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THE DOMINION MECHANICAL & MILLING NEWS.

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IMPROVED WHEEL AND AXLE.

THE accompanying illustrations represent an improved patent wheel and axle which is about to be introduced in Canada by Mr. W. H. Banfield, of Toronto, who has obtained the agency for Canada from the owners of the patent in the United States.

Fig. 1 shows the combination of wheel and axle. The explanation of Fig. 2 is as follows: *B* is the square bed of axle, conforming in shape and size to the common axle. *A* is the neck, its diameter equal to the cornerwise thickness of the bed. *O* is the arm or bearing, its diameter being considerably greater than the neck. *C* is collar or sand band, of malleable iron, forced upon the neck. Entering between back end of hub and box, as shown, it helps to form the annular recesses *M* and *N* to fill with spent grease and exclude sand, grit, etc. *D* is axle box of best quality grey iron. It is without taper inside and outside and is forced into the malleable iron hub. This box has a flange *e* cast solid inside near its front end and the leather washers *f* and *g* on either side cushion the end of the axle arm and the flange *d* of the nut in either direction. *H* is axle nut of malleable iron, hollow as shown, and screwed into the hollow end of axle arm. *I* is malleable iron cap screwing on end of box, preventing loss of axle nut or escape

WHY INDEED!

London Miller: "A friend writes us to say that on a recent visit to a mill at Toronto, he was asked by the principal, 'Why do not English millers start elevators in the Northwest?' To this question our friend, who

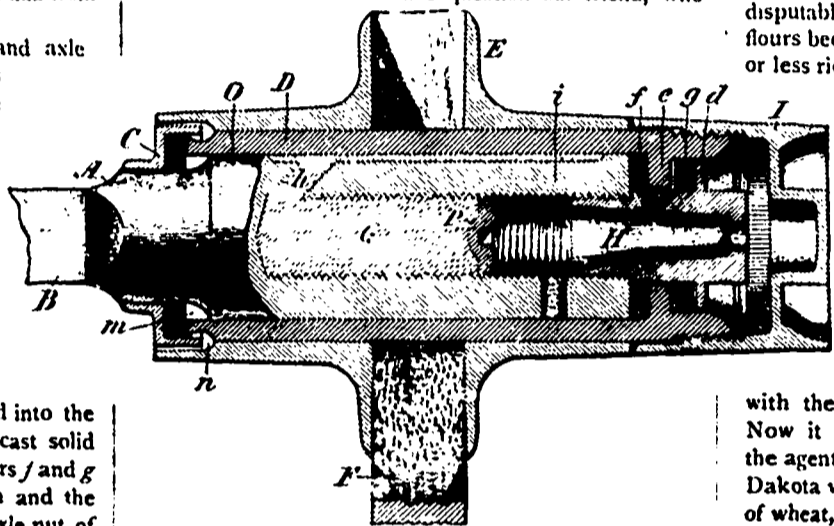


FIG. 2.

is himself an Englishman, replied, 'Because they are so slow.' We are afraid that, in this case at any rate, the

one makes any difficulty in recognizing. It is admitted by all that the millers of Minneapolis and of the Northwestern states generally, send flour to British markets which is in high favor among our bakers because of its strength and general baking qualities. It is equally indisputable that our American competitors produce these flours because they are able to command wheats more or less rich in a good quantity of gluten. These two propositions granted, there remains a third, of which many people lose sight, and that is this: The Northwestern millers purchase these excellent wheats on very favorable terms, because at present they practically form the Northwestern farmer's only market. That simple fact, in our opinion, constitutes the keystone of their fabric. Raise the price of their raw material, and they will inevitably be compelled to raise the price of their finished product. In other words, their margin for competition with the British miller will be narrowed by so much. Now it is certain that one result of the appearance of the agents of a British syndicate among the farmers of Dakota would be a raising of the values of the better sorts of wheat, and that upward movement in grain would before long have its necessary and natural effect in the shape of a rise in the better grades of Minneapolis flour. The outlay that would be incurred in forming a syndicate

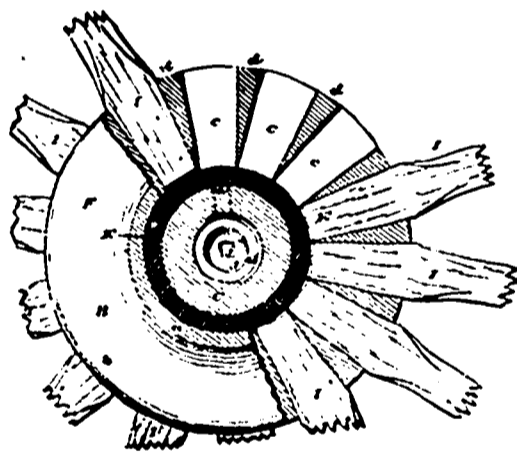


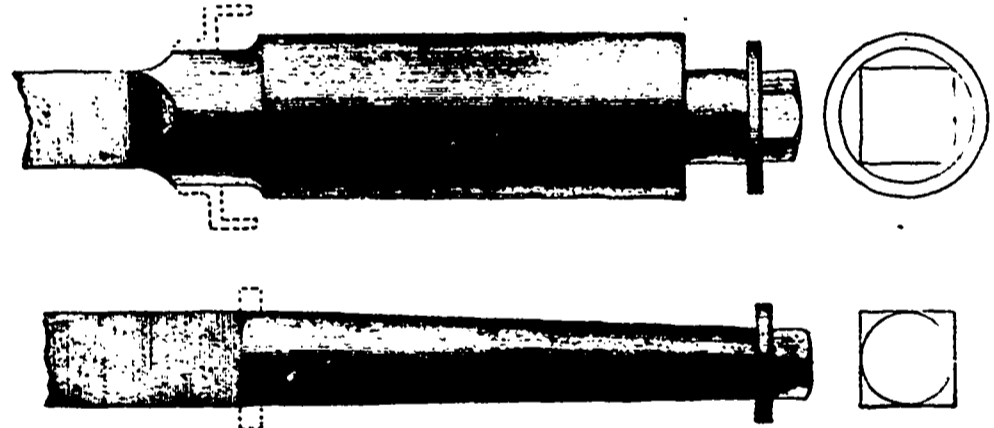
FIG. 5.

of lubricant and excluding all dirt or grit. *G* is supply of grease filling hollow of arm. By removing cap *I*, insert key through *j* in the nut into socket in piston *P*, and turning forward the grease is expelled through *h* and along groove in top of arm to the bearing.

Figs. 3 and 4 are designed to accurately represent and show the relative size and strength of this and the common axle. The makers claim for this axle that it contains double the metal and consequently more than double the strength of the common style, and being made without a square-cut shoulder, will never crystallize or break. Again, in the construction of these axles a better large enough for the arm is used, the neck and bed being forged out, thus giving hammered stock throughout, which is much stronger than the rolled bar used in ordinary axles.

Fig. 5 shows a cross section of the hub, and exhibits the spoke mortises and spoke tenons in position. For all sizes the taper or wedge of spoke tenons is the same—1 in 8.

Any further particulars concerning this device may be obtained from Mr. Banfield, the Canadian agent, 80 Wellington Street West, this city.



FIGS. 3 AND 4.

charge of slowness against the British millers is only too well founded. The advantages of organizing syndicates financially strong enough to purchase on the spot the best wheats grown either in the northwestern regions of the United States, or in Manitoba and the adjacent states of Canada, has been again and again pointed out

and dispatching a trustworthy agent to the Western States of America (armed of course with power to appoint sub-agents where he thought fit and proper) would not be very great, and it might well repay those who took it on their shoulders, even though nothing further was effected than such a raising of flour values. But properly conducted, such an enterprise would effect much more than this. Here in Great Britain, which is in truth the port of the world, we can command many excellent kinds of grain, but unfortunately we do not always get enough of those strong glutinous wheats which have built up the great mills of Budapest and Minneapolis. From the western regions of the United States and of the Dominion of Canada we can procure a practically unlimited stock of sound strong grain, and it will be strange indeed if a short time hence the same question is asked which stands at the heading of this note.

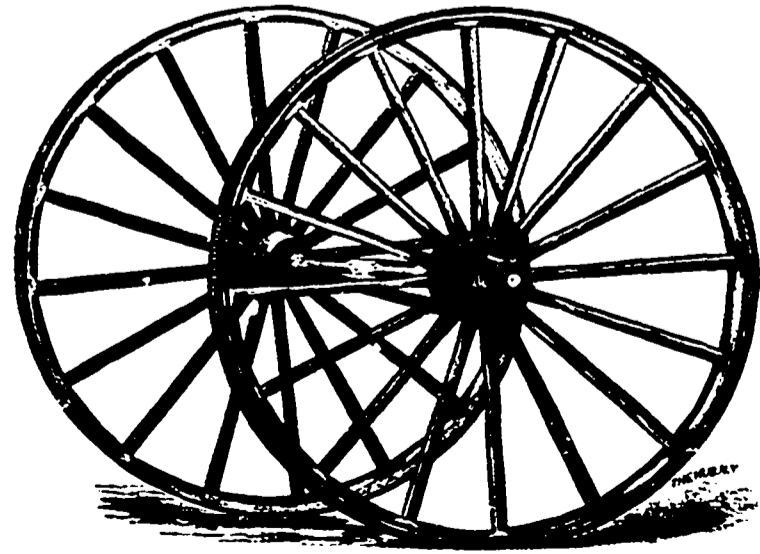


FIG. 1.

in the pages of *The Miller*, but this subject is, at this crisis in British milling, of such moment that no apology is needed for treating it once again. There is one factor in the problem of American competition which no

The *Lindsay Post* says: On Thursday last the east ward numbered among its citizens doing business three very excited, heated and angry men. Two grain buyers got into an altercation. Presently the affair assumed the dimensions of a fight. Subsequently it reached the proportions of a positive riot. Two grain buyers were more or less shook up, and a third party—who incautiously extended the olive branch of peace over the combatants—had the olive branch thrust aside and his features somewhat obliterated. The general public are now convinced that solid competition exists at Lindsay in the grain-buying business. The finishing touches are being put to McLaren's new elevator at Brandon, Man.

Messrs. Martin & Sons are making alterations in their mill at Mount Forest, with the view of going into the manufacture of pot barley. The barley mill is designed to have a capacity of 12 barrels per day. Messrs. Martin & Sons are an enterprising firm, and have done much for the town in which they are located.



THE MILLER'S MAID.

Dauntless, ever tickle jade,
Squandered treasure on the maid
Of the mill;
Gave her eyes of such rare blue
That her soul kept peeping through
The mill's mill;
On his handsome chestnut-brown
Sat the hair of half the town,
Reining in his horse enchanted with the vision on the mill;
Fresh from college halls was he,
Fell in love with her, let me see—
But the story's told much sweeter by the maiden of the mill!

But he knew not what to say,
So he asked of me the way
To the mill;
It was just to make me speak,
For it stood there by the creek
N' Ath, the hill!
It is difficult to frown.
On such loving eyes and brown,
So I raked my arm and pointed just a moment down the hill;
All he did was stand and stare,
At my white arms, plump and bare,
Till I had to doubt this handsome fellow's business at the mill!

Since you have no grist to grind,
Why so anxious, sir, to find
Father's mill?
But the mill you'll never see
While you stand and gaze at me—
Think you will?
Then I thought I heard him say
As he threw a kiss this way,
The building at the bottom of the hill!
But I threw his kisses back
While I bade him get a sack
And take his many kisses to be ground up at the mill!

Now he brings a grist each day,
Which he never takes away
By the mill;
When I ask the reason why
He will smile and make reply:
"When you will!"
That plain as plain can be
By a grist he's meaning me.
For my heart's ground up finer than the corn within the mill.
And he says he'll share
For the gold that's in my hair!

Will you marry? Well, I'm human, and I rather think I will!

—P. F. Brooks in San Francisco News Letter.

The Ottawa Mills were destroyed by fire last month.
The new mill at Portage la Prairie is in operation.
Mr. Darnley has purchased the Gladstone, Man., flouring mill.
Mr. Robt. Nelson will build a grain warehouse at Salsgird, Man.
The exports of wheat from Russia this season had fair to be large.
Mr. J. C. Vanstone is making extensive improvements to his mill at Portage la Prairie, Ont.
Messrs. J. & A. Vanstone's large new elevator at Ixalen, Ont., is already full of grain.
James Davidson, of Wallaceburg, Ont., has purchased the grist mill at Wilkes, Ont.
Mr. J. F. Ryan reported to have sold his mill at Belfountain, Ont., to Mr. Williams.
The Regina S. W. T. Milling Company's mill recommenced operation a few days ago.
A new course was put in position last month to operate McKay Bros. elevator at Weyburn, Ont.
Ogilvie's elevator at Portage la Prairie has taken in upwards of 300,000 bushels of grain this season.
R. M. Hubbard, of Orillia, has succeeded Messrs. Goodfellow & Houston in the Wroxeter, Ont., mill.
Mr. Mitchell is putting up a new grist mill at Duck Lake, the scene of the memorable battle in the Northwest.
Mr. Hugh Workman, of Lindsay, has built an oatmeal mill about a mile from the village of Minden, Ont.
The new Buffalo elevators have made a substantial reduction in the cost of grain for the province.
The capacity of the Ottawa elevator at Beaman has been increased to 1,000,000 bushels.
Mr. A. W. Wainwright, miller, will shortly commence the erection of a 250,000 bushel elevator at Dominion City, Man.
The platform of the Progressive Labor party has been adopted by the Millers and Millwrights' Union of New York.
Mr. Thomas Stokes has re-purchased the flour mill at Pefferlaw, Ont., and it is said intends to fit it up with modern machinery.
The farmers' elevator at Portage la Prairie, Man., is completed and in operation under the management of Mr. H. S. Paterson.
The C. P. R. Company is talking of erecting a grain elevator at Innesburg station and otherwise improving the shipping facilities.
Mr. Baldwin, proprietor of the Aurora flouring mills, has been asked to furnish motive power to light factories and other places in the town with electricity.
The C. P. R. Company will shortly build a new elevator with a capacity of 1,000,000 bushels and additional docks and warehouses at Owen Sound, Ont.

Wheat buyers and elevator men are having a lively time in Manitoba at present owing to the rapid delivery of grain.
The Crystal City, Man., flour mill has been purchased by Mr. David Manson, of Portage la Prairie, who has put it in operation again.
The mill to be erected by the Indian department for the Whitefish Lake Indians in the far Northwest, will not be proceeded with this fall.
There will be about 350,000 bushels of wheat sold at Emerson this season, of which the Canadian Pacific Railroad will undoubtedly get half.
The first shipment of Manitoba flour to China is said to have been favorably received. This is probably the beginning of an extensive trade.
The engine in Robson & Valen's mill at Valens, Ont., broke down a few days ago, and the proprietors contemplate replacing it by a new one.
Mr. John Robson has put a new Osborne-Killey engine into his mill at Brooklin, Ont. During a portion of the year the water power is insufficient.
The Rockton, Ont., stone grist mill has been obliged to cease operations, owing, it is alleged, to the preference of the farmers for roller process flour.
A farmer at Rapid City, Man., is said to have been offered from 50 cents to one dollar per bushel for his crop of wheat delivered at the town of Perth, Ont.
There is talk of holding an exhibition of grain and roots at Winnipeg in November, and offering prizes to the amount of \$2,000 for best samples.
The Ogilvie Milling Co., of Winnipeg, are about to ship a second consignment of flour to the East. The present shipment is destined for Hong Kong.
The Rockton flour mills were offered for sale by auction last month, but the bids did not reach the upset price, consequently the mills were not sold.
The management of the new Kewatin mill intend to manufacture their own barrels. To this end a shop capable of turning out 500 barrels daily will be put up.
The schooner Jesse Search, of Toronto, bound from Chicago to Owen Sound with 23,000 bushels of corn, a few days ago sunk at anchor in Portage Harbor, Mich.
A Millers' National Association has just been formed in France. A Millers' National Association might be a good thing in Canada if properly organized and managed.
Manitoba needs more grain elevators. The present elevator capacity is only 1,000,000 bushels, while the grain to be handled amounts to about 10,000,000 bushels.
The old Lawrie flour mills at Port Dalhousie, Ont., have recently been purchased by Messrs. Wood and Green, who are having them re-fitted prior to starting them in operation again.
The flour mills of the Manitoba Milling & Brewing Co., at Carberry, Man., are reported to be running steadily day and night, grinding about 800 bushels of wheat every 24 hours.
A spur line of railway is to be built in connection with the large flour mill at Blenheim, Ont. The owners supply the right of way and the ties, and the railway company supply and lay the rails.
The foundation of the new mill at McGregor in the northwest has been completed, and work on the building is progressing rapidly. The mill is expected to be ready for operation in December.
There is a partnership open for a man with \$5,000 to \$10,000 capital in one of the largest and best paying mills in Ontario. Any one interested in knowing more about it, may learn particulars at this office.
Mr. Benjamin Summerfeldt has rented Ramsden's mill at Mount Albert, Ont. The name of Summerfeldt is well known in connection with the milling business in that locality, and should be a factor leading to success.
Here is a hint for Canadian millers. W. A. Thoms, of Albyn, writes the *British Baker, Confectioner, and Pastrycook*, that "Next to Canada, Minneapolis sends out the dampest flour. I know of from the American Continent."
It is reported that Capt. McMillan, of Winnipeg, will commence the construction of a large elevator in West Lynne, Man., and finish it this season if the construction of the Red River Valley railway becomes an actuality.
Mr. Armstrong, proprietor of the new flouring mill at Janetville, Ont., has rented the mills to Mr. Waddell, who is said to have a large experience in handling roller mills, and will, it is expected, give the Janetville mills a first-class reputation.
Three hundred men are engaged in the erection of the large mill, elevator, etc. at Kewatin. The mason work is about finished on the mill, and is already completed on the elevator. Considerable progress has been made with the excavation of the mill race.
The Prince Albert Milling Co. has been organized at Prince Albert, N. W. T. The capital stock of the company amounts to \$12,000, in 504 shares of \$25 each. Half the stock has been taken, and the intention is to erect a mill in that locality.
The Millers' and Bakers' International Exhibition at Milan, Italy, occupies a space of about 20 acres, of which six are built over, the remainder being laid out in gardens. The exhibition is considered a financial success.
A correspondent writing from Brownhill, Ont., says Mr. M. Knight is pushing forward the building of his new factory as fast as possible. The factory and engine room will be 30x90 feet of solid stone, with an iron roof. The new mill will be nearly the same size.
It is understood that the new joint stock company of oatmeal millers, with the view of limiting production and endeavoring to put the manufacture of oatmeal on a fairly profitable basis, have leased a number of oatmeal mills throughout the country and will close them up, hoping to realize enough from the increased profits to pay the rent of these mills and allow a fair margin of profit.

The work of changing McCabe's mill at Port Hope to the roller process has been commenced. The old machinery has been taken out, and an additional storey is being placed on the building. Modern machinery will be put in as soon as the building can be got ready for it.
The Federal and Merchants' Banks, which are financially interested in the unfinished grist mill at Birle, Man., have offered to sell it to the town so that it may be offered as a bonus to any one willing to fit it up with roller process machinery. The town will act on the proposal.
The exports of American breadstuffs to Great Britain, since the beginning of the present year have more than doubled those of last year, and comprise 73 per cent. of all the wheat and flour imported into the United Kingdom. Prussian and Indian wheat exports have fallen off.
Indignation meetings have been held at Orangeville by the farmers of that locality to protest against the action of the grain buyers in bringing to bear the standard weight test. The discontented farmers are taking their grain to Shelburne, where the test has not yet been adopted.
The C. P. R. Company are reported to have made a reduction of 5 cents per 100 pounds in rates on wheat shipped from any point on their lines to Montreal. The Manitoba and Northwestern road has made a similar reduction. In consequence of these reductions it is believed wheat prices will go up.
Letters patent have been issued incorporating H. V. Sutton Moore, of Norwich, County Oxford; James Muirhead, of London; Thomas Martin, of Mount Forest; Edwin J. Tillson, of Tilsonburg; James Douglas Moore, of St. Marys; and others, as the Canada Oatmeal Company, limited, with a capital of \$30,000.
Mr. McGowan has been granted a bonus of \$3,000 by the ratepayers of the village of Durham, Ont., to assist him in erecting a new roller flour mill at that place. The mill will be a four storey brick building, and will have a capacity of not less than 75 barrels per day. Work on the mill will be commenced immediately.
The milling industry in Italy employs about 17,000 horse power, of which only about 15,000 would be water power, and about 70,000 hands are engaged in it. Up to 1883 about 600 pairs of rolling cylinders were in use, but since then a great addition has been made to them. The small mills are gradually disappearing.
Mr. F. Holland, who has been in the milling business at Mitchell, Ont., for something like a quarter of a century, has removed to Ingersoll, Ont., where he has rented a mill. Much regret is expressed at his departure from Mitchell, the citizens of which place have nothing but the kindest wishes for his future prosperity.
The W. J. Cochrane Roller Mill Supply Company has been incorporated with a capital of \$150,000. The incorporators are W. J. Cochrane, of Washington, D. C.; Joseph Simpson, Charles Riordan and H. H. Fuller, of Toronto, and J. W. Nesbitt, of Hamilton. The headquarters of the company will be in Hamilton.
It has been asserted and denied that the Canadian Pacific Railway Company have not sufficient facilities for moving the grain of the Northwest as rapidly as it is marketed. The Canadian Pacific Company are turning out five freight cars daily from the car works at Perth to supply the demand for cars on the western division of the road for moving grain from the west.
The Chicago Board of Underwriters recently fixed the insurance rate on grain cargoes for Montreal at \$1.50 while the rate to Buffalo was placed at only 70 cents. This unfair discrimination has led the management of the merchants' line of Canadian passenger propellers to withdraw from the Chicago and Montreal route, and employ their boats during the balance of the season in carrying wheat from Duluth to Canadian ports.
In a memorandum relating to competition between American and Indian wheat, Mr. Smeaton, director of agriculture for Northwest India, says if it were not for burdensome freight charges, India could force America to pull down her tariff wall and admit the products of British industry. Mr. Smeaton will find few people to concur in his opinion that Indian wheat is the equal of American wheat in quality. If it were, there would be no talk of syndicates being formed in England to purchase Manitoba hard wheat.
It is estimated that wheat shipped from Atlantic ports to England absorbs 1.67 per cent. in moisture during the voyage, from Pacific ports 2 per cent., from Australian ports 2 per cent., and Hungarian flour 1.67 per cent. Indian and Persian wheats are estimated to absorb about 2 per cent. The average normal extent of moisture in Australian, Californian and Chilean wheats is 9 to 9 1/2 per cent., and of American spring and winter wheats 10 per cent.
Our Montreal contemporary, the *Journal of Commerce*, points out the great danger of destruction by fire to which grain warehouses are subject, most of them being placed close beside the railway tracks and constantly within reach of the sparks of passing locomotives, and suggests as a means of protection, the saturating of the outside of such buildings with a wash composed of one bushel of quick lime and one peck of salt reduced by water to the consistency of milk, and applied say every spring and fall.
Says the *Dundas Banner*, "The *Banner* heard a good suggestion about what would be good for business in Dundas, the other evening. It was that a large well equipped roller flour and grist mill would bring more farmers and more trade to the town, and be worth more good hard money to merchants than the industry the town is losing. It was also hinted that it was not very improbable that before long the Wentworth Mills would be fitted up to fill the bill in this particular. We hope so, and the sooner the better."
The *Milling World*, of Buffalo, says Canadian millers are beginning to look at the Commercial Union question in the true light. They have only to look at the vast exports of breadstuffs from the United States to be convinced that the States can offer no considerable market for the breadstuffs of any other country. If the Canadian wheat were far better and far cheaper than that grown in the States, the Canadians might hope to push some of it into the States markets under free trade. As it is neither cheaper

nor better, it is problematic whether any degree of free trade with the States would help the Canadian grain growers or millers.

Holmes' mill at Chatham is now running on the roller system.

The Rockton grist mill has been rented by H. Wright and W. Moss.

Messrs. J. D. Sibbald & Co. are erecting a grain elevator at Regina, N. W. T.

Mr. R. Thompson, of Lynden, shipped two cars of flour last month to Cape Breton.

The capacity of the Portage la Prairie, Man., Milling Co.'s mill has been increased to 300 barrels.

The work of siding and shingling the grist mill at Minnedosa, in the Northwest, has been commenced.

Leitch Bros., of Oak Lake, Man., have already milled about 25,000 bushels of wheat this season.

Messrs. Martin & Reid have purchased Henderson's flour mill at Mount Forest, paying therefor \$4,500.

Mr. Melbride, the Strathroy, Ont., miller, has taken a partner. The name of the new firm is Melbride & Waite.

The machinery for Mr. Jas. Jermyn's new flour mill at Minnedosa in the Northwest, has been shipped and some of it is being put in place.

McBean Bros.' elevator at Morris, Man., had a narrow escape from destruction by fire last month. It was damaged to the extent of about \$400.

The Messrs. Law, millers, have left Georgetown for Hamilton. The Messrs. Freure have rented the Georgetown roller mills and will operate them in connection with their mills at Acton.

Mr. Sutherland, of the Hamilton Provident Loan Co., offers a free site for a flour mill at the Neepawa, Man., station. Mr. Hay, the well-known miller of Listowel, Ont., has been visiting the Northwest lately, and is said to be thinking of erecting a roller mill at Neepawa. It is proposed that the town shall add to Mr. Sutherland's offer exemption from taxation.

Mr. Goodfellow, of Wroxeter, has purchased the grist mill at Tara, Ont., and proposes making it into a roller mill with a capacity of from 50 to 75 barrels per day. The village lends Mr. Goodfellow \$500 for six years without interest. The work of making the necessary changes in the mill has been let to Messrs. Golche & McCulloch, of Galt, and will be commenced immediately.

Indian wheat does not appear to be increasing in favor in Great Britain. Mr. W. A. Thoms, a well-known baker, writes in the *British Baker, Confectioner and Pastrycook* that Indian wheat is a curse to the home agriculture and no blessing to our millers; it is sown, reaped, and marketed in misery; and inasmuch as its absorbed water is sold at the price of wheat or flour, it is transported and manufactured in fraud.

Barrie Advance: The Midhurst grist and saw mills were burnt down on Wednesday. These mills, the oldest in the country, were erected by Mr. George Oliver on the site granted by Government in 1819. In the year 1841, Mr. Boys, the late County Treasurer, purchased them, improved them and worked them for several years, doing a large business. At that time a distillery was attached to the mills, which supplied all the hotels north of Bradford, and the grist mill did the grinding for all the settlers between Barrie and Lake Huron.

The charges of dishonest practices in trade preferred against the firm of J. P. McKay & Co., grain dealers, of this city, have been thoroughly investigated by the council of the Toronto Board of Trade, which a few days ago, rendered the following verdict: "That the said W. J. and E. B. McKay have been guilty of conduct unbecoming members of this Board and highly to be reprehended, and the sentence of the council is, that they be suspended from all the privileges and uses of this Board—W. J. McKay for the period of six months, and E. B. McKay for the period of twelve months, from this date—and that this report be printed and a copy mailed to each member."

Superintendent Whyte, of the C. P. R., who has been looking into the storage accommodation for grain in the Northwest, reports that farmers have prudently refrained from rushing their grain upon the railways all at once, and another source of relief is the fact that the reports of Manitoba's great harvest attracted a great number of tramp vessels to Port Arthur, from which point they have contracted to take over 600,000 bushels. The Port Arthur elevator is empty and there are only 120,000 bushels in the one at Port William. When the rush comes after the close of lake navigation the prospects are that there will be lots of room in the elevators for the surplus brought in by the farmers over the immediate carrying capacity of the railway.

The following elevating and storage rates at the Port Arthur and Port William elevators have come into force: Summer storage—Elevating (including 20 days' storage) per bushel, 1 1/4 cents; storage for each succeeding 15 days, or part thereof, per bushel, 1/2 cent; cleaning and blowing, per bushel, 1/2 cent; scouring, per bushel, 1 cent. Winter storage begins 15th November, and expires 1st June. Between these dates, when charges at regular rates accrue to 4 cents per bushel, no further charge will be made. Winter stored grain remaining in elevators after 1st June, will be charged 1/2 cent per bushel for each succeeding 15 days, or part thereof, in addition to accrued charges. Orders for shipment must be given in writing, and accompanied by original railway shipping or warehouse receipts, covering quantity of grain so ordered out.

Mr. R. R. Bayne, a journalist of Calcutta, who is making a journey through the Canadian Northwest, said, in reply to a question regarding the competition of Indian wheat with that of Manitoba, that this country would always be ahead as regards the better grades, as both the climate and the method of cultivation in India preclude the growing of the highest grades. No agricultural machinery such as is in use here is known there or could be introduced profitably, human labor being so extremely cheap. The wheat growing lands are divided up into small parcels and all the work is done by hand. As a result, a considerable quantity of dirt becomes intermixed with the grain. Just now a railway is being

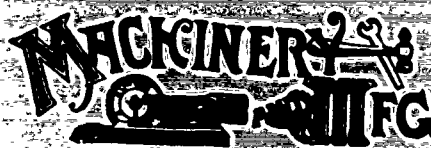
built through the largest wheat growing district of India, Summipore, which has hitherto had no foreign market. The immediate effect of the opening up of this section will tell more against the sections of India at present exporting grain than upon America or Russia, since it is much nearer the sea than those districts.

The *Winnipeg Commercial* in a lengthy article, demonstrates very clearly that Commercial Union would not benefit the farmers of Ontario or the Northwest, and adds: About the only manufacturing industry which has assumed any proportions here is flour milling, and the proposed union would practically wipe out of existence a score or so of roller mills throughout the province and territories, as they would be practically at the mercy of the huge milling combination in Minneapolis, which is powerful enough to dictate freight rates to railways running to the east. This and many other minor considerations weigh heavily against Commercial Union, and should make the most radical advocate of change pause and consider before declaring for such a policy.

The Dominion Board of Flour Examiners met in Montreal Oct. 26th, to select standards of flour for the current year. The following delegates from the various city Boards of Trade were present: Toronto, Messrs. J. N. Peer, J. F. McLaughlin, W. M. Stark; Hamilton, Messrs. C. R. Smith, R. R. Morgan; London, Mr. J. D. Saunby; Quebec, Messrs. T. Brodie, Jno. Glass, T. Kirouac; Montreal, Messrs. A. E. Gagnon, Hospice Labelle, Jno. Brodie. The Board examined over one hundred samples, from which the following were selected for the new standards: Patent winter wheat, "Aurora;" patent spring wheat, "Ogilvie's patent Hungarian;" straight roller, "Kent Mills;" extra, "Exeter;" superfine, "Sparkling River;" fine, "Ogilvie's Strong Bakers." The Board also authorized the Montreal delegates to supervise the procuring of flour and compare it with the samples selected, and issue standards to the various inspectors.

Owing to the short crop of spring wheat in Ontario, millers in that province will have to buy largely of Manitoba hard wheat; in fact they are already buying, one firm alone having sold 40,000 bushels within the past few days to various mills in Upper Canada. The demand for Manitoba flour is so great that the thirteen or fourteen mills in the Northwest cannot begin to turn out sufficient to supply the demand, and as Ontario mills are grinding flour from Manitoba hard wheat more extensively, the output of this product during the coming season will be very heavy. A car load of Manitoba flour ground from new wheat has just been received in this city, which is pronounced by judges to be the finest lot of flour of its description that was ever placed on this market. Manitoba wheat flour is undoubtedly the coming favorite, both for home and export purposes, as it compares very favorably with the best spring wheat flour on this continent.—*Montreal Trade Bulletin*.

The fact that there are but two organizations of operative millers in the United States, and that these are for social and benevolent purposes only, says the *Northwestern Miller*, speaks volumes for the good condition of the industry. One can count on the fingers of one hand, we believe, all the strikes which have ever occurred in mills in this country. It is true that hours are long in all our mills, but there has been no particular change in rates of wages since the war, and our operative millers seem to be very thoroughly contented with their lot. So far as we have been able to learn, the membership of millers in other labor organizations is extremely light. Where they do enter such associations they exert a very wholesome influence, and for this reason millowners encourage their men in the idea of entering labor organizations. Judged by present conditions and indications, the time seems very far distant when we shall have labor troubles in which mills and millers will figure prominently.



Listowel has granted a \$5,000 bonus to Hess Bros. furniture manufacturers.

Peterborough will vote on a by-law to authorize \$40,000 for the encouragement of manufactures.

A new iron foundry and machine shop, to cost \$15,000, are to be erected at Vancouver, British Columbia.

Messrs. Tickell & Sons, furniture manufacturers, Belleville, Ont., will shortly open a warehouse in Toronto, in charge of Mr. G. W. Tickell.

It is proposed to form a joint stock company and turn the Cochran works at St. Thomas, Ont., into an establishment for constructing locomotives.

Messrs. Geo. F. Haworth & Co. are fitting up No. 11 Jordan Street, of this city as a leather belt manufactory. Operations will be commenced about the first of January.

Mr. W. H. Clarke is building a foundry and machine shop at Bryson. Its dimensions are as follows: Main building 24 by 36 feet, to which is attached a wing 24 by 38 feet; the latter is intended for a moulding room.

The people of Trenton have subscribed \$35,000 of stock in the new smelting works which Mr. James McLaren proposes to establish in that town. The works will occupy 25 acres of ground, cost a quarter of a million, and employ 400 men.

The Dominion Government has awarded contracts for the manufacture of about 500 new cars for use on the Intercolonial Railway. The Ontario Car Company's share of the work is 200 coal cars, the James Harris Car Company, of St. John, N.B., receiving the balance.

The Moncton, N. B., Brass and Iron Works, which went into liquidation four years ago, were recently purchased by Mr. D. A. Duffy, who has had the buildings repaired and commenced casting iron and brass goods. Employment is given to twenty men. The factory is superintended by Charles J. Harris.

Messrs. Ewing & Co., of this city, manufacturers of mantels, mouldings and photographers' supplies, called a meeting of their creditors early in October. Their liabilities are placed at \$25,000. The creditors, at a meeting held on the 19th ult., decided to accept a compromise of 60 cents on the dollar, payable at short dates.

J. Howard Cromwell, speaking of belts and pulleys in his recently issued book on that subject, says that the origin, age, first application and use of what is known to us as the "endless belt and pulley," are entirely unknown. As far back into the history of the ancients as we can see by means of the earliest mechanical records, we find the endless belt running continuously around the pulley, precisely as it does to-day.

Mr. Russel Mason, an inventive young watchmaker of Newcastle, Ont., has invented a push button, so-called electric bell, that works without electricity. No battery is required, and no spring has to be wound up. It is automatic and works even better than electricity. The invention has been patented, and when the inventor sells the rights of manufacture for the United States he purposes starting their manufacture in Canada himself. So says the *Port Hope Times*.

The *Peterborough Examiner* says: A St. Catharines, Ont., gentleman was in town Saturday, looking for a suitable site for the establishment of saw works. He was much pleased with Peterborough, which he said suited him better than St. Catharines, as it was more centrally situated. Mayor Stevenson offered him the usual terms of exemption from taxation, and correspondence is going on anent the subject. If the St. Kit's man starts a saw works here he will employ about forty or fifty men.

It may be said that the general use of gas engines dates from Dr. Otto's patent of 1876. Since then very rapid strides have been witnessed in the development of gas motors. It has been demonstrated that the absolute efficiency of the gas engine of today is already greatly superior to that of the steam engine, when both are treated as best engines. The mechanical efficiency of the gas engine now made has been shown to be quite as high as that of steam engines, and further, that when gas engines are worked with cheap fuel water gas, their working cost is considerably less than that of steam engines of equal power. If this startling revolution has been created in ten years, what may we not expect in the near future, now that the principles on which success depends have been learned?—*Progressive Age*.

The Tanite Co., of Stroudsburg, Pa., are experimenting with crude oil as a fuel. The oil is carried under ground from a reservoir over one hundred feet distant from the boiler house, a one-inch steam pipe having the capacity to supply two boilers. A half-inch pipe conveys the oil to each boiler, and this pipe before reaching the boiler is connected with a steam pipe in such manner that streams of steam and oil enter together into a small cast-iron retort in the center of the fire-box. In this retort, kept at a high heat, the steam and oil are converted into gas, and to all appearance gas is the fuel, and not liquid. The fire is easily managed, and there is great saving of labor due to entire absence of ashes. The company are not prepared at present to make any statement as to the practical results, but careful and repeated trials are being made, and it is thought that in a few weeks exact data can be furnished.

Messrs. John Gillies & Co., Carleton Place, Ont., lately manufactured four 5 h. p. coal oil boilers for the Fish Oil and Guano Co., St. Thomas, Que. They will be used for driving two separate engines in a catamaran, which is built entirely of steel. The vessel will also be fitted with a 2 h. p. coal oil engine supplied by the same firm, for driving an electric light dynamo. The vessel is made shallow so as to be able to approach very near the land, and as heavy seas are prevalent at times in the Gulf of St. Lawrence and vessels are often washed over and their fires put out, and frequently lost as a consequence on account of drifting on the rocks before steam can again be raised, the advantage of the coal oil engine will readily be seen; for even though the fire be extinguished it can be re-lit again immediately and the steam kept up. This vessel is only an experiment, but if it proves successful the company will order ten more of the same style, built on a larger scale.

FOREIGN GRAIN AND FLOUR MEASURES.

Following is a statement of the equivalents of standard measures of grain and flour in various countries: A quarter of California wheat weighs 500 lbs.; of other American, Chilean or Danubian wheat, 480 lbs.; of South Russian wheat, 462 lbs. A sack of flour weighs 280 lbs.—nearly equal to a barrel and a half. A Russian chetwert of wheat equals about 354 lbs. An Egyptian ardeb of wheat is 300 lbs. A French kilogramme equals 2 1/4 lbs. A German last of wheat equals 3 tons, 200 lbs. A Smyrna kilo equals one bushel. A Malta salma equals about 450 lbs. A Spanish fanego equals 99 lbs. A Chilean fanego equals 32 lbs. An Austrian staga equals 137 lbs. A maund of Indian wheat equals 82 lbs. A Portuguese alqueire of wheat equals 24 lbs. A Barcelona cras equals 1,925 bushels. A Norway maller is 10 maas, or 4,126 bushels. A German maller is 12 scheffeln or 18,145 bushels. A Vienna metzen equals 1 7/10 bushels. A German centner is about 110 lbs. A French quintal is 220 1/2 lbs.

Mr. J. P. Norton, of St. Thomas, Ont., electrician, has perfected a dynamo with which he claims electric light can be furnished as cheaply as gas. A company is being formed for the manufacture of the incandescent light.

HOW TO RENDER OUR SMALL MILLS MORE PROFITABLE.

OUR English contemporary, the *London Miller*, lately offered a prize of ten guineas for the best essay on the above subject. The prize has been awarded to Mr. W. T. Bates, manager of the Bee Mills, Liverpool. His essay, though somewhat lengthy for these columns, contains much practical information tending to the solution of a problem which is of as much importance to Canadian millers as to their English brethren, and we therefore reproduce it in full.

If report speaks truly, there was a time, perhaps not far removed, when flour milling was a good money-making business. For how many ages this has been the case we are unable now to determine, but judging from the burden of the Dees' celebrated millers' song, and general traditional lore, we come to the irresistible conclusion that millers of the past, like the above particular gentleman, could afford to "envy nobody," their position making them the envy, rather, of others. Not only does tradition enlighten us on the matter, but the evidence of our own senses confirms its truth. The past, and especially the distant past, was the period of small mills. Only in comparatively recent times have large merchant mills been erected, and these almost invariably sprang from small beginnings from the profitable small mill. Whether that was the age of honesty among millers, and success the reward of integrity, or whether success came through "tolling" too much and too often, must remain an unsolved problem; but the fact must be recorded that millers "got rich." Now, however, times have sadly changed; the capitalist finds a difficulty in making both ends meet, and in striving to do this effectually strangles the struggling small miller and drives him from the field.

There are many reasons for this great change, but one of the principal causes is the rapid and easy communication afforded by the railways between towns and country districts, as well as by rapid intercommunication with other countries by steamships. The increase of foreign wheat, and a corresponding decrease of home production, is another serious cause, for whereas formerly the local mills, chiefly small ones, ground up most of the wheat grown in their district and sold the product again in their own immediate neighborhood, trade was evenly distributed and safe. But now, with the large import of foreign wheat, and large mills erected specially to treat it, whose situation, through railway facilities, gives them a command of extensive districts, these small mills are in many cases effectually extinguished. The last straw, if it was needed, to break the backs of those small millers who had not already succumbed to capitalism was the introduction of rollers. "There is a tide in the affairs of every man, which, taken at the flood, will lead him on to fortune." Those amongst the small millers who had the money waited too long watching the course of events; they hesitated, and missed the flood-tide of golden opportunity. If they had only known the flood time they might be rich to-day instead of poor.

Beyond all these changes at home we have the development of the Northwest territory of America, and following that, the erection of large mills there, the product of which has been thrown upon our markets, completely demoralizing them, and embarrassing both large and small millers. In the midst of all this trouble there is much casting about for a remedy. Some are vainly asking for impossible Government assistance in the form of protection, and these, by no means, all small millers. Others again, more sensible, are striving to improve their mills, and by all means to keep abreast of the times—the latter are most likely to succeed. Since, therefore, we have in all kinds of mills such a small margin of profit wherewith to cover expenses and to recoup ourselves, it behoves us to seek a remedy, and the object of this paper is to endeavor to point out a means to that end.

It has long been the custom (once true) to attribute our profitless position to our want of technical skill in the manipulation of our raw material. We not infrequently hear the remark made by those who do not know that if we only had American operatives and American systems we should succeed. Bosh that idea! We have quite as good mills, and certainly not inferior men, but one thing we lack, and that the most important, good American wheat or its equivalent. It is not too much to say that an ordinary stone mill worked on good strong wheat, could beat a first-class roller mill on common weak wheat, not in finish, certainly, but in bread results—the bakers' standard.

This essay is supposed to relate to small mills, but neither class, stones or rollers, is specified. Neither is the definition of a small mill given, so what "small mills" mean is apparently left to the judgment of each individual competitor. I should define a small mill to be anything under 6 sacks an hour. Beyond that, and under 12 sacks, a medium mill, and above 12 sacks, a large mill. The only advantage the latter has, as far as I can see, is the ability to buy largely, and consequently cheaper, combined with a better method of distribution of finished products. The medium mill has an advantage over the small one, as the cost of working the latter is proportionately heavier, but a large mill is the cheapest as far as manual labour is concerned, as the work is better apportioned, but generally the latter is heavily weighted with office and management expenses. For a very small mill of, say, two or three sacks capacity, there is, I think, a better chance than for the largest, as their expenses are very low and they generally depend upon a local trade, and where this is assured they succeed very well. The situation of any mill, small or large, is an important matter, and materially influences results, and although changing the situation of any mill is out of the question, it is a matter well worth considering when taking or building a new one. The means of obtaining raw material and distributing finished products in our seaports and centres where the large mills are situated is so perfect that unless a small mill has similar facilities, or is locally situated in a good wheat-producing and offals-consuming district, beyond outside influences, it has a poor chance. The fact also that many small mills are old established and have a safe connection is greatly in their favour. But somehow the present tendency is to

forsoke old friends for better bargains offered by enterprising millers, and hence the cause of many small millers' troubles.

There are some things which these small millers may learn to their advantage, and first I would say, avoid speculation of all kinds—the day is past for profits from that source. Telegraphic communication round the world gives us a daily statement of all the principal markets. Even our own harvests influence us but very little. Gambling of any kind is very alluring, one little win tempts to other and heavier ventures, and fascinates with the vision of a fortune, but ultimate results are generally disastrous. Use your money legitimately. Do a trade within your means and limits. Do not be everlastingly increasing your output. This is one of the greatest evils of the age, and one that is very tempting, as millers naturally think that if they can do a larger business with no increase of expense they will gain a corresponding increase of profit. This may appear true, but facts do not altogether prove it so. People sometimes overreach themselves, and millers are no exception, as we well know. Instead of this, let them strive to improve and perfect, by all means in their power, the mill they have. If there is money to spare, let it be spent judiciously in the purchase of necessary machinery; and in this connection I would say, consider well and take advice (not always the mill furnisher's) before parting with your money. Do not fill your mill with useless machinery, which has nothing to recommend it but the verbosity of the seller. And do not spend all your money upon machinery, leave some for the purchase of wheat. Many in their haste to change their mills have overlooked these important truths, and found, too late, that change does not always mean improvement, especially in their circumstances. While on this matter I would say, look well to your cleaning machinery. Consider whether it is a proper arrangement for removing all extraneous matter, enabling you to clean and use all kinds and classes of wheat. If it is not perfect, money spent thereon will be well laid out. This has always been a weak point with small millers, and indeed some large ones have apparently not found out that dirt will not make white flour.

Economy in all things must be the order of the day, personal expenditure included. Many a collapse has been caused, not so much by bad business or want of business as by expenditure exceeding income. We have not to go far for instances; they are numerous enough, and known to all. In the mill everything must be done to curtail expense, but remember there is no economy in having the mill undermanned by underpaid men. Economy lies rather in having good, well-paid men, but not, of course, too many of them. There are many ways of saving and preventing expense which must be constantly kept in mind. Low expenses will sometimes show a fair profit, while high expenses, through carelessness, will turn what might have been a profit into a loss. In fact, as will be shown, the difference between profit and loss depends almost entirely upon careful management and attention to little things.

Personal attention to business, both in and out of the mill, is absolutely necessary. It is possible to get good trustworthy men, but few, if any, will do for you as you would do for yourself.

"Let the servant's eye be keen as it will,
The master's eye is keener still."

No business in these days will bear neglect, whatever might have been the case 30 or 40 years ago. Upon this point also hangs in a great measure the result—success or failure. Two men may be working mills precisely alike in construction and detail, having equal conditions all round. One makes a profit and thrives, while the other makes a loss and fails. How is this? Attention to business in the one case and neglect in the other, especially in little things. The profit is now made out of items which were entirely overlooked a few years ago. It stands to reason, therefore, that he who attends to these little things is the one to succeed. In the days of large profits one could afford to be careless, but certainly not now. Doubtless it is difficult for a miller to change his habits, they are almost as fixed as the leopard's spot, but change he must if he desires to live. Some are doubtless living in hope of a return of the good old times. They are, I fear, hoping in vain. The days of large profits in milling are, I fear, gone for ever.

The kind of mill, whether stones, rollers or mixed, is, I presume, beyond the province of this paper—one has to make the best of what he has, be it stones or rollers. Still, I am aware that the former are still by far the most numerous, and the ones which most severely feel the pressure of these hard times, especially where they depend upon flour alone. For, unfortunately, of late years the small millers have lost one profitable part of their business, that is, farmers' grist grinding. The latter have felt most severely the loss of profit from low prices, and in curtailing their own expenses have shorn the miller of his, at least in that department. A roller mill is, of course, more perfect than a stone mill, and, generally speaking, the latter has no chance beside it as to finished products, the one may be equally as unprofitable as the other, especially if incomplete or badly built. It is possible to improve either, and, by care, to make both payable, that is, of course, if the conditions are favorable. The stone mill, being simple, is less liable to derangement and more cheaply worked. If it be in a situation beyond the influence of outside competition, and is worked to the best advantage, it can be made to pay. The roller mill, on the other hand, being complicated, is liable to run astray without good attention and careful management, but is very far ahead in finish. This would be the case simply from its excellent arrangement of successive grinding, dressing and purifying, leaving out the virtue of rollers. The secret virtue of roller milling is supposed to lie in the germ extraction and in the purification. The first may be dismissed as a myth—there is nothing in it. The other is important—purification is very important—but there is also another important matter, and that is silk surface. Well purified flour may be dressed coarser than unpurified, and the resulting bread will have a clearer, more transparent appearance, but in "getting up" flour and eliminating impurities, a great deal depends upon the fineness of the silk used. In stone mills this is especially important, for, purify middlings as you will, the action of stones is to cut up and make finer the impurities, while rollers flatten and enlarge them so that they are easily separated. Wheat well ground and coarsely

dressed will make good lively flour, but to make it white requires fine silk, and, if fine, abundance of surface. Small millers will find this (especially stone millers) next to good grinding, and, if possible, purification, one of the secrets of making good flour, and probably in making their mills pay. There must be successive grindings of the middlings to produce the requisite fineness to pass the silk, for nothing will, of course, pass through a hole smaller than itself. So if the silk is No. 14, remember the flour must be 14 also, or it will find its way into the wrong sack. By continuing the process of grinding and dressing long enough, it is possible to get not only the flour, but offals as well, into the flour sack, even through fine silk. As roller mills are worked upon this principle, it is unnecessary to say more upon this matter, except to observe that if more reductions were used a better all round result would be obtained in any mill.

Length of product is most important in any kind of mill, small or large, and requires much looking after. It is said that the profit (or loss) lies in the tail of the mill. It does in the offals. There is no profit in the flour in any case, but flour thrown into the offals is dead loss, and a bad percentage will turn what might otherwise have been a profit into a loss. As mentioned above, it is possible to get all the flour out if the operation is sufficiently extended, or, what answers the same purpose, that coarse silk can be used at the top end of the mill, and must increase in fineness as the end is approached where the material is more impure. One means of increasing the percentage of flour in a roller mill and preventing loss is to send all the finished offals (except bran) through a detacher, or a common wire brush machine will answer. Dust thus over a reel or centrifugal, and purify (if possible) and grind the tail sheet. The flour therefrom will not be of very high quality, but it pays. The stive dust might also be included in the reel, as it is almost impossible to prevent some waste from purifiers, especially of the gravity type. It is well also to sub-divide the offals as much as possible, and even if they are not treated as suggested for grinding, it would pay to divide them on a reel or sifter. They are thus not only better divided, and worth more money as a consequence, but they are always uniform, which is essential.

Perhaps the most important matter of all in making a mill pay is to have a good reliable article; something always alike, which the customers may depend upon. This, of course, brings in the question of wheat. Wheat of the right sort, properly milled, will make good flour, whether done by stones or rollers. Every miller should carefully study his market, and do his utmost to produce the required article. Color may be required in one district and strength in another, while a third may require a combination of both. As strong flour produces the greatest number of loaves and is a safer and easier bread maker, it is only reasonable to expect that that kind of flour will have the preference, and that it has in an overwhelming degree. Those millers situated in or near towns, and generally where American flour comes into competition, would do well to study strength. Colour is an excellent quality in flour, but strength and colour combined are much better. As a rule, flour without strength does not meet a ready sale nor realize a good price, but strength fetches both. The reason why American flour (especially the well-known brands) sells so readily is not so much that it is well milled as that it is made from strong wheat, is uniform, and makes a great number of loaves. It is profitable to the baker, even if he gives 25 or 35 a sack more for it. If a regular supply of good strong wheat can be obtained, small millers might find it advantageous to mill it alone, or mixed with a small portion of native wheat for colour and flavour. The result will be much better if the wheat is properly freed from dirt and other impurities. Especially does this apply to Russian and similar European wheat. The flour from many of these might be improved shillings a sack if they were washed and the stones extracted. In any case a good dampening, and a second thorough cleaning would materially benefit the resulting flour, most particularly where stones are used. Wheat that has been well dampened will, on standing in sacks for a few days (more or less according to weather), set up a vinous or sweet fermentation, and if it is then used the flour therefrom will possess a corresponding sweet and agreeable flavour. But if the wheat be left too long damp, especially in hot weather, an acetic or sour fermentation ensues, which has a disagreeable and deteriorating effect on the flour. It is scarcely necessary to say that on the management of this department hang important results; also, that where dry, brittle wheat is generally used, judicious dampening will very materially assist the regularity and uniformity of the flour as well as bran. We cannot be incessantly changing our silks to suit our varying wheats, but we can temper our wheat to fit our silk. Failing a regular supply of strong wheat or a market for that kind of flour, a combination of wheats should be used possessing the qualities of the best. There are some kinds of wheat which possess all the virtues—that is, strength, colour and flavour—but generally they are high in price; and small millers will find it more advantageous to buy the various properties separately, and mix them, either in the wheat or flour. The very few wheats possessing the above combined virtues are limited to about three countries, and they are Hungary, America and Australia. Most of these are generally at a price beyond the reach of small millers. Strong Russian, Ghirka, or Duluth for strength, combined with English for colour and flavour, would be a good combination, and be fairly cheap. A judicious blending of washed Indian would cheapen the mixture, but in all things let strength prevail. Many millers make the mistake of blending several kinds of wheat, not one of which can lay claim to strength, and then wonder that the flour does not give satisfaction. No kind of milling, nor the finest silk, will overcome this defect. With strength, however, bad milling, coarse dressing, and apparent bad colour will pass unnoticed, for strength "covers a multitude of sins." Strong flour will sponge well, and will rise and make a white loaf. Weak flour, being incapable of retaining the gases, will not rise; and however white the flour the bread will be dark and poor.

As the object of working the mill is to make flour, it is just as well to make that article as good as possible. It is as easy to make a good article as a bad one, if you have the right way of doing it. The proverb, "Whatever is worth doing is worth doing well,"

applies most particularly in this case. Flour demands the greatest attention (that is, next to wheat); and as we must work our mills on the principle of making the most of that which realizes the best price, we start with making as much flour as we can. Some people argue that it does not pay to take all the flour from the offals, as the latter is then unsaleable. This is a fallacious argument. The flour that is left in offals is either on thick bran, or as fine middlings mixed with coarser, impure stuff. The removal of the first does not lessen the value of the bran unless the bran is cut up in the operation, and giving the hard floury middlings another reduction certainly removes the flour, but it makes the residue finer and whiter. The offals look worst when coarse flour silk has been used at the tail of the mill, but then even they may contain a good proportion of flour, viz., hard middlings. By using fine silk at the tail of the mill all the flour will be good and saleable. *There need be no low grade, or red dog, but as most mills are deficient in silk and reduction surface for the sake of convenience, and for no other reason, it is necessary or advisable to make low grade flour.*

Having got all our flour in the flour sack, we will try not only to get the offals in the offals sack, but in the right offal sack. Thus, fine offals being next in value to flour, we will make as much as we can of them, and for this purpose it would be advisable to run first break flour and fine stive dust in with them (that is, in a roller mill). If a reel is used, as suggested, everything (except bran) run therein will find its proper place. Bran is generally next in value to fine offals, and the mill should be so arranged (with the reel before mentioned) that all or a part of the coarse pollard can be run in the bran, that is, of course, if the price warrants it; coarse pollard is generally of least value, so it is advisable to be in a position to make little or none of it, according to market. It would pay to grind this on a pair of sharp stones. With it, or alone, could also be ground all waste products, such as screenings, sweepings, &c. Their value will be considerably increased if they are afterwards dressed and separated into two or three qualities. In fact, there will be a considerable improvement in profit if all the offals are subdivided and classed into more sizes and qualities than is usually the case. *There need be no waste or loss of useful material; care must be exercised that no good material from chokes finds its way into the offals. This should always be returned to the mill by mixers.*

These may seem little matters, but they are, nevertheless, most important. I will mention another which may seem ridiculous. I once knew a small miller who turned his smutter dust into pork!—that is, he mixed his smutter dust with brewers' grain, and fed his sows and pigs on it. I was surprised to see how they flourished on it. Until then I had imagined the smutter dust was dirt—"matter in the wrong place"—but that little experience undeceived me. It would not be advisable to attempt to feed pigs nor any other animals on dirt sifted from Indian wheat. Oh no! that would be going a little too far. Blown dust is generally of some value, sifted dirt of none; and this is where we draw the line.

I fancy I hear my readers exclaim, "Trash! Rubbish!" Well, just now we are dealing with rubbish, but don't suppose these suggestions are so worthless. Far from it, my friends. In the management of these little things lie important issues. There can, of course, be no hard and fast rule. Everyone must act according to his individual circumstances, and his market; but the truths herein enumerated may be accepted as a fairly safe guide—they may not be original—indeed, I would not be so presumptuous as to suggest or pretend that they are, but I can at least say that I have proved them by experience; and, in my humble opinion, if they were more generally acted upon we should not so often hear the lament of unprofitable work amongst small, and even large, millers. Beware of the little things.

To sum up, good buying and good selling are matters of importance on which it is impossible to give much advice. Buying the lowest priced wheat is not always, nor often, advantageous; full berried, good yielding wheat is most profitable, and of this class Bombay and Calcutta are good samples, and being generally low in price will be found profitable to use. But they should be properly prepared by being washed, and afterwards allowed to stand in sacks a few days, according to weather, if the best results are to be obtained. Thin-skinned and clear-skinned wheat is, as a rule, strong and yields well, while dense, thick-skinned produces a large amount of bran. For strong wheat the Russian varieties (the strongest of all wheats) are generally cheap, that is, low in price, for there is a great deal of waste in cleaning if it is properly done. There are several varieties lately introduced from different countries more or less known, such as the River Plate, Chili, Persia, &c., but small millers will do well to stick to well-known varieties, which they can depend on, rather than run after those which appear lower in price, but of the quality of which they know nothing, and which may ruin their trade. Of the American varieties, Duluth or Manitoba are the best when they are at a purchaseable price. There is little waste in cleaning. A slight damping will improve them as well as any similar wheats. Manitoba wheat has sometimes been brought in a frozen state; it is then useless. Otherwise it is the grandest wheat grown, and if we can get enough of it we will "lick creation." Of the white or colour wheats it is unnecessary to say much. English is a good type, well suited for stone milling. Winter American is also a nice coloured and good flavoured wheat, but lacking in strength, well suited for stones, but generally dear. New Zealand wheat is of a good colour, not strong, generally slightly damaged on passage, full berried, and, being low in price, is cheap; would combine well with strong Russian, or Russian and Indian. Californian is a good coloured wheat, but weak, and not equal to Indian for bakers' use; would require damping and tempering for milling, especially with stones. There are the Baltic wheats, Dantzic, &c., and some similar kinds from Canada, but there is not very much quality in any of them; they are well suited for stones, but are seldom worth the price they realize, as they do not yield well.

The whole matter of wheat resolves itself into three important points, which I would here emphasize: Buy strong wheat; buy sound wheat; and thoroughly clean and temper your wheat; for good wheat is the foundation of all good milling.

PROCTOR'S POINTS.

The writer of these "Points" referred in a late number of the DOMINION MECHANICAL AND MILLING NEWS to the developments of dynamical electricity, naming some of the different fields of usefulness in which it could be employed. He proposes in this number to go into some detail along one of these lines, not that the information given may be of much present advantage to your readers, but a few of them at least may learn of some of the results of brain work in this busy nineteenth century.

* * *

Electricity as an agent in the transmission of power will ere long, without doubt, hold a very important position; and in the development of its application, many of the present methods of doing things will be completely altered and revolutionized. More especially will this be the case in cities and towns, and there is no doubt but that the results will be eminently satisfactory to all parties concerned, by producing better profits for the power maker, and a very considerable economy in cost to the power user.

* * *

A very large number of small engines and boilers are in use in all our cities and towns, varying in size from one to fifteen horse power. These as a rule pay their users for the investment of time and money, very well. The expenses of running one of these for continuous daily work is about as follows: Say a 6-power, costs, set up, \$450. This rig, with reasonable care, will last about six years, and therefore will cost, including interest (6 per cent.):

Interest and sinking fund, per annum... \$102
Coal, at 5 lbs. per hour per horse power... 282
Attendance—say 3 hours per day of man
at \$1.25 per day of 10 hours..... 16

\$520

or \$1.60 per day, with 313 working days in a year. This estimate is a reasonable one, (as the writer knows by experience) and shows the cost of these small rigs to be about 28c. per day per horse power. There are other items, however, that enter into this calculation at this point that are not mentioned here, such as the room occupied by this engine and boiler, risk of fire, oil, waste, etc., but the above estimate will indicate all I desire to point out in this calculation.

* * *

The mechanical construction necessary for the transmitting of power into electric energy or force, and of re-converting that force again into power, have reached such a high degree of perfection as that a very small percentage of loss of power will take place, and so many applications of this class of dynamical machinery have been put in operation within the last two years that the principle has passed out of the realm of the experimental into the sphere of the practical, and only awaits development to become a certain and permanent success.

* * *

A statement of the method of application referred to above, with more detail, might perhaps be advantageous to many of your readers who are seeking for information on this subject. A power station is laid out somewhat after the style of an electric light station, with which no doubt most of your readers will be familiar. In the use of steam power of say one hundred horse power or over, first-class boiler, properly set, so as to give the best results from the use of fuel, and connected with a modern automatic engine, on first-class foundations. This engine is then belted to one or more dynamos of suitable size and construction to convert its power into as great an electrical current as the demands made upon the power may require to be produced, up to the capacity of the power.

* * *

From this central station a wire circuit is put up, reaching the places where power is needed, and in each place where power is required a dynamo is placed of a suitable size to withdraw from the wire circuit power up to its capacity and the required need. By belting on to this dynamo the power is transferred to the shafting and is ready for use. All the working of these dynamos, or motors, are under perfect automatic regulation within themselves, and can be turned on to work or shut off at the will of the operator, without in any way interfering with the circuit, or the automatic working of the motor in the central station.

* * *

The following are a few of the advantages that would result to the power users in such a system of distribution: The dynamo could be placed on the floor, or, if a

small one, on a shelf, out of the way, or in such a convenient location as to be contiguous to the shafting; the dynamo meter measures automatically the amount of power used, and thus the user has to pay for only the amount of power taken; modified insurance; saving of labor; cleanliness; power always ready; and lastly, but not the least consideration by any means, a very considerable reduction in the cost per horse power.

PROCTOR.

THE MILL AND THE MILLER.

In offering some thoughts upon the various departments of mill management I disclaim any pretence of "knowing it all." What I shall have to say, whether it be fact or theory, is based on actual daily experience in the mill, and this I believe to be a sufficient excuse for putting it in print.

I will begin, where many another has been before me, with the very perplexing subject of yields. It is truly surprising that notwithstanding all that has been written on this topic there is undoubtedly a large number of mill-owners who are in actual ignorance of the yields their mills are making, and whose millers-in-charge move in the same blissful state. It is not uncommon for a miller to deceive his employers regarding yields, and in deceiving them to deceive himself also. When asked for the yield he may say it is 4.2 to 4.30, with the "mental reservation" that 4.10 is about the actual figure, though an accurate test would in many cases find him using 4.50 to five bushels instead. I myself know of a case in which a test was made by a certain miller, while at the same time, and unbeknown to him, his employers were making another test to see what manner of miller he was. The joint result of the figures arrived at showed that the weight of flour and offal produced was greater than that of all the wheat used during the run! That miller soon found himself out of his "job," and it was many long weeks before he succeeded in getting another.

There are a great many tricks by which a dishonest miller may mislead his employer concerning his work, such as constructing a sneak on the wheat bin, jarring the shelving of the bolts just before running out, commencing the test with a loaded mill and running out with a light feed, and the like. In these cases it is only the proprietor who is deceived; but there are many instances in which both miller and proprietor are badly fooled about the mill's work, even after what both believe to be a thorough, reliable test. As a rule, test runs are too short, and not infrequently they are made on selected wheat instead of ordinary stock. "Let's see what our yield is while we are running on this extra lot of wheat," say the enterprising owners. The yield naturally proves to be a good one, and they give it out as a specimen of their every-day work, in order to facilitate the sale of their products. It would be better in the long run if these partners in deception figured out their yield on the No. 3 wheat which is the regular food for their mill. By using honest figures they would find a perceptible difference in the ultimate yield of their bank account.

But even where yields are honestly calculated it is often the case that they are taken at too great intervals. No miller can be positive about his average yield by testing a day's run once a month, once a fortnight, or even once a week. The test may tell the absolute truth regarding the work of that particular day, but on the morrow there may come a change in the quality of the stock, or in the weather, and then a new test is needed. The fact is, to make a reliable and satisfactory yield test a mill ought to run on it the whole year round. I can cite mills that have done this for several years, figuring up at the end of every month and striking an accurate average on the last day of the twelvemonth. This is the only way in which a miller can determine with certainty what his mill is doing, and it is a way which has many other advantages. By keeping an accurate account of all details of the business, every excuse for guesswork is removed, and there can be no doubt as to profit or loss during dull seasons. By comparing yields from month to month the miller will know when and how much he is below, or above, the average of good milling, and where the secret of the difference lies, whether in his cleaning machines, rolls, purifiers, or bolts. He will therefore be able to remedy any defect before it has gone far enough to be evident on the office books, and hence be much surer of his position than if he depended on guesswork.

What I have said has been intended for the ears of millers who do a local exchange and retail business, for I assume that about every large mill is run on some more or less adequate system of tests, under fairly competent heads and seconds. Yield tests are the rule in large mills; the exception in small ones.—J. H. Wirt in *Roller Mill*.

DOMINION MECHANICAL & MILLING NEWS

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The DOMINION MECHANICAL AND MILLING NEWS will be mailed to subscribers in the Dominion, or in the United States, post free, for \$1.00 per annum, 50 cents for six months. Subscriptions must be paid strictly in advance.

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EDITOR'S ANNOUNCEMENTS.

Correspondence is invited upon all topics pertinent to the mechanical and milling industries.

This paper is in no manner identified with, or controlled by, any manufacturing or mill-furnishing business, nor will a bestowal or refusal of patronage influence its course in any degree. It seeks recognition and support from all who are interested in the material advancement of the Dominion as a manufacturing country, and will aim to faithfully record this advancement month by month.

Readers of the "MECHANICAL AND MILLING NEWS" will confer a favor upon the publisher and derive material benefit themselves by mentioning this paper when opening correspondence with advertisers. Drop us a postal card when you have written to an advertiser, give us his name, and then we will put you in the way of getting the benefit. Don't forget this.

THE Inspectors report that the terms of the Ontario Factory Act are being complied with in Toronto.

BELLEVILLE had to pay over \$2,000 in duty for the privilege of passing by home manufacturers and buying its pumping machinery in New York.

THE large sum of \$5,765,000 is being spent in the construction of 35 new steamers which are intended to supplement the present very inadequate freight carrying fleet on the Great Lakes.

THE Government has appointed a commission to report upon the advisability of completing the construction of the Trent Valley Canal system, on which so much money has already been spent.

THE Northwest correspondent of this journal has left Winnipeg for a tour through the Northwest territories and British Columbia. Our readers may expect to hear from him regarding the kind of mills they have in those distant parts of this broad Dominion.

THE terrible fate of Arthur Gillies, who was ground to jelly in a flour mill at Essex Centre a few days ago, emphasizes the necessity for proper appliances for shifting belts, as well as the need of constant caution on the part of workmen employed among machinery.

SUCCESS in any line usually promotes competition in that line. The remarkable success which marks the history of the Toronto Industrial Exhibition, is no doubt the moving impulse in the agitations now going on both in Ottawa and Montreal for the establishment of annual exhibitions in those cities.

WITH the close of the present year Newfoundland will discard the old-fashioned and cumbersome pounds, shillings and pence currency, and adopt the infinitely more simple method of dollars and cents. In England, too, it is said a change to the decimal system is among the probabilities of the near future.

THE contemplated establishment of a rolling mill in Toronto and of tube works in Montreal by foreign capital would seem to indicate that the new iron duties are likely to accomplish, to some extent at least, the object which the government had in view in changing the tariff, viz., the development of our iron industry.

OUR prediction last month that other Canadian railways would soon follow the example of the Canada Atlantic Railway and adopt the electric light on their passenger trains, has already been fulfilled. The Inter-colonial Railway management have arranged to have three of their passenger trains provided with electric lights and heated by steam.

PORT COLBORNE is enthusiastic over the discovery of an alleged inexhaustible supply of natural gas, which is to be used for lighting the town. There is no reason that we can see why Pennsylvania should have a monopoly of this desirable article. Past discoveries of gas wells in Canada have, however, failed to repay the time and money spent upon them.

SIR CHARLES TUPPER has been appointed by the Dominion Government to represent Canada on the Fishery Commission. The Canadian representative on this Commission will have to fight a single-handed battle against great odds, with almost the certainty of being defeated at many important points. For such a fight Sir Charles Tupper is as ably equipped as any man we know of.

A NEW illuminator, called Lucigen, has made its appearance in Europe, and is in use in a number of manufactories. The new discovery consists of the utilization of crude oil finely divided by means of compressed air. The light is so powerful that it is said a person may read by means of it at a distance of a quarter of a mile. The wonders of this age were not exhausted with the introduction of the electric light.

"During the regime of the Committee of Council for Trade, and later on, of the Colonial office, we were quite content to discharge the original function of colonists, namely, to consume British goods, and allow England to adjust our tariff. But as every one knows, we have left that stage of existence far behind."—*The Mail*.

Quite true. Why, then, does *The Mail* advocate a return to such a state of things, by placing ourselves in a position to become consumers of American goods, and to allow the United States to adjust our tariff?

THE MECHANICAL AND MILLING NEWS is indebted to some person unknown for a copy of a brochure, by "A Quebec Liberal," in opposition to the Commercial Union movement. Apart from the personal allusions to the leading advocates of Commercial Union, which it contains, and which we think can serve no good purpose, some sound arguments are advanced to show that Canada would lose more than she could possibly gain by entering into such a union.

WE are sure that a great many millers who read this journal, and who, like ourselves, are interested in the result of the present agitation for Commercial Union with the United States, will regret that those millers in Western Ontario who recently committed themselves by resolution to the project, have not fulfilled their promise to publicly set forth how such a union would benefit Canadian millers. Our Western friends, by their tardiness in attempting to give reasons for their action, are laying themselves open to the suspicion that they are not equal to the task.

THE St. John Forwarding and Trade Promoting Company has lately been organized at St. John, N. B., for the purpose of developing trade between Canada and other countries. To our mind the object which this company has in view is preferable to that of the Commercial Unionists. Let us seek markets in countries that require goods such as we produce, and produce goods such as we require, instead of seeking access to a market which is already glutted with products similar to our own.

THE question of the best means of preventing the bush fires which every year destroy so much valuable timber as well as other property, and which this year have been more destructive than usual, is at present the subject of considerable discussion in the press. Many remedies for the present state of things are being offered, and as in a multitude of counsellors there is wisdom, we trust some suggestions of practical value will be given, the carrying out of which by the Dominion and Local Governments will abate the wholesale destruction wrought by bush fires.

THE Toronto Association of Stationary Engineers, although organized but a few months ago, has attained a membership of more than 250. The discussions carried on at its meetings are of practical assistance to its members, and during the long evenings of the coming winter, much useful knowledge will undoubtedly be imparted. Every man in charge of a steam plant should belong to an association of this kind, therefore we are glad to observe that branches of the Toronto organization are to be instituted in the leading towns throughout the Province.

THE Millers' Association of Western Ontario doesn't do things to suit the farmers. Just what the causes of complaint on the part of the latter are we have not learned. Their indignation is finding root, however, in the usual threats to erect a "farmers mill" and be independent of the Millers' Association. We should like to see an experiment of that kind tried. The result would greatly enlighten the agricultural mind regarding the enormous (?) profits of the milling business, and the knowledge thus gained would doubtless bring about a better understanding between the miller and the farmer.

A MEMORIAL recently presented to Congress by the American Shipping and Industrial League says: "The fact that the people of the United States are now producing so much more of the raw materials from farm and mine and such superabundance of manufactured goods, that our home markets are glutted and stagnation thereby produced. Stagnation, as experience has shown, is the parent of financial crisis, which bring ruin to the producing classes of every community." The above indicates the immense advantage (?) which Canadians might hope to gain from access to the American markets.

SAYS the *Mail*: "Last year's imports exceed the exports by \$22,900,000, although it was declared that a balance of trade against us makes us poor, and that the protective tariff would remove the trouble. There is something wrong about the balance of trade theory. Were such not the case Canada, with its annual adverse balance, would be a vast poorhouse to-day." If we are to believe the *Mail* Canada is "a vast poorhouse to-day," ergo there is nothing wrong about the balance of trade theory. So poor and valueless is this country, in the *Mail's* opinion, that it is willing to make a free gift of it to the United States.

THE samples of Russian wheat which matured so rapidly in the Northwest this year, are said to be softer and less desirable grain than the Fyfe wheat known as No. 1 Manitoba hard. If this be true, Northwest farmers should think twice before they decide to change their seed. There has been no damage by frost to the grain of the Northwest this year, and if early frosts are the exception and not the rule, we believe the Northwest farmer will find it to his advantage to maintain the high reputation for quality which Manitoba wheat now enjoys the world over, and set his wits to work to so cultivate his land that the chances of damage by frost shall be reduced to a minimum.

WRITERS in some journals devoted to manufacturing in the United States are asserting that the water wheel has had its day, and is rapidly being supplanted by the steam engine. We have no desire to depreciate the steam engine, but there is no doubt that from the standpoint of economy which is the business man's point of view—the water wheel has the inside track, and will be pretty sure to maintain it as long as the water holds out. While it is true that the water power of the United States and Canada has probably diminished to some extent during the last twenty years, compelling mill owners in some localities to add steam power, there is likely to be water power enough in both countries for centuries to come to keep water wheels in pretty general use.

THE Stratford *Herald* discussing the alleged advantages to this country of Commercial Union, says: "We cannot see how Stratford would get enough benefit from Commercial Union to make up the loss of the Smith Purifier Co.'s works. These employ about 110 hands, a large number of whom are heads of families. Under Commercial Union the Company would find it advantageous to do all their manufacturing at Jackson, Mich., where they now have an establishment several times the size of that at Stratford, and where they can by centralization produce cheaper than by maintaining two separate establishments, plants and sets of hands. The Stratford branch is one of the tariff-protected industries that would go back to the States whence they came, and with it would go nearly 500 of Stratford's population.

Industries of similar origin are scattered all over the country, so that in all quarters similar losses would be felt; and farmers are expected to exult at the prospect of the country being dotted, under Commercial Union, with sickly dead-and-alive towns and villages, instead of thriving and bustling cities filled with a manufacturing population, where they can find a ready market for their stuff at good prices.

SOME of the American trade journals come to us printed in nearly all the colors of the rainbow. We are content to present our facts in plain black and white.

OUR correspondence department this month shows a vitality that we hope to see maintained in future numbers. From letters received during the past month we are led to believe that our readers are awaking to the advantages which they would derive from exchanging information through this department.

THE attention of millers is called to the dust collector and patent reversible screw conveyor manufactured by Mr. J. A. Gowans, of this city, and advertised on another page of this paper. These machines, in addition to their capacity for performing the work required of them, have the advantage of cheapness, and will bear looking into by intending purchasers. Full particulars will be furnished to any person corresponding with Mr. Roy, the general agent, Yonge Street Arcade, Toronto.

WE trust our milling friends throughout the country will not fail to direct the attention of intelligent farmers visiting their mills to the letter by "Canadian" in the correspondence department of this paper, on "The Farmers and Commercial Union." The writer has devoted a great deal of attention to the subject of which he treats, and brings reliable statistics and hard logic to bear in proof of his contention. "Canadian," in future numbers of this journal, will discuss the Commercial Union idea from the manufacturers' standpoint, and also from the national point of view.

How often we find the news columns of our daily papers contradicting most effectually the arguments advanced in their editorial columns. As a case in point, the *Mail* gives as one reason for its advocacy of Commercial Union that it would benefit Canadian lumbermen, while the Ottawa correspondent of that journal, who is coming in contact constantly with leading lumbermen, states that "of late years the demand for Canadian lumber has been very great in the United States, and as the supply is gradually becoming limited, the lumbermen at Ottawa know that they can have a good market for all the lumber they can cut." In view of the above satisfactory condition of affairs, it would be interesting to know what use our lumbermen would have for Commercial Union.

THE people of China want flour, and want large quantities of it. The Canadian Northwest can produce flour of the very highest quality, and in a few years will be able to produce it in great quantity. The Canadian Pacific railway and steamers form a direct and rapid means of communication with China. What then is to prevent Manitoba millers from opening up a profitable trade with the East? We are pleased to observe that the Messrs. Ogilvie—always wide awake to openings of this kind—have already sent shipments of flour to the Orient. A wonderful advance in civilization is taking place in China at the present time, and a few years will witness large importations of manufactured goods of various kinds into that country. Now is the time for Canadians to set about securing a share of what will undoubtedly prove a profitable trade.

BRITISH millers frequently meet in convention and discuss through written papers, as well as verbally, important matters relating to the business in which they are engaged. In the United States, also, there are State Associations, which hold meetings several times a year for a similar purpose. There can be no doubt whatever concerning the beneficial effect of such conventions upon the millers and the milling industry in those countries. In Canada, our millers have only one association, embracing three or four counties, where there might profitably exist half a dozen, covering the entire Dominion. If it be true that in union there is strength, our millers might certainly hope to achieve greater success with the help of association than by working, as at present, on the principle of "every man for himself." In addition to a number of local associations, meeting say every two or three months, there might be a national association which might meet once or twice a year, review the work done by the local associations, and take

such action as might appear necessary in the interest of the milling industry throughout the Dominion. The MECHANICAL AND MILLING NEWS invites the opinions of individual millers, regarding the feasibility and practical utility of such a course of action.

THERE are some dangerous elements among the Knights of Labor that, if not watched, will work ruin to the organization. In the General Assembly of the Knights of Labor held in Chicago last month, a resolution was introduced by a New York delegate, expressing sorrow at the sentence imposed on the Chicago anarchists and bomb throwers, and pledging the Assembly to exert every means to secure commutation of the death sentence. Mr. Powderly, who was presiding over the meeting, vacated the chair and opposed the resolution in vehement terms, and the Assembly threw it out by a vote of 151 to 52. The fact, however, that fifty-two persons in an assembly numbering but little over two hundred, thus publicly expressed sympathy with such devilish acts as the Chicago anarchists were guilty of, shows up an unpleasant feature of American society. The Knights of Labor, if they wish to be a power for good in the land, must rid themselves of such associates

THE legislature of Maine has lately passed a law designed to prevent the employment of French Canadians who go to the factory towns of that State for a short period, with the intention of returning to Canada. This law, which went into operation on the first of October, imposes a fine of from \$20 to \$50 for employing a minor under 14 years of age who cannot read and write in the English language, except during the vacation of the public schools. It further provides that every person who employs a minor over 14 years of age who cannot read and write the English language, who is not a regular attendant of a day or evening school, shall be subject to a penalty of from \$50 to \$100. The exception is that when it is apparent that the labor of any minor who would be debarred from employment under the law is necessary for the support of the family to which he belongs, the school committee, at its discretion, may issue a permit authorizing his employment. If the effect of this law should be to cause the *habitat* of Quebec to learn to read and write the English language, it would prove vastly beneficial not to himself only, but to that part of the Dominion which is so largely influenced by his ancient habits of thought and life. We fear it is too much to expect such a result.

THE people of the Northwest are complaining that the C. P. R. facilities for transporting the immense quantities of grain out of that country are inadequate, and urge this as a reason for the construction of additional railways. A difficulty seems to present itself just here. The grain carrying trade of the Northwest, although very large, only continues for about three months of the year. The grain is marketed as quickly as possible after being threshed, and requires to be shipped very rapidly. This necessitates the maintenance of a large amount of rolling stock by the railways engaged in the traffic. As the freight business of the country in other lines is as yet comparatively light, it is a question whether the establishing of additional railroads, each requiring to be heavily equipped with rolling stock, use for which could only be found for a short period of the year, would prove a wise or profitable undertaking. In a short time, no doubt, the general business of the country will demand additional carrying facilities, and render profitable other railroads, but at present such a step seems somewhat premature. We learn that several new vessels are under construction, and will be placed next season on Lake Superior to carry Northwest grain from Port Arthur. As our Northwest correspondent intimates that the chief difficulty lies in getting sufficiently rapid transit for the grain from Port Arthur eastward, these new vessels will doubtless remove all serious cause of complaint, at least for two or three years to come.

THE Portland (Oregon) *News* states that the Canadian Pacific Railway Co. intend to run a steamer from Portland to Port Moody, bringing Oregon flour into competition with that of California for the trade of China. The *Northwestern Miller* says Oregon flour can be delivered at Victoria for \$1 per barrel less than Manitoba flour, and that this fact will virtually exclude Manitoba millers from the competition. That our contemporary honestly believes that Manitoba millers will play no part in the struggle for chief place in the Chinese market, seems open to question, in view of the following apprehensive utterance which appears in that journal side by side with the statement already quoted: "Our Pacific coast millers must be vigilant and energetic in looking after their growing flour trade with China and

Japan. The Canadian Pacific railway has nothing to lose and everything to gain by putting Manitoba millers into competition with those of California, Oregon and Washington, for the trade of the almond-eyed people. Already cargoes of Manitoba flour have gone to China, and if rates are such as to permit its sale at competitive prices, it will speedily take the same rank in those markets as is held by hard spring wheat flour in European markets. The fostering policy of the Dominion Government with regard to railways and steamship lines may enable Manitoba millers to drive Pacific coast flour out of China, but if the situation assumes a serious aspect the powerful influence of the people of the coast will be invoked and it may become possible to force congress to recognize the necessity for measures to build up a mercantile navy." As our Minneapolis contemporary says self-interest will doubtless prompt the Canadian Pacific Railway Company to give Manitoba millers sufficiently low rates to enable them to ship flour to China as cheaply as can the California or Oregon millers; and being placed on an equal footing with their competitors, they have the raw material of a quality to make a product that will take first rank in whatever market it may be placed. It rests with the millers of the Canadian Northwest to improve the golden opportunities within their reach.

FILIAL DEVOTION OF ALFRED KRUPP.

Surrounded by tall chimneys, which belch out dense columns of sooty smoke, and by hundreds of huge buildings and the rush and roar of the great works of Essen, Rhenish Prussia, which owe their present extensive existence to Alfred Krupp, who has just died, stands the little house in which this master workman was born, a cosy, unpretentious little structure, which the great gun-maker guarded as one of his most precious possessions. He looked upon it, when compared with its surroundings, as a more suggestive monument than letters of nobility, for it is a monument not only to Alfred Krupp, but to democracy, genius and industry.

The iron king of Germany had this little house photographed, and the pictures were distributed among his 20,000 workmen some years ago. The inscription accompanying these photographs is as follows:

"Fifty years ago this primitive dwelling was the abode of my parents. I hope that no one of our laborers may ever know such struggles as have been required for the establishment of these works. Twenty-five years ago that success was still doubtful which has at length—gradually yet wonderfully—rewarded the exertions, fidelity, and perseverance of the past. May this example encourage others who are in difficulties! May it increase respect for small houses and sympathy for the larger sorrows they too often contain! The object of labor should be the common weal. If work bring blessing, then is labor prayer. May every one in our community, from the highest to the lowest, thoughtfully and wisely strive to secure and build his prosperity on this principle! When that is done then will my great desire be realized.

"ALFRED KRUPP.

"Essen, February, 1873.

"Twenty-five years after my taking possession."

CHEAP BOILER FITTINGS.

If there is a situation in the world where "cheap" appliances have no place, says the *American Machinist*, it is around a boiler. And it is not alone because of danger in their use, but because in the end cheap boiler fittings cost too much. Just a few minutes' reflection will convince the most skeptical that the grates that are always burning out, the safety valve that always leaks and always needs tinkering, the gauge that is always wrong, and the blow-off that works all the time, are costly luxuries. The best boiler fittings that can be had are the only ones that are cheap. There are too many poor fittings made because there are too many men who never thought long enough about the matter to avoid having them.

CATARRH, CATARRHAL DEAFNESS, AND HAY FEVER.

[From *Scientific American*.]

Sufferers are not generally aware that these diseases are contagious, or that they are due to the presence of living parasites in the lining membrane of the nose and eustachian tubes. Microscopic research, however, has proved this to be a fact, and the result is that a simple remedy has been formulated whereby catarrh, catarrhal deafness, and hay fever are cured in from one to three simple applications made at home. A pamphlet explaining this new treatment is sent free on receipt of stamp, by A. H. Dixon & Son, 305 King Street West, Toronto, Canada.

Northwest Letter.

THE Secretary of the Winnipeg Board of Trade has lately issued a report giving his estimates of the yield of the various crops for Manitoba for the present season. My opinion is that he is a little too high, and I am still of the opinion that my last estimate turns out to be not far from the mark. The secretary places the wheat crop of Manitoba at over 12,000,000 bushels, of which he estimates that 10,000,000 bushels will be available for export. He has no new statistics to go on, and bases his calculations of acreage, etc., upon the returns to the Provincial Agricultural department, which figures were dealt with in a previous letter. The 432,134 acres under wheat reported by the agricultural department, he estimates will return an average yield of 28 bushels to the acre, or about five bushels greater than the estimate of the department. Threshers certainly report very large yields. From forty to fifty bushels to the acre is frequently reported, and in a few instances threshers vouch for yields of over 50 bushels to the acre, but these reports, even if accepted, cannot be taken as indicating an average yield of anything like as large an amount. It is a fact that few poor fields are seen this season, but still there are many that will not return 20 bushels per acre. However, if the yield comes within a million or so of the secretary's estimate, it will do pretty well. The secretary also estimates the value of the wheat crop a little higher than present values will warrant. He places the value of his estimated 10,000,000 bushels surplus at 55 cents per bushels, thus making a total of \$5,500,000. The fact is that at the present time wheat is not averaging anything like such a figure. Quotations for No. 1 hard now range from 51 to 54 cents, with the lower prices at markets where the greater portion of the wheat will be marketed. Then No. 2 hard and No. 1 northern ranges 3 cents under No. 1 hard, and No. 2 northern at 6 cents under No. 1 hard. This would make the average value of wheat not greater than 50 cents per bushel. Quotations at Winnipeg are 5 cents higher than the range of prices given, but there is so little wheat marketed in the city that it will not signify in the aggregate.

A good many dealers here have been considerably exercised over the fixing of the grain standards. There is a considerable difference of opinion regarding the different standards, the farmers and some grain dealers contending that they are too high, whilst millers are naturally anxious that the present standards be kept up. According to the Dominion Act, No. 1 hard must consist of not less than 85 per cent. of hard wheat. This places a very high standard in comparison with Duluth, where No. 1 hard may be fixed at a very much lower percentage of hard wheat, the Act merely requiring that this grade shall consist mostly of hard wheat. Accordingly at Duluth No. 1 hard could be fixed at anything over fifty per cent. Those in favor of the high standard argue that the quality of Manitoba wheat must be kept up to above every other wheat, that a great name must be established for our wheat, in order to create a demand for it in importing countries. The millers are naturally anxious to keep up the standard from the fact that they thereby secure a high grade for a minimum price, as can be shown to be the case. It is possible, however, that Manitoba producers may be paying too dearly for the whistle, in the endeavor to establish a great name for the quality of our No. 1 hard wheat. No. 1 hard wheat is No. 1 hard to outside buyers whether it comes from Winnipeg or Duluth, and the fact is Manitoba wheat has not commanded a proportionately higher price to the farmer here than would Duluth grade. For instance, prices to farmers here are regulated at Duluth. To arrive at the price of wheat to farmers at any point in Manitoba, it is only necessary to find the value of No. 1 hard at Duluth. Then deduct the cost of shipping from the Manitoba point to Port Arthur from the value of the grain at Duluth, allow for cost of handling say 2½c., and you have the figure which is paid to Manitoba farmers for their No. 1 hard. This shows that the Manitoba farmer gets no more for his No. 1 hard, which is not less than 85 per cent. sound, hard Red Fyfe, than is paid for Duluth No. 1 hard, which may be anything over fifty per cent. hard wheat. It also shows why the millers are interested in keeping up the standard. Now, as a matter of fact, Manitoba No. 1 northern is equal in quality to Duluth No. 1 hard, but the Manitoba farmer gets 3 cents less for the former grade. I have it as the opinion of more than one grain dealer here that our No. 1 northern is better than the highest Duluth standard. It is therefore pretty clear that the farmers are losers by the high grading. There is another way of looking at the matter. Last year Duluth turned out about ninety per cent. of No. 1 hard, which was much better than

Winnipeg and Port Arthur could show. But had the standard of No. 1 hard been as low here as at Duluth, our proportion of No. 1 hard would have been as great, if not greater, than Duluth. Outsiders do not understand the difference in the grade, and compare Manitoba unfavorably with Duluth. This year Northwestern wheat will not grade as high as last year. It is a fine plump berry, but there is a larger proportion of soft wheat in the samples so far shown. It is the opinion of all dealers spoken to that the proportion of No. 1 hard will be considerably under last year. Now, were Northwestern standards about the same as Duluth, nearly all our wheat would grade up to No. 1 hard. As it is, however, the proportion of No. 1 hard will not reach 50 per cent. It has been already shown that prices here are regulated by Duluth grades, therefore this means a loss to our producers of three cents per bushel (the difference between No. 1 hard and No. 1 northern) on from one-half to three quarters of the total yield of the province. Grain dealers have not the same interest in keeping up the standard that millers have, and many of the Winnipeg dealers would be in favor of a reduction of the standards, but this can only be done by Act of Parliament.

Grain dealers are just now put to a great deal of inconvenience owing to the great lack of shipping facilities. The C. P. R. made large promises of their ability to handle the wheat, and it is claimed that 2,500 cars were on hand to open the season with. The difficulty, however, seems to be at Port Arthur mainly, for though cars are none too plentiful, there is some opportunity of shipping as far as Lake Superior, but for lake accommodation there is practically none. Less than one day's receipts in Manitoba can be handled in a week at Port Arthur. Dealers have therefore been unable to make contracts with eastern millers for the delivery of wheat. A number of grain steamers between Port Arthur and lower ports are badly needed. It is estimated that it will take at least 1,000 trains of 20 cars each, to export our surplus products of this year's crop. This will give an idea of the amount of traffic between Winnipeg and Port Arthur. This only includes the surplus crop of the province, to which must be added the exports from the territories, besides the general traffic passing over the road. The traffic from the west will be very much greater than last year, as may be imagined from the fact that the wheat exporting district will be extended about 200 miles farther west than last year. Moose Jaw will practically be the western limit from which wheat will be exported, though some small quantities will be shipped from the C. P. R. experimental and other farms some hundreds of miles beyond.

THE TURNING LATHE.

The origin of the turning lathe, says Mr. Willis in the *Builder and Woodworker*, is lost in the shades of antiquity, and the saw-mill, with a complete self-action turned by a water-wheel, is represented in a manuscript of the thirteenth century at Paris, and is probably of much earlier contrivance. The lathe was, in process of time, adapted to the production of oval figures, twisted and swash work, as it is called; and lastly, of rose-engine work. The swash, or raking mouldings, were employed in the balusters of staircases and other ornaments at the period of the Renaissance in architecture, about the end of the sixteenth century, and therefore the swash-lathe assumes somewhat of the character of a manufacturing machine. But the simple lathe was much employed in screen and stallwork during the middle ages. The first real treatise on turning is Moxon's (1680) which gives us a valuable picture of the state of the art at that period; and he has preserved to us the name of the engine-manufacturer of that day, Mr. Thomas Oldfield, at the sign of the Flower-de-Luce, near the Savoy, in the Strand, as an excellent maker of oval-engines, swash-engines, and all other engines, which shows that such machines were in demand. A few drawings of such machines occur in earlier works, beginning with Besson, in 1569. From the treatise of Plumier, published at Lyons in 1701, we learn that turning had long been a favorite pursuit in France with amateurs of all ranks, who spared no expense in the perfection and contrivance of elaborate machinery for the production of complex figures. This taste continued, at least, up to the French Revolution, and contributed in a very high degree to the advancement of this class of machinery. In England the literature of the subject is so defective that it is very difficult to discover what progress was made during the seventeenth and eighteenth centuries. A few scattered hints can only be collected, whereas in France the great "Encyclopedia" and other works, abundantly illustrated, give the most precise and accurate knowledge of the state of this and other mechanical arts.

USEFUL INFORMATION

Steel may be bronzed by covering it with olive oil and exposing it to the steam of a kettle of boiling water.

A CEMENT FOR IRON.—Mix sixty parts of pulverized cast-iron turnings with two parts of sal ammoniac and one part of flowers of sulphur, and add water until a paste is formed. A cement is thus obtainable which grows hot spontaneously, evolving sulphureted hydrogen, and soon becoming very hard. Of course it must be prepared immediately before using.

THE CONSUMPTION OF POWER.—It has been ascertained that the horse-power required to run a machine shop in which 700 men were employed, was 135.05, of which 66.81 horse-power was required to run the shafting, blowers and such things as were not machine tools, leaving 68.24 horse-power to run the machine tools, or a trifle less than one horse-power for ten men.

Wood and Iron says that one of the neatest and best ways of testing the soundness of a boiler plate is to sling it up by the corners so that it will lie in a horizontal position, and scatter a small quantity of dry sand evenly over the surface. By tapping the sheet lightly underneath, the sand will be thrown off wherever the plate is solid, while in places where lamination or blister occurs the sand will remain fixed.

TO PREVENT WOODEN HANDLES AND FAUCETS FROM CHECKING.—Put the articles in melting paraffine and heat them there to a temperature of 212° Fahrenheit, until bubbles of air cease to escape from the wood. The whole is then allowed to cool to about 120° Fahrenheit, when the wood is taken from the bath and cleansed from the adhesion of paraffine by rubbing with a dry piece of cloth.

THE SPECIFIC HEAT OF WATER.—Of all substances, water has the greatest specific heat; that is to say, it absorbs more heat in warming and gives out more heat in cooling, through a given range of temperature, than an equal weight of any other substance. The heat which raises a pound of water from 32° to 212° Fah. would suffice to raise a pound of iron from 32° to about 1600° Fah., that is, to a bright red heat; and conversely, a pound of iron in cooling from 212° to 32° gives out as much heat as a pound of water in cooling from 1600° to 32°. This property of water is utilized in the heating of buildings by hot water.

NICKEL STEEL.—Nickel steel is being made by the Ferro-Nickel Society, of Paris, in the following manner: The plan has reference to a new sort of steel which is said to require no hardening. It is composed of soft iron, nickel, manganese metal, or an oxide of it, aluminium, wolfram and ferro-cyanide of potassium. The steel is produced at one melting. After the iron and nickel are melted the manganese or its oxide and the ferro-cyanide of potassium are added. After a few minutes' time, during which the manganese with the other ingredients are melting and the reaction is taking place, the mass is stirred with a red-hot rod of graphite, whereupon the aluminium is added and the stirring for a short time longer is continued. The alloy is to be well melted again, when it can be cast into any decided shape in the usual way, the precaution being observed to paint the moulds with coal tar, free from all water of ammonia, and to have them as free from air as possible.

ELECTRICITY DIRECT FROM FUEL.—Mr. Edison is still at work upon the problem of generating electricity directly from the fuel without first converting it into power in the engine. A paper prepared by Edison was read by Prof. George W. Haker before the Section of the American Society for the Advancement of Science, describing an apparatus for this purpose which he calls the pyromagnetic dynamo. After reciting the labors of other scientists, Mr. Edison states: "In considering the matter, another line of investigation suggested itself to me, the results of which I have the honor now to submit to my fellow-members of the physical section. It has long been known that the magnetism of the magnetic metals, and especially of iron, cobalt and nickel, is markedly affected by heat. Accordingly, Hequerel nickel loses its power, being magnetized at 400°, iron at a cherry red heat, and cobalt at a white heat. Since whenever a magnet fluid varies in strength in the vicinity of a conductor, a current is generated in that conductor, it occurred to me that, by placing an iron core in a magnetic circuit, and by varying the magnetization of that core by varying its temperature, it would be possible to generate a current in a coil of wire surrounding this core. This idea constitutes the essential feature of the new generator which, therefore, I have called a pyromagnetic generator of electricity."

FINISHING.—One of the English furniture gazettes gives the following account of the French process of ebonizing: One of the most ingenious and serviceable methods practiced by French artisans in wood is that by which is produced a complete resemblance in the color, beauty, and density of ebony by the skillful use of charcoal upon the surface. None but carefully selected woods of close and compact grain are employed for this purpose, and these are covered in the first place with a coat of canphor dissolved in water, and almost immediately after with another coat composed chiefly of sulphate of iron and nut-gall. The two combinations in blending penetrate the wood and give it an indelible tinge, and at the same time render it impervious to the attacks of insects. On these two coats becoming sufficiently dry, the surface of the wood is rubbed at first with a very hard brush of couch grass and then with charcoal of substances as light and friable as possible, the fact being that if a single hard grain remains in the charcoal it will scratch the surface, which should be perfectly smooth. The flat parts are rubbed with natural stick charcoal, the indented portions and crevices with charcoal powder, and, alternately with the application of charcoal, the article operated upon is rubbed with a flannel soaked in linseed oil and turpentine. These proceedings, repeated several times, cause the charcoal powder and oil to penetrate the wood, insuring a beautiful color and a perfect finish.



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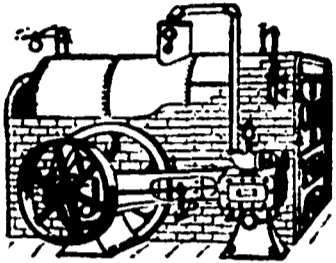
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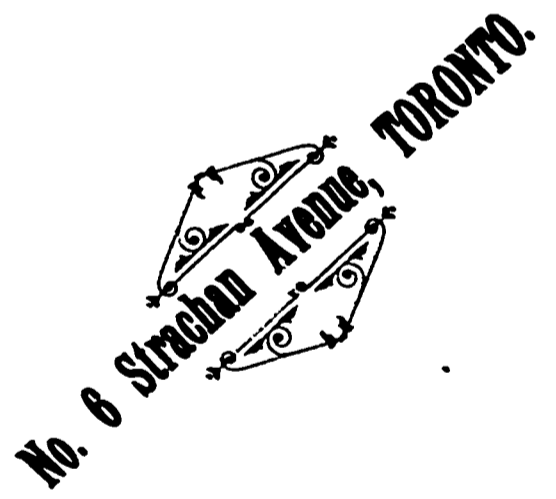
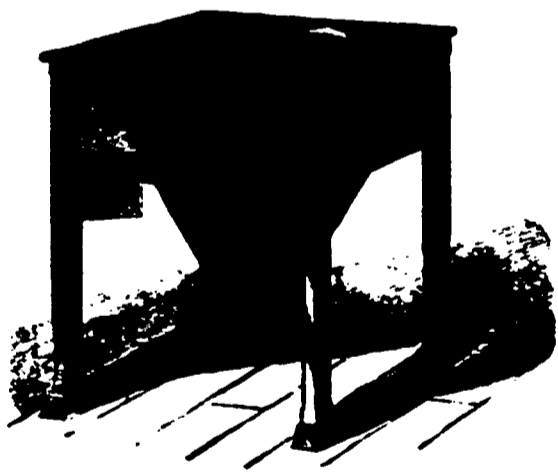
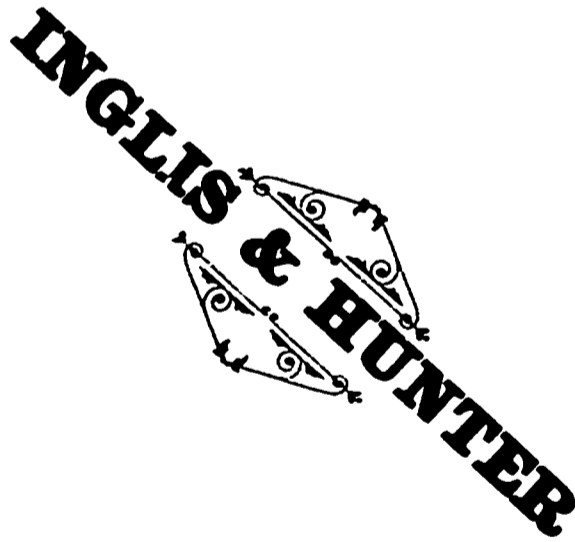
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TRADE NOTES

Mr. E. D. Tolson, of Tilsonburg, Ont., has ordered a No. 3 smutter of Wm. & J. G. Greey for his oatmeal mill.

Messrs. Goldie & Mculloch will supply a 60 h. p. engine and 70 h. p. steel boiler to drive the electric light machinery at Guelph.

Messrs. Moffat & Simpson, of Norwood, Ont., have purchased one of Wm. & J. G. Greey's latest improved centrifugal bolting reels.

Mr. John R. Hoover, of Pickering, Ont., has contracted with Messrs. Inglis & Hunter to change his mill to the short system.

Mr. F. L. Green, of Greenwood, Ont., is building a new oatmeal mill, the machinery for which is being supplied by Wm. & J. G. Greey, of Toronto.

R. Chrysler, of Chrysler, Ont., is making a change in his system of milling. Messrs. Wm. & J. G. Greey, of Toronto, are supplying the rollers and bolting machinery.

Mr. Chas. E. Dreury, of Osborne, Ont., is converting his grist mill into a full roller system mill, and has placed his order for rolls, etc., with Wm. & J. G. Greey, Toronto.

The Waterous Company of Brantford, lately sold one of their chopping mills to Mr. Turner, proprietor of the Wentworth brewery, Dundas. It will be used to do chopping for the farmers of that locality.

Mr. Adam Geddes McDonald's Corners, Ont., is making some additions to his mill, and has purchased a No. 1 improved cockle machine from W. & J. G. Greey of Toronto.

Mr. Albert Hagar, of Plantagenet, Ont., is refitting and improving his mills, and for this purpose has ordered purifiers, cleaners, dressers and centrifugals from Wm. & J. G. Greey, of Toronto.

Messrs. Hodgins & Foster, of Shawville, R. Q., have placed an order for rolls, centrifugals and purifiers, for the changes now being made in their mill. Messrs. Wm. & J. G. Greey, of Toronto, have the contract.

Mr. B. Hoover of Markham, Ont., whose mill was recently destroyed by fire, is busy engaged in rebuilding, and has placed his order for rolls with Inglis & Hunter of this city.

Messrs. N. Wenger & Bros. are still adding to the efficiency of their large roller mill at Ayton, Ont., and have ordered two more double sets of latest improved roller mills from Wm. & J. G. Greey, of Toronto.

The Tavistock Milling Co., Tavistock, Ont., finding the wheat very dry and the bean very brittle this year, have ordered a Welch wheat heater from Wm. & J. G. Greey, of Toronto, to toughen the bran and improve the color of their flour.

Messrs. Goldie & Mculloch of Galt, lately shipped one of their large fire-proof safes to the Rubber Tube Manufacturing Co., of Glasgow, Scotland. This is like sending coals to Newcastle, and speaks volumes for the quality of the Galt safes.

The mill of Timothy Gray, of Don Mills, Ont., which has lately been changed to the full roller process under the supervision of the genial millwright Courtenav, was started in good shape last week. The programme and machinery were all furnished by Wm. & J. G. Greey, of Toronto.

Messrs. Wm. & J. G. Greey have completed the refitting of S. A. Julien's mill at Wallaceburg, Ont., using round flour dressers and scalpels for all bolting machines. The mill made a very satisfactory start, as can be seen by reading Mr. Julien's letter in the Messrs. Greey's advertisement.

Mr. John McFarlane, of Dunlana, Ont., is changing his mill to the short system and has placed his order with Inglis & Hunter for their improved roll frames, with vibratory feed, Silver Creek flour bolts and Cyclone dust collector.

Mr. Thos. Cook, of Arvale, Ont., finding the new round flour dresser superior to the old six-sided one, has decided to adopt the same for his entire bolting system, and has ordered the necessary dressers from Wm. & J. G. Greey of Toronto, who are hard at work getting the change completed.

Mr. M. S. Deane, of Bridgwater, Ont., having had two or three years trial of the combined stone and roller system, has finally come to the conclusion that nothing short of a long system of roller milling will fill the bill. The result is, Wm. & J. G. Greey of Toronto, have an order for the additional rolls and other machinery to make the necessary changes.

The new 50 barrel full roller mill of Thos. Holmes, Chatham, Ont., situated in the centre of the business portion of that thriving town, was completed and satisfactorily started last month. The mill is fitted with the latest improved roller mills, round flour dressers, round scalpels, etc. All the work was done by Wm. & J. G. Greey, of this city.

Messrs. McLaughlin Bros., of Arnprior, Ont., have decided to change their flour mill to the roller system, and have placed their order with Inglis & Hunter for rolls, Silver Creek flour bolts, centrifugal reels, bran dusters and purifiers. This mill, when completed, will be of most modern design, on the Case system.

Mr. John Tilburne, of Holland Centre, has contracted with Wm. & J. G. Greey, of Toronto, to entirely refit his mill, the intention being to have a first-class small custom roller mill, the system to be a full roller and flour dresser one, embodying all the latest improvements.

Mr. W. H. Banfield, machinist and the maker, 80 Wellington St. West, Toronto, has been appointed sole agent for, and manufacturer of, the Willis Jones Patent Hub, a description of which appears on our front page. Mr. Banfield reports that he has sold several soap presses this month and has orders on his books for several more.

Oatmeal millers seem to be becoming alive to the necessity of removing all the cockle out of the meal, and are purchasing cockle machines for this purpose. The following have placed their orders for such machines with Wm. & J. G. Greey, of Toronto, viz.: Wm. Thompson, of Mitchell, Ont.; Charles Russell, of Uxbridge, Ont.; F. C. Ireland & Son, Toronto, Ont.

Messrs. F. C. Ireland & Son, late of Lachute Mills, Que., have purchased a property on Church street, Toronto, and are fitting it up for the manufacture of their celebrated "National Foods." They have placed their order for the necessary machinery, consisting of latley mill, oatmeal machinery, etc., with Wm. & J. G. Greey, Toronto, who are vigorously pushing the work.

The mill of Mr. George Needler, Millbrook, Ont., having been remodeled into a full roller mill of 60 to 75 barrels capacity, the bolting system of which is entirely accomplished by the new round flour dressers and round scalpels, made a most successful start last month, and has been steadily running ever since. The entire contract was in the hands of Wm. & J. G. Greey.

Messrs. R. Muir & Co., of Winnipeg, Man., the Northwestern agents for Wm. & J. G. Greey, of Toronto, have secured the contract for a full roller mill of 100 barrels capacity for the Holland Milling Co., at Holland, Man. Work is being pushed rapidly forward, and the machinery will be shipped in a few days. The same firm have nearly completed the mill for Jas. Buckpitt, at Balmoral, and for Mitchell & Bucknell, at Millwood, Man.

The Geo. T. Smith Co., of Stratford, Ont., are building for the new Keewatin flouring mill, twenty 9x30 and seventeen 9x24 solid iron roll frames, Allis pattern, twenty-four No. 2 Smith purifiers, twenty-four Prinz dust collectors, twenty-two Smith centrifugal reels, and twenty-eight Smith inter-elevator bolts. The upright shafts, 7½ inches in diameter, and all other shafting, pulleys and iron work will be supplied by the Smith Co. The mill building will be covered in within thirty days, and the machinery will be shipped before the 1st of January.

The new mill of Henry Green, of Lyndhurst, Ont., on the full roller system, started operations last month with a full outfit of machinery from the water wheel up. The bolting is all done on the new round flour dressers and round scalpels. The mill started off without any trouble and, we are informed, produced such good results that Mr. Green settled for his whole contract the second day after starting. The contract was in the hands of Wm. & J. G. Greey, of Toronto.

Messrs. Inglis & Hunter during the past month have sold Cyclone dust collectors to the following persons: N. Wenger, Ayton, Ont.; John Wright, Owen Sound, Ont.; Campbell, Rutherford & Sinclair, Bleinheim, Ont.; Hughson, Bleinheim, Ont.; Thos. Eyre, North Augusta, Ont.; Gardner & Jones, Castleton, Ont.; John McLaren, Renfrew, Ont.; E. P. Allis & Co., Milwaukee, for Keewatin mills; Jas. Pye, Minneapolis, for Jermyn's mill, Minnedosa, Man.; J. P. Wagner, for planing mill at West Toronto Junction; Massey Mfg. Co., Toronto.

Messrs. Ogilvie & Co., of Montreal, evidently appreciate the merits of the Cockrell scouring case on wheat cleaners. They have ordered six from Wm. & J. G. Greey, of Toronto, for their new cleaners in their Royal Mills, and since getting them in use, have ordered four more for their Winnipeg mill and one for their Montreal mill. The Messrs. Greey also report orders for Cockrell cases for Wm. Snider & Co., of Waterloo, Ont.; L. Hunnart & Son, Milton, Ont.; and I. H. Drexus, Streetville, Ont.

PERSONAL.

Items of personal intelligence from or concerning persons engaged in the various branches of mechanical industry established in Canada will always be welcome to this column, with the stipulation that the name of the sender be given, not for publication, but as a guarantee of good faith.

Miller Jas. Horton has removed to Orangeville from Hooklin, Ont. Mr. Glebe has assumed charge of Corrie's flour mill at Atwood, Ont. Mr. H. McCulloch, left Galt last month on a business trip to British Columbia.

J. A. Mitchell, of Winnipeg, has rented the Macara elevator at Niverville, Man.

Miller Robert Thompson is about leaving Corrie's mill at Atwater, Ont., to take a position at Warton, Ont.

Mr. John Murray, of the firm of Murray & Atcheson, is erecting a hand some residence near his mill at Downie, Ont.

Messrs. Brown, Burpee & Ritchie are now owners of the Gladstone, Man. flour mill, Mr. Williams having retired.

Mr. Geo. T. Smith, President of the Smith Purifier Co., Jackson, Mich., and Stratford, Ont., has just returned from a trip to Europe.

Mr. E. A. Parker, manager of the Gurney Co.'s works at Dundas, has accepted a position with the Waterous Company, at Brantford.

Chas. Woodsend, an employee in McAuldan's planing mill at Galt, had one finger taken off and two others badly injured by a circular saw.

Miller Geo. Cherry, of Preston, Ont., has gone to try his fortune in the Northwest. He carries with him the best wishes of his acquaintances.

Mr. Daniel Mowbray had his hand mangled while working about the machinery in Mowbray Bros. saw mill at Rodney, Ont., a few days ago.

Mr. John Ogilvie, of the well-known milling firm of A. W. Ogilvie & Co., Montreal, has just returned from an extended visit to the Northwest.

Messrs. J. & J. Livingstone, of Baden, Ont., had their safe burst open and ransacked by burglars last month. The thieves only secured about \$50, however.

Walter Gilmore lost the first two fingers of his right hand in Bell's furniture factory at Wingham, the other day, by coming into too close contact with the planer.

Mr. John Henry, of Minnedosa, in the Northwest, has returned to that place after spending a year in looking after the patent for a motive power for light machinery.

Mr. F. C. Palmer, of the Manitoba Milling and Brewing Co., Portage la Prairie, has gone to visit his brother in Idaho. He expects to return about a month hence.

Mr. C. MacMurchy, of Shoal Lake, Man., recently had one of the bones in his right fore-arm fractured by being caught in the belting of the flour mill at that place.

Mr. Thomas Cowan, President of the Manufacturers' Association, has been appointed postmaster at Galt. Mr. Cowan is receiving the congratulations of political friends and opponents.

Mr. James Goldie, the well-known miller, of Guelph, on his return from a somewhat extended visit to Europe, was presented with a kindly worded address of welcome by his employees.

Mr. P. Bertram, on leaving Orillia to assume control of the Dundas saw factory, was presented with an address by the members of the Mechanics' Institute, of which he was the President.

It is reported that Mr. Cargill, M. P. for East Bruce, who carries on extensive lumbering operations, had his safe blown open recently and \$2,000 extracted. The money was to have been used in paying his employees.

Mr. J. D. Brooks, miller, had his arm caught in the machinery in the roller mill in which he is working at St. George, Ont., a few days ago. His arm was badly crushed, but he was fortunate enough to escape with his life.

Miller Horace Wright has removed from Oakland to Rockton, Ont.; Edward M. Tenneyson from Madoc to Walkerton, Ont.; D. Dickson from Jocelyn to Richards Landing, Ont.; Daniel Pouche from Deseronto to Belleville, Ont.

Mr. W. Dewar, miller, had his fingers caught in the rolls, while endeavoring to remove some wheat that was clogging them, in the Oshawa Mills, the other day. By a sudden jerk, he freed his fingers, but not before the ends of them had been crushed.

A resolution expressive of deep regret at the death of Mr. M. M. Elliott, one of the Directors of the Hagger Manufacturing Co., of Brantford, and of condolence with his bereaved family, was passed at a meeting of directors of the Company held a few days ago.

Mr. C. H. Waterous, of the Waterous Company, Brantford, was the recipient a few nights ago of a handsomely-framed photograph of the employees of the company, on the occasion of the jubilee year of the company's existence and of his fortieth year of residence in Brantford.

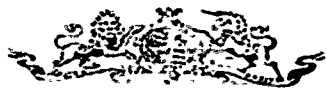
Mr. Alfred Stevens, foreman in Green & Elliot's saw mill at Fenelon Falls, was presented by the employees of the mill with a handsome chain and charm on the occasion of leaving to assume charge of a large lumbering concern at Gravenhurst. Mrs. Stevens was also made the recipient of a beautiful butter cooler.

A son of Mr. James Muirhead, of London, while handling a toy pistol in his father's oatmeal mill accidentally shot one of the employees named Henry Pritchell. The effects of the wound could not at first be stated by the physicians. We are pleased to learn from latest advices, however, that Mr. Pritchell is on the road to recovery.

Benjamin Hazaman, who was brought back to Canada from San Francisco some months ago on the charge of embezzling a large sum of money from the firm of Howland, Jones & Co., millers, Thorold, Ont., by whom he was employed as book-keeper, has been tried at Welland, Ont., and found guilty. Sentence has not yet been pronounced upon him.

Mr. Vincent Denne, proprietor of Fenne's flouring mills at Newmarket, Ont., had a very narrow escape from death last month. While examining the engine the tails of his coat caught in a cog wheel, and but for the prompt action of the engineer, who tore the coat off his back, Mr. Denne would certainly have lost his life. A tail coat is the wrong thing to wear about moving machinery.

The MECHANICAL AND MILLING NEWS records with deep regret the death, under very shocking circumstances, of Mr. Arthur Gillies, of Thamesville, Ont. Mr. Gillies was engaged for several weeks on some work in Bickle & Dryson's mill at Essex Centre, Ont., and had nearly completed it, when he met his untimely end. While attempting to put on a belt with the machinery in motion, he was tripped up by another loose belt lying at his feet, and was immediately thrown between two cog-wheels, which drew his head into their terrible grasp, grinding the back of his head into a jelly. It is then supposed he was caught in the revolving shaft and whirled round and round until the machinery was stopped. When found, nearly all his clothes were torn from him, and the sight was a most ghastly one to behold. The poor man's brains and part of his skull were scattered all round the immediate vicinity of the accident. Mr. Gillies was a young unmarried man about 25 years old, and was well liked by those with whom he was acquainted. His death, in such a terrible manner, has cast a gloom over the village where it occurred, as well as over the village where he lived.



OXFORD & NEW GLASGOW RAILWAY SECTIONS.

131. - Irish Hill Road to Puzwash Junction 13 miles.
2nd - Puzwash Junction to Puzwash 5 miles.
3rd - Puzwash Junction to Wallace Station 7 miles.
4th - Wallace Station to Mingo Road 17 miles.

TENDERS FOR GRADING, BRIDGE AND CULVERT MASONRY, FENCING, ETC.

SEALED TENDERS, addressed to the undersigned, and endorsed "Tenders for Oxford and New Glasgow Railway," will be received at this office up to noon on Friday, the 18th day of November, 1887, for the grading, bridge and culvert masonry, fencing, etc. Plans and profiles will be open for inspection at the office of the Chief Engineer of Government Railways at Ottawa, and also at the office of the Oxford and New Glasgow Railway at Wallace, Cumberland Co., Nova Scotia, on and after the 15th day of November, 1887, where the general specification and form of tender may be obtained upon application.

No tender will be entertained unless made on one of the printed forms, and all conditions are complied with. This Department does not bind itself to accept the lowest or any tender.

A. P. BRADLEY, Secretary.

Department of Railways and Canals, Ottawa, 20th October, 1887.



Notice to Contractors.

SAULT SAINTE MARIE CANAL.

CONTRACTORS intending to tender for works of construction of the canal proposed to be formed on the Canadian side of the Saint Mary's River, are hereby informed that tenders will be received about JANUARY next, and that the most favorable time to examine the locality will be between the present time and the early part of November next. When plans, specifications and other documents are

prepared, due notice will be given. Contractors will then have an opportunity of examining them and be furnished with blank forms of tender, etc.

A. P. BRADLEY, Secretary.

Department of Railways and Canals, Ottawa, 24th August, 1887.

Mortgage Sale

VALUABLE MILL PROPERTY

UNDER and by virtue of a Mortgage there will be sold by public auction, on Saturday, the twenty-sixth day of November, A. D., 1887, at the hour of 3 o'clock in the afternoon, by Robert Madden, Auctioneer, at the Morgan House, in the Town of Kincairdine, the following lands and premises, on the north side of Kincairdine Avenue, and being known as the Macklem Mill Property, and containing by admeasurement three acres of land,

be the same more or less, and being composed of the Westerly three acres of Park Lot No. 2, on the North side of Kincairdine Avenue, in the aforesaid town of Kincairdine, and being further described as that portion aforesaid of Lot No. 2, known as the mill property, together with the grist and saw mill, and the other buildings erected thereon and machinery therein. The said mill is in fair state of repair and is situated in the flourishing Town of Kincairdine, and is the only grist and saw mill in the town; the mill is situated on a leading road and is run by steam. The grist mill is 50 by 36, three-and-one-half stories high, 2 run of 4 feet 4 inch stones, and other necessary machinery, and two sets of weigh-scales. The saw mill is 24 by 30, two stories high, has 60 inch circular saw, button saw, etc.; 40 horse-power boiler, engine 30 horse power; boiler has latest improved heater, boiler cleaner, and low water alarm. Ten per cent. on day of sale, forty per cent. in one month after, and the balance may remain on Mortgage. For further particulars apply to the undersigned,

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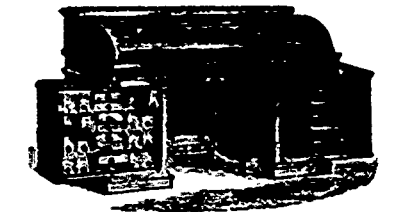
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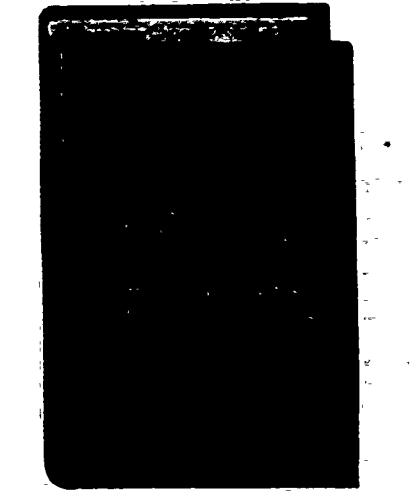
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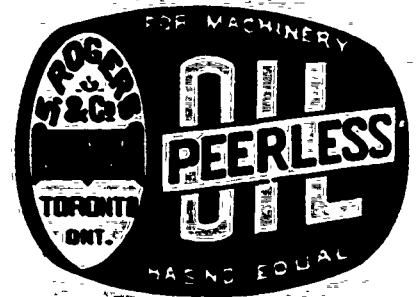
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Having for its special objects the furnishing to subscribers of reliable information on the financial standing or otherwise of tradesmen and others, the collection of outstanding accounts, and the procuring of the most reliable information from independent sources of the value and condition of landed and other properties in any part of Canada and the United States, with correspondents in Great Britain and other parts of Europe.

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The Department for the collection of outstanding accounts is conducted on an entire change of the system usually followed by Collecting Agencies, viz:—Subscribers may have their collections paid either direct to themselves, or to the offices of the Agency, in which latter case remittances will be deposited to an account provided for that purpose, and immediately returned to the parties to whom it is due, and will not be applied to any other purpose.

Another important feature in connection with this Department is, that subscribers depositing accounts for collection will, if requested, be furnished with a Form of Script, on which will be entered the name of each debtor, the amount owing, and a full report of the prospects of collection, and providing that the receipts thereof be paid to hearer only, thus enabling subscribers to realize on their outstanding accounts.

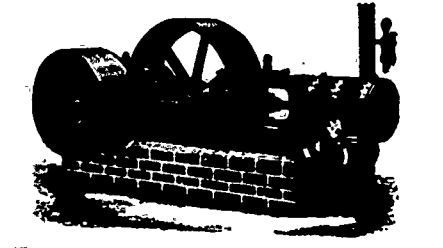
The Agency will forward at least once in three months, or oftener if desired, a report and statement of all accounts in hand.

NOTE—The offices of the Agency are open to the Se-

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Applicants for insurance and other information desired, please address **MILLERS AND MANUFACTURERS' INSURANCE COMPANY, No. 24 Church Street, Toronto**

Steam Department.

THE DIFFERENT KINDS OF STEAM BOILERS, AND HOW TO CHOOSE A BOILER.

By GEO. C. ROHR.

EVERYONE who has had much, or even little, to do with steam, knows that there are a great many different kinds of boilers. Each kind has its own peculiar advantages, and among mechanics and others will be found those who see special advantages in each kind, and who for one reason or another advocate and recommend its use.

What is a steam boiler? and why should there be such diversity of opinion regarding its form and method of construction, and use? The first of these queries is very easily answered, in one way, by saying that a steam boiler is a vessel in which water and heat may combine to produce steam, and which has a space to contain the steam and of sufficient strength to resist the internal pressure produced. That describes the simplest form of steam boiler, and purposely leaves out anything relative to the furnace, or any of the necessary fittings found in steam boilers in actual use.

The other query, as to why there should be such diversity of opinion among mechanics and engineers, about a matter which at first sight seems so plain and simple, is not so easily answered, as it involves many points of detail and a consideration of the whole practical working of steam boilers under a variety of circumstances and conditions.

To all who use steam boilers it should be a matter of interest to learn at least enough about them to be able to form an intelligent opinion as to which kind to buy, and what to expect from their use. In actual use we find steam boilers for factory purposes which are fixed and remain in the same position as long as they are fit for service. There are many subdivisions of this great class of stationary boilers.

Then there are boilers for locomotives used on railways, which must be of a special form to meet the peculiar conditions under which they are used.

Then another division is found in steam boilers, which have also to be specially constructed that they may be in harmony with their environment on board ship.

Then there are portable and agricultural boilers, steam fire engine boilers, and many others, each designed for some specific or special purpose.

Although each particular kind was originally designed to meet some particular case, and to be used in some special way, yet from various causes these reasons have often been lost sight of, and marine boilers are found that never were on board ship, much less ever were at sea, and locomotive boilers that never ran on a railway.

In selecting a boiler and deciding upon the kind, the nature of the work to be done and the place the boiler is to be put, should be first considered; then the pressure of steam to be carried in it, the kind of fuel to be used in the furnace, and the nature of the water to be had for supply of feed water should be taken into account.

Stationary boilers may be in most cases surrounded by brickwork, but in some cases brickwork cannot be allowed, and a boiler of some one of the "self-contained" types must be adopted.

Here, then, we have at once two great divisions of stationary boilers, viz., those surrounded by brickwork to form the furnace or flues, and those which are independent of brick setting.

In factories in Britain the "Lancashire" and "Cornish" forms of boilers are the most common. The "Lancashire" has a large shell containing two flues which run from end to end of the boiler, and each forms a furnace at one end. The "Cornish" has a shell generally smaller in diameter, with one flue running through the boiler and forming the furnace at one end. Both of these require brick setting to convey the hot gasses from the internal flues around the outside shell and thence to the chimney. The flues frequently have tubes crossing them, called after their inventor "Galloway" tubes. The object of these Galloway tubes is threefold:

- 1st. They increase the strength of the flue very much.
- 2nd. They increase the heating surface in an advantageous way.
- 3rd. They promote the circulation of the water within the boiler. These boilers are not much used in Canada, although a few are to be found, chiefly in Montreal and in parts of Nova Scotia. The chief advantage claimed for them, and the principal point aimed at in their design, is the facility for cleaning them out, as they are usually of such dimensions that you can freely work inside of them to remove mud or deposit, and can pass through all the flues to remove soot or dust or examine the condition of the boiler plates.

In this country the ordinary horizontal tubular boiler, with a furnace underneath it, built in brickwork, is the type most commonly used for factory purposes.

What are the points of difference in these two kinds? So far as economy in fuel is concerned, the most careful tests show that with ordinary coal there is very little difference, the one being as economical as the other. But when a comparison is made, taking into account the weight and dimensions of the boiler in proportion to the amount of steam or power to be got out of it, the horizontal tubular is much superior to the flue boiler, as an ordinary horizontal tubular boiler about 60 inches diameter and 12 to 14 feet long will do about as much work in evaporating water as a Lancashire boiler 7 feet in diameter and 26 feet long. If strength be taken into account, any form of boiler can be made strong enough for any required pressure, if sufficient material be used, but as ordinarily made the tubular boiler can carry with safety a higher pressure than a flue boiler, mainly because the flues are the weakest point in a Lancashire boiler, owing to their being subjected to external pressure tending to collapse them, and their powers of resistance are dependent upon the diameter, exactness of form, thickness of plates and length. In a tubular boiler, the parts subjected to external pressure are so small in diameter that they are usually the strongest part of the boiler; at the same time the metal is so thin that heat passes more freely into the water. If durability be considered, there is no reason why a tubular boiler should not last as long as a Lancashire flue boiler.

The point demanding most care and attention in a tubular boiler in order to make it durable is the same as is necessary in order to keep it economical, and that is to keep it clean. By proper care and attention, tubular boilers can be kept clean.

The weak point in Lancashire boilers, or rather the point where they most frequently give out, is in the bottom along the lines of brickwork which form the sides of the under flue, and upon which they rest. Here corrosion takes place, and has often not been discovered until the boiler turned upside down. Another point worth considering is that steam can be got up more quickly in the tubular boiler, because of its containing a smaller quantity of water, and that water broken up into small sections by the tubes.

A last point to be mentioned in favor of the tubular is, that when explosion does take place, had as it may be, it is not generally so destructive as when a large flue boiler explodes.

For the reasons given, the tubular boiler as ordinarily made in this country, seems to be more advantageous than the large flue boilers commonly used in Britain. There is one condition, however, under which the flue boiler will be found superior to the tubular, and that is, where the fuel used is of a very soft nature of bituminous coal, giving off a dense heavy smoke. With such fuel it is impossible to keep small tubes free from soot and tarry deposit.

Why is the flue boiler so largely used in Britain?

Because the people there are slow to change. Their fathers made flue boilers before any one made machinery to manufacture tubes, and although tubes are used in locomotives and marine boilers, yet for factories the flue boiler remains the standard type.

Some years ago one who was accustomed to these boilers in England, started a factory in Canada, and came to the conclusion, after trial, that the foreman here did not know how to handle coal, and that tubular boilers were a humbug. He sent to England and imported Lancashire boilers, fitted with mechanical stokers, to put the coal in the fire, and with his boiler room like a little bit of old England, his heart is satisfied—and he has a perfect right to be so. In another article some other forms of boilers will be compared.

SOME VALUABLE POINTS FOR STEAM USERS.

Our excellent American contemporary, the *Locomotive*, published by the Hartford Steam Boiler Inspection & Insurance Co., prints the following valuable information for owners and managers of steam plants:

A defective blow-off is always a serious defect. If it is in such a condition that it won't hold water, it is of course dangerous. All kinds of valves, whether straight-way, globe, or any other form of construction yet devised for valves, are unsuitable things for blow-off pipes. They all have the grave defect that pieces of scale or other hard substances are liable to get under the valve and prevent its closing, and there is no way to tell whether this has happened in any particular case except by examining the end of the blow-off pipe after the valve is supposed to be closed, to see whether it leaks or not.

Plug-cocks as they are ordinarily made are always giving trouble by leakage; pieces of scale or other gritty

substances cut the plug and body, they are liable to stick so that it is with great difficulty they can be opened, and various other things make them a source of much trouble, but for all this it is positively known at any time by a simple inspection of the plug itself whether it is shut or not, and the amount of leakage, if there is any, generally shows for itself around the plug, so we are inclined, in spite of its grave defects, to give preference to the common plug-cock over any form of valve, as a means of closing blow-off pipes.

But an improved form of plug-cock has within a few years been put upon the market (originally devised in England), which is without question superior to anything else for blow-offs. It is made of iron, is protected from corrosion, by Prof. Harff's process, and is packed with asbestos. Wherever it has been tried it has given most satisfactory results, and is undoubtedly the best blow-off valve made.

We have so often pointed out the evils and even dangers arising from the use of open heaters that it seems almost superfluous to refer to them again, and we would not do so were it not for the fact that they are still put in and used, and even adopted in some cases against the advice of those who have tried them and experienced the usual kind and amount of trouble. Where an open heater is used in connection with an engine, or in any place where the steam becomes contaminated by grease, especially animal oils or fats, trouble with the boiler is a dead sure thing. We have never known of an exception to this rule. Various circumstances may delay the trouble for a greater or lesser time, but it is sure to come. The grease discharged into the boiler will settle down upon the fire sheets, the sheets will become overheated and bulge or blister. If they are not of good quality there will be great danger of explosion. The only way to avoid the difficulty is to discontinue the use of such a heater, clean out the boiler and begin again.

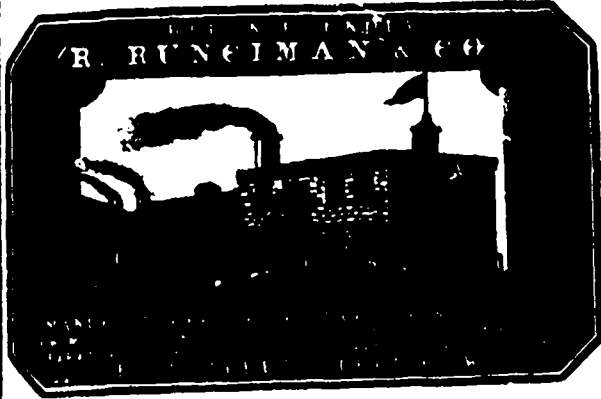
It is a very simple matter to clean out a boiler which has become greased upon the inside if one knows how to go about it. Grease is insoluble in water. Soap is very soluble. Grease and soda combined form soap, which is easily blown out of the boiler. Therefore the easiest and simplest way to clean out a boiler which has become fouled up with grease is to dissolve a few pounds of soda ash or sal soda, from 10 to 25 pounds in water, put it into the boiler, fill up with water, and build up just a little fire, little more than enough to boil the water, raise say three to five pounds of steam, and let it run this way for a day or two. If enough soda was used the boiler will be found, if blown off now, quite free from the adherent grease; it will only need to be washed out well to be in good condition. If there is any grease left it is evidence that not enough soda was used, or that the boiling process might be continued for a greater length of time, and the operation should be repeated.

If men who put up large business blocks would get their specifications for boilers and amount of radiating surface made by disinterested parties, they would not so often be obliged to increase their boiler capacity, usually at great expense and trouble, as soon as cold weather sets in. It is all right to give a steam fitter carte blanche to go ahead and put in the heating apparatus in such cases, if the owners wish to do so, but it has been proved by experience that when several parties compete for such a job, each bidding on his own particular plan, and the lowest bidder gets it, that in about nine cases out of ten, when the job is finished, something is wrong, and that something has to be made right, usually at great expense before the building can be comfortably heated.

Greater care than is usually bestowed upon that large and useful class of boilers known as portables might profitably be given to them. They are subject to hard usage under the most favorable conditions. Many if not most of them are set up out of doors without any sort of covering or protection, they get rained and snowed upon, they are usually worked to their full limit, and the construction of those of the upright form renders them peculiarly liable to give out at the upper tube sheet. Usually about 18 inches of the upper ends of the tubes are not covered by water, and they are consequently overheated in this part. This sets them leaking around the ends, and this leakage in turn corrodes the tube sheet. Boilers of this sort which do not leak badly at the upper ends of the tubes, after they have run a short time, are the exception. They are also frequently run without any bond over the smoke pipe, and there is nothing to prevent rain from coming directly under the head. This, however, only aggravates the first mentioned trouble. Boilers of this class should always have some shelter over them if possible. If it is not possible then they should be kept well painted and oiled. A cover should always be provided for the top of the smoke stack, and every means available employed to prevent corrosion, the great enemy of this class of boilers.

GODERICH FOUNDRY AND MACHINE WORKS.

RUNCIMAN BROS. - PROPRIETORS.



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GRADUAL REDUCTION ROLLER MILLS

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We are making Roller Frames and Cabinets for small or large Mills, using the Genuine American Ansonia Chilled Rollers, Corrugated and Smooth, as follows: 6x12, 7x14, 9x14, 9x18 and 9x24, neatly fitted up and belted at both ends. They run perfectly noiseless.

Centrifugal Reels for Bolting Flour, Bolting Reels with Double Conveyors, Scraping Reels, Purifiers to Clean Middlings, Flour Packers, Oat and Cuckie Separators, Smutlers, Brush Machines, Dust Catchers, Bolting and Wire Cloth, and all kinds of Mill Furnishings.

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Steam Engines and Boilers made, and set up to order. Some second hand Engines and Boilers for sale. SEND FOR PRICES.

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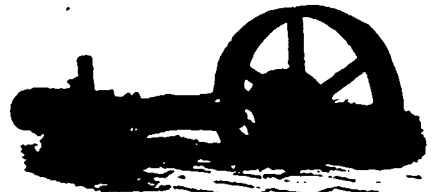
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Boilers and Every Description of Mill Machinery and Furnishings.

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TO PARTIES WHO CONTEMPLATE

BUILDING OR RE-BUILDING FLOUR MILLS,

On the full or combined roller system, we are prepared to furnish estimates or specifications, using a full line of our machines—**NONE IMPORTED**—manufactured under Canadian Patents controlled by us.

IF ALL WHO INTEND TO MAKE CHANGES WILL DO WELL TO SEE US BEFORE DOING SO.

THE WHELOCK AUTOMATIC ENGINE,
WOOD WORKING MACHINERY,
SHINGLE AND BARREL MACHINERY.
WOOL MACHINERY.
Special Price Lists furnished on application.



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S L A T E R I S
V A U L T S - DOORS, & CO.
First Prize Awarded, Toronto, 1883, 1884.
CORRESPONDENCE SOLICITED AND ORDERS PROMPTLY ATTENDED TO.

CENTRIFUGAL FLOUR DRESSING MACHINE

Our Centrifugal, as shown above, contains important improvements covered by Canadian Patents which we control. Parties purchasing elsewhere, will do well to look out for infringements. All our machines are made under our own immediate supervision, of the best materials and workmanship. Satisfaction guaranteed.

GOLDIE & McCULLOCH.

Correspondents' Opinions.

This department is set apart for the free use of subscribers in asking or answering questions, expressing opinions, or relating bits of shop practice or experience. The editor hopes to see it liberally employed and promises to enlarge it to any necessary extent to accommodate communication.

TOO VALUABLE TO MISS A NUMBER.

WALKERTON, Oct. 19, 1887.

Editor Mechanical and Milling News

As yet I have not received October number of the M. & M. NEWS. Please change my address from Madoc, Ont., to Walkerton, Ont. As I consider your journal too valuable to miss a number, please change the address and oblige.

Yours respectfully,

EDW. M. TENNISON.

REMOVED TO TORONTO.

27 CHURCH ST., Toronto, Oct. 27th, 1887.

Editor Mechanical and Milling News.

We did not get our MECHANICAL AND MILLING NEWS for October. If you have a spare copy send it to us here, and all future numbers, as we are opening up a mill here, where we expect to be able to fill our orders for the goods we make. We are still running at Lachute, Que., but are putting in a full set of new machinery here, including two barley mills, oatmeal machinery, "Our National Food" machinery, and after we get fully under way, we expect to move all our Lachute business to Toronto, and run by steam power.

Yours truly,

F. C. IRELAND & SON.

ANOTHER SHORT SYSTEM MILLER HEARD FROM.

NORTH AUGUSTA, Ont., Oct. 25, 1887.

Editor Mechanical and Milling News

I would like to say a few words in favor of the short system. I have been reading last month's issue of the MECHANICAL AND MILLING NEWS, and saw that some were condemning it.

I have a mill on the Case short system, built by Inglis & Hunter, of Toronto, and I cannot speak too highly of it, as to results. I am highly pleased with it. You may think so when I accepted it after three days' run. There has not been a single stoppage, except where a belt stretched and had to be re-sewn. You will hear from me later as to how it still runs.

Yours respectfully,

THOS. EYRE.

LIKES IT WELL, AND WANTS TO KEEP IT.

NEUSTADT, Ont., Oct. 19, 1887.

Editor Mechanical and Milling News.

I have read three copies of your DOMINION MECHANICAL AND MILLING NEWS, and like it so well I want to keep it, so you will find enclosed one dollar for a year's subscription.

Yours truly,

CONRAD HELWIG.

EXPERIMENTS WITH THE SHORT SYSTEM.

PARIS, Oct. 24th, 1887.

Editor Mechanical and Milling News.

Our mill is now running on three breaks and three reductions: 1st break on Jonathan Mills machine, 2nd and 3rd on corrugated rolls: purified middlings reduced on burrs; germ and tailings stock on smooth rolls.

Our mill was remodelled four years ago to a four break system, using Jonathan Mills on first two breaks, stone third, and corrugated roll fourth; but we soon cut this down to three breaks, retaining the stone for main breaks. This not giving the satisfaction we desired, we decided last July to replace the break stone with a roll, and also to add another smooth roll in order to make a better finish; but to our surprise, when this was done, we found we were very little, if any, better off than before.

I then attacked the bolting, and after much work and many experiments, succeeded in making a system which I am satisfied is the right thing for this style of milling. Simplicity is the main feature, and I have as yet seen nothing to surpass it for results. The main objection I have found to short system flour milling is its softness, but we have overcome this. Our flour is nice and granular, and we are receiving stronger proofs every day of the superiority of the work we are doing.

In conclusion would say that you should advise millers who are thinking of making a change, to be careful; to keep their eye on Horace Greeley's advice: "Fit: we sure you're right, then go ahead." Thus they can do by making a little inquiry beforehand. It is very hard to

describe a bolting system without a diagram, but if there is anything further you would like to know about our system, we will be only too pleased to answer.

Yours very truly,

D. R. O'NEIL.

WHAT THE KENT MILLS ARE DOING.

Editor Mechanical and Milling News.

Enclosed find two dollars for your valuable paper (to pay the old year and the new). I notice in your October number that you credit the Kent Mills, Chatham, with shipping 26 cars of flour and feed to the lower provinces. I think you made a mistake in leaving out the figure "1," as 126 cars would be more like it. The Kent Mills are making 500 barrels per 24 hours. The mill was built by the Geo. T. Smith Co., of Stratford, for a 300 barrel mill, using their celebrated centrifugal reels. Wishing you every success with your paper, I am,

Yours truly,

JOHN R. WALKER,

Head Miller for Campbell, Stevens & Co.

THE FARMERS AND COMMERCIAL UNION.

Editor Mechanical and Milling News.

Any movement that has its origin, owes its existence, or builds its hopes of success upon class interests or sectional advantages, is not only to be deplored as dangerous to the well-being and prosperity of the other portions of the community, but is detrimental to the progress and stability of the State as a whole, and will in the end react upon its promoters with redoubled force. It is only by the harmonious blending of the mutual sympathies and interests of the great component parts or divisions of industry that true and permanent wealth and national prosperity can be built. It needs not the ability of a savant to see demonstrated the truth of this principle in the history of the most prosperous commercial nations of the day. It is not my intention, however, at this time to engage in a lengthy discussion on political economy, but to utter a few words of warning to those who are being urged into a position of antagonism to their fellow-countrymen, of consequent opposition to their own interests, and of menace to the State.

We have, as a people, every cause to be grateful for the measure of prosperity that has fallen to our lot during the larger portion of the past decade, especially in view of the fact that it has been a period of noted depression throughout the entire business world. Notwithstanding the efforts of the exponents of Commercial Union to prove to the contrary, our prosperity during that time has been more marked than that of the United States. Statistics show that, if foreign trade is a criterion, our position is much superior (in proportion) to that of our neighbors. From 1880 to 1886, our total exports and imports increased about \$16,000,000, whereas the trade of the United States fell off to the extent of \$188,000,000. A leading organ of the Commercial Unionists, whose views and arguments are noticeable more on account of their antagonism to former professions than to their soundness, has endeavored to show that because our foreign trade has diminished from \$217,000,000 in 1873, to 189,000,000 in 1886, we are fast approaching ruin and bankruptcy. The journal referred to has omitted to call attention to the difference in existing tariffs in these separate years, which alone accounts for the fact, that out of the decrease of \$28,000,000 as shown, \$24,000,000 constituted a decrease in imports—the balance being in exports. What does this show, but that, owing to a protective policy, we raised this \$24,000,000 in our own country, by our own industry, employing our own labor and capital? To carry the matter more into the domain of agriculture, we find that during the eight years previous to the establishing of the present National Policy, we imported \$102,560,258 worth of wheat, flour, and other breadstuffs, a yearly average of about \$13,000,000. Since 1879 to the close of last year, the total import of these commodities was \$52,767,002, or a yearly average of \$4,000,000. The intelligent farmer will at once see that the home market has been increased for his produce to the extent of \$8,000,000 annually under the existing trade policy; thus not only stimulating his own industry, but the innumerable branches of industry depending upon him for their support.

Comparisons, it is said, are odious; but we have no fear of a fair comparison. The fact that our foreign trade last year was \$39.57 per head of the population, as against \$22.43 of the United States, is sufficient in itself to meet the argument on its own ground, apart from the question as to whether foreign trade is at all indicative of national prosperity. It should be quite evident to the farmer that by his support of the home industries during the past eight years he has been fostering a market to consume his own products, from which he is reaping

more than double return for the supposed increase in price of manufactures and other commodities; while the nation itself is being built up and strengthened in its wealth and commercial enterprise through this mutual confidence and interchange.

A few words concerning this home market and its advantages, and a glance at the results which would follow the opening of it to foreign competition, will be in place. It is to be regretted that from the outset the promoters of Commercial Union have confined themselves to theorizing and vaporings on the untold advantages suggested in the magic words, "larger market," rather than to the careful elucidation of facts. To those whose eyes are being dazzled by these promises of increased prices, and upon whose minds the glamour of the "far fields" is already exerting its deceptive influence, the following figures may be interesting:

Our wheat crop of last year aggregated 33,000,000 bushels, of which 29,600,000 bushels were consumed by the home trade, and 3,400,000 bushels exported. It will be at once observed that a market was found at the very doors of the farmer for 90 per cent. of this, his most important and greatest product. But, it may be said that it is possible to find a market for this and much more in the manufacturing centres of the great nation to the south. The following comment on the wheat prospects of the present year, taken from an able editorial in the New York Tribune, may give some light on this important point. It says, after reviewing the requirements of the foreign market:

"This country (United States) has probably about 451,000,000 bushels of wheat, estimating from the last report of the Bureau, besides 48,000,000 bushels carried over from last year. The quantity exported in July of wheat and flour was equal to 16,589,880 bushels of wheat, and exports in August were also large; but a decline has been observed, as the new supplies abroad are assured. With ordinary consumption for food and seed, this country has on hand a surplus larger than was exported last year, while the improvement in foreign crops warrants expectation of a smaller demand from abroad."

But a little closer analysis is needed to see that our proposed partners in Commercial Union have on hand this season about 479,000,000 bushels of wheat. Their home consumption, allowing for increase in population, will be about 355,000,000 bushels, and their exports will amount to a little less than last year, or about 50,000,000 bushels. This will leave them a surplus or overstock of 74,000,000 bushels, for which they will have to find a market at a reduced price or carry it over to next year.

What hope the farmers of Canada have, from the foregoing, of finding a larger market for their wheat, is difficult to imagine. It rather becomes a matter of solicitude to know how they are going to preserve their home market, so profitable as it is, against being overwhelmingly slaughtered by this enormous surplus, which amounts to more than double their entire product.

Again, it is advanced by Commercial Unionists that "prices would be better." The following figures showing the average price of wheat in Canada and the United States, compiled from accurate statistics, as the mean average price paid in each year, will be found valuable in disabusing the mind of the farmer of the impression that he is getting a less return for his labor than his rival across the line.

The average price of wheat per bushel:

	Canada.	United States.
1881.....	\$1.33	\$1.11
1882.....	1.30	1.18
1883.....	1.14	1.12
1884.....	1.05	1.06
1885.....	.93	.86
1886.....	.85	.87

The average price paid for Canadian wheat during above period will be found to be \$1.10, while that paid for American wheat reaches an average of but \$1.03 per bushel. These prices being computed from the lowest and highest quotations in each month of the years denoted, afford a correct and reliable comparison. The deduction can be fairly made from the facts given above that the Canadian manufacturer has as much right to complain of protected husbandry as the agriculturist has to grumble against protected manufactures, with perhaps a little more justice.

With the farmers, the question of the desirability of Commercial Union resolves itself into a choice between their present flourishing general home trade, with good prices for their staples and fair prices for minor branches, and the loss of their home trade for a pitiful increase in price of barley, horses, and "eggs," which may fluctuate according to the pulsations of agriculture in a nation with twelve times our facility for production.

But is there no higher sentiment animating the majority of Canadian farmers than mere monetary consideration? Those who have paid them the doubtful compliment of appealing to their love of self-aggrandizement have yet to learn that there are sentiments the money cannot purchase, and feelings of loyalty the

cannot be made to swerve for any pecuniary advantage. At its inception, the present movement took a position of intense opposition to anything like political union, and the public were calmly assured that the consummation of Commercial Union would have the effect of uniting more closely than ever Canadians in their loyalty to their country. By degrees, however, the rough edges and sharp corners of annexation have been rounded carefully off and polished over, and arguments have been insidiously introduced to show that after all the latter end would not be so dire. This process of thus educating the people into the idea, has proceeded with such subtlety and cunning, that many, no doubt, have begun to argue on a question that was once deemed out of the line of thinkable, not to say practical, politics. At the present time, however, the mask has been boldly thrown aside, and at least one of the mouth-pieces of the promoters of the scheme has, plying the insignificance of the people to whom it owes its existence, and insulting the loyalty of a nation to whom it delights to apply the epithet "colonists" and "dependants," stalked forth into the garish light of annexation.

If it were not disgusting, it would be amusing to note the patronizing tone of those mighty solons who deign to look down upon the land that gave them birth, and sincerely commiserate their fellow-countrymen for the stupid tenacity of the irloyalty to the State and its institutions.

Since the question in the minds of its projectors has become one of annexation also, it might be well for them to follow up the conclusion with arguments to the point, instead of smiling benignly upon the "sweet artlessness of the poor colonists," to whom they not only owe their origin, but their present healthy state of existence, which they might not find as continuous if their lot were cast in a country where the people paid more attention to such impertinence.

Enough has been said to show, that from the farmers' standpoint there is little to be gained, but much to be lost, in any change from the present policy, and we would warn them and the whole Canadian public to "beware of the artifices of the Greeks."

In endeavoring to insidiously introduce this scheme so filled with evident danger to the existence of our country, it is to be feared that it is but a repetition of the tactics employed to gain entrance to ancient Troy through the beautifully proportioned horse, filled with sedition and hostile foes. Let us say with Troy's aged priest, "*Timeo Danaos et dona ferentes.*"

CANADIAN.

TORONTO, Oct. 25, 1887.

Editor Mechanical and Milling News:

In your Sept. number, "Proctor" writes in answer to my letter in your Jubilee Number, concerning Bill No. 137. "Proctor" starts off with the old simile of the preacher and the dogs; and it seems something must have struck "Proctor" very hard, for his letter is nearly all "yell." My former letter was written more to disabuse your readers' minds of the mistakes and misrepresentations of "Proctor's" notes, which appeared in your May number, than for any other purpose; and the result is that "Proctor" admits the mistakes, and having done so, there are not many of his original notes left to answer. He tells us in a very lofty manner that "we do not need any such bill" and to "let things alone." Who does "Proctor" mean by "We?" I know of several hundred engineers, good reputable men, also not a few steam users, who would gladly support such a bill.

"Proctor" seems to be the champion of the small manufacturers, and claims this bill would be an injustice to them. "Proctor" must draw on his very fertile imagination to make the clause read that way.

Again, "Proctor" shows the "cloven hoof" when he says: "Of course the matter of inspectors was all pre-arranged, cut and dried," &c., &c. This is another of our friend's surmises. We believe the Ontario Government to be reasonably pure, and if they passed this bill they would find the right kind of men to appoint as inspectors. "Proctor" also says he did not expect all the mechanical talent in the country to be engaged as inspectors. We do not expect that either; but we do think enough of them would accept such a duty, and do the work honorably. "Proctor's" consistency in this whole matter is a jewel. First he guesses at the greater part of what he calls "Proctor's Points," and then, when his mistakes are corrected by our letter; he flies into print again, and tells us we are "yelling," and tops it all off with the assertion "It is a dead horse anyhow." Still, it looks like a lively corpse, and if "Proctor" keeps stirring him up, he may get on his legs again. It appears from "Proctor's" letters, that he cannot understand a good, honest, sensible movement to improve the service

of steam engineering, and by that means save money both in fuel and repair bills for the steam user.

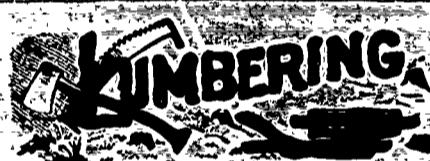
"Proctor" also says that "such a law would not work;" but experience shows that it does work, and fairly well, too. Our steamboat inspection and license laws are not a farce; and I doubt if one single steamboat owner would agree to return to the old way of doing. The steamboat owner is getting a better and cheaper service to-day than he did before the steamboat license laws were passed. The matter of licensing stationary engineers is coming to the front in England, in many of the States of the Union, and in Germany. Of course the average Canadian engineer may be looked upon as a good man, but that does not alter the fact that good legislation will help the steam user, the engineer, and might even do "Proctor" a lasting good. We have cracked "Proctor's" nut, and find it a veritable "chestnut," as we from the first have said very little, and that to the point.

Yours respectfully,

A. M. WICKENS.

LONDON'S COSTLY SMOKE.

The investigations of a society formed in London to abate the smoke nuisance afford a very startling idea of the wasteful extravagance of the present system of combustion. Here is a summary of a late report of the Smoke Abatement Institute: "The weight of the smoke cloud over the city is estimated at about fifty tons of solid carbon and 250 tons of hydrocarbon and carbonic oxide gases. From actual tests the value of coal annually wasted through the obstinacy of the Cockneys is £2,257,500, or forty-two per cent. of the amount annually expended for coal in London, that being the percentage of heat that escapes up the chimney without warming anybody. This waste also causes a useless expenditure of £268,750 for carting coal, to say nothing of the wear and tear of streets and of £43,000 more for carting away ashes. Altogether about £2,500,000 are yearly thrown away in London. Add to this £2,000,000 for injury to property from the smoke-laden atmosphere, and there is shown a total of £4,500,000 which London annually loses because of its failure to burn coal under proper conditions."



A new saw mill is to be erected at Macleod, in the Northwest.

Cameron & Kennedy's saw mill at Keewatin, Ont., has shut down for the season.

Mr. John Ramsden has bought an interest in a planing factory at Mount Albert, Ont.

Messrs. G. Weaver and E. R. Howell have bought Bishop's planing factory at Jerseyville, Ont.

Mr. Richard Harper, of Chicago, will in future operate Grose's wood-working factory at Whitby, Ont.

McGibbon's planing mill at Sarnia is to be moved to the Grand Trunk property at the foot of Front St.

Mr. John McConachie's shingle mill at Huntsville, Ont., turned out over 2,000,000 shingles last summer.

The firm of McBurney, Laycock & Co., saw mill owners and lumber dealers, Gravenhurst, Ont., is to be dissolved.

The Lake of the Woods Milling Company's lumber mills at Keewatin are to be lighted with Edison's incandescent electric lights.

Fifteen vessels with cargoes of lumber have left Shediac, N. B., this season, carrying in all six and a half million feet, valued at \$47,000.

There appears to be a scarcity of logs for the St. John saw mills, and nearly all the mills that are now running are likely to soon close down.

The Minnesota and Ontario Lumber Co., of Rat Portage, have opened a yard at Oak Lake, Man., in charge of Mr. Chisholm, from Winnipeg.

Mr. T. P. Conover has sold out his interest in the Pioneer Lumber Co., Port Moody, British Columbia, and removed to Wyoming territory.

The report comes to hand that the owners of timber limits in the Province of Quebec are paying the increased ground rents recently imposed by the Government.

Spence & Kuhlman's planing mill at Cobourg, with all the machinery contained therein, was destroyed by fire early in October. Loss, \$6,000; insurance, \$1,000.

It is reported that to get rid of excessive freight rates and rents the Canada Lumber Company has decided to remove its extensive mills from Carleton Place to Ottawa.

Jas. Crawford and S. McCracken have entered into partnership for the purpose of carrying on a saw mill and sash and door manufacturing business at Durham, Ont.

The bush fire has destroyed many shingles and some ways on

Ontario streams. These will have to be rebuilt by the lumbermen before next spring. For this work a great many additional men are needed. There is such a scarcity of men this year that far-away New Brunswick is being scoured for men by Ontario operators.

Long lumber and short lumber, according to the *Lumber Trade Journal*, are expressions peculiar to lumbermen in Maine and the adjoining British provinces.

Mr. Thomas Mackle is reported to be negotiating for the purchase of Messrs. A. & P. White's steam saw mill at Pembroke, along with their mill and limits at Deux Rivières.

The saw mill of Messrs. Hillman & Wiper, on the 1st concession of Morses township, Ont., caught fire during a recent high wind and was completely destroyed. No insurance. Loss about \$7,000.

The last of the mammoth whitewood growing in Kent county Ont., was recently cut, measuring 6,200 feet board standard. Old lumbermen pronounced it the largest tree they had seen at Chatham in the last fifteen years.

The shingle and sash mills of Mr. Archibald Penman, of Watson's corners, Dalhousie township, Ont., were destroyed by fire recently. This is the second time the mills have been burnt. There was no insurance on the property.

It is said to be the intention of the E. B. Todd Manufacturing Company, of Hull, P. Q., to purchase the extensive timber limits of McLachlin Bros. on the Upper Ottawa. The price mentioned is in the neighborhood of two million dollars.

The Georgian Bay Lumber Company will cut the coming season two hundred thousand feet of square timber on their Wahnapiatae limit, which will be taken to Quebec by way of the Georgian Bay and the lakes. Besides these they propose taking out ten million feet of logs, which will be sawed in their various mills.

According to the *Rat Portage News*, the Rainey Lake Company intend to do a big season's cut for next summer, whether the mill has changed hands or not. Rumor says it has been bought by the Bank of Montreal, but instruction is still received from the liquidator. About 100 men have been hired to go to Rainy Lake, where three camps will be formed for taking out logs this winter. It is the intention to cut between nine and ten million.

Ground rents in Quebec have been fixed at \$3 per square mile, an increase of \$1 per mile above the old rates. This is not such an enormous increase as was at first proposed, viz., \$5 per square mile. The system under which stumpage is collected has been changed. Instead of charging so much for each log, the new regulations provide for the payment of \$1.30 per thousand feet, board measure, upon pine, and 65 cents on spruce. The sum of \$46,000 will be returned in revenue to the Government from the increase in ground rents and the readjustment of the scale of stumpage due will, it is expected, bring an increase of about twenty per cent. in the revenue from that source.

Mr. Robertson's big timber raft at the Joggins, N. B., the successor of the one built last year which went to pieces when being launched, will probably be launched in November. The new raft is 500 feet long, being 160 feet longer than the old one, and three feet higher in the centre. All the material from the old fabric is placed in the new one, besides eight thousand additional sticks. Pitch pine launchways, 1040 feet in length, have been laid, and everything is being got in readiness for letting the leviathan slide into the water. Should the launch be effected successfully, another raft will be started on immediately, Mr. Robertson having signed a contract with a New York firm to that effect.

A few years ago there was little if any lumber sawed quartered with the grain. Now not only oak but many other woods are being sawed more and more in that manner. Any consumer of lumber will tell you that it is far the better way to manufacture. We now have oak, poplar, gum and sycamore in large quantities thus sawed. It costs more to saw quartered stock than plain, but it is much more valuable. The waste is considerable. Take a 24 inch 12 foot log, clear and straight, and 75 per cent. of it will make good quartered firsts and seconds if properly managed. Probably no wood except oak has so grown in popularity as quartered poplar. It is used plump inch, six inch and up wide, and immense quantities are now used by piano manufacturers. There is a scarcity of it, and any one who finds plain poplar dull and hard to sell should quarter-saw his stock. The *Northwestern Lumberman* says it is worth from \$2 to \$5 a thousand more.

The Ottawa correspondent of the *Mail* writes to that journal as follows: "The lumbermen of Ottawa district are again moving in the direction of creating a lumber board of trade. At the present each lumbering firm at the Chaudière effect their annual sales entirely independent of one another. In fact it has been their custom to hide from their fellow-lumbermen the prices they receive. Of late years the demand for Canadian lumber has been very great in the United States, and as the supply is gradually becoming limited, the lumbermen at Ottawa know that they can all have a good market for all the lumber they can cut. In consequence of this feeling the movement to form a lumber board of trade has been renewed, and will in all likelihood be carried out this fall. Should this board of trade be formed a suitable building would be rented where they could receive quotations daily from the New York and Boston lumber markets, and instead of taking two or three trips a season to New York to effect sales, the lumbermen would be able to make their sales at Ottawa. It is stated that several lumbermen of the Upper Ottawa, whose limits border on the Georgian Bay, purpose utilizing the water route to reach their markets at Quebec, instead of shipping the winter cut by rail. Many of the streams in Lake Nipissing and the Georgian Bay district which flow south have great capacities for driving, such as the Wahnapiatae and Spanish Rivers, and lumbermen propose to utilize these as a cheaper and handier route for their lumber than by the old channel of either the C. P. R. or the Ottawa River. Michigan lumbermen who hold limits in that locality have used these water ways for years and always have a good head of water, and now some of the Canadian lumbermen intend to follow their example. It is said there will be a great deal more square timber business done next season than last."

A NEW GERMAN MIDDINGS PURIFIER.

GERMANY comes to the front with a new middlings purifier. Our London contemporary, the *Miller's Gazette*, refers to it as follows: "A few months ago we announced that Mr. Luther, of Brunswick, had introduced a new purifier which was attracting some attention in Germany. A number of millers were invited to see the machine at work, and the results, we are told, were highly satisfactory, causing quite a sensation. The machine is the invention of Mr. Emil Weiss, of Berlin, a practical miller, and was introduced last March by Mr. G. Luther, of Brunswick. Messrs. Whitmore and Binyon, of 28 Mark Lane, have obtained the agency for the U. K., and we are now able to give a fuller description of the machine, which is patented in all countries. Numerous orders followed its introduction in March last, and the users speak in a highly satisfactory manner of it. Messrs. Whitmore and Binyon have also introduced a few in British mills with equally satisfactory results. The principle of the machine is perfectly simple and rests essentially on the exclusion of air from the machine, which is effected by means of an elastic cover, placed above the silk, and loosely put on, the wavy movement of which acts on the material in the same manner as a fan. The effect, we are told, is surprising. The dust is graded according to its gravity, and falls in a pure, clean state into the different compartments, whilst the light, fluffy stuff is carried over the sieve. The purifier works, consequently, without a fan and does not need a stove-room. The over-tails from a centrifugal, whether in a good condition for purification or not, sent to this machine will be perfectly cleaned and graded, and the resulting flour from the product of this purifier will be of a fine granular nature, dressed through No. 9 silk; this granular flour, indeed, is recognized by bakers, after experience, as possessing a greater suitability for baking than the finely-dressed product, giving a larger comparative yield of bread. The machine yields also middlings in a very suitable state for reduction, lighter offals and an unusually perfect separation of the germ, branny particles, etc. The most floury and inferior sorts of middlings are equally well treated on this machine, and, in consequence of the dust or middlings being graded according to its specific gravity, the further reduction of the same on rolls or stones is rendered the more easy, and the after dressing can be done through a coarser silk than is usual; hence the granular quality of the flour. The inventor claims for this machine: 1st, that it does away with the dust grading-reels; 2nd, gives a granular flour which cannot be equalled; 3rd, it raises the quantity of patent flour five per cent.; 4th, requires small power, only one-third horse-power, to drive; 5th, needs no regulating; 6th, requires no stove room with its attendant evils; 7th, shortens the whole process and thus saves silk, labor and wear and tear. From the above it will be seen that a good deal is claimed for this machine by the inventor claims which British millers will probably be not slow to test. We have ourselves seen some samples of work done by the machine, which show excellent results, but we have not yet had an opportunity of seeing it at work."

BELT JOINTS.

From time to time serious accidents have taken place, and the progress of work has been stopped by the sudden snapping of driving belts in machinery, and, as a general rule, it is found that the collapse is attributable either to faulty leather or insecure joining. A great improvement of the leather intended for belts has been brought about during the last few years by the introduction of improved processes of currying, and the subsequent treatment. A patent for rendering belt leather more pliable, and lessening the tendency to stretch, has been successfully worked. Under this treatment the leather is either curried or rough dried, and then soaked in a solution of wood resin and gum thus, or frankincense first melted together and then dissolved, by the application of heat, in boiled or linseed oil. The leather, after this process, is soaked in petroleum or carbon bisulphide containing a little india-rubber solution, and is finally washed with petroleum benzoline. Should the mixture be found to be too thick, it is thinned down with benzoline spirits until it is about the consistency of molasses at the ordinary temperature. The leather so prepared is not liable to stretch, and can be joined in the usual way by copper riveting, or the ends can be sewn. A good material for smaller belts, and for strings and bands for connecting larger ones, is that recently patented by Vormberger, in which the gut of cattle is the basis. After careful cleansing the gut is split up into strands, and treated with a bath of pearlash water for several days. The strands are then twisted together, and after being dipped in a solution of Condyl's fluid, are dried.

They are then sulphured in a wooden box for twenty-four hours, after which the twisting can be completed. They are by this process rendered pliable, and can be used in this state for stitching the leather ends of larger belts, or can be stiffened by plunging them into a bath of isinglass and white wine vinegar. After drying they are susceptible of a fine polish, emery cloth being usually employed, and the final "finish" is given to the material with gum arabic and oil.

ONTARIO OATMEAL MILLERS IN COUNCIL.

A two days' session of the Ontario Oatmeal Millers' Association was held in this city on Wednesday and Thursday, Oct. 12th and 13th. The following members of the Association were present: Wm. Scott, Ottawa; Thomas Martin, Mount Forest; Robert Thompson, Woodstock; Walter Thompson, Mitchell; J. D. Moore, St. Mary's; H. S. Moore, Norwich; N. Boswald, Wyoming; D. Clark, Ayr; E. Edwards, Lynn Valley; W. Elder, Wingham; J. Ireland, Rossiter; A. Leath, Mileston; H. Murton, Guelph; Jas. Muirhead, London; Mrs. McInnes, Ingersoll; J. McIntosh, Toronto; D. R. Ross, Embro; D. Spears, Galt; H. Grant, Ingersoll; E. D. Tillson, Tilsonburg; J. Wilson, Fergus; J. Wright, Owen Sound. The election of officers resulted in Mr. W. Scott, of Ottawa, being elected President, and Mr. Thomas Martin, of Mount Forest, first Vice-President. The election of Secretary and Treasurer will not take place until matters are arranged so that these officials can be stationed in the city. A large number of new members were enrolled. Prices of oatmeal as adjusted by the Association now stand as follows: Standard, \$4.25; granulated, \$4.50; roller meal, \$4.75; rolled oats, \$5.

THE ENTIRE MOTIVE FORCE OF THE WORLD.

From a note published by the Bureau of Statistics in Berlin, the following very interesting figures are taken: Four-fifths of the engines now working in the world have been constructed during the last five lustra (25 years).

France has actually 49,590 stationary or locomotive boilers, 7,000 locomotives, and 1,850 boats' boilers; Germany has 59,000 boilers, 10,000 locomotives, and 1,700 ships' boilers; Austria, 12,000 and 2,800 locomotives.

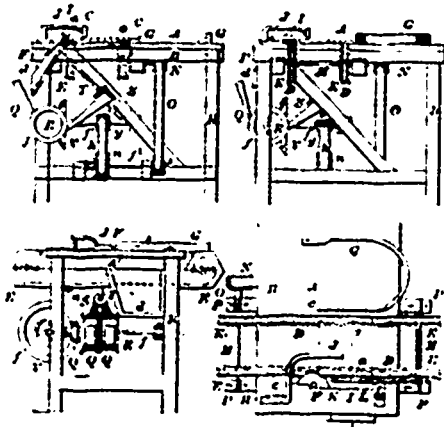
The force equivalent to the working steam engines represents in the United States 7,500,000 h. p., in England 7,000,000 h. p., in Germany 4,500,000, in France 3,000,000, in Austria 1,500,000. In these the motive power of the locomotives is not included, whose number in all the world amounts to 105,000 and represent a total of 3,000,000 h. p. Adding this amount to the other figures, we obtain the total of 46,000,000 h. p.

A steam horse-power is equal to three actual horses' power; a living horse is equal to seven men. The steam engines to-day represent in the world approximately the work of a thousand millions of men, or more than double the working population of the earth, whose total population amounts to 1,452,923,000 inhabitants. Steam, therefore, has trebled man's working power, enabling him to economize his physical strength while attending to his intellectual development.

Latest Canadian Patents.

Shingle-Heeling Machine.

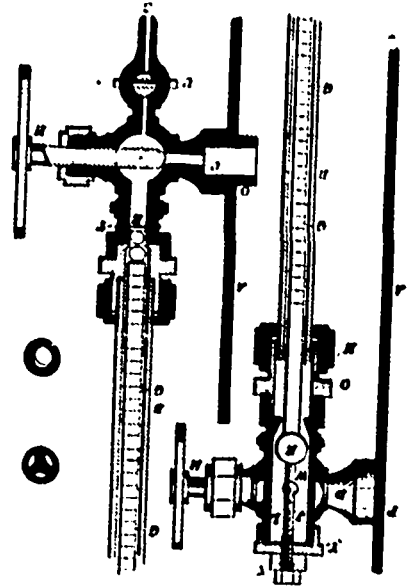
358,268. Guillaume Adam, Cookshire, Quebec, assignor of one-half to Joseph Adam, Montreal, Canada. Filed July 3, 1885. Serial No. 170,563. Patented in Canada June 6, 1885. No. 21,817. Dated August 16, 1887.



Claim. In a machine for heeling shingles, the combination with the travelling chains for carrying the shingles and the inclined revolving saw for cutting their ends, of a driving-pulley secured on the saw-shaft and a belt for operating it, the guide-pulleys R and Q, mounted on the shaft f, and revolved by the side driving-belt, one only of the said pulleys being secured to its shaft, and intermediate frictional driving-gear connecting the shaft / with the traveling chains, so that the feed is rendered automatic and proportional to the cutting-power of the saw.

Water-Gauge for Steam Boilers.

368,197. Frank A. Drummond, Winnipeg, Manitoba, Canada. Filed April 13, 1887. Serial No. 234,566. Dated August 14, 1887.

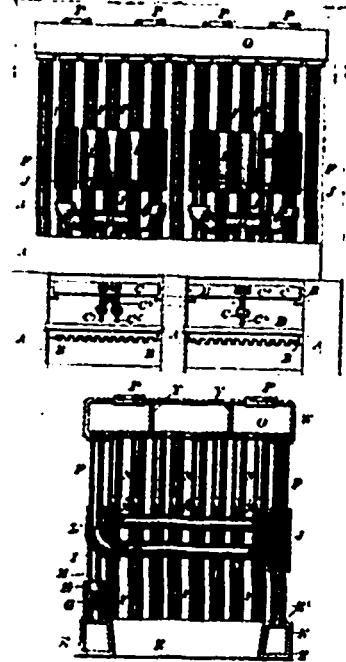


Claim 1. In a water-gauge for steam boilers for automatically closing its ports to the boiler on the breakage of the glass, an under glass ball valve off its seat supported in the vertical channel of the gage and below the glass indicator tube, a series of glass supports resting upon the under glass-ball valve and passing pillarwise through the glass indicator tube, and an upper glass ball valve supported off its seat on the top of this series of glass supports.

2. In a water-gauge for steam boilers for automatically closing its ports to the boiler on the breakage of the glass, a blow-off cock, U, a lower check valve, H2, an under glass ball valve off its seat supported in the vertical channel of the gage and below the glass indicator tube, a series of glass supports resting on the under glass ball valve and passing pillarwise through the glass indicator tube, an upper glass ball valve in the vertical channel of the gauge above the glass indicator tube, supported off its seat on the top of this series of glass supports, and an upper check-valve, H'.

Boiler.

368,645. George Bolton, Peterborough, Ontario, Canada. Filed Oct. 15, 1886. Serial No. 216,339. Patented in Canada April 20, 1885. No. 21,463. Dated Aug. 23, 1887.



Claim 1. In a boiler of the class described, a hollow base formed as a single casting, a hollow cap formed as a single casting, a series of vertical tubes connecting the base with the cap, a series of double T-couplings communicating with the rear vertical tubes, a series of horizontal tubes communicating with the double T-couplings and a series of T and turn couplings communicating with vertical pipes connected with the cap.

2. A hollow cap and a hollow base connected by vertical tubes extending on three sides thereof, a T-coupling mounted upon the base at a fourth side thereof and connected by quarter-turns with vertical pipes communicating with the cap, and a series of horizontal pipes arranged above the fire-pot and communicating with the cap and base by means of double T and T and turn couplings.

3. The combination of a hollow cap, a hollow base, vertical pipes connecting the same, a T projecting from the base at one side thereof and communicating by quarter-turns with vertical pipes connected with the cap, thereby forming a stoke-hole, a fire-pot opening in the base, and a rocking grate arranged below the base, together with a series of horizontal pipes arranged above the fire-pot and communicating with the vertical pipes of the boiler.

4. A T and turn coupling, in combination with a vertical and horizontal pipes connected to the cap and base as shown.

5. The combination of vertical pipes, a double T-coupling communicating therewith, horizontal pipes connected with the double T and with a T and turn coupling, and a vertical pipe extending from the latter.

6. The combination, with the base E, having the inclined walls E', of the coupling G, the vertical pipes I, the quarter turns H, the pipes F, the double T's J, the T and turns L, the depending pipes N, and the cap O.



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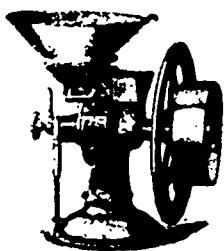
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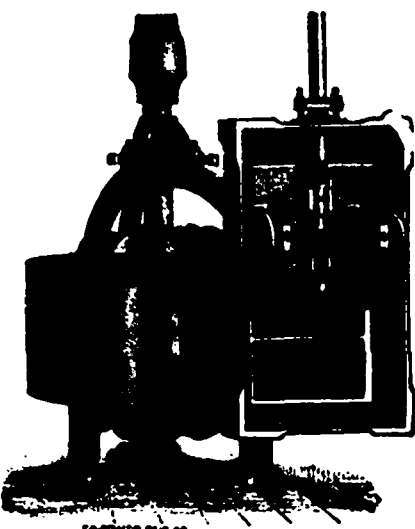
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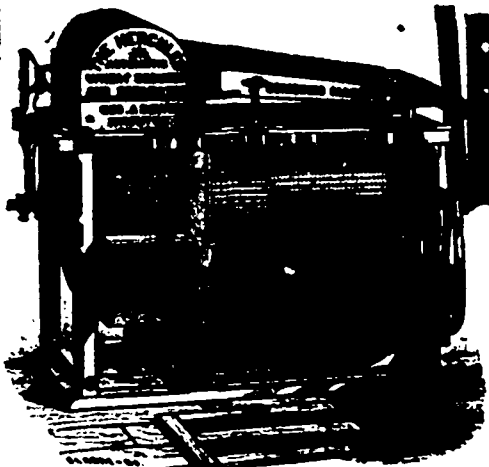
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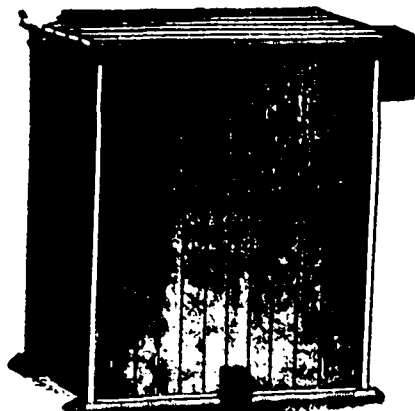
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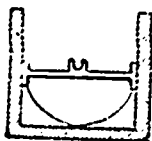
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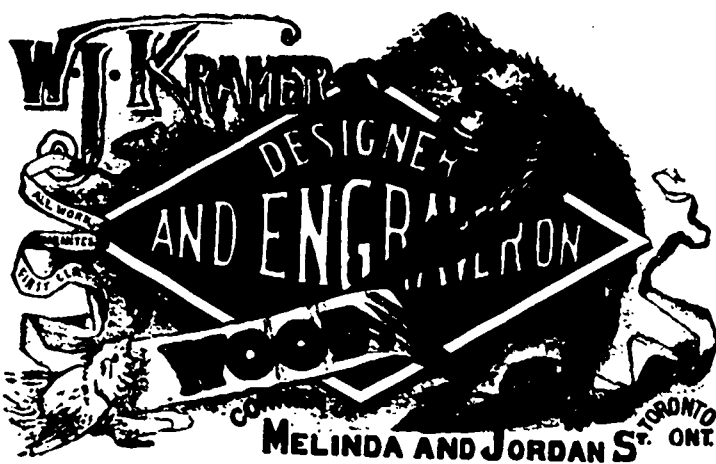


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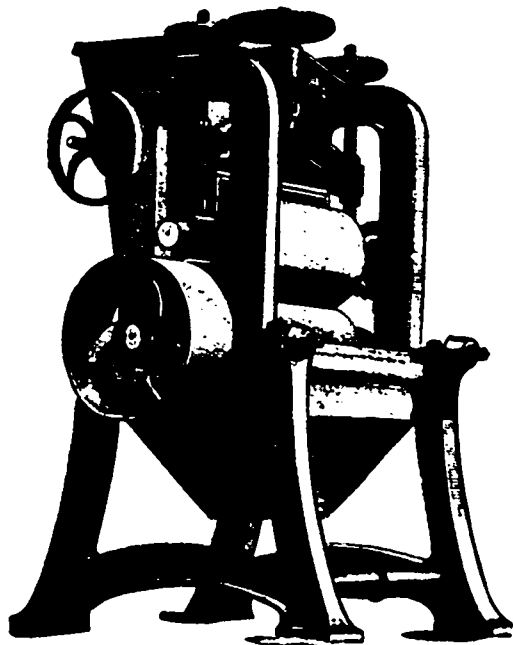
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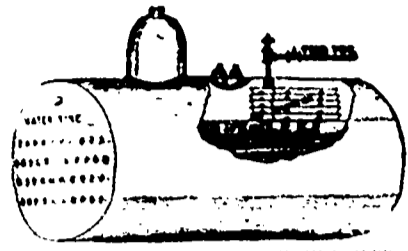


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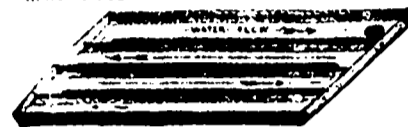
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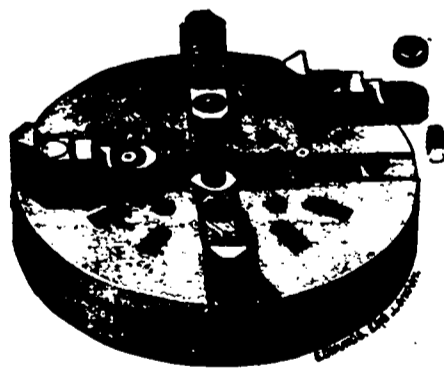
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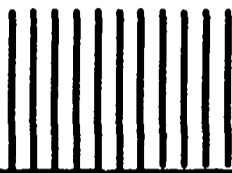
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THE GEO. T. SMITH CENTRIFUGAL MILLS

————— Using either the Long or Short System —————



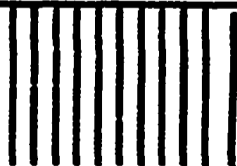
Waterford, Oct. 10th, 1887.

S. S. Heywood, Gen'l Manager,
The GEO. T. SMITH M. P. CO., Stratford, Ont.

Dear Sir:—With my acceptance of the Three Break Short System mill you built for me with the full Geo. T. Smith Centrifugal diagram of separations, I am pleased to say that you have executed your contract to my entire satisfaction. I watched the mill carefully for four days after the wheat was turned on. You did not change a cloth or spout, and the flour and finish from the first were superior to anything I have ever seen in a long system mill of same capacity. In place of a 75 barrel mill which you contracted to give me, I find that I can make from 90 to 100 barrels, and still make a perfect finish. All your special machines seem perfect in material and workmanship, and I am particularly pleased with the Three Roll Chop mill you put in. It will do more and better work than three run of stones; takes comparatively little power and attention.

Yours truly,

A. C. DUNCOMBE.



ROLLS RE-GROUND AND RE-CORRUGATED AT SHORT NOTICE.

The Geo. T. Smith Middlings Purifier Company, of Canada, (Ltd.)

United States Shops, JACKSON, MICH.

STRATFORD, ONT.