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CANADIAN MILLER

GRAIN TRADE REVIEW

NEW SERIES "MECHANICAL AND MILLING NEWS"

OLD SERIES, VOL. XI
NEW SERIES, VOL. III | Number 4

TORONTO, ONT., APRIL, 1893

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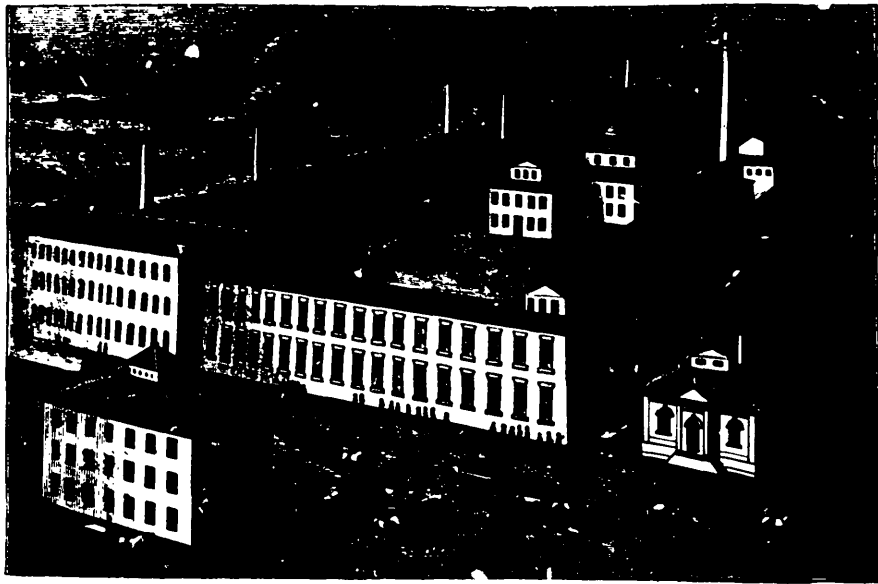
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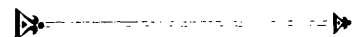
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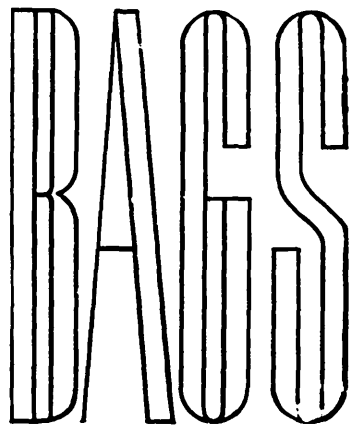
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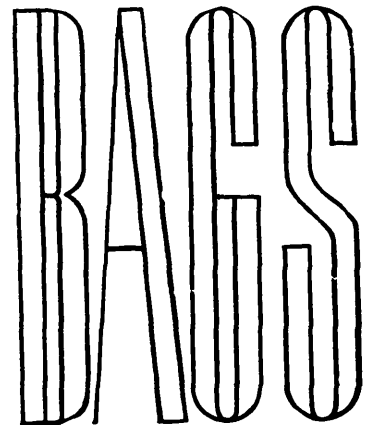
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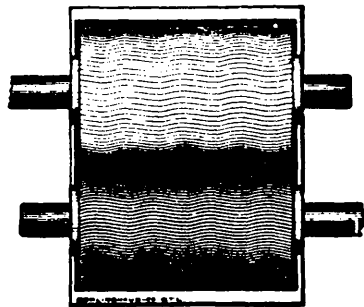
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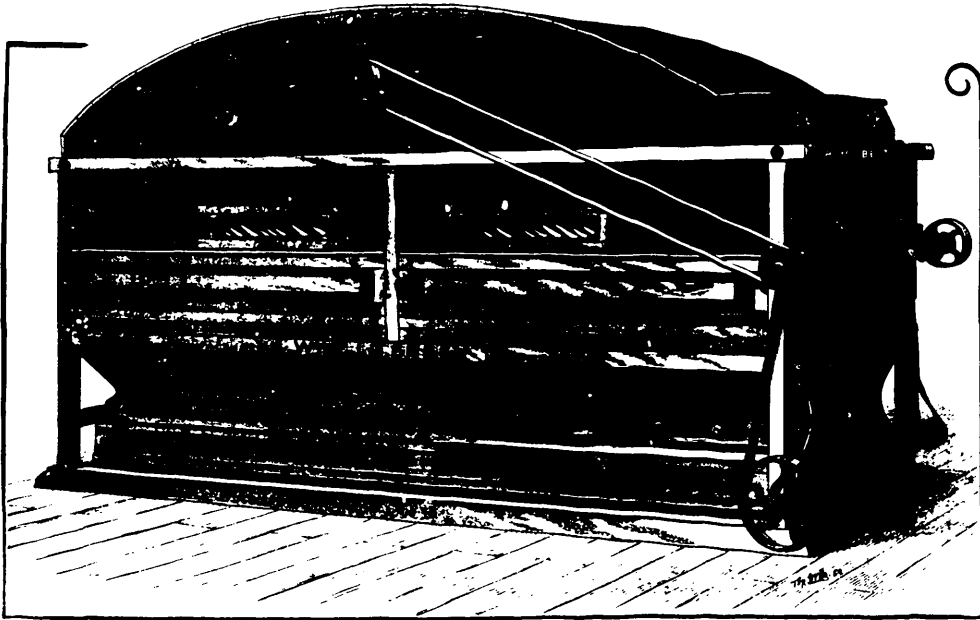
Aspirator
at head
of Sieve.

+

Aspirator
at tail
of Sieve.

+

Transverse
Brush.



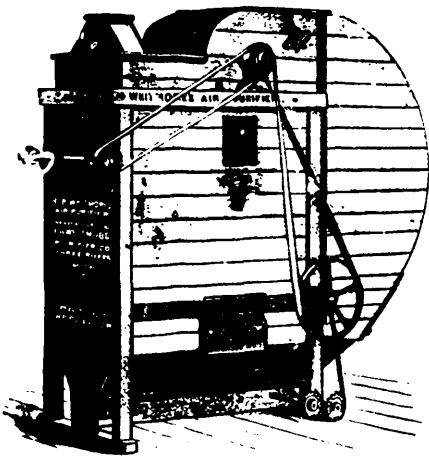
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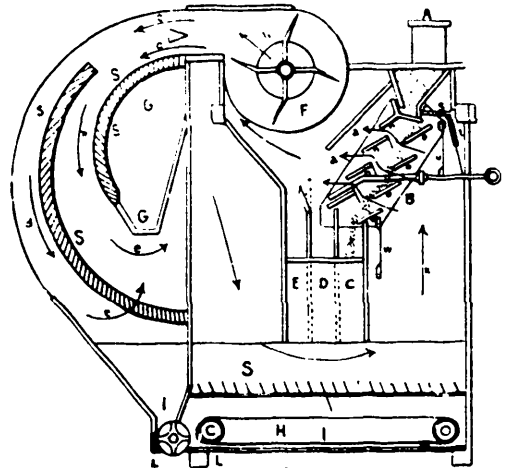


Fig. 2.

SOLE MANUFACTURERS FOR CANADA:

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THE CANADIAN MILLER

OLD SERIES, VOL. XI, NUMBER 4
NEW SERIES, VOL. III, NUMBER 4

TORONTO, ONT., APRIL, 1893

CLASS AND PER YEAR
ISSUE COLLECTORS

A NEW ROLLER MILL.

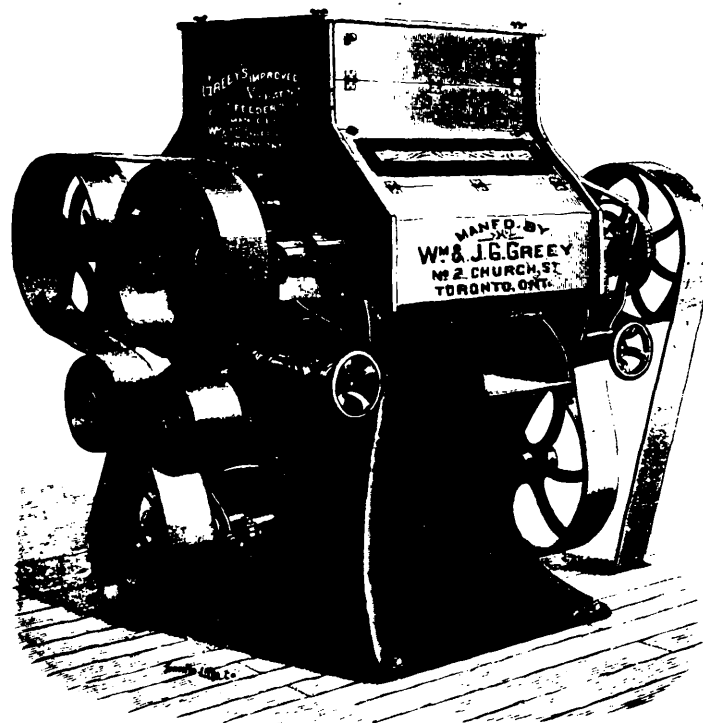
WE are able to present to our readers this month a cut of a new double roller mill manufactured by Messrs. Wm & J. G. Greey, No. 2 Church St. Toronto.

This machine embodies several new and unique features which are the outcome of experience in the building and operation of this class of machinery. The frame, as will be seen by the cut, is one solid casting provided with suitable and convenient opening for examining the work of the rolls. The grinding and relieving adjustments are the same as have been used by this firm for some years securing the utmost nicety of adjustment and perfect rigidity, and which has proved so eminently satisfactory in every case where adopted. The general appearance of the machine has been greatly improved, the frame being higher than formerly, the roll bearings lengthened and large oil receptacles arranged beneath each, with draining holes and screw plugs for the purpose of drawing off the old and waste oil and preventing the same from dropping on the floor. The sides of the frame are well stiffened by ribs and brackets but by far the most important improvement is the one which appears most prominent in the cut, viz., the novel arrangement of the slow roll hold back belt. It is well known to those using this class of machine, that where two separate belts are used from the counter shaft on to the slow rolls the difficulty has been that in tightening down the counter shaft to suit the main driving belt on the fast side these short belts on slow side have always given trouble by running off to either one side or the other, necessitating the cutting and lengthening or shortening, as the case might be, of these short belts. In this new arrangement only one belt is used on the slow side and one pulley on the counter shaft so that by means of the two small tightners which intervene between that pulley and the two slow roll pulleys, the belt is made to take a closer grip of the small pulley on the counter shaft, and at the same time a better hold on the roll pulleys than it would otherwise have. These small tightner pulleys are arranged to work independently of each other and can either be tightened or slackened as necessity may arise, enabling the miller to maintain the counter shaft in a horizontal position without cutting or altering either main or slow belts. This improvement is of such a nature that it would be obvious to any practical miller that he has complete control of his machine. Another advantage of this arrangement is, the slow pulleys being in the same line, the room required by the machine is lessened from 5 to 8 inches.

The feeds used on these mills have been thoroughly proved and are of the vibrating kind provided with automatic appliances for regulating the supply and spreading it evenly over the whole width of the machine. One important feature in the use of these feeds is that all bearings are on the outside of the cabinet and firmly secured to the main casting of the roller frame, thereby

avoiding the undesirable tremble or shake which is noticeable in those machines where bearings or springs are secured to the roll cabinet. The shot of the feed is supported by adjustable wrought iron links in place of springs and can be easily and quickly levelled or adjusted by means of the thumb nuts shown on the top of the cabinet.

The machine is handsomely decorated, wood work varnished and built of thoroughly seasoned material. The whole presenting a very neat and substantial appearance. The foregoing improvements, together with the material and finish of the rolls themselves, which have been brought up to the very highest standard of excellence both as regards hardness and regularity of temper places the machine at the very head of the front rank of mill machinery.



NEW ROLLER MILL

The importance in this age of keen competition of the successful miller keeping in close touch with the newest, and best in mill machinery is a matter too obvious to every one to need any attention here.

THE IMPORTANCE OF KEEPING ROLLS TRUE.

AN important factor in milling, and one that becomes doubly important in times of close margins, like the present, writes J. D. Davidson in the Roller Miller, is the condition of the rolls. Now conditions of rolls included several points, but I shall here speak only of the one which in my opinion is oftenest overlooked—that of running the rolls. I speak from my own experience when I say that a surprising economy, both in flour and power, results from truing up rolls. Yet I venture to guess that out of a hundred millers seventy-five, at least, do not true up their rolls more than once a year. This is a serious mistake.

We all know that the work of every succeeding machine is very greatly affected by that of the rolls. If the rolls are of untrue face they will unevenly reduce the stock and start a train of misfact extending quite to the end of the mill. The flour reels will bolt unevenly and will be reduced in bolting capacity. Stock that should go through fine silk to flour bin will be carried over to cut off, or even to the tail and thence to the next rolls, crowding them and to a considerable extent spoiling their work. Should these rolls also be out of truth the evil is multiplied in many directions, with the result that stock gets into the best flour which ought to have gone to low grade. Nor is this all of the damage. Rolls of untrue face consume much more power than they ought to, for they are continually crowded by reason of uneven work. And then the mills being loaded above their capacity with irregular stock, their meshes are strained and distorted, and the whole cloth gets loose and full of holes. Presently, and long before it ought to be necessary, the cloths give out and have to be replaced with new ones. Furthermore, it becomes imperative to reduce the feed of the mill in order to make a finish, and even then a proper one is impossible. It follows from this that more wheat is required to the barrel of flour, and it remains a fact that the flour is not what it ought to be.

From the single defect under consideration, then, it transpires that more wheat, more power, more fuel are needed for a given capacity, items which represent a considerable percentage on the annual running expenses of the mill. Take off something for deteriorated flour, and we have the principal losses due to rolls that are out of truth. I could point out others of less though by no means trifling importance, but I have indicated enough, I believe, to establish my case.

The remedy, of course, consists in more frequent truing of rolls. Some rolls get out of truth more easily than others, and hence need more frequent treatment, but as a general rule I recommend that truing be done, as a rule, three times a year. Few rolls in steady use will keep their truth longer than four months. It costs something to follow this rule, but the cost is returned many times over in enlarged capacity, improved product, and decreased expenses.

A mill owner told me recently that he started up his mill two years ago using four bushels and thirty pounds of wheat to the barrel of high grade flour, but that now it takes five bushels, and sometimes more, while the flour is not as good as formerly. He had put in more machinery, and changed head millers twice, without improving matters in the least that he could see. I asked him if his rolls were in true face. He thought they were, but did not know. I have since learned that all the rolls in that mill have been trued up, and I have no doubt the results were highly gratifying.

Has your subscription to CANADIAN MILLER expired?



EVERYONE who knows him has a good word to say for Mr. N. Wenger, of Wenger Bros., Arton, Ont. I had a conversation with Mr. Wenger a few weeks ago, and was sorry to learn that it is a question whether the firm will re-enter the milling business again, the fire of two months ago having completely destroyed their flour mill. Wenger Bros. are full of business quite aside from flour milling. They are proprietors of a large general store, and are extensive shippers of farmers' produce. They are owners of a creamery in connection with which they, last season, made and disposed of 170,000 pounds of butter, and paid out \$37,000. A saw mill, also owned by the firm where staves and heading are manufactured in considerable quantity. Chatting directly on the question of flour milling, Mr. Wenger said "that last year had been a poor year for the miller. Prices were so low that there was no money in the business, whilst the glutted condition of the foreign market closed out any profitable outlet that might have existed for export flour." Queried on his views regarding the continued low prices of wheat, Mr. Wenger said "that everything pointed to low-priced wheat for the future. The farmer need not hope to see dollar wheat again. But this does not mean unprofitable farming. So far as my observation has gone, and my business brings me in contact with large numbers of farmers, they have not fared badly during the past year. Most of them have lived well, paid their way, and been enabled to bank some surplus. It is like this. The labor of working the farm to day is play compared with that of a few years ago. Farm machinery has been brought up to that degree of perfection that the crops are now handled with ease. The cost of manual labor is greatly lessened, and the size of the product is relatively increased. Though the farmer does not receive the prices of the past the cost of producing a bushel of wheat is not what it was then. I sometimes think that farmers forget this.

Mr. Arthur Cowan, of Galt, Ont., who has recently returned home from a business trip to British Columbia says "The past winter has been quite as severe throughout the west as here, and that on many ranches the loss of sheep, cattle and horses, through extreme cold and lack of feed, had been very great. The season was yet backward, the snow lying upon the ground in Manitoba as he returned home. Emigration was pouring into the country from all quarters, the least desirable being that from contiguous American states, which was of a kind that never would be satisfied with any occupation that meant work to make a living. They could have done fairly well where they left, but they had not the grit to stand a reverse or two, and they pulled up stakes to try the northwest, where many of them will prove chronic grumblers. The Edmonton district is drawing the bulk of the emigration, and the accounts of the quality and capacity of the land there for all classes of agriculture are most encouraging. There is a large mill and elevators there, and the product of the mill is shipped west over the mountains to British Columbia."

Mr. M. McLaughlin, president of the Dominion Millers' Association, having had tested the sample flours received from the West Indies by secretary Watts, and which are the popular brands in that market, has this to say: "Sample No. 1 cost in wood in New York, \$4.75 per bbl. is a hard wheat patent, granular, well made, and of good color, but in strength considerably inferior to patents made in Canada from pure Manitoba hard wheat. Canadian mills running on Manitoba wheat would have no trouble duplicating this flour. Sample No. 2 cost in wood \$4 in New York, is a poor family flour, very dark, and of a strength about equal to flour from average Ontario spring wheat. Sample No.

3, which is branded "Double Extra" (cost in wood \$2.60 in New York), is a winter wheat, low grade, poor in color and specky. Our mills would have no difficulty in duplicating these three flours, which are sent to us as being what is wanted in the West India Islands; nor would a Canadian mill have any trouble in branding their output in a much more attractive way than these three barrels are branded. With the shipping facilities now at our service, via Halifax, and with wheat of the quality and cost of our present Canadian crop, any average Canadian mill should have no difficulty in placing some of its product in West India markets profitably, in comparison with United States shipments—such as the sample barrels. Mills wishing to test it should, in deference to the sentiment in favor of round hoop barrels, use this kind only."

A farmer of Otterburne, Man., gives this as his experience with frosted wheat for seed purposes. "Having made trials on several kinds of soil and with several grades of wheat, measuring in some cases by weighing and in some cases by measure, I find in all tests made in which the seed was measured by weight the yield was much greater from the frosted seed than from No. 1 hard. In most cases where the seed was sown by measure the yield was about equal. In a few instances where the seed was sown by measure the yield from No. 1 hard was from fifteen to seventy-five pounds, and in one instance two bushels and fifteen pounds more than was obtained from frosted seed, but in this case the seed was very poor, in fact the leanest grains I could procure out of a few bushels of frozen feed wheat. Now, in most test cases made by the Experimental Farm at Brandon, if not in every instance, the yield was greater from frosted seed. Last year the yield from 3 regular being nearly double that collected from No. 1 hard." I feel that this question of how to deal with frosted wheat is one of several problems that besets grain men and farmers in Manitoba and the Northwest and I shall be glad to hear from readers who can impart information on the matter.

An Australian correspondent of the Bakers' Record writes to that paper as follows: "It has for a long time been a puzzle to bakers and millers on this side of the globe to account satisfactorily for the violet spots in bread. I have known millers who have been using violet ink for branding their bags, clear every particle of it from their premises, and still the same spots would appear in the bread. It is of quite a different nature to discoloration from ink, which would, if in solid form, appear more flaky in the bread, and would also appear in the dough. For years I have found spots in bread, but never in flour, and not more than three or four times in dough, and then in very hot weather only. In my opinion the coloring matter is produced by the larvæ or grub of a species of the cochineal fly which is deposited in the wheat and ground with it, and when the particles which have not appeared in the dough) are acted upon by the heat acquired in the process of baking, they expand and give out the color. Of course, this is only theory, but I have formed it on a little experience of fifty years ago. About this time a miller, who was also a baker, by accident knocked over a bottle containing cochineal, some of which was spilled into a sack of wheat which stood by, and which he did not intend to have ground, but after a time it was ground and baked, and the bread was full of violet-colored flakes, not spots."

The movement in Montreal for the formation of a wheat pit on similar lines to that which exists in Chicago is meeting with determined opposition from leading members of the Montreal Board of Trade and Corn Exchange. Mr. W. W. Ogilvie, president of the Board of Trade, D. A. McPherson, president Corn Exchange; A. G. Thompson, and others, who are extensive handlers of wheat at western points, including Chicago, Duluth, Toledo and Manitoba, have expressed their disapproval of the scheme. The markets previously named are centres for immense wheat producing sections, where millions of bushels are continually in storage, and contracts for large quantities can at any time be completed. "Grain dealers in Montreal," they state, "can at a trifling expense by telegraph purchase through an agent at these points on a commission of 1/2 cent per bushel

for future delivery, with a certainty of getting their wheat on the due date of contract, and all transactions of this nature, bind the seller and buyer respectively to the condition of actual delivery and acceptance of grain." They claim that this system of trading cannot be satisfactorily carried on here for the reason that Montreal is not a wheat storing centre, the efforts of the Montreal trader in all cases being to pass his grain from the inland to the ocean vessel direct without increasing the expense of storage. The western wheat markets are at too great a distance to admit of dealing in futures conveniently that are purely speculative, as the seller of Chicago or Manitoba wheat on the basis of delivery here would in all cases be obliged to have his wheat shipped at these western points from twelve to fifteen days previous to due date of contract, which would place operators here at a great disadvantage as compared with those in Chicago or other western wheat centres, and, consequently, the proposed wheat pit must be conducted on the basis of settling differences, and could not be ranked as trading in grain, and must be designated as simply gambling of the character already carried on under the term of "bucket shops." These gentlemen are decidedly of the opinion that it would be unworthy of the Montreal Corn Exchange to engage in this line of operations.

The discussion as to the origin of Fyfe wheat does not die. I am in receipt of a letter from Mr. David Plewes, the old-time and efficient secretary of the Dominion Millers' Association, and now agent of the Ontario Export Association, in Liverpool, Eng., on the question it says: "In your February issue there is an article 'Origin of Fyfe wheat,' which I personally know is incorrect. I dare say this wheat was introduced into Manitoba in 1858 and also into Wisconsin in 1856, but long before that it was extensively grown in Ontario around where Fergus and Arthur now stand. In 1852 I was miller in Lawville mills, township of Nelson; there were no railroads in that part of Ontario then, and wheat came to us from the back country, 60 or 80 miles on sleighs and some times those back country farmers brought us a very hard spring wheat called Glasgow wheat, the veritable wheat now known as Fyfe wheat. At first I was afraid to put it among the other spring wheats. I did not then know its milling properties. I had only been one year in the country then and practically knew nothing, and at that time there was no one there to instruct me, as all the rest (so far as milling went) knew less than I did; and it was by the merest accident I found out its milling property. Our flour trade outside of farmers' grist was chiefly to bakers; and at one time having scarcely anything in the mill but the choicest white wheat, I had considerable difficulty in pleasing my bread baking customers. But having some old flour on hand in the mill, carried over from the former year, that had gone sour and slightly musty, I started to mix in about one-third of this old flour among my bakers' flour and for awhile my baker friends were greatly pleased with the flour I sent them. Soon, however, the old flour stock gave out and experience had taught me there was difficulty ahead—unless something was put in to take the place of the old flour. I risked mixing this hard spring wheat (though I knew I was darkening the color) but experience proved the virtue of this then somewhat despised variety of spring wheat. My opinion is, small quantities were grown around Arthur prior to 1851." Mr. James A. Bell, of Beaverton, Ont., has this to say on the subject. "Fyfe wheat is a Russian variety of fall wheat which was introduced into the county of Peterborough by a gentleman named Fyfe. Fyfe had a nephew engaged in the Baltic wheat trade at the time, from whom he obtained a bushel of the wheat. On sowing the grain it did not prove at all satisfactory as a fall wheat and the result was a poor and weakly crop. A little of the seed, however, had accidentally been left in the bag and Mr. Fyfe thought he would try it as a spring sowing. He did, and the result was magnificent heads of plump, hard grain. He carefully preserved the seed and this is the origin in Canada of the famous 'Fyfe' wheat. It is certain that the variety is unknown in Scotland, although many attempts have been made to trace it to the 'Land o' Cakes.'"

COOPERAGE D'PT.

There is a close affinity between the work of the cooper and the business of milling. The miller is either his own cooper, having a cooperage as an adjunct to his mill, or else he rests for his supplies on an outside cooperage. The cooper in many cases finds one of his best customers in the miller. The object of this department is to bring each in closer touch with the other and to materially advance the interests of both trades.

TRADE REVIEW.

Since the March report there is really nothing of great importance to communicate in connection with the situation in cooperage stock.

All of the different factories started up running in February and early March, with the result that every factory in Ontario is now running full and having full supplies of bolts, logs, etc., the new cut in the course of three or four weeks will be sufficiently dry to be placed upon the market.

The shortage in staves has been phenomenal, on account of the old stock of staves having given out, the heavy demand made on Canada for the Minneapolis, St. Louis, Milwaukee, and western markets absorbing stock very quickly and not sufficient stock was carried over by Ontario manufacturers to take care of the home trade. Many of the milling concerns all over Ontario and Quebec found considerable trouble in obtaining dry stock to meet their needs during the month of March, but the situation will be soon relieved, and millers will be able to obtain their full requirements without difficulty.

The situation on hoops has been already relieved and there is now an ample supply of hoops on the market to take care of all orders being placed.

Heading still remains phenomenally short and will so remain for some little time to come; at present it is bringing high prices all over the country.

The demand for black ash racked hoops is now very limited indeed, nearly all of the millers and coopering concerns discarding the black ash racked hoop for the patent elm hoop.

There have been numerous complaints from millers on account of the stock shipped not being sufficiently dry for them to use to make a good barrel for prompt use, but with finer drying weather, such as we are now having through the timber belt, this objection will be removed and stock will be placed on the market in first class condition. There have been very heavy orders placed with Canadian manufacturers for cooperage stock from all the leading centres, with the result that over 60 per cent. of the entire production of Ontario has been already contracted ahead and in the event of the flour trade being fairly good and having a fair apple crop, the bulk of the cut of this year will be needed for immediate consumption, so that while we do not look for any advance in prices to local trade, the heavy sales already made will prevent any material drop in prices. Millers and cooperers would always do well during the fall of the year, to put in good supplies of stock ahead, as at that season of the year prices are always at the lowest and the quality of the stock is always superior, on account of being thoroughly dry, which with air dried stock it is impossible to get in the dead of winter.

The following are present prices on cooperage stock in Ontario:

	Per net 1,000
No. 1 32" staves	\$5 50
" 2 "	3 25
" 1 28½ and 30" staves	5 00
" 2 "	3 00
" 1 24" staves	3 75
A No. 1 6ft. 9" patent coiled hoops	6 10
" 6ft. 6" "	6 00
" 5ft. 6" "	5 25
" 4ft. 4" "	3 50
Headliners	35
No. 1 20½" heading	Per net 6c.
" 10 "	5c.
" 18½ "	4½c.
" 17½ "	4½c.
" 16½ "	4c.
" 14½ "	3½c.

MINNEAPOLIS CONDITIONS.

The season is now so far advanced, says the Minneapolis Lumberman, that wind and sun have done much toward increasing the supply of barrel stocks at the flour barrel shops. All the shops are running up to their full capacity. The mills are still taking barrels as fast as the shops turn them out, with no signs of a decreased de-

mand. There has been no shortage in heading, elm staves or any other sort of stock the past week. April 14 and so plentifully are these materials coming in just now that the shops can afford to choose from the offerings on the market. Any poorly seasoned stock is laid by to air dry. Elm staves are easier in price and seem to be sloping off toward summer prices. No one is making contracts now for any large amounts, and those who buy on the market are taking only small lots. Prices fall slowly, for the stave men have enjoyed so long a season of extra good prices that it is difficult to persuade them that old time prices will return. From \$7.25 to \$7.50 per thousand is paid now for staves delivered here. As soon as navigation opens there will be a tumble in the price of staves. Prices will rule no higher than last year, probably, and Canadian and Michigan manufacturers are already making overtures for summer contracts. Oak staves have dropped out of the market here pretty thoroughly, but those that are sold here are quite stiff at 14c. per set. Heading still holds at 5½c. but it is looking down. It will not be long before 5c. will be the ruling price. Half-barrel heading are bought at 4 cents, and half-barrel elm staves are holding at \$5.25. The hoop supply is good. The greater part of the hickory hoops are now in, though they will be straggling in for six weeks yet. There is universal satisfaction expressed at the quality of the hickory hoop stock received this season. The greater part of the stock comes from Tennessee and Alabama. Much of last year's stock came from Missouri, and the stock was light or uneven. But the hoops received this year are of satisfactory weight, and though it was thought three months ago the supply would be short at certain of the shops, there has been plenty of stock thus far. Coiled elm hoops are selling at from \$7.10 to \$7.25. There will not be much change in this stock throughout the season, though it is thought it will touch \$7. A number of mills are being built in this state for the manufacture of these hoops. Already they are furnishing some stock to this market.

CHICAGO MARKETS.

Tierces and pork barrels, remarks the Chicago Lumberman, are quiet this week, especially the latter. A few ash barrels have been sold at 70 cents, but the range of prices for pork is from 65 to 67½ cents. Lard tierces are selling at 90 cents, one round lot of 2,000 having been disposed of this week at that price. Cooperers generally are asking 92½ cents, but are not getting it.

Tierce staves were slightly higher the first of the week, resulting in more liberal receipts. Cooperers were inclined to buy freely, but the receipts of hogs having fallen off the market is again slow. Cooperers now hesitate about buying further supplies unless they can do so at a discount from late prices. Good tierce staves can be bought for \$17, and some large lots have been sold to the prison for considerably less. Poor staves are not wanted on account of the slack demand for barrels.

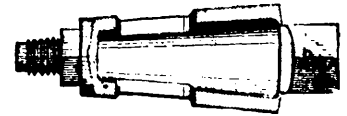
There is considerable call for circled tierce heading at 11½ cents in car lots. Single loads have been sold at 14 cents. There is no enquiry for pork heading. Tierce hoops are arriving in excess of demand and prison cooperers report having bought several car loads for \$10.50. A few cars have been sold to city cooperers for \$11. There is no sale for pork hoops. Flour barrel hoops are a trifle lower, sales having been made at \$5.60 to \$5.75. There has been a liberal falling off in both demand and prices for flour barrel staves and heading. Syrup barrel hoops are in good request. Shippers could realize \$10 here for either ash, oak or hickory.

BUFFALO BUSINESS.

A Buffalo correspondent of the Northwestern Miller says: "The season is very late, and cooper stock is almost as scarce as ever. Dealers have not caught up with the demand, though there is somewhat a better movement. Exasperating delays by the railroads are reported. A week in getting a single carload to Rochester is a sample. Prices remain unchanged. Dry elm flour barrel staves rule at \$5.50 per M. heading at 6c. per set, hickory hoops at \$6.95 at 7 per M. Chestnut hoops have advanced, commanding \$5 by the carload, with maple the same. Buffalo is not using chestnut or maple to any extent, but there is quite a demand for them in Rochester.

DEFECTIVE WATER COCK.

A foreign paper recently published the illustration given herewith showing a defect common to steam and water cocks. In case such a cock was attached to a



boiler blow off, the most serious consequences might follow if an attempt was made to open it. Better measure all cocks before putting them on dangerous places.

PERPETUAL MOTION.

I have read with much amusement, writes a correspondent of Power, the several designs lately described to create motion without expense. I regard them all as mere playthings, which never can have any real commercial value, from the simple fundamental truth that wherever there is an action there is also a reaction of the same magnitude. In other words, there can be no perpetual motion. But still I am inclined to hang a tail to this doctrine, in the form of a (to my mind, at least,) sufficient argument, namely, because we small things are not brany enough to know how it could be done. There are manifestations in the physical world which would tend to show that not all motion is dependent on the consumption of heat, to which, under our present limited knowledge of natural laws, we have invariably to resort wherever we want force and motion for any purpose. A lamp-wick will draw up against gravity a considerable amount of a fluid to a height of five or six inches, without consuming any heat in so doing, as careful experiments have shown. And it is by no means certain that heat is consumed in the movements of the nutritive fluids of the highest tree, in its capillaries; nor is there any reason why it should, while a dead wick can do it within certain limits.

In spite of all theories, it is not certain that the heavenly bodies move under compulsion of heat producing motion. True, we get light and heat from the sun, and it is but natural to suppose that these might, in some way, be helping in our progress through space. But then, the slightest variations in the amounts received would have to show perceptible variations in speed (one cycle compared with another), which is by no means the case. To explain the movements of the heavenly bodies by attraction, repulsion and gravitation needs no presence or influence of heat, no more than does the swinging of the compass-needle under the influence of iron near by.

In looking the whole ground over as impartial observers, we are compelled to say that we use heat to produce force and motion only because we do not know of any other way to obtain them in commercially valuable form, and not because there is no other way. As soon as we get far enough to have the natural powers of capillarity controlled so as to raise great amounts of liquids in very short times to a lasting height of only one foot above level, we have a costless power for any well-constructed turbine wheel. But that will be a long way off, as the discovery of so many things will be, in spite of all our little bit of knowledge. I shall always remember what Baron Liebig told us in a lecture at Munich University about thirty-five years ago. "If our earth were to be maintained and moved only by what forces and powers we know of and are able to understand, I certainly should be glad for some other place of safety." Spontaneous or perpetual motion is therefore possible, and occurs as a reality. But to try to obtain it by mechanical, pneumatic or hydrostatic means, as they are at command of our limited knowledge at this time, is simply folly. For us, pressure of any kind is accompanied by counter-pressure at all times, at all places, and under all circumstances.

Messrs. Steinhoff & Gordon, of Wallaceburg, Ont., manufacturers of cooperage, last year did a business represented by 60,000,000 staves, 12,000,000 hoops, 1,000,000 heads, besides selling 4,000 logs and 8,000 cords of wood and bolts, totaling in value nearly \$500,000.



PUBLISHED ON THE FIFTEENTH OF EACH MONTH

BY ARTHUR G. MORTIMER

Office: 75 CANADA LIFE ASSURANCE BUILDING, TORONTO, ONTARIO.

TERMS OF SUBSCRIPTION

One Copy One Year, in advance \$1.00
One Copy Six Months, in advance .50
Foreign Subscriptions, \$1.50 a Year

ADVERTISING RATES FURNISHED ON APPLICATION

J. S. ROBERTSON, Editor.

The Canadian Miller and Grain Trade Review speaks for the Miller and all his associations, and to the Grain Dealer with all his allied interests.

The only paper of the kind in Canada, containing full and reliable information on all topics touching our profession, and intended as an organ with any manufacturing company, we will always be found honestly and earnestly endeavoring to promote the interests of our subscribers.

Correspondence is invited in all matters and millwrights on any subject pertaining to any branch of milling of the grain and flour trade.

MIGHT BE WORSE.

THOUGH there may not be any money in the idea it is yet true that when depressed in spirits over an adverse turn in circumstances there is consolation in the thought that perhaps we are in no worse shape than others around about us. We act on the principle seemingly that misery likes company. We may be in the slough of despond but comfort ourselves that the other fellow is there too.

Not for some years have the milling trades in Canada been more depressed than during the past year. Whenever one meets a brother dusty the same tale of woe is related. Prices are down, gone no one knows where, the market at home is demoralized; foreign markets are apparently hopelessly broken to pieces. At every point flour is a glut. Of course the condition could not be worse, and no condition could be worse than our own.

This is the way the miller feels when he gets in the dumps. Let us look into the matter. Physicians tell us that when melancholy takes hold of the patient the first remedy is to get him away from himself. Get the man thinking of somebody else, get him somewhere else. We apply the same principle to the miller and ask him to look abroad.

The Canadian miller is not making money. Probably not; at least not what he thinks he ought to make, though we know of several millers in the province, who will admit that their balance sheet of the past year shows a comfortable amount to the credit of profit and loss. Elsewhere we have noted the fact that Budapest millers have recently been meeting in conference, trying to devise some scheme to bring back to the Pest trade that has gone from them, and for the want of which the mill proprietor is suffering in pocket. One statement is made, on it is believed good authority, that the Concordia mill, of Budapest, has reduced the value of its shares from 500 to 400 florins, having suffered a loss of \$125,000 on the business of the past year. British millers are all sad of heart and evidence is not lacking of the losses that have been made in milling in England and Scotland during the year lately past. The London correspondent of the Northwestern Miller tells in a recent letter that Messrs. James Tucker Ltd., of Cardwell, lost about \$185,000 the year now closed. On the news page of this issue of the MILLER is a record of the failure of a large and supposed to be prosperous Minneapolis milling concern that had been in business for nearly a score of years, the suspension being brought about by the continued stringency in the flour market.

Contrasted with the history of milling in other parts of the world the Canadian miller has not cause to shed many tears. His lot might be worse, and his sturdy common sense, we believe, tells him so. Just how near to view the silver lining is to the present dark cloud that has hovered around, we must admit, over long, we do not know, but we are quite sure that the brighter side is there, though just now hid from view.

TWO VIEWS OF SUCCESS IN MILLING.

Two articles expressing altogether opposite views find place in recent issues of two milling contemporaries. In one the necessity of the man who owns the mill possessing a thorough technical knowledge of milling is strongly urged. No matter how reliable or efficient may be the head miller, the argument is that perfect success in milling will not be attained unless the owner himself has a solid grasp of the processes that go to make good flour. Good flour, it is claimed, is the substrata of prosperous milling. All this may be expected from a capable head miller, but how is one to know that one's assistant is a capable man when one does not know himself from personal knowledge the elements that give efficiency in this direction?

A contrary view is taken by a writer in the April Milling, of Indianapolis, the gist of whose argument is contained in these words: "One of the necessities of the times for the miller is to be an expert in matters of buying and selling, for while he may safely depend on a reliable head miller to operate his mill economically, if the grain which he furnishes him to grind costs too much, or the price received for the product is too small to pay for the raw material with the labor spent on it, including a fair allowance for interest and depreciation from wear and tear, then, no matter how skillfully the work of reduction may be carried on the result can only be loss. Nor is it only the larger mills who require this business training. The proprietor of the country mill who is a shrewd manager in a business sense will "knock the sox" off the man who can manage the mill to a nicety, but fails to conduct its affairs in a business-like manner."

The case is one of extremes. A mill worked solely on either one plan or the other is in danger of running on the rocks. There can be little doubt that the man who embarks in any business ignorant of the general principles that govern the transacting of business is almost certain to meet with disaster. Our reference now is to a knowledge of the accepted principles of business and commerce, and not to an experimental acquaintance with the particular line of business in which one may be engaged. Bradstreet's in their little brochure detailing the causes of failure in business in the United States and Canada in 1892 place lack of capital first, disaster second, and incompetence third. We may certainly employ the term as referring to incompetence in the broader sense in which we have now written, whilst it also has its application in relation to a technical acquaintance with the particular business in which one is embarked.

A shoemaker might be a successful business man, successful in the sense of knowing the shoe business well, and a shrewd, clever business man, knowing how to buy and sell, and an expert in financial management. Would he make a successful miller not knowing anything of milling? He had bought and sold the material for manufacturing boots and shoes, and had sold the manufactured product making the turn profitable in both class of transactions. Does it follow that as a miller he would be "an expert in buying and selling," whilst depending on the head miller to operate his mill economically and handle the details of work that come only from practical experience?

Is not true success to be found only where a combination of these qualities exist? Exceptional cases can be named, where men with no knowledge of a particular line of business enter it, and make an unqualified success, but these cases are exceptional and can in no sense be taken as general in their application.

A miller needs to be a miller. A miller who is going to invest his capital in the construction of a mill, and operate it, depending on the fluctuations of commerce to give him his profits, needs also to be a business man. To give currency to any other doctrine is to invite business failure.

EDITORIAL NOTES.

Two gentlemen from North Dakota have made a purchase of five cars of red life wheat from a farm north of Brandon, Man. The wheat is to be used as seed by the Dakotians, and the price paid was fifty-eight cents. With freight and duty added the cost will be about \$1.10 per bushel. Those Dakotians evidently know the merits of Manitoba wheat. Many of them are finding it

advantageous to raise their wheat in Manitoba, as the emigration from Dakota shows. When they cannot manage to come over they are going to do the next best thing, and that is grow Manitoba wheat in Dakota. Our friend of the Buffalo Milling World has an interest in this item, likely.

JAMES MCDANIEL, head miller of the Wasburn A mill, Minneapolis, has invented a roller mill feeder that, in the judgment of those who have examined it, is likely to take a useful place among recent inventions of mill machinery. He has taken, as a foundation principle, the idea that material will run most freely and easily through a feeder constructed in the shape of an inverted hopper, and uses feed rollers having corrugations considerably coarser than are usually employed. With the feeder frame small at the top and wide at the bottom, there is no chance for the material to get hung up, and the claim is made that it comes to the rolls freely and continuously. The device can be used either as an automatic or positive feeder. Giving a roller mill a small top, as this feeder does, makes quite a difference in the amount of light admitted on a crowded grinding floor.

GLASGOW millers are complaining that from time to time they receive shipments of flour from this side of the Atlantic that are tainted with oil and other odorous substances. It is said by some that this trouble arises through carelessness on the part of the steamship companies in unloading the flour on wharves that had previously been occupied by oil in leaking barrels. The American Miller, commenting on the circumstance, says: "If carriers are not disposed to foster the trade by giving flour careful attention after arrival, the receivers and shippers should join hands, and by united action compel them to provide special facilities for handling flour. Portable platforms to be used exclusively for stacking flour can be provided without great expense, and used with no inconvenience. This would prevent flour from becoming tainted as reported, and is the least precaution that can be asked."

NOTHING is to be wanting at the World's Fair. Every nationality, every institution, every interest, is to be represented and to have its own day, week and particular celebration. We understand that the last week in June is to be millers week and a public meeting in one of the large halls is being planned for that day. Canadian millers may find it profitable to note this fact. Though one were to start in on the day of opening and remain there until the valedictory of the officials was read and the fair closed, they would not have seen everything. With those whose time is limited to a week or perhaps a fortnight the important matter is to first see and study carefully those things in which one is most immediately interested. The Fair will not have fulfilled its purpose with the individual visitor unless he comes away having learned something of profit that he did not know before reaching Chicago. Milling affairs will be the matter of immediate interest to the miller.

APPRECIATING the serious results and losses that have resulted in the past from the growing of wheat from smutty seed, the grain men and farmers of the northwest are doing what they can to educate all concerned into the importance of thoroughly cleaning all suspicious seed grain before it is sown. We notice a recent letter on the subject from Supt. Mackay, of Indian Head experimental farm, in which he shows from tests made with seed wheat treated for smuttness and that untreated, the genuine advantage that comes from treating the wheat with some reliable mixture. Mr. Mackay, as an old and skilled Ontario farmer, knows the importance of raising good clean wheat. According to Prof. Saunders, through experiments carried on at the various experimental farms, smut yields to the treatment with bluestone more readily and effectively, perhaps, than in any other way. Every miller is interested in seeing that only wheat of good quality, and always clean, comes on the market.

The oldest specimen of Indian corn known was discovered by Darwin in the soil of the coast of Peru, now eighty-five feet above the level of the ocean.

VIEWS AND INTERVIEWS.

Responsibility
and Control.

Why some head millers fail, says the Roller Miller, is because they have the responsibility without control. Our neighbour is not far away from good sense. No mill proprietor will want to relegate the running of his business absolutely to another. As the one who has the money invested, and who is carrying the risk, he should keep his hand on the pulse, and know, from day to day, yes, from hour to hour, just how correctly and evenly that pulse throbs. And yet that proprietor, if he is possessed of a fair amount of horse sense, knows that he is going to get the best work out of his head miller according as he leaves him to develop his own judgment and individuality in the line where the responsibility has been placed. Nothing spoils a good man so much as constant meddling and interference. If he is the man for the place let him have your confidence, and give him good swing in the control. If he is a "duffer," then fire him.

Over
Competition.

Discussing the question of competition in milling, a writer has put the matter epigrammatically thus: "It is because milling did pay that there are so many millers now, and it is because there are so many millers now that milling doesn't pay." How nicely the statement illustrates a condition universal to almost every business, and, we suppose, to every walk of life. No one knows where to draw the happy medium. A town has a boom on a boom based likely on right and healthful conditions. But things are not allowed to remain right and healthful. Everyone wants to be in on the boom, and immediately conditions are changed and in place of progress, there is retrogression; merchants instead of making money are doing business for nothing, or losing money. One man in a town is doing a snug business. Someone thinks he is getting on too well, and starts an opposition shop. The field is divided, and both are soon eking out an existence, making a living, but doing no more. This is competition a form of competition that is the death, not the life, of trade.

Brains
in Business.

A visitor to the studio of a world-famed artist, interested and delighted with specimens of the work he saw, enquired: "And pray, what do you mix your colors with?" The simple and laconic reply was: "With brains." The undertakings of the present day with which the white matter of the cerebrum is not well mixed do not grow to any significant proportions. Even a Corbett or Sullivan relies, in the main, on skill, which is an element of brain experience, rather than mere physical power, to assure success in the ring. A writer in the Produce Trade Reporter very fitly remarks that lots of brain work is requisite to success in the grain and commission business. He says: "The firm doing a large business who would keep close to shore and avoid the breakers must see the necessity of a man whose time will be largely devoted to thinking. By no other means can a prudent and safe business be so well conducted—by no other step can the business be so well divested of the elements of risk and the hasty steps that lead to losses and errors. The average commission merchant permits himself to get too busy, and too often with labors which might be delegated to others to cheaper help. Physical labors do not compare with brain work in the commission business no more than they do in other walks of life."

Niagara River
Dry.

It will be known to comparatively few of the present generation that forty-five years ago March 31st, 1848 the Niagara river above the falls was dry for a space of twenty-four hours. Particulars of the case are given by the late Thos. C. Street, who was engaged at the time in flour milling, and who at a later period was a member of Parliament for Niagara. The account is taken from an old record and is as follows: "About five o'clock in the morning the man having charge of my grist mill awoke me and told me that there was no water in the race and that the river was dry also. I was considerably startled at the intelligence and hurried out as soon as I could dress myself and then saw the river

on the edge of which I had been born 34 years before quite dry. After a hurried breakfast I went with my youngest daughter down about three-quarters of a mile to the precipice itself over which there was so little water running that I took a pole and walking near the edge of the precipice, about one third of the way toward Goat Island, on the American shore, I stuck the pole in a crevice of the rock and my daughter tied her pocket handkerchief firmly on the top of the pole and we returned. I then turned my view towards the river below the Falls and saw the water so shallow that immense jagged rocks stood up in such frightful manner that I shuddered when I thought of having frequently passed over them in the Maid of the Mist. I then returned home and drove from the Canada shore a half a mile above the Falls toward Goat Island. There was a great deal of talk by residents on the remarkable occurrence. My theory of the cause is that the winds had been blowing down Lake Erie, which is only about thirty feet deep, and rushing a great deal of water from it over the Falls and suddenly changed and threw this little water (comparatively speaking) up the western portion of the lake and that at this juncture the ice on Lake Erie, which had been broken up by these high winds, got jammed in the river between Buffalo and the Canada side, and formed a dam which kept back the waters of Lake Erie a whole day."

PRACTICAL MECHANICS.

BY C. R. FOWKES, M. E.

SINCE the introduction of the split pulley, both of wood and iron, the removing of couplings in order to apply new ones or change old ones from one part of the shaft to another is not so frequently called for, thus removing one objection to this as well as all other styles of couplings.

The necessary hangers to support the line and the distance from centre to centre of the bearings is another important matter to be taken into consideration. It was remarked not long since, by a writer in a certain paper, that in calculating the strength of shafting, only the torsional strength should be taken into consideration. This we consider an error, from the fact that lateral strength is of as much importance and should enter into the calculations as well as torsional, from the fact that it is not always convenient to locate pulleys in close proximity with the bearings, and where such is not the case, if the shaft is deficient in lateral strength, and springs with the stress of belt, it not only loosens it and deprives it of part of its driving power, but also cramps the journals, causing extra friction upon the boxes with loss of power, and frequent heat and abrasion. It is fair, however to suppose that a shaft having sufficient torsional strength to perform certain work will also have sufficient lateral strength, provided the distance between the bearings be such that the lateral and torsional strength will be equalized.

As we have before stated, it is a safe rule to apply to all shafting, by taking three times the diameter of the shaft in inches, for the same number of feet from centre to centre of bearings. Thus, three times the diameter of a two-inch shaft is six inches, and this, taken in feet, would call for six feet from centre to centre. One of two and one-half inches would call for seven feet, and so on.

Now, as much of the power in many mills is consumed or absorbed by the lines of shafting, arising from imperfect bearings and bad lubrication, it becomes necessary that this part of the outfit should not only be selected with the same care and receive the same care and attention as any other part of the machinery. It is no uncommon thing to find at this late day, in some of the older mills, a shaft of three inches in diameter or more loaded down with pulleys of large diameter and supported upon bearings about four inches long, and groaning under this weight at a speed of perhaps not over one hundred and fifty revolutions per minute, when a shaft of two or two and one-quarter inches in diameter, if run at a proper speed, with pulleys of not more than one-half the power, so far as the shafting is concerned, and would be more appropriate; and instead of bearings four inches long, they should never be less than eight inches for shafting up to two and one-half inches. Above that size a fair rule is three times the diameter of the shaft.

Post hangers are frequently used in the place of the drop hanger, but the objection to post hangers is not so much in the style of hanger as the objection to the posts, especially where the shaft is hung overhead. In order to place the bearings the proper distance apart the posts are so numerous that they become a serious obstacle to handling the lumber or placing the machines to the best advantage. In some mills, in order to avoid this, both post and drop hangers are used; the post hangers being located at each end and the drop hanger suspended from the ceiling to support the centre. This is not good practice, from the fact that those attached to the post are not materially affected by the settling of the building, while those that are suspended from the ceiling are not only affected by the settling of the building, but the shrinkage of the timbers also, and it will be found a difficult matter to keep a shaft so arranged in align. Therefore, whenever post hangers cannot be conveniently used upon all the bearings, it is better to dispense with them altogether and use the drop hanger for all bearings.

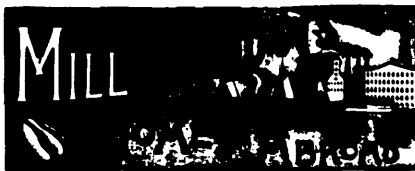
In selecting the hangers it is not only the weight of the hanger that should be taken into consideration, but the strength and convenience of adjusting the boxes is an important item, and it is not always the hanger that contains the greatest number of pounds of cast iron that is really the strongest. Probably what is known as the double-braced hanger possesses the greatest strength for the least number of pounds than any style; besides, this style of hanger has the most convenient method of adjusting the boxes in each direction, so that should the shaft get out of align by the settling of the building or shrinkage of its timbers, it is easily corrected by adjusting the boxes without disturbing the hanger.

A line of shafting is not always as easy of access as a machine standing upon the floor, consequently it is more liable to be neglected, and not as much attention is given to its proper and perfect lubrication. Among the many different devices that have been introduced from time to time for this purpose, the self-oiling box that was introduced a few years ago and at one time adopted by nearly all the leading manufacturers, was probably one of the best systems of lubrication that has been introduced. This box was provided with a reservoir below the bearing to contain the oil, which was drawn up to the journal by capillary attraction to tubes filled with cotton wick or other fibrous substance. Openings were provided at each end of the box that formed the bearings so that the oil that was drawn up through the tubes to the journal could flow back again into the reservoir to be used over again until it was worn out and become so thick that it would not flow, then the box and reservoir required cleansing and replenishing with oil, which usually occurred once in from three to four months. But the trouble with this box and no doubt one of the principal reasons why it was abandoned by most of the manufacturers, as well as many other good devices, is neglect and want of proper attention. If the boxes were perfectly safe for three months, the chances are it would never be looked after and cleaned in six months, unless it became dry and began to heat, when the box was not only frequently spoiled but the shaft badly cut, and the box was condemned by mill owners, and for no other reason than from their own neglect.

The glass oiler is another device that has merit in the economical use of oil, and for good lubrication, but like the self-oiling box, it needs care and attention. The principal objection to this is that the fine dust which pervades the atmosphere of all wood-working establishments, settles into everything, the glass oiler not excepted, and no matter how perfectly the flow of oil may be adjusted, the tubes are liable to become obstructed with dust and stop the flow, and before one is aware of it the journal is dry and cutting, unless the heat admonishes the engineer or other person in charge of it of this fact.

Perhaps, under these conditions, the box that is now in general use is about as good as any for wood working establishments. This box is furnished with one or more moderate sized reservoirs attached to the cap and protected from the dust by hinged covers. Into these reservoirs may be packed a quantity of waste or fibrous substance to retain the oil, which gradually filters through it, and if these are replenished with oil once a day there is but little danger from heat and abrasion.

The Author.



The particular purpose of this department is to create an increased market for Canadian mill products—flour, oatmeal, cornmeal, rolled oats, pot barley, horse meal, split peas, etc.—at home and abroad. The interests of the miller who grinds the grain will have thoughtful consideration. Any matter that is likely to lead to an improvement of conditions in the local market of any of the various provinces of the Dominion will be carefully considered in this department. A close study will be made of the foreign markets with the aim of further developing the Canadian export trade. The MILLER each month covers very effectively the field of flour handlers and buyers of mill products, not only within the Dominion, but in the Canadian Confederation, but in Newfoundland, the West Indies, Great Britain and other European centres. This department will be made valuable to them in discussions of the conditions of the market in this country, reliable market data, the manufacture of mill products, methods of transportation and shipping intelligence in its bearings and relationship to the milling industries. We invite correspondence from millers, shippers and buyers on any matter involving these important questions.

EXPORT FLOUR.

WE are pleased to be able to publish on this page a letter from Mr. David Plewes, of Liverpool, Eng.; and to say that we expect to receive each month a communication from the ex-Secretary of the Dominion Millers' Association. It is known to most of us that Mr. Plewes has been a resident of England for nearly eighteen months, occupying the position of agent for the Ontario Export Association, a combination of millers who are endeavouring to extend the market in Great Britain for Canadian flour.

Mr. Plewes' letter of this month will be profitable to Canadian millers in the review it gives of flour conditions as they exist in Great Britain to-day, contrasted with those of a year or two years ago. Conditions have changed, and as we had occasion to point out a month ago, writing of the flour trade with the West Indies, to successfully command an export trade with outside countries millers must conform to the conditions and customs that are in vogue at these points. It has been clearly shown as a result of careful investigation that the Indies certain grades of flour are most in demand, and this flour must reach these islands packed in barrels constructed in the particular manner that the requirements of the country make necessary. It is the old story, that when in Rome we must do as they do in Rome, and millers who shrewdly grasp this idea, and act upon it, are going to do a West Indian trade.

The same rule applies, all other conditions being equal, to trade with Great Britain, or for that matter anywhere else. Mr. Plewes points out that the altered conditions of the flour trade in Great Britain to-day make necessary changes from the grades usually made eighteen to twenty months ago. We are aware that it is a hard matter to make successful sales of any grades of flour in the mother land just now, but that certain grades are quite ruled out of the market, and why this is the case, is one of the most valuable matters touched on in Mr. Plewes' letter.

WEST INDIA FLOUR TESTS.

A baker of good standing, a resident of the West Indies, has made known through Mr. Weatherston, of the Intercolonial railway, the following particulars regarding well-known brands of American flour, viz.: the White Light, Knickerbocker and St. Lawrence, which have hitherto had the call in the West Indian and South American markets, contrasted with certain brands of Canadian flour. The Canadian flour is indicated by the private marks N.W., I.C.R. and T. The brands are withheld for obvious reasons. The report is as follows.

"Concerning the Canadian flour. I have used 10 bbls. N.W., 5 bbls. I.C.R., 5 bbls. T. As far as looks go I should choose N.W., before White Light. But when it comes to test the flour thoroughly I must confess that I prefer White Light and the reason I do so is that the White Light flour has more spring and gives a far larger loaf than N.W., and also is better in crust. As to the color I believe I should prefer N.W., the bread being in my opinion a shade whiter than White Light flour bread.

"I have also carefully tested the other flours and find they produce a whiter bread than either Knickerbocker

or St. Lawrence and very nearly the same as Victorious. As regards spring they are about equal to the above mentioned flours. Had I to choose between I.C.R. and T. I should prefer the latter, for the simple reason that it has the most spring of the three flours used, though it is in my opinion the least white.

"More or less spring means that the same quantity of flour will produce a larger loaf than another flour.

"The flour was worked up with sugar as well as hop yeast of various strengths. The latter is not in use in this colony as a rule.

"I shall test the remaining four next week, when it will be drier and may work better; still I have my doubts as fresh flour generally works better than flour that has been in the colony some time. It is not the first Canadian flour that I have used, and I must say that I should like to find out the real cause of its not being so satisfactory, as the flours look remarkably well. First, I thought it was caused by the flour not being packed tight enough in the barrels, but now I feel inclined to think the flour contains too much gluten.

"Anyhow, I shall give the remaining flour another thorough trial, and make an experiment with potato yeast."

NEWFOUNDLAND FLOUR TRADE.

The Trade Review, of St. John, Nfld., of April 8, says: "Flour is even lower than when we last issued, especially in the cheaper grades, which are twenty cents per barrel cheaper than they were in March. Spring orders are large and there is no anticipations of a rise at present." The imports of flour to this colony from Jan. 1 to April 5 were 47,787 bbls., against 22,670 bbls. for same period in 1892. Flour quotations at St. John are as follows: sup. ex. and extra, \$4.40 to \$5.40; supers., \$4.40 to \$4.30. Cornmeal, per bbl., \$3.30 to \$3.50. Oatmeal, \$4.80 to \$5.

GREAT BRITAIN.

(Special correspondence CANADIAN MILLER.)

IT is a truism: any general information that will assist the surplus flour being exported out of your Dominion, will do the home demand, as it is a certainty so long as you have a large surplus in the Dominion of breadstuffs, if this surplus is not exported somewhere, the profits on the home market will entirely cease. Hence, allow me to say, in order to command a share of the flour trade of Great Britain, some changes are necessary from the grades usually made eighteen to twenty-four months ago. All grades of flour having declined ten shillings per 280 lbs. during the year, 1892 has made some grades of flour that were very saleable when the better grades were ten shillings dearer, now only saleable for feed purposes. During the years of 1890 and 1891 flour from inferior Manitoba wheat found a ready market here at fair prices, but now two things have killed the trade: (1) the flour from the poorer Manitoba wheat from harvest of 1891 made worse flour than such wheat ever made before; generally, it was very bad; (2) the higher grades now being so very cheap, lower grades are now almost unsaleable. Bread bakers won't have it, and it is not suitable for cheap biscuit purposes. Therefore, my advice is, avoid this quality altogether for export. Nevertheless choice Manitoba bakers' and patents from sound No. 2 Manitoba wheat is always saleable at equivalent to Minneapolis similar grades in price, but I don't think at present those prices would enable certain Ontario millers to pay prices quoted in Toronto for Manitoba wheat.

Again, with respect to the manufacture of your own Ontario Winter wheat some changes from two years ago are desirable.

(1) Your millers would secure better financial results if they quit the straight roller and 90 per cent. patents for export, the large local mills all through this country all make similar grades, from part native and part foreign wheat, at prices it is hard to compete against, getting the part of English wheat they mix in at 78c. per bushel at mill close. Very good wheat some of it is, testing 62 lbs. imperial bushel, hence it is better for the Ontario miller to go up with his export grade away above those grades, say a white 70 to 80 per cent. patent, and for this grade there is even now a fair demand for well known brands. I know one Ontario miller now who makes a choice straight and a patent as suggested above, both grades well and favorably known. Their straight has had to go into store, while they are constantly getting advance c.i.f. orders for the higher grades.

Again, with regard to your low grades it is no use sending the old low grades here, though there is a fair demand for them, but the price would only net the miller about \$15 per ton at his station, clear of covering, but if you clothe your low

grade reels, so as to bring up your low grade too as near an extra, for such flour, especially when from winter wheat, there is a demand for biscuit purposes.

With respect to future prices, unless something happens to growing crops in America, the enormous stocks on hand here, both wheat and flour, leaves but slight hopes of better prices.

Another all-important matter is that of marine insurance. For some years past there has been considerable damage to flour from coming into contact with chemicals and apples in transit. Several insurance companies now are offering to insure against those dangers and every other risk including three days fire insurance on landing here. Every miller had better find out and insure only in such companies; no doubt those companies have agents in Toronto. Insurance certificates covering the above can, I understand, be obtained from the secretary of the Dominion Millers' Association, Toronto, with whom millers exporting flour had better correspond. DAVID PLEWES.

LIVERPOOL, Eng. Mar. 15, 1893.

THE FLOUR MARKET.

From what we have to say in other parts of the MILLER this month, it is very plain that there is no substantial improvement in the flour market either in Canada or at export centres. The news from the United Kingdom is still of a demoralized market. It would look as though we were making some progress in regard to West Indian trade. Just immediately this is chiefly in the direction of acquiring a better knowledge of the nature and requirements of this trade. But this is essential before the trade itself is to be acquired. Local and home trade is, of course, quiet and yet in many respects a snug business is doing. Prices continue low.

PRICES OF FLOUR AND MEAL.

Toronto: Car prices are: Flour Toronto freights, Manitoba patents, \$4.30 to \$4.50; Manitoba strong bakers', \$3.90 to \$4.25; Ontario patents, \$3.25 to \$3.50; straight roller, \$2.95 to \$3.20; extra, \$2.90 to \$3; low grades per bag, \$1 to \$1.25. Bran \$15 to \$17. Shorts \$16 to \$18. The Flour and Grain Trade Bulletin of the Dominion Millers' Association reports: "Straight grades at \$3.05, \$3.15 and \$3.25; patents, \$3.20 to \$3.25; 80 patents, \$3.60, f.o.b. for Lower Provinces. Bran, \$13 to \$14; shorts, \$15 per ton. Very few sales of flour on feed reported."

Montreal: Prices as follows, with a slow trade. Patent spring, \$4.15 to \$4.30; do. winter, \$4.10 to \$4.25; straight roller, \$3.50 to \$3.60, extra, \$3 to \$3.25; superfine, \$2.75 to \$2.90; strong bakers', \$3.70 to \$4.15. Meals—Granulated and rolled, per bbl., \$4.10 to \$4.25; do. do., per bag, \$2 to \$2.10; standard, per bbl., \$3.95 to \$4.05; do. per bag, \$1.95 to \$2. Car lot quotations are as follows. Bran, per ton, \$15.50 to \$16; shorts, per ton, \$17 to \$18; moullie, per ton, \$20 to \$22.50.

Manitoba: Prices locally: Patents, \$1.95; strong bakers', \$1.75; XXXX, 75 to 95c.; superfine, 60 to 70c. per 100 lbs. Bran, \$1.25; shorts, \$1.4. Meals, etc. Rolled and granulated oatmeal held at \$1.90 to \$2.10 per sack, according to brand, and standard meal 5 to 10c. lower, these being prices to retail traders. Cornmeal, \$1.65 to \$1.70 per 100 lbs. Split peas, \$2.60 to \$2.65 per 100 lbs. Beans, \$2 to \$2.25 per bushel. Pot barley, \$2.50 per 100 lbs. Pearl barley, \$4.

A CASE OF FRAUD.

Complaint is made by Ontario millers that American flour is getting into the lower provinces notwithstanding the duty of 50c. per bbl., which is supposed to be prohibitory. The trick is to ship the low grade flour as feed, and after it has passed the customs, to then sell it as low grade flour. A United States milling journal endeavors to explain away the fraud by saying: "The fact is that the lower grades of American flour have been unprecedentedly cheap; and there has been no occasion for the fraud which has been alleged, of shipping in low grade flour and getting it through to customers as feed. Some of the flour has been as cheap as feed need be." This is plausible, perhaps, and we would rather believe that no fraud had been perpetrated. One of the complainants, however, is Mr. James Goldie, of Guelph, who has for years been a large shipper to the Maritime provinces. There can be little doubt that when he makes a charge of this kind it is based on reliable data.



Office of the CANADIAN MILLER,
April 15, 1893.

THE GENERAL SURVEY.

NOTHING very remarkable can be written of the market situation as it has shaped itself, more or less variously, during the month. There have been some variations in prices, but not of a kind to alter in any substantial or fixed manner the situation as it has existed for some months. True there was a big drop in the Chicago wheat market on March 29th, when the leading option slumped from 82½ to 75½, only a few minutes being required to make the break. This hit some operators hard, especially those interested in May wheat, but conditions soon recovered themselves and have since held the average of equanimity that has been the feature of the market of late.

In a single word prices continue low. It is thought that there are some signs of improvement, the United States crop report for April strengthening the bullish element. This opinion is shared in a measure by operators in our own province who think that there is a prospect of better prices in the future.

Information regarding the growing crop, as it will come to us, for the next few months, will have much to do with influencing present business and regulating prices. It is believed that in certain parts of our own province the unusually severe winter has caused sufficient damage to make it more than likely that the crop of wheat in Ontario for 1893 will come short of that of a year ago. Similar causes, combined with a late spring, will, in the judgment of some, render probable a lighter crop in the United States than that of last year. We may, however, bide events; as the season advances, we can on this hemisphere generate heat sufficiently rapid to overcome in some measure at any rate the drawbacks of an unfavorable winter or late spring.

A Dornbusch report published recently by the London Times stated that in India the "unseasonable rainy period" was passing away and from what could be gathered the wheat crop had "suffered badly." A less auspicious summer's outlook, however, it is thought, may render the Indian crop prospects somewhat doubtful.

The latest reports of the past season in eastern European Russia and Asiatic Russia are very incomplete, but, as far as they go, point to a winter of great rigor. The Romanian official *Bulletino Mensuale* for February and the journal *Das Wetter* publish the minimum temperatures of last January in these regions, among which are 32.8 degrees below zero at Moscow, 38.2 below at Ekaterineberg, 49 below at Harnaual and 50.8 below at Tomsk, the intensity of the cold increasing as we go eastward from Moscow. It appears that all Asia has passed through an abnormally severe season, which prima facie is not favorable for agriculture. But the Asiatic climate can turn wonderful somersaults in a few weeks, and, possibly, the coming summer may make very large amends for any temperature-delinquencies of the past winter.

Turning the eye southward from Moscow to the Black Sea region and also westward over Germany, Holland, Belgium, France and even Great Britain, the agricultural prospect brightens unmistakably. It has recently been reported by Dornbusch that "the agricultural situation in the Danube provinces on the whole is favorable, and Russian fields promise fair to full results." The latest temperature returns from western Europe appear to very greatly strengthen these hopeful anticipations.

Present data is insufficient to enable anyone to say what the harvest will be taking the world throughout. We may, however, study with interest the information that is already available, and closely keep in touch with the varying conditions of the next few months.

CURRENT PRICES OF BREADSTUFFS.

WHEAT. Toronto: (West and north points) White 64 to 70c.; spring 62 to 63c.; red winter 66 to 70c.; gorse

61 to 62c.; spring, Midland, 63 to 65c.; No. 1 hard, North Bay, 84 to 85c.; No. 2 hard 82 to 83c.; No. 3 hard 74½ to 75c.; No. 1 frosted 65 to 66c. Montreal No. 2 hard Manitoba 82 to 83c.; No. 3 76 to 78c. Chicago April 75½c.; May 76½ to 77c.; July 73½c. St. Louis April 64½c.; May 69½ to 69½c.; July, 69½c.; August, 69½c. Duluth No. 1 hard 65½c. for April; May 69½c.; July, 72½c.; No. 1 northern, 63c. for April; 66½ for May; 69½ for July. Beerholm, April 17, says: Floating cargoes Wheat, slow. Cargoes on passage Wheat, downward tendency. Mark Lane Wheat firm, English turn easier; flour, quiet, steady, spot. No. 1 California wheat, off coast, 3d lower; Australian, off coast, and present and following month, 3d. lower; Walla, off coast, and present and following month, 3d. lower. London: No. 1 California, prompt and nearly due, 3d. lower. French country markets firm. Liverpool spot wheat, cheaper to sell; wheat, ½d to 1d. cheaper. On passage to United Kingdom Wheat, 3,641,000 qrs.; corn, 465,000 qrs. to continent wheat, 1,116,000 qrs.; corn, 251,000 qrs. Wheat area in India has increased 2,750,000 acres, but the yield is disappointing.

BARLEY Toronto. Outside No. 1, 43 to 44c.; No. 2, 39½ to 40c.; No. 3 extra, 36 to 37c.; No. 3, 32 to 34c.; two rowed, 54 lbs., averaging about No. 3, extra in color (outside) 35 to 40c. Montreal: for feed, 40 to 42c.; for malting, 52 to 55c. A Buffalo despatch of April 17, says: "The visible supply of barley at principal points of accumulation is 807,000 bush., the decrease for the week being only about 30,000 bush. Stocks are about 1,700 bush. in excess of last year. At Buffalo 1,225,089 bush. in store, decrease for the week of 65,560 bush. The supply to-day exceeds that of last year at this date by 46,775 bush. The market in Buffalo is dull with offerings of spot very light. Quoted: No. 3 extra western, 68c.; No. 3, 64c.; No. 4, 50 to 58c.; No. 1 Canada, 78c.; No. 2, 75c.; No. 3 extra, 73c. At Oswego: Stocks in store show considerable increase: 13,133 bush. of Port Hope barley arrived and the shipments out were 5,000 bush.; stocks on hand, 73,163 bush.; market is nominally unchanged; Canada, 71 to 79c. At New York: stocks are depleted, only 15,559 bush. in sight. The market continues firm, with fair local enquiry and some export movement. Canada quoted to arrive, 84 to 92c. At Albany: The market is firm, with little trading; choice state and western, 73 to 80c.; Canada, 78 to 85c. At Milwaukee: Stocks are slightly increased, there being 157,444 bush. in sight, as compared with 105,925 last week Monday. The market is steady rather: dull, and No. 2 in store is ½c. higher than Saturday; quoted at 65c.; sample lots, 30 to 39c. At St. Louis: No market. At Chicago: Market nominal; No. 2 quoted at 62c."

OATS Toronto: Improved demand; 32½ and 33c. on track; white offered at 30c. Montreal: per 34 lbs., 34 to 35c.; Buffalo: No. 2 white, 38½ to 39c.; No. 3 white, 38c.; No. 2 mixed, 33½ to 34c.; No. 2 white, clipped, 40c. Oswego: Extra No. 1 white, 43c.

PEAS Toronto: Steadier and improved demand; small lots, west, 57c. Montreal: per 66 lbs. 73 to 74c.

RYE Toronto: Hardly any offering; wanted at 54c. Montreal: 60 to 62c.

BUCKWHEAT Toronto: Dull and weaker, 47c. on side.

TRANSPORTATION TOPICS.

Over 1,000,000,000 bus. of grain have been contracted at Chicago for shipment by rail from Buffalo on the basis of 6c. wheat, 5½c. corn and oats 4c. to New York.

The Montreal Transportation Co. will locate a floating elevator at Prescott this summer. The company must do this, in order to compete with Ogdensburg, as vessels will carry grain for the same rate from Fort William and the lakes to either place.

FLOUR IN CHINA.

The First Assistant Secretary of State, in response to a request of the millers of Oregon and Washington has intimated his willingness to appoint a special agent for China to promote the flour trade with that country. The millers of these states have already done a fair trade with China. Canadian flour is known in China, through the enterprise of Mr. W. W. Ogilvie, and what is to prevent Canadian millers from securing and holding a good trade in the Celestial Empire?

PERSONAL.

George Kent, of Minneapolis, has become head grinder in the Ogilvie Mill, Winnipeg, Man.

L. K. Bruce died in Chicago a fortnight since, aged 68. Mr. Bruce was long known as the "Corn King."

PUBLICATIONS.

The publishers of The Canadian Hardware Merchant have issued a spring trade number, which, viewed either typographically or editorially, will compare most favorably with any of the special numbers of trade journals published at home or abroad. Especially to those interested in the hardware business the seventy-two pages of this number should prove exceedingly valuable. The editorial departments give every evidence that the editor is in close touch with the requirements of the trade; whilst the illustrations and many of the contributed articles enable one in almost any business to read the number with interest and profit.

TRADE NOTES.

Mr. F. E. Gaudin, of Pt. Hope, Ont., has recently patented a labelling machine, which is said to be perfection itself. It labels all kinds of preserving cans such as those used for tomatoes, corn, peas, salmon, lobsters, etc., at the rate of 100 a minute. It is made to go either by hand or power and a child ten years of age can easily run it. It is patented in the United States and Canada, and patents are being secured for England, France and Germany. Mr. Alonzo W. Spooner, of Pt. Hope, who usually knows a good thing when he sees it, has secured control of this machine for Canada and all orders will be supplied by him from Pt. Hope.

BANANA LOAVES.

AN exchange discusses the banana flour question in these terms: "There need be no dread of a famine in this country as long as there are bananas in Central America. Alexander von Humboldt said once, after examining the capabilities of the banana, that a single section of Central America could feed the world with a farinaceous food not inferior in quality to the best grain, and that there is some truth in this statement seems clear from the fact that bananas are now being made into flour and shipped to the United States and Europe. When we are threatened with famine therefore, we can fall back on the banana, but until then we do not believe that banana flour, although it is said to make excellent bread and cakes, will take the place of wheat and flour, at least among the North Americans." Hardly.

IMPARTING FLAVOR TO FLOUR.

A well-known English expert in milling has recently been investigating the subject of flavor in flour, and has pointed out what has, indeed been ever palpable enough, that the extraordinary property in flour for absorbing the scent or flavor generally of any substance placed near or in contact with it, suggests a means whereby the baker might readily improve bread and render it more generally attractive. Every baker now and then has the unpleasant experience of flour being virtually spoiled by absorption of some disagreeable odor. Thus flour placed near lime, or oil, or tar contracts a fatal flavor and is practically ruined. Why should not the baker, however, endeavor to turn this extraordinary property to good account, and impart to his flour flavors which would make the resultant bread quite a rival to articles on well-to-do tables where at present the loaf is really out of the dietetic running. The miller at present does the blending for the baker, and too often from a miller's point of pecuniary view, but if the baker could once master the art of imparting attractive flavor to flour, and so producing bread that would be distinctly nice, and yet wholly free from aught that is mawkish or cloying, it is evident that very much would be gained. At present, as we are well aware, this is a thing quite in its infancy: it is still in the experimental stage, but it is really open to any baker to apply the principle himself, and by testing his art on a small scale he might easily discover the way to greatly raise the value of bread made from flour that under ordinary conditions yields only a dry loaf attractive to the eye, but by no means tempting to any one who does not happen to be hungry.

NOTES AND QUERIES

Questions and answers are inserted under this head free of charge and all are invited to avail themselves of this column. Correspondents need not give their own name for publication, but it must be made known to the editor. Anonymous communications will find space in the waste basket.

NO. 33. REBABBLING ROLL BEARINGS. I am troubled in regard to worn out roll bearings. Can some reader suggest a plan that experience has shown him to be worth the cost and labor of rehabbling? Arthur R.

NO. 34. BOILER EXPLOSIONS. Let me say, suggested by a correspondent in the March MILLER, that the amount of water in a boiler at the time it "let go" has a good deal to do with the possibility of an explosion. When a considerable quantity of water is heated under pressure, as in a boiler, and suddenly released from pressure, as in case of an explosion, or rupture of the containing vessel, then the body of water is instantly flashed into steam and the sudden increase in volume which takes place when that happens makes matters much worse than when there is but little water contained in the boiler, and the destruction is only that which is caused by the escape of the pent up body of steam therein contained. In the latter case, the mischief is all done at once and is over with; in the former case, the destructive energy is reinforced by a power two or three or perhaps many more times greater than that which caused the initial trouble. L. A. R.

NO. 35. SIEVE AND GRAVITY PURIFIERS. A correspondent of Milling, Liverpool, Eng., asks: "Are we returning to the methods of ten years ago? Is the gravity purifier in a slightly modified form to re-assert its place in the affections of millers? We scarcely think so. To our minds the sieve form is so immeasurably superior to any gravity in principle as well as in detail and capacity that we imagine such a return to be impossible. But it is not a strange fact in connection with the history of milling machinery, that whilst we were using gravity purifiers, and our milling engineers, with a few notable exceptions, were saying that nothing else would do the work of purifying semolina and coarse middlings, as well, the Americans were using the sieve type with excellent results. Now when English inventors have made the sieve purifier so nearly perfect that it has almost entirely superseded the gravity, the Americans have reverted to a very questionable modification of that type, and claim for it, that it is the most perfect thing yet invented, and that it will, and is, rapidly superseding all other purifiers."

NO. 36. THE TERM HORSE POWER. A writer in Power thinks that an imperfect understanding of the term horse power exists in more minds than that of the engineer who tried to get at his "horse power per hour" by multiplying the actual horse power by sixty. The horse power is foot pounds per minute, just the same as revolutions per minute, and it is just as meaningless to say "horse power per hour" as it would be to say "revolutions per minute per hour." The horse power is the unit of the rate of power consumption, and whether the number of foot pounds be divided by 550 per second, 33,000 per minute or 1,980,000 per hour, the rate of their production, or consumption and consequently the horse power, will be the same. When it is said, for instance, that an engine requires thirty pounds of steam per horse power per hour, it is meant that thirty pounds of steam are required per hour, or one-half pound per minute for each horse power developed.

PERFORATED BELTS.

An engineer has been enquiring of us as to the value of belts perforated with holes. The argument of the dealer is, that the air is let out through these holes from under the belt, and being thus excluded, atmospheric pressure must be excluded, and the pressure of the atmosphere upon the pulley will help to secure a firmer grip without further tightening. This is on the supposition that the air is carried under the belt in the rush of the belt on the pulley. This engineer does not want to pay for perforated belts if they do not do what is claimed for them, and yet he wants all the adhesion he can get with the least tightening. We do not believe that atmospheric pressure has anything to do with the driving of belts, and has no part in causing them to adhere to a pulley, whether perforated or not. It has been found that at high speed belts do not adhere so well to pulleys as at a slower speed, and this has been claimed due to the air getting between the belt and pulley at the high speed and preventing less adhesion from atmospheric pressure. It can be quite clearly demonstrated that the centrifugal force of the more rapidly moving belt counteracts to some degree the adhesion of the belt and causes it to adhere so firmly. This is the cause of this peculiarity, not the taking of air under the belt.

FOREIGN LETTER BOX.

ENGLAND.

BUSINESS with the miller does not grow more rosy in British markets. Stagnation that has reigned supreme for many months continues. Stocks retain an average volume with buyers no ways anxious to buy heavily. Flour at auction is not an unusual announcement to meet one in these days of depression. Recently a lot of California flour was placed on the Liverpool market to come under the auctioneer's hammer. Word has reached Liverpool that the bark Beemah, Captain Puxley, from Astoria, Ore., with 33,000 bags of flour for Messrs. Wade, of Galway, is ashore at Mutton Island, Galway Bay, and will become a total wreck.

BUDAPEST.

The home of progressive milling has not fared better than other parts of the world as its days increase. Hungarian millers have recently been meeting in conference to consider what can be done to secure some of their old time trade from the United Kingdom, which American competition has of late cut into. A reduction of freight rates was secured from the "Adria" Navigation Co. on condition that this line secure the lion's share of the trade. Will so slight a concession meet the contingency? In the Austrian reichsrath (house of commons) there was again an angry debate about the sharp competition between Hungarian and Austrian millers. Some Bohemian deputies wished the minister to check the continual and very large imports of Hungarian flour, in order to protect the Austrian millers, who complain that they are deprived of their means of livelihood by Hungary's all-powerful competition. The minister replied that he was unable to protect home trade any more than he already did; that Hungary was quite as great a customer for drygoods and other Austrian trade articles as Austria was for Hungarian flour, and, therefore, the governments must respect and defend each other's trade. The output of Budapest mills for February was 651,350 lbs., of which 337,688 remained in Hungary, 204,065 were shipped to Austria, 43,687 to England, 35,605 to Germany, 15,834 to France, and 14,271 to other countries.

RUSSIA.

The Russian government has decided that an official inspection shall be instituted on all grain exported from Russia, so that hereafter all the grain exported will have to be cleaned, and the state will exercise a strict surveillance over this measure. As Russia does not manufacture cleaning machinery, recourse will have to be made to foreign manufacturers; to this end a proposal has been made to allow such machinery to enter Russia free of duty, so that there will probably be, this year, a large demand for this class of machinery. The demand for milling machinery generally is also likely to extend, since millers in south Russia are discussing means whereby Russian grain shall be exported in the shape of flour, the advantage of which, being beneficial to the state, the government has lent its support to the project, and will aid millers in bringing about this result. The machinery exhibition which will be held in St. Petersburg in January, 1894, will have a special section for corn winnowers, cleaners, and apparatus for drying and conditioning grain. The condition of winter crops in south Russia is reported to be satisfactory.

DULUTH.

This point is likely, in the opinion of some, to divide the honors with Minneapolis of being the largest milling centre in the United States. There can be no doubt that milling here has already grown to great proportions. The Superior and Duluth mills are showing a weekly output of over 40,000 lbs. The Duluth board of trade have resolved to sell their present building and erect a new exchange building at a cost of \$250,000. The Minnesota senate have passed a bill appropriating \$300,000 for the erection of a 15,000,000 bu. elevator at Duluth, to be operated under the authority of the state. It is to be completed by October 1st, 1894. The cost of building will be derived from grain inspection fees.

MINNEAPOLIS.

Even under depressed conditions the output of Minneapolis mills is large, but trade is not nearly as active as it ought to be. For some time the market has been in sympathy with depressed conditions existing elsewhere. "The practice among winter wheat millers of laying spring wheat flour to blend with their own, appears to be on the increase," has been remarked by a well-known local miller, "and I think the northwest has more to apprehend from this tendency than is generally believed. You see, the winter wheat miller needs the spring flour to give his own body, and the mixture makes a very popular flour for household uses. It works easily, makes white and very fine looking bread, and is calculated to cut more of a figure than the spring wheat miller would care to see it do." The Minnesota senate has recommended for passage a bill requiring all railroads to build warehouses or elevators at grain shipping points, and have them in operation before September 1st, 1893. Croucher, Fisk & Co., one of the oldest milling firms in Minneapolis, has, much to the surprise of everyone, been obliged to suspend payment. The concern was a 1,500 barrel mill, equipped with modern machinery, and their flour has always occupied a front place.

FRICTION AND LUBRICATION.

WE often hear of the "co-efficient of friction," and no doubt many wonder what that means. It is easy to understand with a little explanation. Let us take a piece of iron and pull it along a plate of iron also. Let the block weigh 10 pounds, and we will hook an ordinary spring balance and pull it along, noting the amount of pull of the scales necessary to move it. Suppose this is 1 pound, or in other words, it takes 1 pound to pull 10 pounds on this iron plate, and we say the "co-efficient of friction" is 1-10 or 0.1. Now let us oil this plate and block and try it again, and we find it moves with a pull of 1/2 pound, showing that we have reduced the "co-efficient of friction" to 1-20 or .05, just half of the former friction.

The friction of bearings vary with the conditions under which they run, the metals that run together, the lubrication of the bearings and the load or weight imposed upon them. For good sound shafting (turned practically true), in good, long bearings, properly lubricated and not too heavily loaded, the "co-efficient of friction" will average about .07, varying from .04 to 1. In other words it takes about 7 pounds pressure to move 100 pounds of shafting in good bearings, this will hold good for most shafts in good condition.

It will be seen that it pays to have a bearing lubricated and not allowed to run dry as the power required is often doubled or tripled by not having a shaft lubricated properly.

This does not mean that it should be spasmodically dosed with oil and then left to run until dry, for this means an uneven friction, is not economical of oil, nor is it at all mechanical. When possible have a steady regular feed, even though it be but a drop an hour, and you will be surprised to know how little oil will run a shaft and keep it cool. If you have no feeding device, then become as nearly automatic as you can yourself, by oiling "little and often." It may take a little time but it will lessen the oil required, will obviate hot journals and will be more satisfactory in every way.

THESE ARE MARKED.

THE fellow who buys, and says the flour is "off" 'cause the market dropped,
Has got to go;
Let us tell him so,
It's time this thing was stopped!

And the chap who orders and cancels the same
As soon as the price declines
Has got to go;
Let us tell him so,
No matter how he whines.

The foreign buyer who always kicks
And by arbitration steals
Has got to go;
Let us tell him so,
No matter how he squeals.

The miller who uses another's brand
And tries to cheat the trade
Has got to go;
Let us tell him so,

He's the meanest man that's made,
And a bill of lading which guarantees
Naught else but the shipping rate
Has got to go;
Let us have it so,
Too long we've had to wait.

And all this trouble about delay
On railway and steamship routes
Has got to go;
Let us have it so,
Thus the western miller shouts.

Northwestern Miller.

It is not safe to judge a man by what he does on Sundays, nor a miller by his behaviour while under the master's eye.



CANADA.

Send us the news of your district.

Peter Powell will build a 100-barrel flour mill at Melita, Man.

McCade & Co. propose to establish a flour mill at Hartney, Man.

A farmers' elevator will probably be erected at Medora, Man.

The Hudson Bay Co. mill at Emerson, Man., is offered for sale.

W. X. Snider, of Eden, Ont., is withdrawing from the milling business.

James Cummings is adding more machinery to his flour mill, at Lyn, Ont.

The new mill of Wm. Stewart & Co., Duck Lake, Man., is now in operation.

James Hayes, of Colouarg, Ont., has sold his mill to Mr. Pratt, a near neighbor.

The St. Jean Grist Mill and Elevator Co., St. Jean, Man., is applying for incorporation.

The farmers of Morris, Man., are thinking about erecting a flour mill on a joint stock basis.

W. H. Hill, Sarnia, Ont., loses about \$8,000 through damage by fire to his large grist mill.

At a meeting held recently at Brandon, Man., the question of erecting a farmers' elevator was considered.

Rumor has it that W. C. Caldwell, M.P.P. for Lanark, Ont., will erect a large elevator at Virden, Man.

A powerful electric motor for grain elevating purposes has been placed in the flour mill of T. Martin, Ottawa, Ont.

New improvements and machinery to the extent of \$40,000, are being placed in Ogilvie's large mill, at Winnipeg, Man.

The Montreal mills of the Aylmer Company have been shut down for a short time owing to the water being out of the canal for repairs.

The Port Stanley Milling Company is being incorporated at Port Stanley, Ont., with a capital stock of \$50,000, to erect a flour mill at that place.

The mill dam at Garris, Ont., was swept away by a flood on the 12th inst., causing a loss of about \$1,500 to Wm. Danc, St., owner of the flour mill.

D. K. Ross, of Embro, Ont., experienced some trouble and damage a fortnight ago through the water of the Thames, in that locality, overflowing its banks.

The mill of the Lake of the Woods, at Keewatin, Ont., has been closed down for a fortnight to allow of improvements, including the putting in of new water mill.

Thos. Moran, Mayor of Bryson, Que., has purchased the grist mill at that place, and intends putting in a first-class roller system having a capacity of 75 barrels per day.

With the recent additions of new machinery made to the Chaudiere mill, of the McKay Milling Co., Ottawa, Ont., the capacity of the mill will be 500 barrels per day.

At a public meeting held at Elkhorn, Man., two weeks since, a large majority of residents in the district expressed themselves in favor of increasing a flour mill to the amount of \$5,000.

A Montreal despatch of a week ago says an offer was made on the flour of the corn exchange of 70c. for 50,000 bushels of No. 2 hard wheat, May, at Fort William, which was refused.

The new roller mill at Whitewood, Assa., has been completed and is now in operation. The main building is 48 x 30, and 50 feet high and comprises four stories and an attic. The engine room is 20 x 30.

E. N. Edmondson, who is well known to Ontario millers, runs a large bakery in Oshawa, with the large output of some 3,000 loaves weekly, which is distributed in Oshawa, Whitby and other places.

There are four flour mills in the Edmonton district, Alberta, within an area of eighteen miles square. The Edmonton Milling Company's new roller mill, with a capacity of 75 barrels of flour a day, in South Edmonton; the others are old style mills: France & Company's steam grist mill in Edmonton, with two runs of stones; Hutton & Bull's steam grist mill, St. Albert, with two runs of stones; and the Sturgeon River Milling Co.'s water mill on Sturgeon river, with two runs of stones.

A grist mill is being built at Burnaby, Ont., by W. A. Kermord.

R. L. Twiedie, flour and feed, Grand Valley, Ont., has sold out.

Selkirk, Ont., has subscribed a bonus of \$1,000 towards the erection of a roller flour mill.

Hon. Mr. Carling is given as authority for the statement that two-rowed barley could be grown with success in Canada and sold in England providing the season here was favorable. The past two seasons were unfavorable.

The large brick flour mill and contents, and the house and contents belonging to Neil McCahill & Co., Forest, Ont., were consumed by fire on the 6th inst. Among the contents of the storehouse were 600 barrels of flour.

The Edmonton Agricultural Society is taking steps to improve the quality of seed grain in that district, and has ordered 500 bushels of red fyle from the Canadian Pacific Railway for farmers who desire to make a change.

C. A. Zavitz, of the Ontario Agricultural College, is now in Chicago putting up the farm exhibit. The exhibit contains about 500 varieties of grain, shown in chaff and straw, all of which has been grown upon the Model Farm.

It is expected that the proposed farmers' elevator at Melita, Man., will materialize this summer. The proposed capital is \$25,000 in 1,000 shares of \$25 each and it is proposed to build an elevator of 25,000 to 40,000 bushels capacity.

Wakeford Bros.' grist mill at Battersca, Ont., was laid in ruins by fire. The mill was worked hard, and overheating is supposed to have created the conflagration. The loss is \$10,000, and insurance \$2,300. The Wakefords bought the mill only a year ago, greatly improving it.

The people of Hamiota, Man., are anxious to see a flour mill built in the district. At a public meeting held recently the feeling went to show that if a respectable party would put up and operate a two hundred barrel mill the municipality would give a bonus of \$10,000 and exemption from taxes for twenty years.

A movement has been inaugurated in the board of trade, Montreal, Que., for the formation of a board similar to the Chicago board, so that grain men can deal on the spot instead of through Chicago or New York. Some of the members object to such a board on account of the facilities it will afford for gambling in futures.

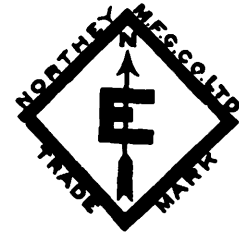
Two windmills have arrived from Chicago, says the Edmonton Bulletin, addressed respectively to Rev. Pere Husson, St. Augustine mission, Smoky river (Peace river), and the other for Rev. Pere Fournard, St. Henri mission, Fort Vermilion, Peace river. They are made in Chicago, and are for use in running small grist mills at the two far northern mission stations mentioned, where farms are being established.

A sad accident occurred in the flour mill of G. Carter, Son & Co., St. Mary's, Ont., on 12th inst., which resulted in the death of Wm. Siskens, Jr. The boy, a lad of 18 years, was working in the mill, and in passing a revolving shaft his clothes caught in it, instantly throwing him off his feet and winding him rapidly around the shaft. He was instantly killed, being fearfully lamed about the head.

A small sample of wheat grown in the Peace river country, has been creating considerable attention among the members of the Grain Exchange, Winnipeg, Man. The grain grades No. 1 hard, is very large and plump, of a good color and is as good for milling as anything grown in this province. The sample is from the exhibit which is being sent to the World's Fair and was grown by the Rev. Gough Brick, of Shaftesbury Mission, which is situated at the confluence of Smoky and Peace rivers. The seed was sown on May 2nd and the grain was harvested on August 29th. The yield was thirty-four bushels per acre and the weight, government test, sixty-four lbs. per bushel. Shaftesbury Mission is just 200 miles north of Edmonton.

The annual general meeting of the shareholders of the Patrons' Elevator, Milling and Supply Co., (Ltd.), of Boissevain, Man., was held recently. The report of grain handled showed that the elevator had taken in over 70,000 bushels since its opening on the 6th of last November, while the financial statements showed that the earnings of the elevator had been sufficiently above the expenses to enable the directors to show a profit of over six and one-half per cent., which amount has been added to the capital of the company. The following resolution was passed: "That we, as shareholders, having received through explanations of the workings of the elevator, and the business of the company, hereby express our complete satisfaction with the profit declared, and the benefits derived from our elevator up to the present time, and tender our hearty thanks to the directors for the way in which they have managed our affairs." The same directors were re-elected for another year.

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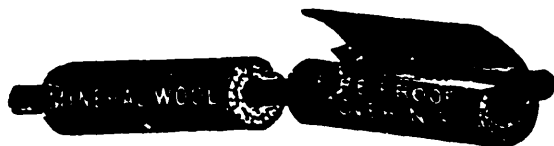
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FOR SALE OR TO RENT THE FOUR-story stone Grist Mill (known as Dean's mill) and dwelling-house, sheds and blacksmith shop adjoining, situated on lot 5, cor. E. Clinton road north, Lincoln county. Terms moderate. Address Andrew Spiece, or Jacob Michener, Campden P.O.

FOR SALE.

THE "PIONEER MILLS" ST. THOMAS, Ont., will be offered for sale at the City Hall in that city, at 12 o'clock noon, on Wednesday, March 29th, 1893. This mill is fitted for both cornmeal and flour, and the machinery is in good repair. There is a good existing trade in the immediate vicinity, and a pushing man with small capital can do a good business from the start. For further particulars apply to MANN & DAVIDSON, Vendor & Solicitors, St. Thomas.

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FOR SALE

"NATIONAL ROLLER MILLS," BRUSSELS, Ont.; capacity two barrels per day. Cheap, easy terms of payment. Address "B.C.," P.O. Box 366, Toronto.

AUCTION SALE OF VALUABLE FLOUR MILL IN OSHAWA

THE UNDERSIGNED ASSIGNEE OF THE estate of W. F. Ellis & Company will offer for Sale by Public Auction at the premises in the Town of Oshawa, on

Saturday, the 6th day of May, 1893

at Twelve o'clock, noon, the following valuable property, all and singular, that certain parcel or tract of land situate, lying and being in the Town of Oshawa, in the County of Ontario, and being composed of that part of Lots Eleven and Twelve in the Second Concession of the Township of Whitchurch, being the property known as The Oshawa Mill (formerly the J. B. Warren Mill), together with all the Machinery, Implements and fixtures thereon, situate and forming part of and in use in connection with the mill as described in a deed of sale and property from Mary and John Northwood to W. F. Ellis, dated on or about the first day of December, 1891.

Upon the said property is erected a grist mill having a capacity of one hundred and twenty five barrels of flour per day run by never-failing water power, and all fitted up with the best roller process machinery, all in good running order and constantly running. The mill is well situated, and has an excellent local trade, making a good business in itself.

The property will be sold subject to a mortgage encumbrance of seven thousand five hundred dollars, and a lease expiring on the 15th day of November, 1893.

TERMS OF SALE.

Ten per cent. cash upon the day of sale, and the balance over and above the mortgage within thirty days thereafter.

The property will be sold subject to a reserve bid. Further particulars and conditions will be made known upon day of sale or upon application to JAMES DICKSON, Manning Arcade, Toronto, Assignee, C. A. JONES, Esq., Barrister, Oshawa; LEVI PATRICKS, Esq., Auctioneer, Whitchurch; or to DICKSON & BRYAN, 1255, Manning Arcade, Toronto, Solicitors for Assignee.

USE

MYERS' ROYAL CATTLE SPICE

TESTIMONIAL.

DEPARTMENT OF AGRICULTURE, Ontario, Toronto, March 17th, 1893.

Gentlemen.—We have used Myers' Royal Cattle Spice during the present winter with both cattle and sheep. It seems to be equally valuable for both. I noticed especially the benefit on a lot of feeding rams. The change in their appetite and appearance was easily perceived after the first week or ten days' feeding, and they have steadily and rapidly gained since.—Yours very truly, (Signed) JOHN DRYDEN, Messrs. Myers & Co., Toronto.

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HUGH SCOTT, Manager and Secretary
THOS. WALMSLEY, Treasurer

THE President, James Goldie, Esq., in moving the adoption of the report on the business of 1892, said:

"I have much pleasure in drawing your attention to the fact that this Company has verified, in a marked degree, every expectation set forth in the original prospectus when organized in 1885.

"Up to the present time the insurers with this Company have made a saving, when compared with the current exacted rates, of \$91,000.30. And in addition thereto bonus dividends have been declared to continuing members amounting to \$81,321.72.

"Besides achieving such result, we now also have, over all liabilities including a reinsurance reserve (based on the Government standard of 50 per cent. (50%), a cash surplus of 1.93 per cent., to the amount of risk in force.

"Such results emphasize more strongly than any words I could add the very gratifying position this Company has attained. I therefore, with this concise statement of facts, have much pleasure in moving the adoption of the report."

The report was adopted and the retiring Directors unanimously re-elected.

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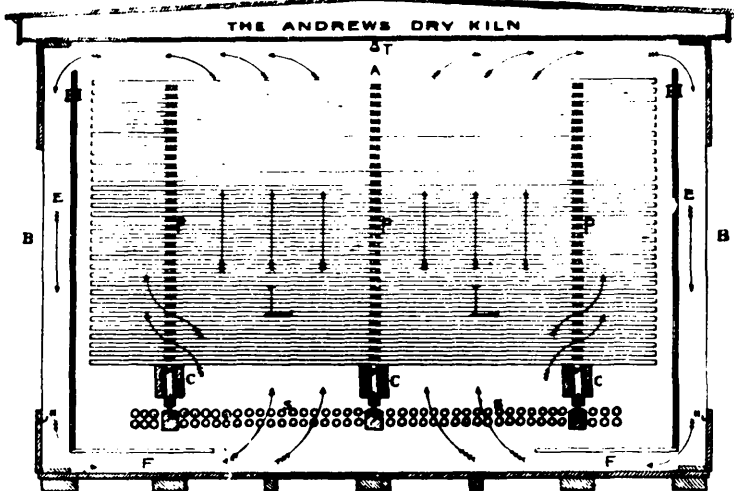
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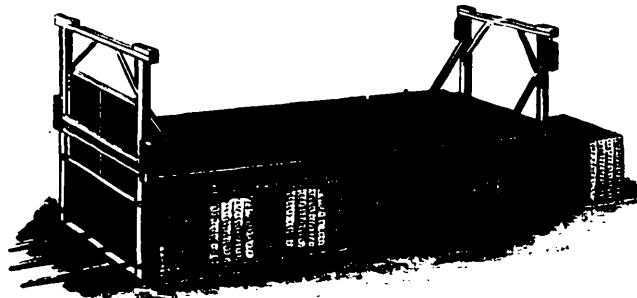
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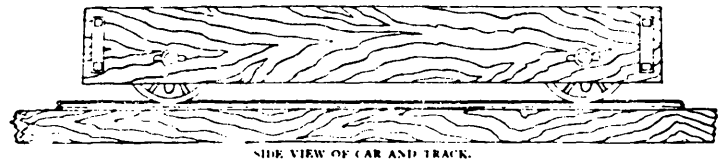
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This is the verdict of a Quebec lumber firm, and we can give equal results every time.

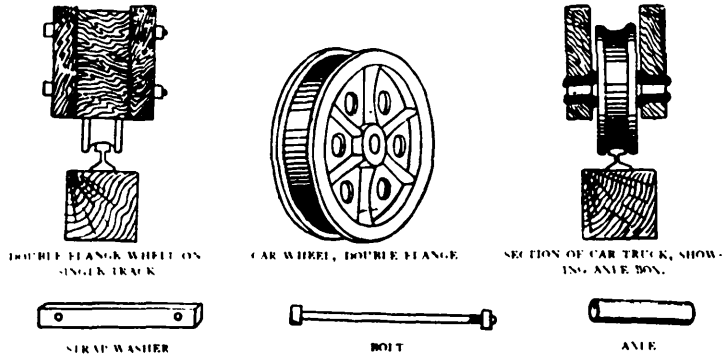
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Has been proved to possess the following points of excellence:

- 1st. That its drying is rapid and perfect
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- 3rd. That the drying is done by a CONTINUOUS system and the temperature of the kiln is under absolute control at all times.
- 4th. That our Dryer is free from the varying air currents always wasteful incident to all fan and open-draft kilns.
- 5th. That our drying is done by the slow continuous movement of a large body of slightly moistened air.
- 6th. That our condensing surface is so very large as to be adequate to precipitating the moisture of the saturated air with the least amount of movement.
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SIDE VIEW OF CAR AND TRACK.



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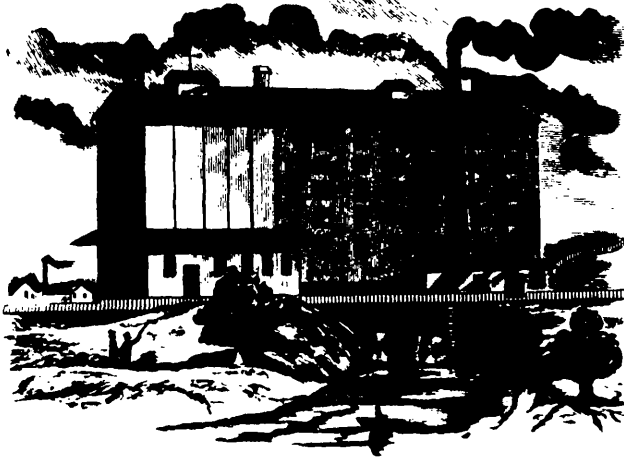
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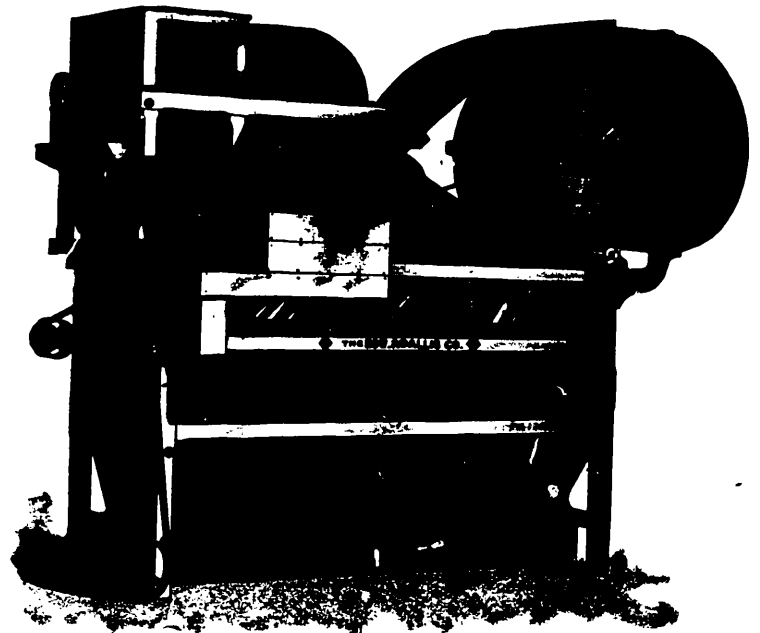
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On both Smith and Allis Systems

THIS engraving shows a Reliance [sieve] Middlings Purifier surmounted on the front by Reliance Air Purifier and on the rear by a Reliance Dust Catcher, making three machines in one, all driven by one belt and using only the floor space required for the Sieve Purifier alone. The middlings, as they issue from the Grader, are introduced to the Air Purifier which removes the loose bran particles, fuzz and dust, and the middlings then pass to the Sieve Purifier, where they are graded and re-purified, and the bran specs of equal gravity to the middlings which were not removed by the Air Purifier are now removed by the combined aid of the cloth and the graduated air suction of the Sieve Purifier. The impurities from the Air Purifier and from the Sieve Purifier are discharged separately. The Air Purifier returns its own air, and draws none from the outside. The Reliance Dust Catcher discharges its own air into the room. The removal of the impurities from the middlings by the action of the Air Purifier, relieves the Sieve Purifier of the hardest work and gives it greatly increased capacity.



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As a System exclusively using a separate Purifier for each grade of middlings

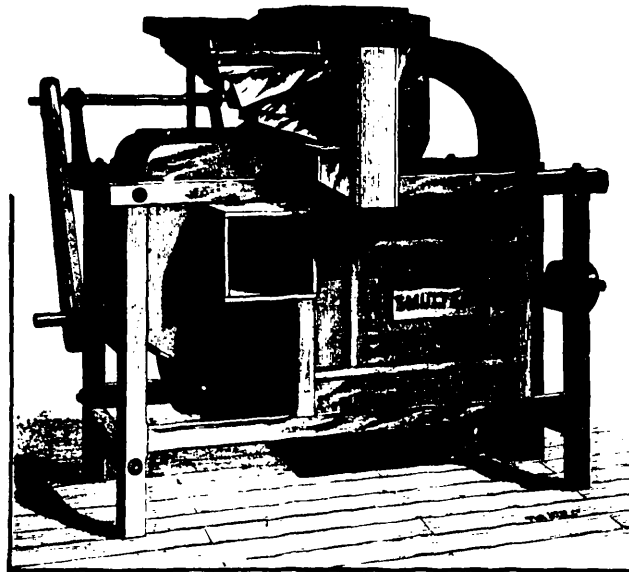
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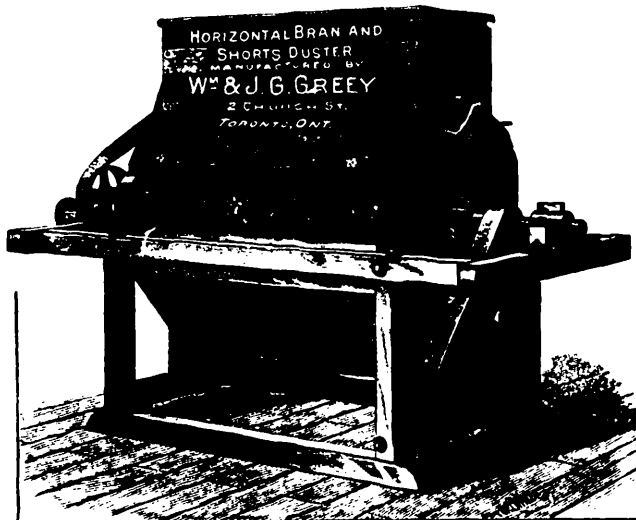


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1876	34.74	1886	11.35
1878	36.74	1888	11.35
1880	42.15	1890	12.19
1882	47.14	1892	12.57
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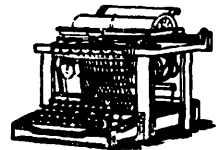
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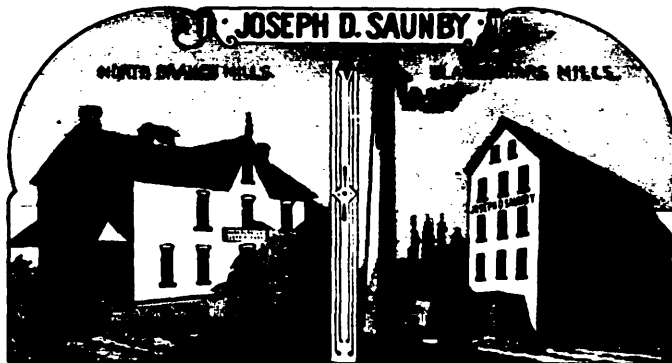
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