furnish the best brands of Bolting Cloths, and best French Burr Mill Stones at importers' lowest prices, also the latest improved mill machines of all descriptions, including the Downton and Porcelain Rolls. And having given special attention for a number of years to the principles of bolting, and earnestly seeking to obtain the most perfect separation of the flour from the bran, his success is evidenced by the large number of mills, now running, which have been recenstructed so as to fully conform to his system, and all of which are turning out a very superior quality of flour. And we feel warranted in saying to all who contemplate building a new, or reconstructing old mills, and who do not wish to incur the risk of failure to obtain the best results, that it will be your interest to consult Mr. Miller before closing contract for your mill improvements.

IMPORTANT NOTICE TO MILLERS.—The Richmond Mill Works and Richmond Mill Furnishing Works are wholly removed to Indianapolis, Ind., with all the former patterns, tools, and machinery, and those of the firm who formerly built up and established the reputation of this house; therefore, to save delay or miscarriage, all letters intended for this concern should be addressed with care to Nordyke & Marmon Co., Indianapolis, Ind.

#### MILLERS. IMPORTANT TO

The principals of a Cork firm (Ireland), long established and largely connected, are desirous to treat with an extensive miller respectfully for supplies of Flour, Maize, Meal and Oaten-meal, for cash, Prompt communication or usual terms with bankers' guarantee. (including best terms) respectfully requested. Address

HUNTER & PERRY, 12 St. Patrick's Quay, Cork, Ireland.

Postage on letters to Ireland is 5 cents for each % ounce.

### Attention, Millers!

I have invented and secured by letters patent, a new

### Method of Staffing Mill-Stones!

No new staff required; it does its work perfectly; increases the capacity; makes more middlings; requires less stone dressing and less power to run the mill; will make mill-stones do as good work as can be done with rollers. Price for license to use my Patented Method, with full printed directions, \$5 per run, or if required to come personally a reasonable distance to explain it \$10 per run. I have also invented a

### Mill-Stone Bosom Staff,

Which will shape the bosom of the stone from the eye to the grinding surface, as it should be, price \$35. It is the most perfect Staff for this purpose ever invented; it will save much time and labor, and show conclusively when the stone is just right. All the persons named below are using my PATENTED METHOD OF STAFFING MILL-STONES, and many are also using my patented MILL-STONE BOSOM STAFF:

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Coman & Morrison, Fox Lake, Dodge Co., Wis.
F. Miller & Co., Watertown, Wis.
Orville Hathaway, Oconomowee, Waukesha Co., Wis.
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J. S. Dunham, Depere, Wis.
A. Fredenhagen, St. Charles, Ill.
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R. J. Haines, St. Charles, Ill.
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Purington, Beaumont & Co., Topsham, Me.
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T. S. Haphurst, Portland, Wis.
Wm. H. Porter, Marshall, Wis.
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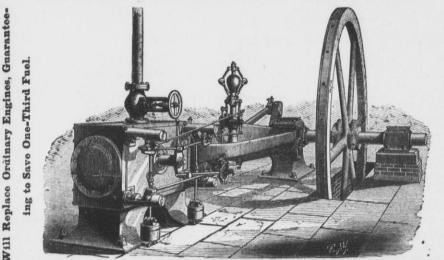
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ATLAS ENGINE WORKS, INDIANAPOLIS, INDIANA

BUILDERS OF ALL CLASSES OF

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We build The Best Farm Engines and Small Engines for Warehouses and Elevators.

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Offers the BEST and HARDEST in existence, of all sizes, in a rough state, mechanically fitted on their shafts, and ground ready to be laid in the Roller Mills.

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James Leffel's Improved

The "OLD RELIABLE" with Improvements, making it the Most Perfect Turbine now in Use, comprising the Largest and the Smallest Wheels, under both the Highest and Lowest Heeds used in this country. Our New Book for 1879 sent free to those using Water Power. Address

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MANUFACTURERS OF THE

#### AMERICAN TURBINE WATER WHEEL Best Quality French Burr Millstones.

Sole Agents in Dayton for the sale of DU FOUR & CO.'S CELEBRATED BOLT'NG CLOTHS Flour and Paper Mill Machinery, Best Chilled or Porcelain Rolls for Crushing Wheat or Middlings,

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The AMERICAN TURBINE, as recently improved, is unequalled in the power utilized from a given quantity of water, and is decidedly the BEST PART GATE Water Wheel It has also been otherwise greatly improved.

AT Large Illustrated Catalogue Sent Free on Application. TA

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ALL PARTICULARS AS TO THIS MACHINE CAN BE OBTAINED BY ADDRESSING

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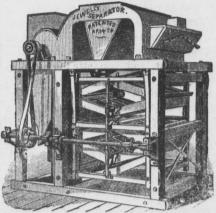
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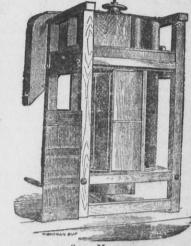
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RAKES'

C. RAKES, Lockport, N. Y.

### Northwestern Mill Bucket Manufactory

Is furnishing Mills and Eleva-tors in all portions of the Country with their super-ior BUCKETS.



PRICE LIST FOR 1879. Depth. Width. Price. o cents. 914 914 914 1014

Address all inquiries and orders to L. J. MUELLER, 197 Reed st., Milwaukee.

GRATIOT'S Improved Wheat Heater

Patented March 5, 1878.



The ONLY Heater made of HEAVY COPPER THROUGHOUT; and standing 175 ths Hydraulic Pressure. The ONLY Heater that EVENLY heats EACH and EVERY grain of wheat; and draws the moisture from the berry to the outside or bran; thereby THOROUGHLY TOUGHENING THE BRAN ON THE HARD-EST or DRIEST Spring or Winter Wheat.

Send for descriptive circular.

GRATIOT BROS., Platteville, Wis.

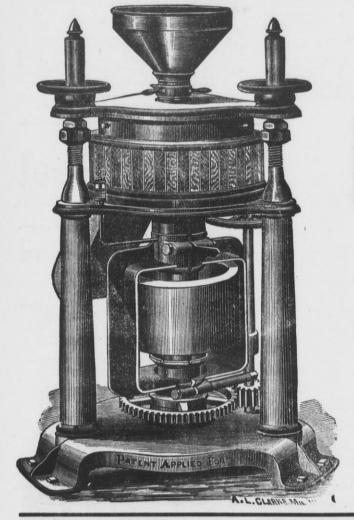
WELL-AUGER, cheapest and best in the world. Also nothing can best our SA WING MA-CHINE. It saws off a 2-foot log in 2 minutes. Pictorial books free. W. GILES, Chicago, Ill.

### CREAM CITY IRON WORKS.

## Milwaukee Middlings Mill-Stone Company,

MILWAUKEE, WISCONSIN,

AND SOLE MANUFACTURERS OF



## Jonathan Mills'

## Wheat and Middlings



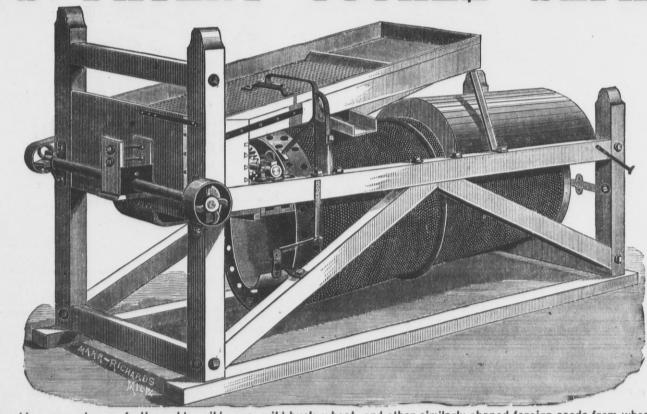
MOST PERFECT DEVICE ever INVENTED for REDUCING GRAIN to FLOUR.

REQUIRES LESS POWER, LESS ROOM, and LESS ATTENTION Than any other Mill Manufactured,

AND CAN BE SET ON ANY GOOD MILL FLOOR WITHOUT EXTRA FOUNDATION.

Send for Circular and Price List to the MILWAUKEE MIDDLINGS MILL-STONE CO., MILWAUKEE, WIS. Plans and Estimates furnished on application for complete Flouring Mills on our system.

COCKLE



The above illustrated machine separates perfectly cockle, wild peas, wild buck-wheat, and other similarly-shaped foreign seeds from wheat. Requires but little power to run it. We also manufacture an SEPARATOR,

Which is fully equal to any manufactured. This is made in two styles, and is in combination with Cockle Separator. One style has two suctions, one operating on grain as it enters the machine and the other as it leaves it, each being independent of the other and easily regulated. The other style has one suction, which may be either first or second. Among our references we respectfully call attention to the following:

MINNEAPOLIS, Minn., Jan. 9, 1879.—Cockle Separator Manufacturing Company—Gents: We have used your Cockle Separator for the past three years, to our entire satisfaction. We commend them to all in want of a perfect machine. Yours truly,

MINNEAPOLIS, Minn., Jan. 16, 1879.—Cockle Separator Manufacturing Co., Milwaukee—Gents: In answer to your favor, would say that we have in use four of your Cockle Machines, and find them to be the only machines that we have yet seen that will separate the cockle from the wheat. The improved machines give us no trouble in any way. We shall want two more machines soon, to replace those burned in our Anchor Mill. Yours, CHAS. A. PILLSBURY & CO.

MINNEAPOLIS, Minn., Jan. 9, 1879.—Cockle Separatof Manufacturing Co., Milwaukee: We are using two of Kurth's Patent Cockle Separators, and while they work somewhat to a disadvantage on the present crop, we know of nothing that will do the work as well. We consider them the best machine made. Yours truly, BULL & NEWTON.

Cockle Machines in operation, I have learned to appreciate their value, and trust that the fourth, ordered a day or two ago, will be shipped without delay. I want this in addition to the two machines I have already running on wheat, that I may be able to do absolutely perfect work, and cheerfully recommend them to those who aim at perfect work. On the other hand, I was free to admit, the other day, that your Separator is of no use to millers who argue that cockle makes good white flour, increases its bulk, and that therefore it is wasteful to take it out. Yours respectfully,

Oswego, N. Y., Jan. 29, 1879.—Cockle Separator Manufacturing Co., Milwaukee—Gents: We are pleased to say that our use of your machines for the last two years, has been highly satisfactory, and especially do we like the new double suction machine, which does its work so perfectly that we would not like to do without it. Indeed we deem the machines indispensable in good milling, particularly with spring wheat. Your friends,

PENFIELD, LYON & CO.

WHITEHALL, Wis., Dec. 11, 1878.—Cockle Separator Manufacturing Co., Milwaukee—Gentlemen: Allow us to say that the machine works to a charm, and that we calculate our flour is worth fifty cents more per barrel for the use of it. Respectfully yours,

WHITEHALL MILL CO.

AKRON O., Jan. 27, 1879.—Cockle Separator Manufacturing Co., Milwaukee-Gentlemen: Having three of your We make a machine especially for extracting Cockle and other similar Seeds from OATS and BARLEY, which is of great importance to out-meal manfacturers, malsters, etc.

Send for Illustrated Catalogues, describing machine fully with diameter, capacity, etc., to

COCKLE SEPARATOR MANUFACTURING CO.,

Cor. Clinton and Florida Sts., MILWAUKEE, WIS. U. S. A.

P. O. BOX 180.

GEO. R. GALE,

### HAYWARD MILL FURNISHING WORKS



IMPORTER AND DEALER IN

HENRY BODMER'S CELEBRATED Het Anker (Brand) Bolting Cloths.

THE BEST QUALITY OF FRENCH BURR MILL-STONES.

Office, No. 66 River Street,

CLEVELAND, O.

R. G. HANDLEY'S

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I wish to call the attention of Millers, Millwrights, Mill Furnishers, Contractors and others, to the quality of my Mill Picks made by me. I manufacture them of the very best

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A LIBERAL DISCOUNT TO THE TRADE. Always in stock a large quantity of various size Picks. P.S.—Prices sent free on application.

By Jas. McLean, of Glasgow, Scotland. A DESCRIPTIVE AND EXPLANATORY ACcount of the various grains, machinery, and processes used in grain mills. The first clear and successful explanation of said processes ever printed. It treats on and explains all the newest and most improved modes of manufacturing wheat, onts, barley and peas, introducing the three latter mainly with the views of illustrating the principles at work in the proper manufacture of the first. Such as the various modes of storing, cleaning and grinding wheat, and the effects on their proper working with the Baker, showing conditions which must be observed to make flour equal to Hungarian. The effects of the different styles of working mill-stones, rollers and disintegrators contrasted. Also the different modes of separation, including gold sifing, the revolving crank sifter, the shaker, the wire cylinder, the silk reel, the best mode of working the silk reel Vertical and horizontal air currents, the effects of air currents contrasted with sifting. Altogether explaning clearly well defind principles which govern proper grinding and dressing, where too often all is doubt and uncertainty. And although extensively circulated in Britain the last 12 months, none has yet ventured in print, to controvert its solution of the most difficult problems in the milling business. And being the production of a miller who has been over much of the United States, it can be easily understood by American millers. Price sixty cents, sent postpaid. Address all orders to E. Harrison Cawker. Editor of The United States, who is sole agent for American

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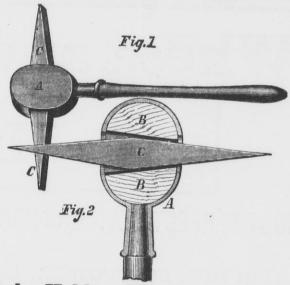
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A MONTH guaranteed. \$12 a day at home made by the industrious. Capital not required; we will start you. Men, women, boys and girls make money faster at work for us than at anything else. The work is light and pleasant, and such as anyone can go right at. Those who are wise who see this notice will send us their address at once and see for themselves. Costly outfit and terms free. Now is the time. Those already at work are laying up large sums of money. Address, sep TRUE & CO., Augusta, Maine.

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The Only Holder Worthy of the Name.

The Pick can be adjusted at will to strike the Stone at any desired angle. Wehave constantly on nand a large assortment of our celebrated

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AT PRICES TO SUIT THE TIMES.

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For Truing the Face and Furrows of Millstones, Cutting down high Spots, and restoring the Burrs to their natural grit, it is far superior to EMERY, CORUNDUM, or any other material that has yet been used for this purpose. It is the only Tool used with Water. Cuts faster, lasts longer, and will remove the glaze in one-half the time it takes with other Hand Tools. Too large to send by mail. Price, \$3.50.

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Messrs. Teter & Allen, Philada., Pa.—We gave your superior to the Corundum Tool, cuts much faster and leaves a smoother surface, and still preserves the natural grit of the stone. Respectfully, HoWell & SON.

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Warranted the best in the world. The only Reel that will dust Middlings perfectly.

BOLTING CHESTS of any capacity at prices to suit the times

DUFOUR & CO.'S BOLTING CLOTH.

Superior Wheat Scouring and Brush Machines. General Mill Furnishings.

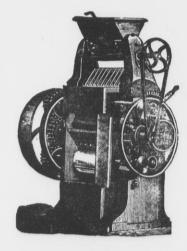
ings. CHARLES B. SLATER & CO., Blanchester, Ohio.



MIXERS FOR FERTILIZERS AND CHEMICALS.

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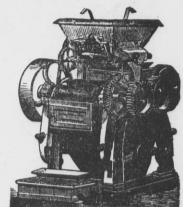
PARIS EXHIBITION, 1878, Awarded 2 Gold Medals and 1 Silver Medal.



## GANZ & CO.'S

# Iron Foundry and Manufacturing Association,

Buda-Pesth, Hungary, or Ratibor, Germany.



We take this method of recommending to the American milling public our PATENT ROLLER MILLS with childed cast iron rollers, for crushing and grinding wheat, which have met with such eminent success in Europe. The mill-owners of Buda-Pesth, as well as the prominent millers of Austro-Hungary, and a large number in Southern Germany, Switzerland and England, have provided for their mills the wanting no repairs excepting to occasionally replace a bearing. We have introduced into the art of milling these Roller Mills with childed cast iron rollers, and from 1874 to January, 1879, we have delivered in the modern mill, and this is proven by the numerous testimonials at hand. Our grinding mills are remarkable for their absolute discharge bearings, by means of the newly-devised Anti-Friction Pressure Rings. These

Buda-Pesth, March 28, 1878.—To Messrs. Ganz & Co., Foundry and Engineering Co., Limited, Buda-Pesth: Complying with your request to communicate to you my experience with your Roller material, I have pleasure in stating that I consider it, i. e., your generally well-famed chilled iron, as the best within my experience, and its stating that I consider it, i. e., your generally well-famed chilled iron, as the best within my experience, and its have rendered a considerable service to the milling art. Your material is equally well adapted for rough grinding, your softening or grinding. Owing to its great hardness I cannot characterize it otherwise than indestructible. The astonishes all who know the rapid wear of cutting edges used in the treatment of grain. Your smooth rollers, once now cannot be estimated. They acquire, soon after being put to work, a finely-gritted surface texture, eminently quite superfluous to prove that there can be absolutely no question of discoloring unless with reference to new rollers, to which some remnants of oil, emery or other matter may yet adhere. The flour produced by your Chilled-Iron answer to your inquiry, I seize with pleasure this opportunity to express to you my thorough approbation, not only chilled-iron roller mills constitutes such an essential step in advance as compared to the rough grinding (eracking) with that they cannot fail to win their way into every well-built mill, working on the high or half-high grinding system. For the purposes of reduction to four you have lately erected a form of mill which I consider extraordinarily spring Pressure Ring, solved the problem of discharged bearings, which has so often been raised and as often simple and practical. This Roller Mill absorbs, in fact, only just the power required for the reduction in four, an agreeable and light form while attaining a capacity hitherto unknown. In handing you the above communications for use as you may deem desirable, I remain, etc.,

(signed) C. HAGGENMACHER, Director of the First Ofen-Pesth Steam Mills.

Tivoli Kunstmurhle, Munich, April 5, 1878.—To Messrs. Ganz & Co., Engineers, Buda-Pesth—Dear Sirs: In reply to your esteemed of March 28, we have pleasure in testifying to our satisfaction with the Chilled-Iron Rollers Address all communications to

supplied to us by you. We have now had both smooth and fluted Rollers in use for the last two years, and have not found any appreciable wear in the smooth Rollers. With reference to the work and capacity we can but report favorably. The Flour produced by them is lively, and not killed as has been stated in some quarters, while its baking properties are first rate. Referring to the lately supplied fluted Rollers, Mechwart's Patent, grooved on the Roller material is as tough as it is hard, and therefore in every way adapted for the purpose it is intended. We remain,

BUDA-PESTH, July 16, 1877.—Messrs. Ganz & Co., Buda-Pesth—Gentlemen: The most satisfactory results which, on testing the different Wheat-breaking Machines, we obtained from your Fluted Rollers, induced us to adopt your system and, in consequence, we already provided our mill with a great number of your Breaking-Rollers. In consideration of the experience derived from use of these Rollers we beg to point out as particular directed, that your Rheat-breaking System that extremely little flour is produced, provided the rollers are used as Particles, and finally that they are of an astonishing durability, and that it requires no skilled labor to manage use so much more pleasure to give you the above account, as we are inclined to think that by the construction of these Rollers you have achieved an essential progress in the milling industry. Yours truly,

PESTER WALZMUEHL-GESELLSCHAFT. Riedle, m. p. Burchart, m. p.

Buda-Pesth, July II, 1878.—Messrs. Ganz & Co., Engineers, Buda-Pesth—Dear Sirs: Having had occasion to try your newly patented Roller mills with others, known until now, I feel induced, regarding their excellent qualities, to give orders for furnishing me the Roller mills to be erected in my two mills. These Roller mills are to be recommended by their construction, surpassing all known until now, and especially for their remarkable capacity doing much work with little power. Believe us, gentlemen, Yours truly, HEINR. HAGGENMACHER.

Branders A. Adler, Bohemia, February 13, 1879.—Messrs. Ganz & Co., Buda-Pesth—Gents: I give you my best thanks for your delivering to me your well-made and well-working machines, as well as for those 2 machines you delivered me last year. I have no objection to your publishing this. Yours faithfully, G. HANNAK, Civil Engineer and Mill-owner.

GANZ & CO., Buda-Pesth, Hungary,

Cable Address "GANZ, Kaiserbad."

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