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THE CANADIAN MANUFACTURER

AND INDUSTRIAL WORLD

DEVOTED TO HOME INDUSTRIES, COMMERCE, FINANCE, INSURANCE, RAILWAYS & MINING.

Vol. 2.

TORONTO, MAY 18, 1883.

No. 11.

THE BOILER INSPECTION AND INSURANCE CO'Y OF CANADA.

(Incorporated by Act of Dominion Parliament),

ALSO CONSULTING ENGINEERS,

late THE CANADIAN STEAM USERS' INSURANCE ASSOCIATION.

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General Consulting Engineers for all kinds of Mechanical, Civil, and Mining Engineering Work.

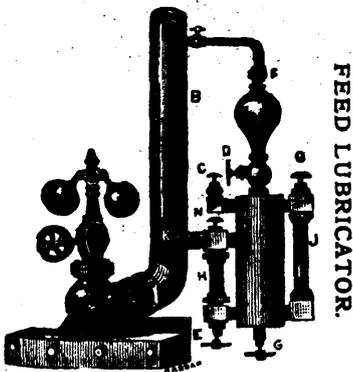
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ROBERT MITCHELL & CO.,
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THE CANADIAN MANUFACTURER

DEVOTED TO HOME INDUSTRIES, COMMERCE, FINANCE, INSURANCE, RAILWAYS & MINING. AND INDUSTRIAL WORLD.

VOL. II.

TORONTO, ONT., MAY 18, 1883.

No. 11

THE EARLY WHEAT SPECULATOR.

In the neighboring States the intense anxiety of speculators to obtain early and reliable information as to the condition of the growing crops, and the trouble and expense incurred in attempts to obtain such information, constitute a feature of the time. The first startling exhibit in this way was in 1881, two years ago, when a syndicate of enterprising operators managed, by taking the field very early in the season and at great expense, to get exclusive information of the important fact that the wheat crop was in such bad condition, owing principally to want of rain, that it could not possibly prove other than a poor one when harvest came. On the strength of this private and particular information the ring bought largely, and at last created a gigantic corner, by which they made millions for themselves at the expense of the losers. That year the wheat crop was a poor one indeed, the worst known in the Western States for many years. It is scarcely necessary to add that the seat and headquarters of the ring aforesaid was at Chicago, though a few Cincinnati men were also very successful that year in the same way. The marked success of that venture has since emboldened the same operators, and many more besides, to try the same thing over again. What chiefly strikes the outside observer is, however, the fact that each year the speculators take the field earlier than they did the year before, the present year beating all preceding years in this respect. To show how the magnates of grain speculation are now conducting their operations, take the following from a Chicago despatch dated May 4th.

"The mills are buying and hoarding in full belief of a steady advance. Wheat advanced one cent. The advance can only be attributed to crop reports, and no genuine bull believes in his heart that the crop will average more than 55 per cent. this year. Sitting on the top end of the teeter plank, well up in the air, is Mr. P. D. Armour, and on the other end, hugging the ground, is Samuel W. Allerton. Armour roars, Allerton growls. Armour has the most extensive private crop bureau in existence, and his chief, operating on the "dead fine," says the crop is bad, almost a failure. Agents of the great bull, in fear of their heads, telegraph daily the exact condition of things in their respective sections. Not so with Allerton. He packed his grip-sack last night and quit the city, swearing never to return until he had examined every blade of wheat on the continent, and especially his favorite Platte County. He dares a chinch-bug to show its face, or a wheat midge the print of its foot, or a Rocky Mountain locust to brush the air with its wing."

A later despatch (May 10th) from the same hot-bed of grain

speculation shows some of the circumstances under which the game was then being continued :-

"There was never before a season when the Government's agricultural report was watched for with so great interest as now. All sorts of schemes have been resorted to to obtain an inkling as to what its purport would be. Money has been ready in any reasonable amount—a sum well up in the thousands, at any rate—for a trustworthy summary, no matter how brief, of the forthcoming document. It is believed that no one here has obtained the coveted information, certain it is that the great traders have not. Armour's clerks have been industriously running down the different rumors abroad for the past two or three days, and it is certain that these clerks would not be investigating rumors if their employer had facts. Charles Counselman, a commission man, pretended to have inside information a day or so ago, and gave out that large sales by him of wheat were made on the strength of this 'pointer.' He had no 'pointer,' however, but sold because he thought the 'syndicate' was selling. 'Wouldn't there be a bear dance,' said a broker, 'if there was a midnight session of the Board to night and everybody was in possession of the Washington secret?' Perhaps a midnight session might increase the excitement, but there is likely to be a lively enough dance tomorrow morning when the Board opens, unless the report shows just about such a state of affairs as the 'bulls' have been claiming existed. If a great improvement is noted, or if the damage is put not higher than 15 per cent., there is likely to be a considerable drop in prices, a tremendous excitement, a wholesale calling of margins, and more or less of a panic among the weaker 'bulls.' It is not likely that Mr. Armour will be very much stirred. He is exceedingly reliant under all sorts of circumstances, and doubtless has more confidence in his own private information than in the Government's figures, whatever they may be. A report which makes as bad a showing as was made in April, or about as bad, will be likely to leave prices just where they are."

The night of May 10th the substance of the Government report was telegraphed everywhere from Washington. We quote this much of the despatch.

"The May returns of wheat to the Department of Agriculture make the condition compared with April averages materially lower in New York, Michigan, Ohio and Illinois. Further injury was wrought by frosts early in April, and in the more northern districts real damage by March freezing was more fully disclosed as the snow and ice disappeared. The average is 77 for New York, the chief destruction being in Onondaga, Niagara and Genesee counties. For Michigan 83, Ohio 62, Illinois 66. Further loss is suffered by ploughing up large areas in Ohio and Illinois. A reduction in Missouri from 83 to 80 is reported. In Indiana the condition averages 75, in New Jersey 101, the same as in April. All the remaining Northern States show an improvement since April, as well as the Pacific coast and nearly all the Southern

States. The average condition of winter wheat is $83\frac{1}{2}$, against 80 in April. The loss in area from replanting in other crops may be assumed to reduce the prospect to that of April. The spring wheat area will not be complete till May 15th, and will be reported June 1st. It is probable that the increase in Dakota will be 30 per cent. Minnesota reports 86 per cent. of last year's area already planted. An increase of 15 per cent. is reported in the Washington Territory. It is not probable that the increase in the spring wheat area will more than make good the loss of winter wheat acreage. The present prospect for winter wheat, taking into consideration the reduced condition and acreage, is 20 per cent. less than May last, representing a loss of seventy-seven million bushels.

When the Government estimate was published it had very little effect on the market beyond confirming the opinion before very generally entertained, that a very large shortage of the fall wheat crop is inevitable. We see that the Government report for Ontario (a summary of which will be found elsewhere) tells nearly the same tale for this Province. Still there are several circumstances to be taken into account on the other side of the estimate.

First, last year was a good wheat year, and there are large quantities of wheat still left in farmers' hands, both here and in the States. Next, the bad condition of the fall wheat was known quite early enough in the season to permit the sowing of spring wheat where the former had failed. Further, in the great North-west, on both sides of the border, it is spring wheat that counts, not fall wheat. The season has been exceptionally favorable for ploughing, and for the sowing of spring wheat, owing to the ground being so well dried off. It has been a late season as regards the coming of growing weather, twenty days later than the average in Dakota, for instance, and over the whole wheat region from two to three weeks later. But, should the general expectation be realized of a warm, quick-growing season once summer has fairly set in, the crop will soon make up for lost time. It is an old saying in England that "a pound of March dust is worth a king's ransom." The meaning is that to have the ground dry and easily worked at the time when ploughing and sowing should be going on, allows the seed to be got in just when it ought to be, thereby giving the crop a good chance to begin with. Now, if in this country we say "April dust" instead of "March dust," we shall have the equivalent of the English proverb, and this has been a year of April dust in these latitudes.

Advices from the Western States say that there will be an extensive planting of corn to the south, and of spring wheat more to the north, wherever the fall wheat has failed. On the whole it appears yet too soon to conclude that the shortage in the wheat crop of North America will be anything like as much as is represented by those who are speculating for the rise. We see that the present year is, however, an extra early year for the speculators. The early bird catches the worm, it is said; but there is always a possibility that he may catch—something else.

PROTECTION AND THE NEW YORK PRESS.

The *American Protectionist* is a weekly journal published in New York, staunch and true to what its name implies, ably edited, and full of those practical kind of arguments which tell on the mind of the reader. Containing much valuable matter of

a special and statistical nature, it has been sold at ten cents per copy; but, in order to bring it within the reach of the industrial population of the metropolis, a Sunday issue is now announced, price five cents, the regular ten cent issue being continued as before. The new departure is a timely one, and will doubtless prove a great popular success.

There is good reason why special effort is necessary to meet the free trade press of New York on its own local ground. The importing interest is very strong there, and, as business men very well know, the profits of handling imported goods are generally larger than the profits made on handling goods of home production. The explanation is a very simple one too: foreign manufacturers offer larger commissions and larger margins of profit, in order to get their goods on the market. A notable instance of this is to be seen to-day in Manitoba, where agents and dealers formerly selling agricultural machinery of Canadian make, have been tempted by larger commissions and lower wholesale prices to sell American machines instead. The price to the farmer is not reduced, as far as is generally known, but the price to the dealer is reduced considerably; and the result is that dealers and agents selling American machines and implements have extra inducements to push the sale of these, and to run down Canadian machines and the Canadian tariff by all means both fair and foul. New York being the chief importing city of America has, naturally enough, a strong free trade element influencing its merchants as a body, and influencing the press too, it has to be added. Still, the number and zeal of free trade newspaper writers in New York has for years puzzled those who gave thought to the matter to account for, but of late the explanation has been coming out. It appears that clever English writers, who have drunk in free trade doctrines almost with their mothers' milk, abound on the New York press, and now the phenomenon is forcing itself upon the public attention, as a recent incident will show.

The *New York World* has from the beginning been a leading Democratic organ, and perhaps the most prominent advocate of free trade among American daily papers. Last week Mr. William Henry Hurlbert, managing editor, and President of the Company owning the paper, announced the sale of the concern to Mr. Joseph Pulitzer of the *St. Louis Post-Despatch*, the consideration money being understood to be about \$600,000. Mr. Jay Gould, believed to have been the largest shareholder in the Company, some time ago sold out his interest entirely, in accordance with his policy of closing out his holdings generally, except in railway and telegraph stocks, preparatory to going abroad on his intended two years' cruise around the globe. Mr. Hurlbert, too, will sail for Europe shortly, and it was rumored that part of his mission would be to collect on the other side of the Atlantic facts to rebut the strong Protectionist testimony contained in Mr. Porter's letters to the *New York Tribune*, some of which have been copied in these pages. The *Tribune* thus reports what Mr. Pulitzer said in answer to inquiries on the subject:—

"Yes," he said, "I have purchased the paper and will take charge of it at 9 a.m. to-morrow. I intend to make it a thorough American newspaper—to un-Anglicise it, so to speak. It will continue to be democratic, but it will no longer be an advocate of free trade. I am not an extreme protectionist, nor am I crazy on the subject of free trade."

"Will Mr. Hurlbert go abroad for *The World*?"
 "He will not. His connection with the paper has ceased. If he is to review Mr. Porter's work, it is something of which I have no knowledge."

This brief reply lets in a flood of light on two things: the pronounced Anglicism of the New York free trade press; and the fact that the Democratic party is now rapidly cutting adrift from free trade, compelled to do so in order to put itself in harmony with popular public opinion.

SLAUGHTER SALES AT WINNIPEG.

From Winnipeg we hear one week of "slaughter sales," and the next week after of "more slaughter sales." The *Commercial* (May 1) says:—

"It is estimated that at present not less than \$250,000 worth of dry goods and at least \$100,000 of other merchandise in the city are being offered for sale at greatly reduced prices. Sales of this class are generally accepted as an evidence of stagnation in trade generally, but this cannot be accepted as an explanation in Winnipeg. Trade cannot be said to be in a stagnant state in the city at present, and some other reason must be assigned. There is no difficulty in discovering a very potent one in the results of the past season's overstocking, and it is not necessary to again refer at length to the extent to which this has gone. The houses who are now driven to the cheap sale for cash, are not those who are in a state of insolvency and grasping at straws, but firms who have, as a rule, secured an extension from their creditors, and have a wide margin of assets over their liabilities, and who now resort to this course to turn as much as possible of their heavy stocks into cash. It is not difficult to see how this must greatly demoralize the retail business of the city for the coming season, and already it is injuriously affecting the wholesale interests also. There are a few aggravated features about this slaughter sale business now going on, which deserve special notice. One is the fact that even a stock of groceries has been placed upon such a market, for the express purpose evidently of making a big display, as by private sale to some dealer the stock in question would in all probability have realized much better for its owners. Another is the rushing in of bankrupt stocks from other towns in the province, and thus visiting the merchants of this city with the evils arising from the blunders of people in other places. The cold-blooded reader can look upon this state of the retail trade and cynically conclude that the public will be the gainers thereby. But it is questionable if the temporary advantages gained from cheap retail purchases will not be overbalanced by the depressing effect it will have upon the whole business system of the city. The old adage says, "When rogues fall out honest men get their own;" but this is not a case of rogues but fools falling out, and unfortunately their folly brings much mischief to more sensible people."

Continuing the subject in its next issue (May 8), the *Commercial* says that, as predicted a week before, several houses who were in a perfectly fit state to weather through and carry their stocks under ordinary circumstances, have been compelled, as a matter of self-protection, to commence the cheap sale course also, and that nearly half a million dollars worth of dry goods are now seeking a forced sale in Winnipeg, or almost twenty dollars for each man, woman and child in the city; and then further remarks:—

"An inquiry into the origin of the present slaughter sales reveals a course of the most culpable recklessness on the part of houses who were the first to embark in it. We learn of one

firm for instance, who last season made purchases of from \$50,000 to \$60,000, when under any reasonable system of buying \$15,000 would have been the necessary supply. This quantity too was purchased on top of a stock of nearly \$100,000, and rumor has it also that the capital of the firm consisted almost wholly of money borrowed from friends. To secure credit for such an amount was no difficult matter six months or a year ago. The North-west had up to that time paid for its importations with a promptitude which gave eastern men unlimited confidence in its merchants, and few of them thought, when filling liberal orders, how much that confidence was being abused. The reputation of Winnipeg in the markets of the east is quite different now. During the past week quite a number of dry goods travelling men have left the North-west for their homes, feeling that under present circumstances it is not safe to sell goods to almost any retail house in their line. Reactions always run to extremes, and from over confidence it is only natural for these eastern travellers to run to the opposite extreme of commercial timidity. But their timidity is well founded, and while it lasts will cause incalculable injury to the credit of Winnipeg and the North-west generally. Unthinking people do not calculate what injury has been done to the trade of the city during the past two weeks."

FOREIGN WORKMEN TRYING TO RULE THE UNITED STATES.

The opening of the strike season in the United States once more draws public attention to a question which has already in time past troubled not a little the native, American born citizen. Who are the real controllers of the workmen's unions—who are they who constitute the "power behind the throne" which compels thousands of workmen to strike against their will when they would gladly keep at work, if the tyrants and dictators of the unions would only let them? Those who have investigated have made this discovery—that the ruling power in the unions is composed of foreigners, who on American soil dictate to native American citizens. The *Chicago Tribune*, commenting on the bricklayers' strike in that city, thus bares its mind on the subject:—

Another demand made by the striking bricklayers is that no firm shall have more than two apprentices. This demand is even more impudent than those which are made concerning work and wages since they have nothing to do with the apprentices. That is a matter that concerns the employers and the apprentices and their parents and them only. It is an audacious interference with the rights of labor in this country by clannist foreigners which has already caused infinite mischief. It is an attempt on the part of the foreign know-nothings to prevent American boys from learning trades, and it is made by men who get more wages here for one day's work than they got for a week's work in the country they came from. So long as there is a fit boy in Chicago who wants to learn a trade, there is no law, legal or moral, to prevent him; and the employer who teaches him is doing the whole community good service. In these days there is little danger that any great number of American boys will want to learn, but no one, least of all foreign workingmen, has any right to place impediments in the way of those who are anxious to learn.

THE WORLD'S HARVEST DATES.

In connection with the extra early wheat speculation movement of this year the following, from an American paper, will be of interest:—

JANUARY.—Harvest is ended in most districts of Australia, and shipments have been made of the new crop. Chili, New Zealand, Argentine Republic.

FEBRUARY.—Upper Egypt, India.

MARCH.—Egypt, India.

APRIL.—Coast of Egypt, Syria, Cyprus, India, Persia, Asia Minor, Mexico, Cuba.

MAY.—Persia, Asia Minor, Algeria, Syria, Texas, Florida, Morocco, Mid China, Japan, Central Asia.

JUNE.—California, Oregon, Southern United States, Spain, Portugal, Italy, Hungary, Turkey, Roumelia, Danube, South Russia, South of France, Danubian Principalities, Greece, Sicily, Louisiana, Mississippi, Alabama, Georgia, Carolina, (North and South) Tennessee, Virginia, Kentucky, Kansas, Arkansas, Utah, Colorado, Missouri.

JULY.—Southern, Eastern and Middle English counties, Oregon, Nebraska, Minnesota, Wisconsin, Iowa, Illinois, Indiana, Michigan, Ohio, New England, New York, Virginia, Upper Canada, France, Germany, Austria, Hungary, Switzerland, Italy, Russia, Poland.

AUGUST.—United Kingdom, France, Germany, Belgium, Holland, Manitoba, British Columbia, Lower Canada, Hudson's Bay Territory, Denmark, Poland.

SEPTEMBER.—Scotland, England—hops and roots, America—maize, Athabasca—wheat, barley, etc., Sweden, North Russia, France—beetroot, buckwheat.

Even So. The *Sewing Machine Journal* says that the grand secret of advertising is repetition. Iteration and reiteration *compel* attention. An occasional advertisement is barely sufficient to keep the advertiser's name from falling into the great receptacle of utterly forgotten things. Constant, steady, persistent, habitual and ubiquitous advertising, keeping a certain fact before the eye of the public at all times and in all places, is one of the stepping-stones of success in modern business, in fact, it is the stepping-stone. Where there is so much vigorous opposition and sharp competition, the purchasing public cannot possibly hear your invitation to come and buy unless you toot your advertising horn loudly and continuously. They cannot discover your whereabouts unless your advertising flag is always floating in the breeze. They cannot feel your attractive influence unless you *make* them feel it, by spreading it in all directions through the magnetic medium of the press. By continuous 'dropping in the same spot, a light drill will penetrate deeply into the hardest rock; whereas the scattering blows of the heaviest sledge will have scarcely any effect. The three P's of successful advertising are Persistent, PERSISTENT Persuasion.

MR. PORTER'S WAGE TABLES.

THEIR ACCURACY ESTABLISHED BY BRITISH BLUE BOOKS.

(To the Editor of the *New York Tribune*.)

Sir,—There has come to my notice what is undoubtedly a fair specimen of the ignorant attacks made on my wage-tables by writers who have not studied the subject carefully enough to avoid falling into the grossest blunders. *The Detroit Evening News* recently reported that I had been sent to England by *The Tribune* "to find or manufacture arguments against Free Trade"; and in answer to my assertion that the spinners of Dundee receive only eight or nine shillings per week, quotes from the thirteenth report of the Massachusetts Bureau of Statistics of Labor for 1882, and says: "We find that the wages of British cotton-spinners are just about four times as much as Mr. Porter says they receive. Mr. Porter must think that the readers of *The Tribune* are fools if he expects them to believe such absurd falsehoods."

Of the maliciousness in the above I shall say nothing. Of the ignorance exhibited in it I may be allowed to speak. The linen industry of Dundee is one thing, and the cotton industry

of England is another. The wages of a spinner in the former average about nine shillings (\$2.16) a week; while the average weekly wages of a spinner in a fine spinning factory in England would probably reach \$7.80 per week, or nearly four times as much.

I have compared the Dundee tables of wages with the average earnings of operatives as returned under the Factories and Workshop act, by Mr. Redgrave, and find that his figures are even lower than mine. Of course I could have copied these figures into my *Tribune* letters, and made a "strong point" of their coming from British Blue Books, etc., and, perhaps, saved myself a great deal of very hard work; but I found out from inquiry that Mr. Redgrave was in some cases below the mark, and as I was after facts, I made my wage-tables higher on the average than he did. Here is a specimen:

SPINNING MILLS.	Estimate as given in Dundee letter.	Estimate of British Blue Books.	Excess of my estimate over the English official estimate.
	\$ cts.	\$ cts.	\$ cts.
Preparers.....	2 25	1 56	0 69
Spinners.....	2 50	2 40	10
Shifters.....	1 50	....	....
Boys.....	2 00	1 92	8
Reelers.....	3 00	2 80	20
Overseers.....	7 00	7 00	....
FACTORIES.			
Winders.....	3 50	3 00	50
Weavers.....	3 50	3 00	50
Tenders.....	6 50	6 00	50
Warpers.....	4 00	3 50	50

Not only is this true of Dundee, but of other places also. The wage-tables I have given are correct in the main. They run a trifle higher than the English estimates possibly, because I have constantly striven to keep upon the safe side. If Free-Traders disbelieve them, they have the alternative of using those published by Mr. Redgrave, which are lower.

Robert P. Porter.

Nottingham, England, April 6, 1883.

[We have already arranged the *Detroit* journal for its stupidity and malice, but Mr. Porter has a clear right to frame his own indictment. Before the journal in question could be arrested in its career of ignorance and calumny, it had time to mislead an unfortunate scribe whose communications are seized by *The Evening Post*. He, too, we observe, has been summarily dealt with by Mr. Porter.—*Ed. N. Y. Tribune.*]

On the 7th inst the wagon works of the Chatham Manufacturing Company shipped six carloads more of wagons to the North-west, making thirty-five carloads sent this spring. There will be six carloads more this (last) week, which will make the first thousand wagons shipped to the North-west by this company since their commencement about the first of this year. There has also been manufactured during this time 2,500 sets of spokes, hubs, bent stuff, whippletrees, and neckyokes, and, in addition to these, 150 sets of wagon wood-work, 1,000 sets of patent arms cast and completed, and upwards of \$5,000 worth of extra work outside of the above. This has all been accomplished in four months and a half, with an average of \$1,000 weekly wages. The works are now turning out upwards of twelve wagons daily. They have fifty different machines, with upwards of 3,000 feet of belting, and 300 feet of line shafting. Not a single belt has been broken nor has the engine had to stop for over five minutes during working hours since the commencement. They gave an order recently for the next four months' stock of iron to the Ontario Rolling Mills, Hamilton, being between two and three hundred tons of bar iron; also one hundred tons of pig iron to a Montreal house, also 100 tons of coal, and upwards of 200,000 bolts and rivets. They employ 130 men in the works and about 20 agents, and about 50 men in the two large mills formerly owned by W. R. Van Allen and Co. The wages now amount to upwards of \$2,000 per week. Thanks to the N. P. for bringing about an institution which can produce a wagon with as much economy as any American institution, enabling them to give the consumer the benefit.

Mechanics and Engineering.

ELEMENTARY PAPERS FOR YOUNG MECHANICS.

VII.—THE SCREW.—Continued.

There are several forms of *threads* used in screws, depending mainly upon the purpose for which the screw is to be used. Whatever the form, the same principles apply to the motion and power of regular screws.

If a screw be made of five threads to the inch, and it be used to raise a weight, then for each revolution of the screw the weight will be raised one-fifth of an inch. The length of the inclined plane formed by the thread is equal to the circumference of the thread, measured on a circle midway between the points and the roots of the threads.

The power required depends upon the length of the lever used to turn the screw, and pitch of the screw thread.

If R represents the weight to be lifted and P the power applied to the lever, then the distance actually moved by P multiplied by P will equal the distance moved by R multiplied by R, that is, when friction is left out of consideration. The exact formula as given by Rankin is as follows :

Let R, equal to the resistance to the motion of a screw, be a force acting along its axis, and directly opposed to its advance; and let the effort P which drives the screw be applied to a point rigidly attached to the screw, and at the distance r from the axis, and be exerted in the direction of motion of that point. Then while the screw makes one revolution, the working point advances against the resistance through a distance equal to the pitch (p), and at the same time the driving point moves in its helical path through the distance $\sqrt{4 \pi^2 r^2 + p^2}$; therefore the purchase of the screw, neglecting friction, is expressed as follows :

$$\frac{R}{P} = \frac{\sqrt{4 \pi^2 r^2 + p^2}}{p}$$

$$\text{or } \frac{R}{P} = \frac{\text{length of one coil of path of driving point}}{\text{pitch.}}$$

The above is the exact formula, but a simpler form of it may be used without much error.

To find the power required to be applied to a lever to turn a screw, against a given resistance.

Rule 1. Multiply the weight by the pitch of the screw and divide by 6.28 times the length of the lever, or $P = Wp \div 6.28 r$.

To find the weight which may be lifted by a given power similarly applied.

Rule 2. Multiply 6.28 times the length of the lever by the power and divide by the pitch, or $W = \frac{6.28 r \times P}{p}$

By adaptations of the same formula the pitch of screw and the length of lever to be used in turning the screw, may readily be found.

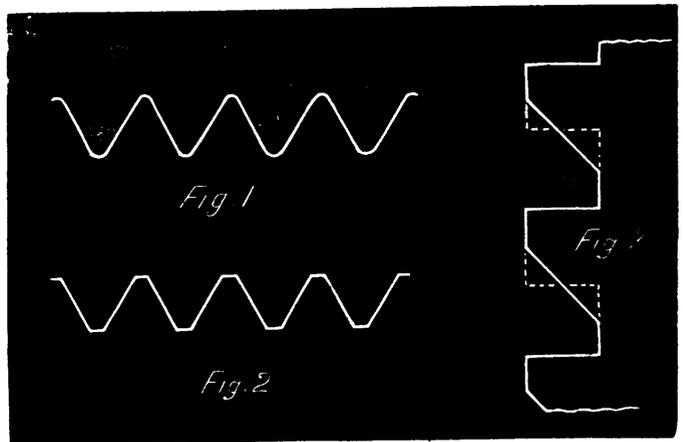
Another method of making use of the screw for mechanical purposes is called "screw gearing." In this case a few turns of a screw upon a shaft, called an "ENDLESS SCREW" or "WORM," is connected to a wheel with teeth of a peculiar shape which fit between the threads of the "worm," and which are really parts of a screw of the diameter of the wheel.

The most common arrangement of this kind is where two

shafts are right angles to each other, but apart from each other a distance equal to the sum of half the diameter of the wheel and worm.

The worm is always the "driver," and one revolution of the worm is required to move the wheel a distance equal to the pitch of the teeth. If the wheel has fifty teeth, then the worm shaft must make fifty revolutions for one of the wheel, and the power required to drive the worm is but one-fiftieth of that required for the wheel. Sometimes what is called a double thread is made on the worm and wheel, and in that way two wheels of 25 teeth each may be combined in the one wheel of fifty teeth, and the revolutions are then as twenty-five to one. The object in making this arrangement is to get an increase of strength of tooth, as there are always two teeth in gear, and the strain on each tooth is correspondingly reduced.

It must be borne in mind that in all the statements made regarding the proportionate power required for the weight lifted the friction of the screw itself is not included.



Our illustration shows the forms of thread most commonly used in bolt-making and for machinery purposes.

The English standard thread was suggested and made by Whitworth, and has been largely adopted. His standard taps and dies for screw cutting are known wherever British machinery is known. Fig. 1 represents the form of thread, the angle of the point of the thread is 55°, and one-sixth of the depth at top and bottom is rounded.

The standard American thread is shown by Fig. 2. The angle used in it is 60°, and the projection thus forms an equilateral triangle, but one-eighth of the projection is cut off at top and at bottom, making a flat pointed thread.

Fig. 3 shows two forms of thread, the one being the ordinary square thread, which is generally used for screws where the nut is likely to be frequently or constantly moved.

The screws of a turning lathe, planing machine, and such like, are generally made with square threads.

The other form shown by fig. 3 is one sometimes made use of where the strain is always in the same direction. By this form of thread the advantage of the flat surface presented for the pressure to act upon in a square thread is retained, and the strength of the V thread is obtained by cutting off at the lower outside corner of the square, and filling in an equal amount on the inside. This form of thread answers admirably for screw-jacks and implements of that kind.

In all screw-making it is of great importance to have the

diameter, pitch, and form of thread in accordance with some definite standard.

The necessity for this is recognised by every mechanic who has tried to put a nut on a bolt, and discovered that while the bolt was screwed with twelve threads to the inch, the nut was "tapped" with thirteen threads to the inch.

The difficulties, annoyances, and expenses caused by each maker following some plan of his own, was what led Whitworth to engage in the manufacture of standard taps and dies for screw-cutting, and the Franklin Institute to adopt as standards for use by American machinists the forms and dimensions proposed by Mr. Wm. Sellers.

HIGH SPEED ENGINES.

The recent increase in the institution of the electric light, says the American *Engineer*, has caused so general a demand for high speed engines, that builders of engines heretofore not supplying that type of engine, have, it would seem, felt impelled to go into the business. In some cases they have done so, by properly designing, proportioning and experimenting, until they have developed successful high-speed engines, and then put them on the market; but in other cases they have simply used the old form of engine, made a slight change of detail and then advertised the sale of high speed engines. It is to the latter class which we desire to devote a few lines.

The mere making of the governor weights light enough that by use of high steam pressure and every other element of coaxing the engine will experimentally get up a desired maximum rate of revolution does not signify that the engine is a high-speed engine. A high-speed engine must be properly proportioned and balanced, so that it will not only give the speed of revolution, but will do so without appreciable jar and tremor, and will possess the properties of strength and stiffness, so that continuous work of the engine at high speed will not require abnormal repairs or be significant with short life.

An engine that can be *driven* temporarily to a high rotative speed is not what should be properly considered a high speed engine. Such engines, that shake and quiver when running at high speed, had much better be run at low or moderate speeds, for the economy would be far greater. The power consumed in them for friction alone represents a greater money value than the theoretical saving of fuel, which high rotative speed involves, and the cost of repairs, breakdowns, and uncertainty of action is an item which may prove far more considerable than the largest possible saving in fuel.

If builders of engines are anxious to design high-speed engines, and it is a laudable ambition, they must expect to give the matter the study and experimental investigation, and profit by the experience that successful builders have attained. The mere fiat of the will, without work and study, will not produce a high-speed engine; the mere change of a slight detail or change of name plate will not convert a first-class engine for low speed into a first-class high-speed engine. High rotative speed involves special conditions and problems, and these have to be specifically met in the design and proportions. The question of workmanship enters as well. High-speed engines require fine fitting and fine workmanship, and shop methods which are just good enough for building engines for saw mill or ordinary power purposes will not answer for building successful high rotative speed engines for electric and similar delicate purposes.

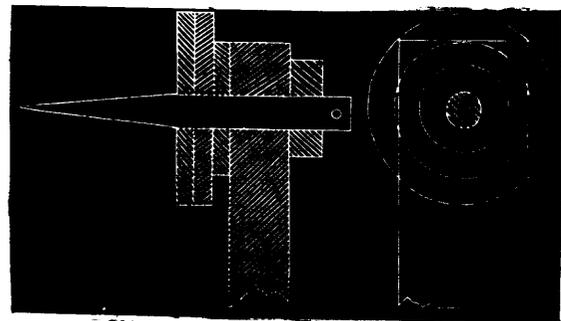
Some engines which are now being sold as "high-speed" engines call for this word of caution, for they are still in an undeveloped and crude state, and in some cases are totally

unadapted for high speeds. This is, of course, no reflection on the several forms of well-recognised and successful high-speed (or rather moderately high-speed) engines which are most in use, but applies rather to a poor minority, seeking a market. There is, of course, no doubt that the building of successful high-speed engines demands exceptional powers of designing and workmanship, and, indeed, when these have been exerted to the best advantage, there is still a special experience required in the use of the engines before the final results achieved are entirely satisfactory. This the successful high-speed engine builders are ready to admit, and it is not an unusual thing for them to speak of their partial success or failure at the outset. Builders of engines, about entering the new field of high rotative speed engines, will be wise if they will remember these facts and regulate their actions thereby, so that engines are not put on the market and sold for high-speeds, which, inside of a few months' "high speed" use are worthless for the purpose from the wear and tear they have sustained.

SAFETY BELT MOUNTER.

So many accidents are caused by putting belts on running pulleys, that any device which will enable a belt to be put easily on the pulley, without stopping the shaft, or causing danger to clothing or person, deserves attention. We show herewith how any one can make from wood a safety belt mounter for light belts, to do about as well as the Ashley iron device, which sells for \$5, and is worth all that:

The materials required are a strip of ash, 6 feet long, 3 inches wide and $1\frac{1}{2}$ to 2 inches thick; a hickory pin, 6" to 8" long, tapered to a point at one end from about the middle



of its length; and an 8" circle made by glueing and screwing two circles of $\frac{1}{4}$ " stuff with the grain in one at right angles to the grain in the other. A hole is made in the end of the strip, just large enough to let the parallel part of the pin turn freely. The pin is then firmly glued and screwed in the wheel, about the middle of its length. A washer is then put on the pin, the parallel part put through the hole in the strip, another washer run on, and a split cotter of wire run through so as to hold the pin in lengthwise. To put a belt on, the pin is run under the fold; it is then lifted on the pulley by means of the pin, and run on by pressing the wheel against its edge. This contrivance is easily made, and very well worth the time and trifling expense required to get it up.—*American Miller.*

Some of the Wisconsin loggers are using dynamite to break their rollways.

Work on Thos. Connor & Sons' new rope walk was begun yesterday. The walk will be 1,000 ft. by 15 ft., with an annex 360 ft. by 8 ft.; also factory, tar house, engine house, etc. The plans were prepared by Mr. G. Ernest Fairweather, architect. We congratulate Messrs. Connor on their indomitable spirit and energy.—*St. John Sun.*

WELLINGTON
BUILDINGS,

70 King Street East,
AND
11 Court Street.

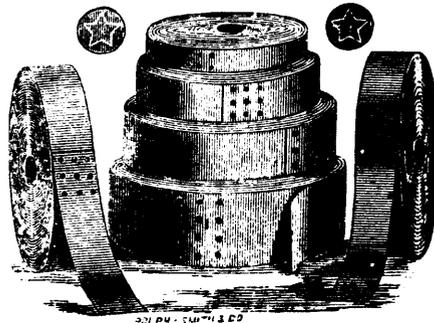
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SOLE AGENT FOR DOMINION OF CANADA,

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INDUSTRIAL BOOK REVIEW.

See Advertisement of our *Mechanical, Engineering and Industrial Book Department*, on page 369.

THE THEORETICAL AND PRACTICAL BOILER-MAKER and Engineer's Reference Book. Containing a variety of useful information for Employers of Labor, Foremen and Working Boiler-Makers, Iron, Copper and Tin-Smiths, Board of Trade Surveyors, Draughtsmen, Engineers, the general Steam-using Public, and for the use of Science Schools and Classes. By SAMUEL NICHOLLS, Foreman Boiler-Maker to the Kirkstall Forge Company, Kirkstall, near Leeds, England.

This little book of 273 pages is full of precise and valuable information in the shape of tables, diagrams, rules for working out dimensions, &c. It shows in many and different ways the application of mathematics to the practical work of boiler-making and steam-engineering. It is, in short, a book which no one who wishes to perfect himself in both the art and science of boiler-making should be without.

A TEXT BOOK OF ELEMENTARY MECHANICS, for the use of Colleges and Schools. By EDWARD S. DANA, Assistant Professor of Natural Philosophy in Yale College. Third Edition.

This appears to be a model text-book, in respect not only of clearness and conciseness of statement by the author, but also in its typographical get-up and execution, the latter being something of no small importance to hard-working students.

A MANUAL OF THE MECHANICS OF ENGINEERING and of the Construction of Machines. Designed as a Text-book for Technical Schools and Colleges, and for the use of Engineers, Architects, etc. By DR. PHIL. JULIUS WEISBACH, Oberbergrathand Professor at the Royal Mining Academy at Freiberg, Member of the Imperial Academy of Sciences at St. Petersburg, etc. In three volumes. Vol. II. Section II, Application of Mechanics to Machines. Part I, Hydraulics and Hydraulic Motors. With 380 wood-cuts in the Text. Translated from the fourth augmented and improved German edition by A. Jay Du Bois, Ph. D. Higgins, Professor of Dynamic Engineering in the Sheffield Scientific School of Yale College, late Professor of Civil and Mechanical Engineering in Lehigh University, Bethlehem, Pennsylvania. Author of "Elements of Graphical Statics, etc." Authorized Translation.

This is the second volume of a most elaborate and comprehensive work, very fully illustrated with cuts of machines and mathematical diagrams; a book of standard authority on the mechanics of engineering.

SPECIAL NOTICE.

We would call the attention of our readers to the advertisement of Messrs Silon & Gay, which appears in another column. They are the well-known manufacturers of improved Ball Winders for balling twine, thread, cotton, woollen and silk knitting yarns, &c. They also manufacture Quillers for bagging, Carpet and Webbing Looms, Reels, Doublers, Spoolers, Spindles and Fliers, and standard Spring Pins.

Foundry for Sale.

THE proprietors of the Collingwood Foundry and Machine Shop are prepared to receive offers for the purchase of said property in full or only of a part interest. The premises are in good repair, and about 200 yards or less from the tracks of the N. R.R. and H. and N. W. R.R., and of the splendid new stone dry-dock near completion.

No point in Ontario presents a better chance to carry on a very large and lucrative foundry and machine works. Persons wishing to get a good location cannot do better than communicate with the undersigned.

Collingwood. C. CAMERON.
GEO. MOBERLY.

Situation Wanted.

A THOROUGH BUSINESS MAN, formerly of Toronto, but now resident in Winnipeg, wishes to represent one or more Ontario Manufacturers in that city. Satisfactory references. Address A. J., care of CANADIAN MANUFACTURER, Toronto.

THE
Canadian Manufacturer
AND INDUSTRIAL WORLD.

Published fortnightly by the CANADIAN MANUFACTURER PUBLISHING Co., (Limited).

MECHANICS' INSTITUTE (corner Church & Adelaide Streets), TORONTO.

ANNUAL SUBSCRIPTION, IN ADVANCE, \$2.00.
CARD OF ADVERTISING RATES ON APPLICATION.

FREDERIC NICHOLLS,
Managing Editor

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Winnipeg, Man.		Mr. K. Graburn.
TRAVELLING CORRESPONDENT		Mr. A. L. W. Begg.

Editorial Notes.

The office of the CANADIAN MANUFACTURER has been removed to Room No. 5, Mechanics' Institute, corner of Church and Adelaide streets. One stair up, turn to the right.

The frequency with which oil tanks are struck by lightning is attracting attention. There seems to be something about it not easily accounted for; but at all events the necessity for some means of prevention is obvious.

The following gentlemen have been elected Directors of the Magog Print Company, viz. — Messrs. W. Hobbs, James Dakers, John Thornton, of Coaticook, T. C. Keefer, C. C. Colby, M.P., Joel Leduc, J. K. Ward, A. Selkirk Cross, and Geo. R. Grant.

An event of the day is the opening of the great Fisheries Exhibition at London, which took place on Saturday last with great eclat, the Prince of Wales doing the honors on the occasion. The Canadian exhibit attracted much attention, and came in for a good meed of praise from distinguished visitors.

The San Francisco *Merchant*, an able and well-conducted representative of commercial interests on the Pacific coast, has dropped the folio newspaper style and now comes to us as a handsome quarto. In the latter form it is much more convenient for future reference to facts and figures which have an interest beyond the passing day.

At a recent meeting of the St. George's Society in Toronto there was only one applicant for relief. As there has generally been a considerable number of cases relieved at the weekly meetings of the Society, the decrease shows that the indigent persons who have been helped all winter are now helping themselves, so it is considered.

Mr. Justice Rainville has decided that the Quebec business tax on banks, etc., is unconstitutional. The Provincial exchequer, badly enough straitened already, will feel the want of the money which this tax was expected to produce. Some of the French papers say, however, that the end is not yet, and that the test case just decided will be carried to the highest tribunal.

The application of electricity to the instantaneous stopping of a steam engine in case of accident, for now a considerable time in use in the Toronto Bolt Factory, and fully described in this journal last year, is every now and then mentioned in Canadian and American papers as something new, which is being used somewhere or other, presumably in the States. The *Globe* had this piece of news last week.

That the Canadian North-west is a land of Goshen for hard spring wheat is well known, but probably it is not so well known that it is a great country for oats too. The *Winnipeg Commercial* says that there are now 250,000 bushels of oats in store there and at other points in Manitoba, while some estimates go to 100,000 bushels more. In view of this it advocates the erection of oatmeal mills throughout the North-west.

Hon Alexander Mackenzie has been presented with a purse of \$10,580, contributed by his political friends; and is about to take a transatlantic tour for relaxation and health. Had Mr. Mackenzie during the last twenty-five years or so devoted himself to private business, instead of the service of the Reform party, he would no doubt have been a wealthy man ere now; and the party certainly owes him several times ten thousand.

In the United States both iron-masters and iron-workers are looking forward anxiously to the first of June, the date which is to decide the question of strike or no strike. In Canada there are threatenings of trouble between shippers and ship laborers at Quebec and Montreal. Much will depend upon the temper shown by both sides during the remaining days of May. Difficulties in the building trades, and in the cigar trade, are likely to be settled ere long.

Under the head of "Milling and the Grain Trade" we give on another page a summary of facts relating to one of the most important patent cases ever decided in the United States. The

Northwestern Miller makes this point—that the result shows what good may be done on critical occasions by a live manufacturers' association. After a decision against certain individuals and in favor of the patent speculator, the Millers' National Association took the business in hand, spent from \$50,000 to \$60,000 on it, and secured justice at last.

The first number of "The Biographer, Illustrated," being for May, 1882, has been sent us by the publisher, New York. Thirty-five brief biographies, all but two or three with good portraits accompanying, are given in this number. The selections are pretty fairly divided between European and American celebrities; and we notice just two Canadians, Sir John Macdonald, and Mr. Vennor, the weather prophet. Perhaps we should add Mr. George Munro, a native of Nova Scotia, now a large publisher in New York. This is sure to be an interesting series, and being both cheap and well got up should meet with a large sale.

A London steamship circular says that the freight market there was a steadily declining one during April, and that on the 1st inst. tonnage was in excess of the demand in almost every direction. New ships, mostly of large size, are daily being added, and competition is increasing. From Montreal we hear that the prospects for great activity in shipping were never so bright there as at present. The port is looking active with ocean steamers, any number of river boats and sailing craft *ad lib.* lining the docks. The increase of ocean tonnage at Montreal is causing a decline in freights to England.

In Manitoba the harvest season of 1882 was an exceptionally wet one, for that country, where a dry harvest time is the rule; and there is in consequence a large quantity of damaged wheat left over. What to do with this damaged wheat is a question, and it has been proposed to make glucose of it. What will make glucose will also make whiskey, and this seems to be the alternative. It may, however, be some years before the damaged grain question again becomes a serious one in Manitoba. The diffusion among the farmers of the art and practice of stack-building, as done in the old country, would end the trouble.

After having been shut down for nearly twelve weeks, most of the American rubber factories have started again. They were closed, it is said, because of a surplus of manufactured goods and the high prices of crude rubber. These factories, when running to their full capacity, give employment to 8,000 men. The speculators have succeeded in keeping up the prices of rubber to a high figure. Crude rubber is worth at present \$1.12 to \$1.14 a pound, whereas until recently it used to be abundant at 65 or 70 cents. The opening of the factories has not created much of a demand yet. The stock on hand in New York was large a few months ago, but has been bought up by the manufacturers. A despatch announces the arrival of a steamer at London with a cargo of 1,000,000 pounds of rubber. It is believed that the troubles of the trade are now ended.

In one point at least there is room for amendment in our international post office arrangements with the United States. A parcel addressed to the CANADIAN MANUFACTURER was posted at Boston. After much waiting, and wondering at its long delay, we received an official card from the Department at Washington, informing us that it was detained there for insufficiency of postage paid, and would be forwarded to us on receipt of five cents more. Now, by a very simple arrangement for collecting from the receiver when there is "more to pay" a great deal of trouble, and possibly in some cases serious loss, might be avoided. To provide for the expense, double the amount of postage that is deficient; if two cents be wanting collect four cents, and so on. The receiver would generally be very glad to pay the difference rather than await the long routine of the Dead Letter Office. This may seem a small matter, but it is really worthy the consideration of both Governments.

We have received from Mr. William Darley Bentley, Brazilian Consul-General for Canada, a pamphlet which he has just brought out, and which is a reprint of an article by Mr. Charles Waring, published in the March number of the *Fortnightly Review*. Mr. Bentley endorses it as placing the "position of the Empire in its true light in a clear and concise form, and because it is written by a man who not only has a thorough practical knowledge of his subject, but who in an authority on all the points contained in his valuable paper." Mr. Bentley shows that Canadian trade with Brazil has increased from eight dollars to over a million and a quarter in three years, and therefore is worth an effort to secure. He assures the reader that the Brazilian Government is desirous of a reciprocal arrangement with Canada that will not interfere with her existing treaties, and urges that "when the Government of Canada approach that of Brazil they will find the same desire on their part to bind commercially the two countries more closely together." We shall on a future occasion take opportunity of presenting some of the facts and figures given, which are certainly worthy of attention in Canada.

The following is certainly important, if true. The *Maul* says that on Sunday evening last Superintendent Stiff arrived by special train from Hamilton, and left for Montreal on Monday morning's express. Rumor connects his trip with a proposed change of time on the Grand Trunk. It is said that in future all through passenger trains going west from this city will be run over the Great Western division, and the present main line given over to local traffic, mixed trains and through freight. This arrangement will enable passengers to reach points in the Western States some hours earlier than the present system. Should this be verified it will only be going back to what was the original intention thirty years ago. When the Great Western was projected between the Niagara and Detroit rivers, the Grand Trunk was projected from Montreal to the head of Lake Ontario. The two were to be linked together at Hamilton or Toronto, and were to constitute the main line from east to west. But, at a certain stage of progress, the Grand Trunk Company broke the bargain, and made its own line from Toronto to Sarnia; so, at least, it was alleged on the Great Western side. Perhaps the original intention will now be carried out, after all.

An artificial butter factory on a large scale will soon be started in Montreal, on a site near to the West End Abbatoir. The *Gazette* thinks that the placing of good "butterine" on the market will have the effect of driving out much of the genuine but still shocking bad butter which is now so much trouble to the trade. Our contemporary says:—"The great tussle for supremacy will be between faulty dairies and fresh butterine, and in the long run the latter will unquestionably win. Let it not be understood, however, that we are in favor of any of the "bosh" compounds which have been sold upon the markets of the world through the defects of the present system of making and handling the genuine product. What we deplore is that the production of butter has been so neglected, that the illegitimate progeny of the churn, such as oleomargarine, butterine, &c., have been fostered to the extent they have. We believe, however, that it is only a question of time when the bull-fat mixtures will in turn be driven out of existence by the pure and inimitably delicious cream product, just as surely as they will succeed in their mission of bouncing stale butter, and in our opinion the establishment of creameries in Canada is the commencement of the much needed reform in butter-making."

FALL WHEAT IN ONTARIO.

A summary of Mr. Blue's May report on the crops and live stock of Ontario has been sent to the press from the Bureau of Industries. We copy that portion of it—relating to the fall wheat crop—which is of most interest at present:—

In the ordinary course of our Ontario seasons vegetation is at this date well advanced. Not unfrequently the forest trees are out in leaf, and the fruit trees are in blossom. But the present is one of the exceptional years. Hard frosts, raw winds and chilling rains have prevailed, and few signs of active vegetation are apparent in forest, field or garden. Consequently it is difficult to deal with the real condition of our staple cereal, the Fall Wheat. It is too early to form an accurate opinion. Neither is there much of an encouraging character to report on the progress of spring work on the farm.

Fully eighty per cent. of the total area of Fall Wheat in Ontario lies west of the meridian of Toronto, and unfortunately the most discouraging accounts of the crop are received from that part of the Province. There is indeed a singular contrast in the reports for the eastern and western sections; for, while those for the one agree in saying that the prospect has not often been worse, those for the other are not less unanimous in saying that it was never better.

This marked difference seems to be due largely to conditions of weather. In the east the winter was unbroken from first to last. Consequently the snow lay on the ground as it fell; and, while it formed a warm covering for the wheat in the coldest weather, the air was not excluded. But in the west there were alternations of warm waves and cold waves, and occasional storms of rain as well as of snow. The result was, that where the snowfall was heavy, as in the northern counties, it packed and crusted; and where the fall was light, as in the southern counties, the ground was sometimes bare and sometimes covered with ice.

The great rain storm that was central over the Ohio valley in the latter part of January extended into Ontario (either as rain or sleet), northward as far as Georgian Bay and eastward as far as Toronto. In the Lake Erie counties, and in portions of Middlesex, Oxford and Brant, nearly the whole of the snow was carried off at this time; and a cold spell following, the fields were left coated over with sleet and ice. In those counties the general verdict of correspondents is, that the wheat was "frozen to death;" whereas in the northern counties the verdict is, "smothered to death." A correspondent in Huron county observes that six successive crusts formed on the snow during the winter, two of which were strong enough to bear up a horse.

A noticeable peculiarity in the effects of winter throughout the western section of the Province is, that in the southern counties the wheat has been injured most on gravel and sandy lands, and least on the level clay and loamy lands: but in the northern counties this condition is reversed, the wheat having had adequate protection on even the highest lands. It is remarked, however, that where high ground in the south was sheltered from winds the wheat is well preserved, and the importance of planting the borders of farms with trees is urged by many correspondents.

But the appearance of the crop this spring is no doubt due in some degree to the condition of the ground at seed-time. In the east it was favorable, and the young plant made a good start in the fall. In the west the heavy rains of July and August and the season of drouth that followed interfered with the proper cultivation of fallows, and especially of pea and stubble lands, so that the soil was in very poor tilth. The seed was sown late, and it neither rooted well nor tillered well. This circumstance will account in a measure for the bad reports now received: and it is reasonable to hope that, where the plant has survived the snow and ice and exposure of winter, the outlook will brighten with warm and growing weather. It is unfortunately true, however, that a large extent of wheat-land is already doomed, and has been ploughed up or re-sown with spring grains.

The only cheerful reports from the western part of the Province refer to the northern half of Essex, the lake shore townships of Huron and Bruce, the county of Wellington, the northern parts of Ycrk and Peel, and the southern half of Simcoe; and even in these districts the crop has been seriously damaged by the frosts and winds of April. Elsewhere the area sown will probably be reduced by twenty per cent., a portion of which will be put under spring wheat and the rest under barley, oats and peas. The eastern section of the Province is confidently expected to produce a full crop.

COTTON IN CANADA.

[The following letter, addressed to the editor, is published in the *Montreal Star*.]

SIR,—Judging from remarks made by men and journals that ought to be better informed as to the cotton trade, more particularly as to the number of spindles that can be profitably employed in Canada, the following figures gleaned from a letter published in the *Toronto Globe* will be of interest.

At the close of 1878 about 150,000 spindles were in operation in Canada; up to the present time (July, 1882), the total number of spindles in operation, building and projected, is about 400,000. The total number in Great Britain is about 55,000,000. The total number in the United States is about 17,000,000. As Great Britain is a large exporter of cottons, a comparison with that country is useless. The United States, with 17,000,000 spindles and 52,000,000 inhabitants, has one spindle to 3 of her population. Canada, with 400,000 spindles

and 4,600,000 inhabitants, has one spindle to 12 of her inhabitants. The United States export some staple lines of cottons, but they import of manufactured cottons about three times more than they export. If the United States require 17,000,000 spindles to partly supply their home consumption, Canada must require an equal proportion, or 1,600,000 spindles instead of the 400,000 we now have. Suppose 1,600,000 spindles is all we can employ for home consumption, the increase of population will require an increase of about 30,000 spindles each year. The importation of manufactured cotton goods for '78 was \$7,500,000, for '81, \$10,500,000, for '82, a trifle under \$12,000,000, in addition to the large output of our mills, which may be put down at about 250 per cent. increase. If the above proves anything it clearly proves that there is not and cannot be competition for some years to come between our mills, until our mills increase, and the production is equal to the demand.

There is now, and will no doubt be continued, the cry of "over-production" by the monopolists of cotton stocks: their exorbitant profits and watered stocks they don't want to be interfered with if they can help it; but there is no denying the fact that more mills must be built if we are to reap the benefit of protection by home competition, keeping down the excessive profits of the present cotton mills. Canada cannot only manufacture cheaper, but can build mills at from \$3 to \$5 per spindle less than the United States, and mills building now must have a great advantage over most of our older mills, which cost, some of them, as high as \$35 a spindle, or more than double than they can be built for now. There are no cotton goods made in the United States that cannot be successfully made in Canada. With your permission I will shortly give further statistics and statements that ought to convince even the most sceptical that cotton manufacturing in Canada is only in its infancy.

PROGRESS.

CANAL TOLLS.

(From the *Montreal Gazette*)

Now that maritime operations have commenced and the ocean tonnage in port is increasing every day, grain exporters and carrying companies begin to realize the serious disadvantage at which they are placed in competing with the United States for the grain carrying trade of the West, through having to pay canal tolls of $\frac{1}{2}$ c. per bushel and wharfage of $\frac{1}{4}$ c. per bushel, whilst their competitors doing business *via* New York are exempted from both charges. Last year, when the American canal tolls were in force, amounting to $\frac{3}{4}$ c. per bushel, equal to our canal and wharfage charges put together, the exports of grain from this port ran down to 8,000,000 bushels, from 12,000,000 bushels the year previous, and now that the United States authorities have abolished the tolls altogether, it will readily be conceived that Montreal shippers labor under greater disadvantages than ever in competing for the important grain trade of the West, notwithstanding the natural advantages which the St. Lawrence route possesses over the Erie route in the transportation of grain to the seaboard. This subject, which is one of paramount importance to the trade of this port, appears to be still uppermost in the minds of our shippers, among whom it occasions considerable discussion. It has been advanced by some that if the Government could be persuaded to abolish the $\frac{1}{2}$ c. canal tolls, and, instead of charging the $\frac{1}{4}$ c. wharfage dues here, levy that amount upon all grain passing into the Welland Canal, it would greatly facilitate traffic by the Canadian route.

Financial and Commercial.

TORONTO, Thursday, May 17, 1883.

The Government bank statement for April was out before the 15th inst., and our daily contemporaries are giving the Finance Department great credit for promptitude and despatch. We avail ourselves of some comment and analysis by the Montreal morning papers. The *Herald* says:—

Compared with the previous month, the principal items exhibit some very marked changes. We observe that circulation has come in to the extent of about \$1,435,000. The returns for the past three months show the circulation to have been:—

February.	March.	April.
\$34,044,909	\$34,517,813	\$33,082,658

Deposits under the several heads, as compared with March, show a decrease of \$778,000, and on the month of February of about \$810,000, evidence, to some extent, that trade obligations have been attended to. The totals for the past three months were:—

February.	March.	April.
\$108,851,474	\$108,818,883	\$108,840,776

In the last item, loans and discounts, there is an increase of about \$109,000 on last month, and about \$1,600,000 as compared with February. The amounts for the past three months were as follows:—

February.	March.	April.
\$174,980,875	\$176,080,574	\$176,589,884

We regard the return, on the whole, as a very healthy and satisfactory one.

On the important subject of the course of foreign exchange the *Gazette* has these remarks, which will bear careful reading, along with the table of figures given:—

The foreign exchange supply, as measured by the net balance due from abroad, has been slightly reduced. At the close of March the net amount due from Agencies in the United States was \$10,295,332, and the net balance due from agencies in the United Kingdom was \$1,319,390, making the net amount due \$11,614,722; while at the close of April there was due from the United States \$11,044,449, and due to the United Kingdom \$594,814, leaving the net balance due at \$10,409,635, or \$1,205,000 of a reduction on the month. The total liabilities and assets were as follows:—

Liabilities.	Assets.	Available Resources.
March. \$146,633,878	\$228,809,097	\$39,159,021
April. 146,207,607	228,158,488	39,448,206

The condition of the accounts at the close of April in the past three years is shown in the following statement:—

	1881.	1882.	1883.
	\$	\$	\$
Circulation.....	26,044,888	32,712,335	33,082,658
Public Deposits.....	78,204,837	92,645,137	97,466,989
Due to United States.....	126,294	107,283	174,693
Due to United Kingdom.....	1,357,418	2,798,598	2,298,491
Specie.....	5,391,422	6,874,733	6,008,328
Dominion Notes.....	10,594,093	9,355,510	10,133,746
Due from United States ..	23,321,879	16,224,704	11,178,542
Due from United Kingdom.	2,829,380	1,608,399	1,703,677
Loans on Stocks and Bonds	9,643,231	15,369,209	13,304,684
Loans to Corporations.....	5,033,047	10,042,068	12,952,106
Current Discounts.....	110,590,183	136,705,597	146,613,143

The most striking feature of the changes thus shown is the reduction in the foreign balances, which have declined from \$24,667,547 in April, 1881, to \$10,409,635 in April, 1883, by reason of the increase in imports, the slow export movement

last fall and during the winter, and the purchase of Exchange by Governments for interest remittances. The tendency of the Exchange movement for some months to come ought, however, to be decidedly favorable, for these reasons: that the period of heavy remittances in payment of imports has passed, that capital is now being introduced into Canada from abroad to be employed in the construction of the Pacific Railway, that the export movement will steadily increase during the season of navigation, and that the immigration movement will this year be the largest on record. We may, therefore, not unreasonably anticipate a considerable augmentation in the supply of foreign exchange before the period of heavy remittances in payment of imports again comes round.

The following are the closing quotations on the Toronto Stock Exchange for Wednesday, May 16, compared with those of the same day two weeks before:—

BANKS.	May 2.		May 16.	
	Asked.	Bid.	Asked.	Bid.
Montreal.....	201	200	202	201
do xd.....	196½	196	197½	197
Ontario.....	115½	115	115	114½
Molsons.....	.....	.....	112½	112
Toronto.....	195½	195½	193½	192½
do xd.....	191	190½	187½	186½
Merchants'.....	125½	125	121	.....
Commerce.....	135½	135½	134½	134½
Imperial.....	146	145½	146½	146
Federal.....	159	158½	159½	158½
do xd.....	156½	156	155½	155½
Dominion.....	198½	198½	198½	197½
Standard.....	116	115½	116	115½
Hamilton.....	116½	.....	116	114

MISCELLANEOUS.

British America.....	120	115	116½	115
Western Assurance.....	148	.....	145½	.....
Canada Life.....	.....	.....	.....	200
Confederation Life Association..	.....	.....	.....	.....
Consumers' Gas.....	147½	.....	147½	146½
Dominion Telegraph.....	89½	.....	89	.....
Montreal Telegraph.....	.....	.....	.....	.....
Lybster Cotton.....	.....	.....	.....	.....
Globe Printing Coy.....	.....	.....	.....	.....
N. W. L. Co.....	79s. 3d	78s. 6d	75s. 6d.	75s.
Ontario and Qu'Appelle.....	191	188½	183	.....

The following are the closing quotations of the Montreal Stock Exchange for Wednesday, May 16, compared with those of the same day two weeks before:—

BANKS.	May 2.		May 16.	
	Asked.	Bid.	Asked.	Bid.
Montreal.....	201	200½	202½	202½
do xd.....	196½	196½	197½	197½
Ontario.....	115½	115	112½	112
People's.....	80½	.....	80½	79½
Molsons.....	126	125	125½	124
Toronto.....	196	195	193½	192½
do xd.....	190½	190½	187½	187
Jacques Cartier.....	.....	.....	.....	.....
Merchants'.....	126	125½	122½	121½
Quebec.....	.....	.....	.....	.....
Union.....	.....	.....	90	85
Commerce.....	136	135½	135	134½
Exchange.....	.....	.....	.....	.....
Federal.....	159½	159	159½	159
do xd.....	157	156½	157	155

MISCELLANEOUS.

Montreal Telegraph.....	125½	125	125½	124
Dominion Telegraph.....	.....	.....	.....	.....
Richelieu and Ontario Nav.....	78½	78	80	79½
City Passenger Railway.....	146	145	148	147
Montreal Gas.....	174	173½	174½	174
Canada Cotton.....	100½	99	.....	100
Dundas Cotton.....	.....	.....	84½	80
Ontario Investment.....	.....	.....	.....	.....
St. Paul M. & M.....	132	130	130	127
Canadian Pacific.....	64	63	72½	72
North-West Land Co.....	79s.	78s.	76s.	74s.

The *Mail* has the following table comparing closing prices of bank shares in Toronto on May 12 with the figures of the corresponding date last year:—

	1883.	1882.
Montreal.....	200½	213¾
Toronto.....	192½	185
Molson's.....	124½	127
Commerce.....	135	151
Merchants'.....	124¾	134
Imperial.....	145	139½
Federal.....	159	173
Dominion.....	198¾	214¾
Standard.....	115¾	119¾

Commencing Monday last, the doors of the Montreal Stock Exchange have been thrown open to the public. There will be no Saturday sessions from the present time until the fall.

In the wholesale trade generally there is not much to remark, except that there appears to be a good deal of waiting on the part of dealers in various lines for the advent of something like summer. There has been a prevalence of fine, bright weather lately, but the air still keeps chilly at night, and of genuine good growing weather we have had very little so far. For farmers and dry goods men this is a backward season.

Counterfeit four dollar bills on the Dominion Bank are in circulation in Winnipeg.

It is the intention of the Imperial Bank authorities to put up a building specially for bank purposes, in this town. We have not yet seen plans, but understand it will be ample for the purpose, and be a credit to the town. This action on the part of the bank is owing to the increase of business at this agency. This speaks well both for the town and also for the management of the bank's affairs here.—*Welland Telegraph*.

BY EXPRESS TO THE NORTH-WEST.—It has been found necessary, now that the Thunder bay section of the Canada Pacific railway has been opened for traffic, to establish an express service between here and the North-West. An arrangement has therefore been made between Vickers' Express on the Northern and Toronto, Grey and Bruce railways, the Lake Superior steamship lines from Collingwood and Owen Sound, and the Dominion Express Company on the Canada Pacific to accomplish this object, and as there will be no Custom-house examinations the new route will no doubt become very popular.—*Toronto Mail*.

A peremptory auction sale of 33,444 ounces of quinine took place in New York on Friday, May 4. This was said to be the largest quantity of quinine ever sold at auction at one time in the United States. The drug trade was very largely represented, and the bidding quite spirited. The prices paid were as follows:—Foreign quinine, 32 cases, containing 6,000 ounces, at \$1.32½ an ounce; 7 cases, 5,000 ounces, at 132½ an ounce; 5 cases, 5,746 ounces, at \$1.31 an ounce; 1 case, 100 ounces, at \$1.41 an ounce; American quinine, 12 cases, 1,250 ounces, at \$1.60 to \$1.61 an ounce. The goods were sold on account of "whom it may concern," and the buyers were Windmuller & Co., H. K. & F. B. Thurber, Hall & Ruckel, Lazell, Marsh & Gardiner, Dix & Co. and I. S. Coffin.

Under date of the 9th inst., the *Globe's* Montreal correspondent says:—The *pourparlers* between Messrs. Samuel Dowker & Co. and the Ottawa authorities concerning a seized consignment of felt, still continue, and to-day the firm was allowed to keep the felt in consideration of security given for it. Among the firms in Montreal who purchased the contraband felt are nearly all the shoe factories in the city, the paper manufacturers, furriers, glovers, etc. Were the Department to come down upon all these places and compel them to make restitution for the goods purchased, or seize the residue of stock which they purchased, there would be a wail of astonishment and despair from half a hundred firms. The Government can do this; but whether they will or not remains to be seen. It is believed that the retail value of the whole year's sale by the firm will reach at least \$60,000.

TRICKERY TRAPPED.

(From the *St. Louis Age of Steel*.)

Two leading houses in a certain business interest in this city reached an understanding several months ago with respect to a division of trade and territory. According to this understanding each house was to have a certain number of customers, and in case any of the customers of either house should apply to the house upon whose books their names were not made to appear, the house so applied to for quotations was to quote its prices slightly higher than those agreed upon by both houses. This agreement has been faithfully kept, and each house has profited by it, inasmuch as each has held its customers and competition has been avoided. The other day, however, this agreement was the cause of a great deal of alarm on the part of one of the houses, and resulted in exposing the sharp practice of a customer. This personage, who by the way represents a leading house in this city, obtained quotations from the house upon whose books his name appeared as a customer on certain goods, and then being unaware of any understanding between the two leading houses, went to the second one and secured quotations, slightly higher than the first. And here is where his rascality brought him into trouble. He went back to the first mentioned house and stated that he had obtained such and such quotations, being considerably lower than the price agreed upon by the two houses. Of course a wrathful investigation followed; and in the end the terrified and dishonest customer was brought face to face with the proprietors of both companies and made to confess his shameful conduct. But then how many men have not done worse things than this?

American Correspondence.

TEXTILES AND THE IRON TRADES—LETTERS FROM BOSTON, NEW YORK, PHILADELPHIA, AND PITTSBURGH.

(From Our Own Correspondents.)

BOSTON, May 15th, 1883.

The textile interests in New England have met with little improvement. The cotton crop this year has already reached 6,683,430 bales, with 400,000 bales yet to come.

The receipts of domestic wool for week, 3,299 bales against 3,336 bales for same week last year. There is a declining tendency in both cotton and wool, stocks are accumulating, prices are low, and the dread problem of over-production is once more hanging over New England. A great many manufacturers have been running for twelve months scarcely paying expenses, so it is said. The future prospects are not very encouraging. Some manufacturers are carrying large stocks of wool, and should wool decline further they will be in a still worse condition.

The money market is quiet and regular. Discounts run from 5 to 6. Exports for the past week were double those of a year ago. The exports since June show an increase of nearly \$2,000,000. Boston is maintaining its position against all other Atlantic sea-ports, and by means of its valuable railway facilities will be able to maintain its lead.

In Iron and Steel there is but little to note by way of improvement. Consumption is large but prices are low. The manufacturing industries, including paper making, boiler and machine making, textile interests and wood working interests,

are all fairly encouraged, but the day of high profits is passed.

Great preparations are being made for the coming Institute Fair this fall. The officers in charge of this enterprise report great encouragement, especially from the South. How strange it is that Boston and Charlestown are shaking hands, Massachusetts and the South are meeting in fraternal union where twenty years ago the utmost hostility prevailed. Extremes often meet, and they are certainly meeting in these cases.

New England even feels jealous of what the South may probably do, and is endeavoring to gain advantages over the South in manufacturing. In the production of coarse goods southern cotton mills are making wonderful progress, and New England manufacturers find it necessary for them to pay more attention to the manufacture of higher and finer qualities of textile goods.

NEW YORK, May 16th, 1883.

Notwithstanding the 24th of May is the Queen's Birthday, and in spite of the protestation of 50,000 Irishmen, the opening of the Brooklyn bridge is to be celebrated. Special trains will be run from surrounding cities and towns, and every effort will be made to make it profitable—to hotel proprietors.

Business embarrassments continue to attract a good deal of attention. It takes more money, more credit, more shrewdness to manage a business now than five or ten years ago. Profits are narrower, experience more valuable, success more difficult.

A great deal of prejudice exists against the Chinese of New York city. As a rule they are a harmless class, attending to their own business, making money and spending none. They are a good example to a great many of our American Chinese, who live but little better, work with less industry and never have a dollar.

Our New York merchants are very much concerned at the action of the Albany Legislature, in doing those things which they ought not to do and not doing those things they should do. Between the Legislature and the Trunk lines the New York merchants are having a hard time of it.

The out-going steamers are carrying large numbers of people who will remain abroad for the summer. The in-coming steamers are landing thousands of emigrants most of whom are bound for the North-west.

Wall Street is watching for unfavorable reports from the crops. Should there be any well founded reports stock jobbing will take a jump, and fortunes will be made and lost as of yore.

The business interests report a moderate volume of business. The Free Trade clubs of this city and Brooklyn have prepared to be well represented at the Free Trade Convention to be held in Detroit. The republican politicians are glad to see this agitation start, as they believe it will split the Democratic party, because of the favor with which Protection is being received in the South.

PHILADELPHIA, May 16th, 1883.

The Pennsylvania iron markets are favored with a moderate degree of activity in all branches. In crude iron there

is a growing weakness, resulting from the probable strike in the West. Everything points to lower prices in crude iron, and firmer prices in foundry iron. A number of furnaces will probably go out of blast during the next thirty days, in order to reduce the output sufficiently to allow profits at \$22, \$20, and \$18 respectively, for No. 2, No. 1, and mill irons. Bessemer rail mills report improving activity for steel rails, though they are not able to report firm prices. Capacity is far beyond demand as it appears at present, and hence negotiations are in hand for large blocks for fall delivery at \$37 to \$38. Merchant iron has improved some, and is selling at \$2.20 to \$2.25. Nails are in active demand at \$3.00 to \$3.25. A fair activity prevails in construction iron, and the bridge works, ship yards, locomotive establishments, and large foundry and machine works are doing fair amount of business, and according to present appearances will continue during the summer and fall. The railroads centreing here are doing a large volume of business, and the profits are sufficient to induce managers to invest in several branch lines to develop local and State traffic. Vanderbilt and Gould are building two lines across the State, which will compete with each other for the lumber and mineral traffic. They will have southwestern connections, and will do much towards the development of the great Keystone state.

PITTSBURGH, May 15th, 1883.

Notwithstanding reports to the contrary the opinion prevails here that the mills of the west will be idle after June 1st. The manufacturers held a meeting a few days ago and discussed the situation again, and resolved to stand by their decision of suspension or a reduction of wages. The workmen have considered the question and will decline to accede to any reduction. This means a restriction of out-put in the west and a consequent hardening of prices growing out of the scarcity. Manufacturers welcome this, as they know it is impossible to maintain prices in view of the great producing capacity. Two or three months' restriction this year will be as beneficial as the four months' restriction was last year. Prices are already very low, and competition will simply drive out the weaker members of the trade. Merchant iron is selling at \$2.00 to \$2.10, and demand is improving for retail lots. Very few large consumers are willing even now to anticipate requirements to the extent of ninety days, but are buying for thirty days and are assured by the manufacturers that their wants will be provided for. The proposition is to employ non-union labor and to endeavor to break the ranks of the iron workers, association. There is an active demand for nails throughout the south and west, and there will be no more suspension of production. Quotations run from \$3.00 to \$3.25. The steel mills are working along full-handed, though demand is rather sluggish and stocks are not accumulating. Prices are low. The steel rail mills at this point and throughout the west are well supplied with orders which will last them into mid-summer. The coal miners to the number of about 7,000 are on a strike for 3½ cents per bushel against a reduction to 3 cents, and the operators look to the restriction which is to follow as likely to be of great benefit to them. The strike which continued for five months last summer worked to the advantage of producers by creating a scarcity of coal, which enabled them to sell their full out-put to better advantage.

THE NEW SAW FACTORY.

The property around Charlotte-street extension bids fair to become the seat of great manufacturing industries. The works of the Canada Rolling Stock Co., it is to be hoped, will soon be heard in full swing around that neighborhood, but in the meantime, another important factory has been completed which will, in the course of the next few weeks, be in operation. Mr. James Robertson has finished building his saw factory; the main premises are brick built, three stories high and 100x50 feet. The boiler house and tempering shop cover ground to the extent of 100x80 feet. The factory has been exceedingly well erected by Messrs. Cassidy & Steen. The ground floor is used for an engine-room and for the manufacture of saws. The engine was manufactured by Messrs. John McDougall & Co., of the Caledonia Works, Montreal. It is 60 horse-power, the cylinder is 14 inches in diameter, the length of stroke 30 inches, with a driving wheel 5 feet 6 inches in diameter and 2 feet face. The main shaft runs along the northern end of the building and is connected on the ground floor with three large stones; the first is used for sharpening long saws, the next for circular saws, and the end one for hand work. Connected with the main shaft is the counter shaft, which drives the vertical (used for drilling holes); a machine for cutting the teeth of saws; two ordinary polishing machines; a polishing machine for long saws, and an emery wheel.

In the annex is the tempering furnace, which is 24x20 feet and 8 feet high. An oil tank 8 feet deep has been sunk in the ground for dipping the circular saws in, and another tank 3x14 feet, for dipping ordinary saws, is being placed in position. The boiler is at the western end of this building; it is 12 feet 6 inches by 4 feet 6 inches, and is fitted with all the latest improvements. A very large coal and wood shed is also attached.

The second floor of the main building will be used for the manufacture of white lead and putty, and in it have been fixed two putty machines, also two white lead machines, which are connected by a belt with the main shaft on the floor below. This room is splendidly lighted, there being twelve windows on the south, six on the west and six on the north side. The floor above, which is also lighted in a like manner, will be used as a store room. A very fine elevator, manufactured and patented by George Brush, of Montreal, has been fixed on the premises; it is connected with the engine and has been tested to carry two tons.

The engine and greater part of the machinery are in working order, and when worked on Friday the large grindstone made 109 revolutions to the minute. Mr. James Robertson obtains all the steel plates from which the saws will be made from Sheffield; England.—*St. John, N.B., Sun.*

THE CANADA ROLLING STOCK COMPANY.

At the first annual meeting of the Canada Rolling Stock Company, held in the Western Union Telegraph building the 10th day of May, the formal resolutions necessary to organize the company were adopted and the following directors and officers were elected: Robert Thomson, of Stratford, Ontario, president; Robert Marshall, managing director and treasurer; Magnus Sabiston, Jas. Alfred Clark, and James Rourke, directors; E. T. C. Knowles, solicitor; G. Ernest Fairweather, architect; Robert Marshall, secretary. Two other directors, one of whom is to be vice-president, will be elected at an adjourned meeting to be called by the secretary. The capital stock of the company is increased from \$80,000 to \$450,000, on the same basis as defined in the prospectus of the company issued in March last. The object of the Company is very clearly set forth in the sixth section of the Act of Incorporation as follows:—

Section 6. The Company may carry on the business of

manufacturing any materials and articles made of wood, iron, or other metal, or raw materials, together with the manufacture of railway cars, trucks, carriages, rolling stock, locomotives and other engines, and equipments of all kinds, including everything employed in and about the construction of such cars, trucks, carriages, rolling stock and engines, whether consisting of wood, leather, cloth, metal or other material; they may also manufacture and construct rails and railway points, and everything used or employed in the fixing, fastening and securing of rails and in and about the construction of a railway; and erect and construct all things in which metal and wood, or either of them, form a component part, and may also carry on all such other general business as may be incidental to a manufacturing Company. And for all or any of the above purposes may acquire and hold by purchase, lease, or other legal title such lands, tenements and hereditaments and personal property, in the said City of Saint John, and elsewhere within the province of New Brunswick, as may be deemed by said Board of Directors expedient: *Provided always that the real estate held by said Company shall not exceed, in any case, in value the sum of Thirty Thousand Dollars.*—*St. John Globe.*

FACTS IN THE IRON TRADE.

(From the American Manufacturer.)

Concerning the reduction in the price of pig iron it is said on the street that the Ore and Steel Company have contracted for large supplies of Bessemer pig for their mills on a basis of \$19 per ton.—*Age of Steel.*

Assuredly this is not due to a reduction of 28 cents per ton in the duty on pig, nor yet of the increase to 75 cents a ton on ore. This decrease is about \$6 on what Bessemer pig was worth when rails were \$45, so that the entire fall in price to \$39 has come off pig. Why, then, has the Vulcan Works brought down wages 33 per cent?—*Labor Tribune.*

This is not our controversy, and our remarks must not be construed in that light. Our object is simply to disseminate facts. Actuated by this motive, we examine our file of May 4, 1882—just a year ago—and find Bessemer pig iron in Pittsburgh quoted at \$28.00, and steel rails at \$53.00 to 55.00. Bessemer iron is now quoted at \$22.00 to 22.50, and steel rails at \$39.00 to 40.00. Thus, within the past year, rails have declined \$14.00 to 15.00 per ton and Bessemer pig iron \$5.50 to 6.00. Rails have therefore declined, in Pittsburgh, \$8.50 to 9.00 more than the pig iron from which they are made. To put it differently, rails have declined 27 per cent, and, to keep up the proportion, every other factor of expense—each kind of raw material, interest on investment, labor, &c.,—should decline proportionally to the same extent; but we find that pig iron has declined only from 21 to 22 per cent., while interest and perhaps other items of cost, has not declined at all. Going still further back, we find that at the beginning of 1882 steel rails were worth \$61.00 and Bessemer pig iron \$29.00. Thus, between that date and the present the former have declined 36 per cent. and the latter only 24 per cent.

The Waterous Engine Works Company will only be able to execute half of their orders for engines, etc., for the North-west. The company have added a moulding shop, which will be in operation this week.—*Winnipeg Commercial, May 8.*

The Curtis Regulator Co., of Boston, Mass., have recently put in the mills of the Freeman Manufacturing Co., of North Adams, thirteen of their "Curtis" steam traps. This is the third order from the one firm, after a previous and severe test.

A Montreal despatch says:—"The St. Lawrence Foundry of Toronto was yesterday (8th inst.) awarded the contract for supplying lamps to the Light Committee of Montreal." In this case it would probably be more correct to say "cast-iron lamp-posts" instead of "lamps."

Railways and Shipping.

We understand that there is a probability of the extensive plant of the Thomson & Williams Manufacturing Company of Stratford, including patterns, etc., of the Brown Automatic cut off Engine, being removed to St. John, N. B., negotiations being in progress to that effect, with a newly organized company in that city, with large capital and a strong directorate. Mr. Thompson was recently elected president at the first annual meeting of the company referred to.

On the 9th inst. the directors of the Dominion Type Founding Company held a preliminary meeting at Montreal to discuss the annual statement and to fix the dividend to be declared at the general meeting to be held in a few weeks. No definite details could be ascertained, but it was generally believed that the annual statement, which was one of the principal objects of the meeting, was satisfactory and that the dividend would be about ten per cent.

NORTH END FOUNDRY.—Since February work has been almost at a standstill, but a new firm, of practical experience, under the caption of Messrs. Niles & Sprague, has secured the business this week, together with the use of all the old patterns, and they intend to operate on an extensive scale. The foundry is to be in full working order after next week, and is to be prepared to do castings of all descriptions from a plow point to two or three tons weight. Particular attention with promptness is to be given to all sorts of jobbing—a great necessity to ensure success.—*New-market Era.*

The *American Manufacturer* has the following from a Canadian correspondent:—"Messrs. Laidlaw, Bowes & Co., Hamilton, are about commencing the erection of a new factory of immense proportions, the lease on their present premises being about to expire. The iron and nail trade continues in its active state; if anything, a little more so. Nail stocks are completely broken up, and jobbers cannot sort up because there are no nails to be bought. The factories are all cleaned up, and nails are delivered as fast as made. Heavy orders for iron are coming in from all parts of the country, not a little being from Manitoba."

Not only do Peterborough manufacturers directly benefit by the National Policy, but they are also benefiting by the Canada Pacific railway contract. Mr. Adam Hall is at present engaged in filling an order for fifteen stoves, and the furniture connected with them, received from the Canada Pacific Railway Company, the order having been sent to him from Montreal. The stoves are to be sent to the Spanish River depot. This order speaks well for the stoves manufactured by Mr. Hall, and as the quality and value of his stoves become better known (and their reputation appears to be spreading) his business will no doubt largely increase.—*Peterborough Review.*

NEW ENTERPRISES.—"The Toronto Stamping Company" and "The Toronto Stove and Manufacturing Company" are the proposed names of two new companies applying under the Ontario Joint Stock Companies Letter Patent Act for incorporation. The object of the first named is the manufacture of and dealing in all kinds of japanned, stamped and piece sheet metal goods in Toronto. The amount of the capital stock is \$50,000 in five hundred shares of 100 each. The other company has for its object the manufacture of stoves, making castings, and general foundry work, which will be carried on in the village of Parkdale. The amount of the capital stock is \$50,000 divided into the usual \$100 shares.—*Mail.*

Messrs. Caut, Gourlay & Co., of Galt, Ont., are building an addition to their already large factory, which will be 197 by 45 feet, two stories high. When this is completed their main building will be one of the longest machine shops in the country, the total length will be some 350 feet. Their wood-working machinery business has grown very rapidly, and increased facilities for turning out orders promptly, came to be a necessity added to this the firm sometime since commenced the manufacture of looms, and those of their make now running here give such satisfaction to the purchasers that increased facilities for this branch of their industry is now in order. An entirely new industry for Canada is now being developed by this same firm, and under the direction of Mr. Fontaine, the inventor of the improved pin-making machine, the Dominion trade in this small but useful article will still be supplied from this establishment shortly. We will before long give further particulars of this industry.

A London despatch says that the application for listing Western Union and Canadian Pacific on the London Board would not be acted upon for some time yet.

Spiegel, my pundit friend, says he knows all about it: The Vanderbilts are going to let their old Central stock fall to par and take it in again, regarding it as worth par, but high at 130. Hence the resignations, to add example to the obvious.

Mr. William Wainwright, for some time back Assistant General Manager of the Grand Trunk, has been appointed General Manager of the North Shore Railway between Quebec and Montreal, which has now become an important link in the Grand Trunk system.

The Canada Southern fast freight line has perfected arrangements whereby it will take but 39 hours to bring goods from New York to Detroit, and about 60 hours to fetch them from Boston. A correspondingly fast eastern service is to be inaugurated at an early date.

The Commercial Express line for several months has been doing a very extensive fresh meat business from Chicago to New York. Some 300 Tiffany refrigerator cars are being used for that purpose. Until recently, these cars have been returning west empty, but arrangements are now completed to load them west when necessary with fruit and perishable freight.

The second annual meeting of the shareholders of the Canadian Pacific Railway Company was held on Wednesday, 9th inst., at the offices of the Company, in Montreal. A statement of the Company's affairs was laid upon the table. The following directors were elected for the ensuing year:—George Stephen, Montreal; Duncan McIntyre, Montreal; Richard B. Angus, Montreal; John S. Kennedy, New York; Henry S. Northcote, London; Pascoe du P. Grenfell, London; Chas. D. Rose, London; Baron J. de Reinach, Paris; Hon. Donald A. Smith, Montreal; Rudolph V. Martinsen, Amsterdam and New York; William L. Scott, Erie, Pa. The meeting was then adjourned until the 8th June next, when it is expected Mr. George Stephen will have returned from England. Subsequently at a meeting of the new Board of Directors, Mr. George Stephen was re-elected President, and Messrs. D. McIntyre and R. B. Angus, Vice-Presidents. An executive committee was also appointed, consisting of Messrs. D. McIntyre, R. B. Angus, and Hon. Donald A. Smith. It was understood that Mr. James J. Hill, of St Paul, a member of the old Board, had declined re-election.

The fifteen leading industries of the United States are represented by a total of 182,935 establishments, employing 1,844,102 hands, to whom wages are paid amounting annually to \$627,708,634. The following table shows the amount of capital employed in each industry, the number of hands and the aggregate of wages paid per annum:

Industries :	No. Hands Employed.	Total Amt. Wages Paid.	To'l Estab-lishments.
Iron and steel....	306,958	\$128,787,924	6,498
Lumber and Wood.....	244,926	79,843,837	38,093
Cotton and mixed textiles..	228,845	58,931,172	1,475
Men's and women's clothing	185,945	52,541,358	6,728
Woollen goods.....	169,897	49,259,324	3,390
Boots and shoes.....	138,635	52,352,126	18,360
Carriages and smithing....	104,718	38,185,271	43,122
Tobacco, etc.....	87,587	25,054,457	7,674
Brick, tile, etc.....	67,203	13,764,723	5,097
Furniture and upholstery..	64,127	25,571,831	6,087
Leather, harness, etc.....	63,136	25,081,913	13,708
Printing, publishing, etc...	62,800	32,838,959	3,634
Flour and grist-mill products	58,401	17,422,316	24,338
Agricultural implements....	39,580	15,359,610	1,943
Shipbuilding.....	21,345	12,713,813	2,188

The total number of hands employed in all the industries in the census year was 2,738,895, the aggregate of wages paid was \$947,593,795, and the number of establishments is given at 253,852.

Textiles.

MAGOG PRINT FACTORY.

CREATION OF A NEW INDUSTRY—IMPORTANCE OF THE PROJECT—INTERESTING SPEECH ON THE SUBJECT BY MR. COLBY, M. P.

(From the Montreal Gazette.)

In the discussion in Committee of Ways and Means of the increase in the tariff on print goods from 20 per cent. to 27½ per cent., Mr. Colby, M.P. for Stanstead, said:—I have no doubt the ladies of Canada would have been more grateful to the hon. leader of the Opposition had he manifested his solicitude for them at a time when such solicitude would have been disinterested, but after the announcement that they are to be included in the Franchise bill they will hardly give him credit for disinterestedness. I do not share the apprehension which the hon. leader of the Opposition has expressed, and which it seems the hon. Finance Minister himself at some time entertained with regard to the success of dyeing and printing cotton cloths in Canada. I think we have all been a little too timid with regard to the future. Every hon. gentleman in this House must recollect the time when capitalists looked with a good deal of apprehension upon the establishment of an ordinary cotton manufactory. Doubts were expressed as to whether our people were sufficiently numerous to sustain it, and yet to-day we have 400,000 spindles operating and, I believe, they are not equal to the demand. We all recollect the time when it was doubtful whether woollen mills could be sustained in Canada. It was urged that it would be impossible for Canada to compete with the skill, and the cheap labor, and the capital of Europe; and yet, to-day, it is the proud boast of our manufacturers that Canadian woollen goods are not surpassed by any goods of their kind in the world. We have succeeded, notwithstanding these misgivings regarding cotton and woollen goods, beyond our most sanguine hopes and expectations. A few years ago it was thought that we clumsy Canadians could not manufacture agricultural implements that would compare with those manufactured in the United States, and yet to-day Canadian agricultural implements are unsurpassed in quality and are cheaper than the same class of goods could be obtained from the United States if there was no duty upon them at all. So I say that, as success has crowned every effort we have made to establish manufactures, we have reason to infer from the experience of the past that we have been unduly timid—that we have not properly appreciated the probabilities of our industrial growth. Now, with regard to the establishment of a successful dyeing and print works in Canada, I believe that all that is required to make it a success is the requisite capital and skill. I have some knowledge of the enterprise to which the hon. Finance Minister has referred, and I can assure this house that I have the best reason for believing that, so far as capital is concerned, there will be no difficulty whatever, after having read such a magnificent subscription list as that which I saw the other day, containing the names of prominent financial men in Canada, such as Mr. Allan Gilmour, Mr J. G. Ross, and a number of the prominent manufacturing men in Montreal—men who will carry out anything they undertake. I maintain that in Canada we can build a cotton mill as cheap, if not cheaper, than it can be built elsewhere on this continent. The material for the construction of the mill is cheaper here than it is in the United States; the labor for the construction is cheaper here; the labor for operating the mills is as cheap, if not cheaper, than in the United States, and we have here abundant water-power, and you cannot over-estimate the importance of water-power as an economical factor. In the very mill it is proposed to establish, and to which reference has been made by the hon. Finance Minister, it has been estimated that a saving of \$50,000 per annum would be made by the use of the im-

mense water-power at our disposal as compared with the cost of steam. With these favorable conditions we have every reason to anticipate success, provided ordinary prudent business management is brought to bear; and I may say this enterprise has associated with it the name of Mr. Ward, of Montreal, one of its promoters, a gentleman who has been connected with every successful cotton enterprise started in Canada, and who is as sound politically from the standpoint of the hon. gentleman opposite as he is sound financially, and who will be of great use in carrying out this important enterprise. We have the capital, and with the capital we can purchase, for skill is a purchasable commodity, the best skill in Europe or the United States; we can purchase the best machinery, and we can lay the foundation of a successful enterprise. Now, what stands in the way of doing so? It is said a large variety of patterns is required. We know there are no limits to the demands of taste and wealth in any direction, whether in the manufacture of cottons or silks. But we know that those staple articles which are used by the masses of the people of this country are not those changeable fashions which vary every year. We know there are certain lines of staple goods sold, for instance, regatta shirtings, common prints and durable cloths, that are worn, with very little change of pattern, year after year by the farmers and working class of this country. These are the staple articles which are mostly used, and can be produced in this manufactory from the ordinary plates, which are stereotyped, and can be purchased at cheap rates. The reference made by the Hon. Finance Minister is simply to another class of patterns that last only a year, and are made to meet a particular requirement, and will never be used the following years. These patterns can be obtained from other factories, for it must be remembered that in the United States their markets and seasons are earlier than ours, and it is but a trifling matter to remove from some factory in the United States or England, rollers which have served their purpose there and may be used here. This is the exception, not the rule. Now, I believe that if print manufactories can be carried on extensively in Mexico—and there are six print establishments in Mexico—if they can be carried on successfully in Switzerland with half our population, and in Norway and Sweden, as I believe it is in all these countries, with a lesser population than ours, it may be carried on by the enterprise and skill of the people of Canada, with our increasing population and bright prospects for the future. This enterprise which has been adverted to, is of no insignificant character. It is estimated the production of the mill would be one-sixth of the entire present production of cotton goods in the Dominion. It will contain 60,000 spindles, give employment to 1,000 or 1,200 operatives, and turn out at least \$1,500,000 worth of goods annually, while the production will be capable of being expanded to meet the increasing demands of the country. Now, I can quite understand how this enterprise can be criticized from a Free Trade standpoint, as well as the whole protective policy which has been twice sanctioned by the people, and which this Government has been sent here with instructions to carry out. I can understand hon. gentlemen opposite criticizing it honestly from their standpoint, but from our standpoint, that of the majority of the people, as declared at two recent elections, no fault can be found with the policy proposed by the hon. Finance Minister, which is simply the complement of the policy he has been carrying out since he came into office. I believe we ought not to be too timid in these matters. I believe we are a great and growing people, and should not content ourselves with remaining in the old ruts and working on the lowest plane, but should aspire to do something higher and better, and encourage as far as we can that species of manufacturing which involves four processes, such as manufacturing cotton goods, and bleaching, and dyeing, and printing, rather than limit ourselves to carrying on one process of manufacturing plain cotton. I believe we should strive to make within ourselves, in carrying out this policy upon which the country is launched, all those

things which can be properly manufactured here. I have no misgivings with regard to the future of this enterprise. I will say, moreover, that the gentlemen who are risking their large capital in this enterprise have done so with full deliberation. They are experienced men of business; they are men experienced in this line of the manufacture of cotton goods, who have realized their fortunes by their industry; they have studied this problem with more care and forethought than it is possible for us to give to it; they are willing to risk their capital in the enterprise, and they say to the Government of the day: We ask for no special protection. We laid the proposition before the Government—a proposition by men who mean business when they come to the Government—and the Government had no alternative from its standpoint—having reference to their pledges to the people to carry out a policy which would encourage new enterprises; the Government could not go back upon its record without stultifying itself, without confessing that their policy was a delusion; they could not do otherwise than to grant the reasonable request made by these capitalists, and to come down with the proposition laid before you to-day. An hon. gentleman sitting opposite me, speaking on this subject the other evening, said that nothing would make the National Policy so unpopular as to show these worthless Canadian goods to the people. Now, I am sorry that hon. gentlemen cannot discuss these questions without condemning in advance the products of the industry and skill of the Canadian people. If a person uniformly makes that presentation of the case, perhaps some few people may be deluded by the fallacy. But if that hon. gentleman, who, I believe, is a trader, should honestly say to his lady customers as he displays a stylish piece of imported print, "There is a particular article which is not manufactured in Canada, a peculiarly nice article imported from some other country, paying a duty of 27½ per cent., instead of a duty of 20 per cent. It is true you pay a higher duty, but you are assisting to build up an important industry in this country, you are assisting in giving employment to a great many people who otherwise would be obliged to leave this country to find employment elsewhere. More than that, the very money you pay into the Treasury enables the Finance Minister to relieve you from other things which are equally necessities of life—from your tea, your coffee, and those articles which are as much necessities of life and enter as much into consumption as the prints and the calicos." The good lady who has to purchase these articles, if she be an intelligent lady, and if she have a proper appreciation of her indebtedness to that party who have invested her with the franchise, will purchase the goods cheerfully, and give her vote for the National Policy.

Mr. PATERSON—Perhaps the hon. member for Stanstead, being interested in this project, could give us some idea as to how many mills, like the one he has described to us, our market might find employment for.

Mr. COLBY—I will give the hon. gentleman the benefit of all the information I have on the subject. I heard the opinion expressed by a gentleman well informed on this subject that this particular mill, as projected now, that will be in operation on the 1st of May next, would furnish about one-fourth of the goods that will be needed in this country, regarding the mill as it will exist at the close of this season. Provisions are made for a great enlargement of the mill at a future time.

Mr. BLAKE—How many yards is it calculated to manufacture?

Mr. COLBY—I could not say how many yards. 60,000 spindles will be running, which will turn out \$1,500,000 worth per year. It would supply about one-third or one-half at the close of this year. But, as I have stated, the whole establishment is arranged with a view to a very large extension, and provision has been made for a great excess of water power over what will be originally required.

THE WOOL MARKET IN SCOTLAND.

In the annual wool market report of Robert Ramsay & Co., Hide and Wool Brokers, Glasgow, dated 2nd inst., a comparison is made of prices in April of 1882-83. During the year washed Scotch wool fell about ½d. per lb., and unwashed not quite so much. For April, 1883, the former is quoted at from 9½d. to 11½d., and the latter at from 4¼d. to 9d. The report says:—"With the new clip there will no doubt be some improvement in price, but present prospects, we regret to say, do not warrant the anticipation of any marked advance; and the reduction in the American Tariff, which comes into force on the 1st of July, is so small, that we fear our exports will not derive any considerable benefit on that account. Our home spinners are, however, generally well employed, and the stocks available being so low, a good demand is expected for the new clip as it comes forward." The following is the weekly report of the same firm, May 1st:—

WOOL.—There has been, perhaps, a little more enquiry in the wool market this week, without resulting in any material increase of business. White Highlands and Cheviot have been asked for chiefly, and a few transactions have taken place, but nothing of importance. Unwashed Half-bred and Cross Hogs of the new clip are now being enquired for by buyers, but these have scarcely found their way to the market yet, owing to the coldness of the weather. There is no change in prices.

HIDES.—The numbers were quite equal to those of previous week, and of fair qualities. Competition was not quite so active, however, and the tendency of the sale was easier.

SHEEPSKINS were in larger supply, and quality on the average very good. The demand was somewhat slow, influenced no doubt by the quiet state of the market, but former values well maintained throughout.

TALLOW.—At the public sale of Rough Fat the biddings were fairly active, but prices very irregular, closing without quotable change on former rates.

BLAST FURNACE STATISTICS.

The appended table shows the number of furnaces in blast in the United States at the close of the first quarter of the present year, and at the close of each quarter of 1882:

	1883		1882		
	April 1.	Jan. 1.	Oct. 1.	July 1.	Apr. 1.
Charcoal	98	123	158	151	132
Anthracite	156	169	127	164	175
Bituminous	121	138	128	119	150
	375	430	443	435	457

The following table shows the number out of blast at the dates given:

	1883		1882		
	April 1.	Jan. 1.	Oct. 1.	July 1.	Apr. 1.
Charcoal	153	123	93	126	146
Anthracite	78	64	72	72	61
Bituminous	103	88	111	109	74
	334	280	276	307	281

The next table shows the weekly capacity of the furnaces in blast at the dates given, as well as the capacity of those out:

	In blast.	Out of blast.
	Tons.	Tons.
April 1, 1883.....	96,449	65,089
Jan. 1, 1883	106,184	64,752
Oct. 1, 1882	97,055	62,270
July 1, 1882	98,021	57,226
April 1, 1882.....	104,189	35,202
Jan. 1, 1882	101,952	43,934

Hudon's new mill at Hochelaga, Que., will manufacture merino cotton and woollen goods. He goes to France for the skilled workmen.

The St. John Cotton Mill began its regular operations at 4 p.m. on the 7th inst., the first piece of cotton being manufactured by Miss Parks, daughter of the President.

Messrs. Downey & Co. have joined Mr. James Perry in the purchase of the Toomey woollen mill property, and Mr. Perry is absent this week in Fulton, N.Y., making purchases of machinery for a two-set mill. The new factory will be superior in equipment to anything ever before established in the county. It is hoped to have it in operation early in June.—*Napanee Beaver*.

As the result of the recent vote of the carpet factory bonus, Paris is likely to lose the above valuable industry. We understand from the gentlemen at the head of the concern that it is proposed not to build the fine factory as contemplated, in Paris, but so soon as arrangements are completed, remove the industry to Toronto. We believe nothing is finally determined so far, and it is to be sincerely wished for the good of the town that the firm resolves to let the factory remain here.—*Brant Review*.

It will be remembered that mention was made in the *Montreal Star* some time ago, of the sale of the Rolland villas at Hochelaga to Mr. V. Hudon, for the purpose of erecting the new cotton factory on the premises. A deed *sous seing prive* was then passed between the Rolland family and Mr. Hudon on the following terms: The six villas were sold for \$28,000. Ten thousand dollars were to be paid cash, Mr. Rolland was to take \$5,000 dollars stock in the new company, and Mr. Hudon was to give his note at 6 per cent. interest for the remaining \$13,000. Mr. Dabadie, notary, was instructed to have the regular form of deed prepared, and when this was done, Mr. Hudon refused to sign the contract. In consequence of this refusal, Mr. Rolland has, this day, taken an action against Mr. Hudon, requesting that he be forced to sign the deed, pay the \$10,000, and comply with all the conditions of the sale.

The electric light will be in operation in Winnipeg this week.

There are 300 cars of merchandise at Emerson awaiting shipment to Winnipeg.

The end of the Canadian Pacific railway track is at present 615 miles west of Winnipeg.

Dr. Graham owns a homestead and preemption near Brandon. He always had an idea there was gold in it, and the other day brought down two small fruit cans full of soil to Brandon for assay. The surface soil assays \$10 of gold to the ton with traces of silver. The soil also contained specks of mica and magnetic iron ore.

AN AGRICULTURAL ESSAY.

The following is a copy of the first essay sent into the Department of Agriculture and Statistics, Winnipeg, the department having advertised that prizes would be given for the best essay on "Farming in the North-west":—

LINDSAY, May 1, 1883.

Manitoba Board of Agriculture,

GENTLEMEN:—I see by the papers that you are offering prizes for essays on the most judicious method of farming in your province. I beg to have the honor to write a short essay.

(1) Get up early. (2) Work hard. (3) Drink nothing stronger than tea. (4) Keep your horses in good condition. (5) Milk your cows at regular hours. (6) Plough and seed and cut your grain at the proper time. (7) Sell your grain when the prices are the highest. (8) Keep out of the law courts. (9) Do not waist money on things that are not needed. (10) Marry your sons to rich girls. (11) Do not fight with your neighbors. (12) Always do what is right, and you will be sure to succeed.

I have the honor to be, gentlemen, your obedient servant,

JOHN B. MCFIN.

P.S.—Excuse spelling and write. If I receive a prize send it to Lindsay, Ont., and oblige yours, &c.,

J. B. MCF.

Milling.

IMPORTANT TO MILLERS.

(From the Northwestern Miller.)

The Deuchfield suits were decided on Monday (May 7th), in favor of the appellants (in reality the Millers' National Association), and against Mr. Bignall, of Syracuse, the principal owner of the patent. These cases came upon appeal from the district court of New York, where Judge Blatchford had rendered several decisions in favor of the "Denchfield pool" in the cases of *Gage et al.* This is a square victory for the Millers' National Association, and the sub-executive committee should have full credit for it. They have pushed it to the end against considerable odds, and have won it at an expense of about \$50,000, saving to the millers of the United States ten times that amount at least. The owners of the patent were sharks, in the accepted sense of the term, and their defeat will elicit no sympathy. They bought the Deuchfield patents on speculation, and refused to make any fair arrangement with the association (though they were offered twenty-five dollars a run, after Judge Blatchford's decision, and could probably have gotten twice that,) but proposed to work them for all they were worth. They have done so, and are welcome to the profits. We trust that the result will be a lesson to patent sharks and speculators.

On the same day the Supreme Court rendered a second decision, which is of importance to a much greater number of millers than the Deuchfield claims, as nearly every modern mill is degerminating by means of smooth rollers and subsequent purification. This was the case of *Robert L. Downton vs. the Yeager Milling Co.*, on appeal from the decision of Judge Treat in the Supreme Court for the district of Missouri. The decision of Judge Treat was sustained and the Downton patent declared void for want of novelty. This suit was defended by Messrs. E. P. Allis & Co., of Milwaukee, who employed F. W. Cotzhausen, Esq., of that city, to represent their interests. Mr. Downton was represented by George Harding, Esq., probably the most eminent patent lawyer in the United States.

(From Bradstreet's.)

The decision of the Downton and Deuchfield milling suits in favor of the defendants is welcome news to the millers of the United States. It appears that the patent on which the Deuchfield suits were based was obtained in April, 1858, by John Deuchfield, of Oswego, N. Y., for a useful improvement in cooling and drying meal. It consists in the peculiar arrangement of a suction fan conveyor or conveyors, suction spout, and elevator, by means of which the meal is subjected to the action of a current of cool air in its passage from the grinding-stones to the bolting-reels, cooling and drying it in a simple and economical manner. It is commonly called a "sucker." In April, 1872, for some cause, the letters patent were reissued for seven years, but the millers throughout the country introduced the "sucker" in their establishments without consulting the wishes or interests of the holders of the patent. Consequently, in 1874, ten suits for infringement were brought against New York millers, two of which were constituted test cases, and defended by the Millers' Association of that state. The decisions in these cases were in favor of the owners of the patent, whereupon the National Association took the defence in hand and appealed to the United States Supreme Court. There the cases have been pending until now, or for a period of over three years. In the spring of 1881 additional suits for infringement were brought against all of the leading millers of Minneapolis and Milwaukee, and on the 20th of December in the same year a sub-committee of the executive committee of the National Associ-

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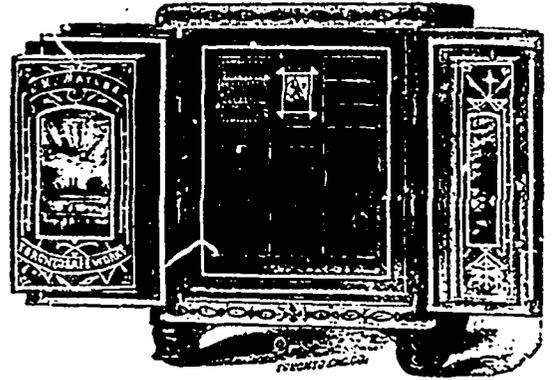
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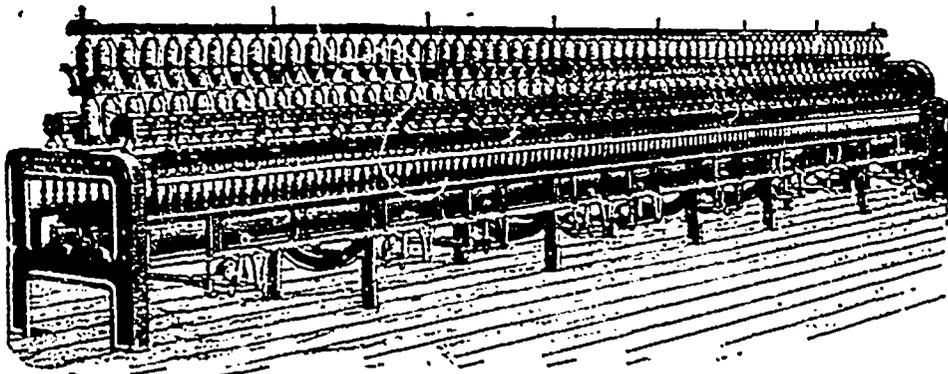
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ation met the owners of the Deuchfield patent and their attorney in Chicago, and offered terms of compromise, which were not accepted. The owners of the patent demanded \$80 per run of stone, and the millers expressed a willingness to pay \$25 per run. The decision puts an end to all litigation past and pending. Had it been favorable to the holders of the patent, the pockets of the millers of this country would have been drained of fully \$1,000,000. The Downton suit covered a patent known as the Downton process of manufacturing middlings flour by passing the middlings after their discharge from a purifier through or between rolls, and subsequently bolting or grinding them. The patent, which was granted in 1875, was defeated on the ground of want of novelty. Downton was beaten in St. Louis and took an appeal to the United States Supreme Court. He was confronted there by L. W. Von Cotzhausen, of Milwaukee, on behalf of the interest of one Wegman, a builder of smooth porcelain rolls at Buda Pesth, Hungary, and by Parkinson & Parkinson, of Cincinnati, on behalf of the National Association of Millers. Downton valued his patent at \$3,000,000, and the decision consequently saves the milling interest of the country that amount of money.

PRODUCE SHIPMENTS AT MONTREAL.

COMPARATIVE STATEMENT FOR 1881 AND 1882.

(From the Montreal Gazette.)

It may not be out of place at the commencement of the present season of navigation to give the shipments of produce from Montreal via the St. Lawrence from the opening to the closing of navigation of last year, with comparisons, which are as follows :

	1882.	1881.
Wheat, bush.....	5,798,496	5,539,886
Corn, bush.....	596,104	3,226,916
Pease, bush.....	1,672,059	2,805,381
Oats, bush.....	149,573	1,166,448
Barley, bush.....	1,181	7,326
Rye, bush.....	78,412	459,659
Flour, bbls.....	387,851	278,821
Oatmeal, bbls.....	24,161	24,907
Cornmeal, bbls.....	4,435	3,622
Ashes, bbls.....	6,266	7,322
Butter, pkgs.....	73,252	148,587
Cheese, boxes.....	747,632	545,421
Pork, bbls.....	7,690	5,670
Lard, pkgs.....	26,389	7,109
Meats, pkgs.....	15,797	21,823

We also give total shipments of produce at Montreal by water and rail from January 1st to December 31st last year, which were as follows, with comparisons :—

	1882.	1881.
Wheat, bushels.....	6,913,290	9,554,622
Corn, bush.....	672,850	3,359,084
Pease, bush.....	2,202,674	3,133,203
Oats, bush.....	545,962	1,211,221
Barley, bush.....	128,451	133,824
Rye, bush.....	99,351	459,666
Flour, bbls.....	775,852	632,821
Oatmeal, bbls.....	38,475	44,821
Cornmeal, bbls.....	10,457	20,685
Ashes, bbls.....	8,747	9,584
Butter, pkgs.....	147,948	208,084
Cheese, boxes.....	871,826	640,037

It will therefore be seen that in the shipments by water there was an increase of 258,610 bushels wheat, 109,030 bbls. flour, 813 bbls. cornmeal, 2,020 bbls. pork, 19,280 bbls. lard, and 172,211 boxes cheese, and a decrease of 2,650,812 bushels corn, 1,133,322 bushels pease, 1,016,375 bushels oats, 6145 bushels barley, 381,247 bushels rye, 806 bbls. oatmeal, 1,256 bbls. ashes, 75,335 pkgs. butter, and 6,026 pkgs. meat. The total shipments last year from January 1st to December

31st by rail and water show an increase of 358,668 bushels wheat, 143,041 bbls. flour, and 231,789 boxes cheese, and a decrease of 2,686,234 bushels corn, 930,529 bushels pease, 665,259 bushels oats, 5,373 bushels barley, 360,315 bushels rye, 6,346 bbls. oatmeal, 10,228 bbls. cornmeal, 837 bbls. ashes, and 60,136 packages butter.

BIG MILLS AND LITTLE WHEAT.

The failure of the "Queen Bee Mill" at Sioux Falls, Dak., points a moral which is in no danger of being preached too often. The mill is beyond question one of the finest mills in the entire country. The business management was certainly good, and the mill's flour was saleable, and of excellent quality. But the mill when started up something over two years ago, was burdened with debt. There was a miserable crop of wheat to begin operations on, and a mill of 1,000 barrels capacity either makes or loses money. When the "Queen Bee" was built it was quite generally remarked that it was a pretty large mill for a new country, and we believe that too much mill and not enough of wheat was the real source of the mill's financial embarrassment. A mill of such dimensions locks up a vast deal of capital, and when it is idle is a dead weight on its owners. When it is busy it requires an immense sum of money and unquestioned credit to keep its wheels going, and to feed its hoppers. We do not doubt that thousand-barrel mills have made and still make money; but there must be certain elements of favorable location and financial strength to make such an elephant a paying piece of property.

In the case of the "Queen Bee" its natural location was all that could be desired, but the country had not yet filled up sufficiently, and its supply of wheat was too precarious to insure steady and profitable running. The same is just as true of Minneapolis. There is too much flouring capacity there for the amount of wheat which that market can command. The Millers' Association of Minneapolis has been a necessity, because otherwise the supply of wheat for its mills would be still meagre. For it must not be forgotten that while the wheat-producing area of the North-west is steadily expanding, its local milling interests are also growing, and these small mills curtail the supply of wheat to the large mills which require such enormous quantities of wheat to keep them active. Milling may be profitable with some of these big establishments, but others of them were certainly built too soon. No more "Queen Bees" should be erected until industrial and agricultural activity in the surrounding country has assumed sufficient bee-hive liveness to warrant it.—*American Miller.*

At Campbellford Mr. Chas. Smith is busy erecting his new grist mill. He has twenty-five men employed clearing away the stones and digging the foundation while the stone masons are putting up the walls. The building is being erected on the site of the old one, only part of the former size, but the full size will be given when the water subsides. It is to be built three storeys high.

Mining operations appear to be prosecuted in Manitoba with commendable vigor. The Winnipeg Times furnishes a list of companies lately organized on the Lake of the Woods, as follows:—

	Capital.	Shares.
The Argyle Mining Company, limited.....	\$1,000,000	\$100
The Winnipeg Consolidated Gold Mining Company, limited.....	1,020,000	50
The Keewatin Mining Company, limited.....	1,000,000	10
The Lake of the Woods Gold Mining Co.....	2,000,000	10
The George Heenan Mining Company.....	500,000	2
The Lake Winnipeg Mining Company.....	2,000,000	10
The Mining Investment Company.....	300,000	—
Canada Gold Mining Company, limited.....	1,000,000	20
The British American Gold Mining Company... ..	500,000	10

Lumber.

The Saginaw river produces about one-tenth of all the white pine lumber used in the United States.

One day recently, Gilmour & Co's mill, at Trenton, cut 266,000 feet of lumber, and the next day the saws went through 300,000 feet.

From Kingston last week 11,700 evergreen trees were exported to Rochester, where they will be placed in a nursery. The trade is growing every year.

Lumber shipping at the Chaudiere is unusually brisk. The air in the vicinity of the docks resounds with the shrieking of steam whistles and the clapping of boards as they find a resting-place in the flotilla of barges.—*Ottawa Citizen*.

Another machine was added this week to the large and increasing manufactory of Messrs. W. Cane & Son, in the shape of a double bolter, by the aid of which two shingles can be cut at once, thus doubling the capacity.—*Newmarket Era*.

The annual meeting of the National Association of Lumber Dealers commenced in Chicago, on May 9, about 100 delegates being present. The by-laws were amended so as to punish wholesale dealers for selling directly to consumers in towns where retail dealers, members of the Association, do business. The wholesaler who violates the rule will be boycotted by the members, and the retailer who persists in buying from such wholesaler will be expelled.

The *Timber Trades Journal* of April 21st says: London is certainly exhibiting signs of renewed activity in the timber trade. Last week its dock deliveries took a long stride beyond those of the parallel week last year, and to-day it maintains the pre-eminence in almost equally ample figures. In sawn and planed wood it gains nearly 800 standards, and over a thousand loads of hewn timber; the total being above 1,100 standards in excess of the corresponding week of 1882. This is a very favorable sign of the times, and seems to indicate that there will be a good trade here through the rest of the season, as the apathy which marked the business of the winter is evidently giving way under the influence of returning spring.

The American boat captains and owners engaged in the Ottawa river trade are holding out for advanced rates for carrying lumber. They have formed an association and passed the following resolutions:

1. Resolved, That all boats load in turn as placed on list of arrival.
2. Resolved, That all captains of boats being offered \$4.00 to New York and 3.75 to Albany shall refer such offer to the first boat on the list, or take said order and refer the same to said boat, as above stated.
3. Resolved, That should any captain of a boat having signed this list leave our ranks in any manner, or load contrary to our by-laws, we are empowered to publish his name in all the leading papers on our route and to stigmatize him as a man of no honor, and one in whom no dependence can be placed.

The busy building season, accounts of which reach us from every direction, cannot but produce a demand for lumber that shall maintain prices. This building boom is not confined to any locality in particular, but appears to be general. It demonstrates, also, that business generally must be prosperous, and unless some unlooked for misfortune in the business world puts in an appearance, the outlook is most auspicious for all classes and conditions of people. Not for years has the prospect been more flattering. Contracts for new buildings is a prominent feature in all the large cities, new manufacturing industries are being planted, and in manufacturing centres general activity prevails, and evidences of "business" meet the eye in every direction. Reports from large cities are to the effect that tenements are scarce and rents high, and advancing and skilled mechanics are even scarce and obtained with difficulty. All these facts are unerring indications that the country generally is in a prosperous and healthy business condition.—*Lumberman's Gazette*.

Miscellaneous.

ONTARIO STAINED GLASS WORKS, LONDON.

The manufacture of stained glass in Western Ontario owes its inception to the foresight of Mr. R. Lewis, of this city who, some fifteen years since, opened an establishment here at a time when the prospects were anything but bright for a remunerative return from the capital invested. Since then the taste of the populace has undergone a wonderful change, and in many districts where church edifices have been erected, the building has not been deemed complete without two or more of the windows being of stained glass. In dwelling houses, also, many fine lights have been inserted, and the demand keeps pace with the cultured advancement of the people. The Ontario Stained Glass Works, being the only establishment of the kind in Western Canada, has executed a very large percentage of the work and caused the energetic proprietor no end of trouble in his endeavors to keep pace with the demand. The Richmond street establishment was found inadequate for the requirements, and a building was secured on West Dundas street for the purpose. That, too, has "outlived its usefulness" for the purposes named, and the work of excavation has been commenced on a site for an entire new factory in rear of the London Club House on Queen's avenue, where it is intended to erect an establishment, combining in all its details every modern attribute for the manufacture of stained glass. The lot is 40 x 100, with wide lanes at either end of lot, a great advantage to a manufacturing establishment. The building will be of white brick, with stone foundation, three stories in height, and erected with a view to the development of every branch of the art. The basement is to be 20 x 100 feet, and will have a large kiln at the easterly end for the manufacture of stained glass and for bending purposes—the latter an entirely new industry in connection with the department. The building will be completed by the first of August.—*London Free Press*.

House rent in Winnipeg is still on the decline.

One of the flour mills at Gladstone is likely to be changed into an oatmeal mill.

Messrs. J. H. Smale & Co., of St Thomas, Ont., have opened out a warehouse in London. They shipped another car load of harrows to Ottawa recently.

James Gordon Bennett estimates the value of the New York *Herald* at \$10,000,000, and says it is paying 6 per cent. per annum interest on that amount.

The Rope works of Messrs. Thos. Connor & Sons, St. John, N. B., recently destroyed by fire, will be rebuilt on the old site. The work of erection will be commenced in a few days.

A gentleman from Scotland was in town on Saturday, looking at the facilities for manufactories in our midst. He said he would be around again when the water was in the canal.—*Thorold Post*.

Mr. Thos. A. Edison and others, representing a capital of \$2,000,000, have filed papers in Albany incorporating the Electric Railroad of the United States. The object is to develop electricity as a motor for trains.

The Governor of Wisconsin says his state has trees enough and refuses to appoint an arbor day. If that governor ever finds himself in the middle of a treeless field with a mad bull as his only companion, he will change his mind.—*Philadelphia Record*

The new watering carts for the city have arrived. They are four in number, and were made in Markham, a few miles from Toronto. They are of large capacity, of the latest and most improved pattern, and each one will require a span of horses to draw it.—*Ottawa Citizen.*

Some idea of the great future in store for the cattle range industry in the North-west may be judged from the success attained in the neighboring Territory of Montana. The Miles City Press figures up 275,000 head of cattle now feeding on the ranges tributary to that place.

Among the sugar shipments passing over the I. C. R. yesterday were five cars of raw from Halifax for the West Farnham, Quebec, refinery. This is a beet root factory, but as the beet root industry has so far proved a failure, it is probably the one commenced the refining of cane sugar.—*Moncton, N. B., Times.*

Mr. C. E. Bessey estimates that parasitic fungi damage the wheat, oats, barley, and Indian corn crops in the United States to the extent of at least \$50,000,000 to \$100,000,000 annually. He therefore insists upon the great importance of a thorough investigation of destructive fungi by the Department of Agriculture.

The export of eggs from New Brunswick during the year 1882 amounted to 742,131 dozen, the value of which was \$166,512. At the port of St John there were entered outward 655,240 dozen, value, \$149,476; McAdam, 52,249 dozen, value, \$6,171; Woodstock, 25,000, value, \$3,750; St. Stephen, 4,114, value \$648; Fredericton, 3,528, value, \$635.

Messrs. F. E. Dixon & Co., the well known leather belting manufacturers here, recently removed to more commodious premises, 70 King street East, Toronto. The factory is three stories high, and 155 feet deep, extending from King street in front and Court street in the rear. The currying is done on the ground floor, the belting is made on second floor, and the third floor is used for storage, etc. This firm are now making more heavy large double belts than ever, and even with their increased facilities are now, and have been for some time, working late to keep pace with their orders.

A return brought down in Parliament shows that the total cost of the cartridge factory at Quebec since its establishment in July, 1881, has been \$64,389, of which \$40,284 was for machinery and \$11,954 for material for the manufacture of cartridges. There are eleven employees in the factory, the foremen receiving a salary of \$1,265, and the mechanics and laborers from 75c to \$2.50 a day. The quantity of ammunition manufactured to April 20th, 1883, has been 103,810 cartridges, 199,810 bullets, 210,600 percussion caps, 164,400 anvils, 271,000 case bodies, 279,000 base caps, and 431,951 cap chambers.

The by-law granting a loan of \$75,000 to the Haggert manufacturing company, of Brampton, was carried. But there may be some litigation about it, some lawyers having advised the town council that the by-law is illegal. In this connection the *Banner* says: "It is an extraordinary fact that such eminent lawyers as Mr. Baka and Mr. Robinson should take opposite views in interpreting the statute." The *Banner* is wrong. There is nothing extraordinary about it. Were lawyers to agree about the interpretation of the law, there would be very little lucrative litigation for their benefit.—*Hamilton Spectator.*

Whale harpooning at close quarters by hand as a necessity should soon be at an end. The many disasters occurring from time to time to those who "go down to the sea in ships," to follow this hazardous occupation, often resulting in the loss of brave lives, have been long deplored, and science, ever eager to assist mankind in their daily avocations, has, in this instance, come to the rescue. Despatches from Ottawa say that a bomb lance gun for whale-shooting is now on exhibition in that city. The gun is the property of Dr. Fortin, M.P., who received it as a present from Mr. Brand, the manufacturer. Dr. Fortin intends forwarding this implement, along with several styles of bombs, to the International Fisheries Exhibition at London.—*Montreal Witness.*



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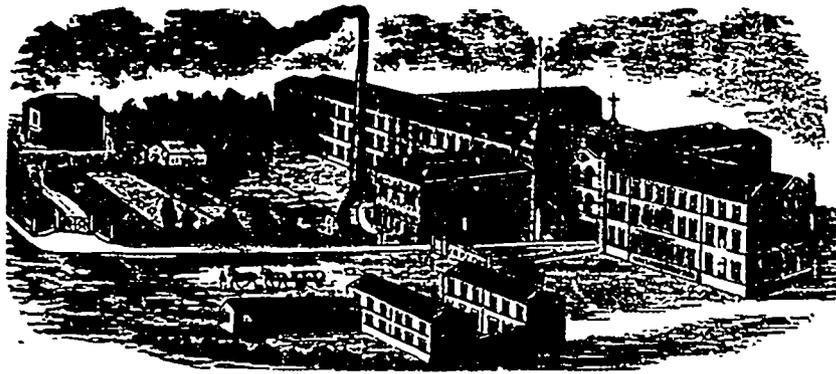
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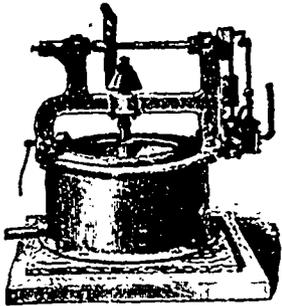
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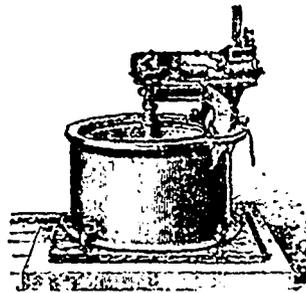
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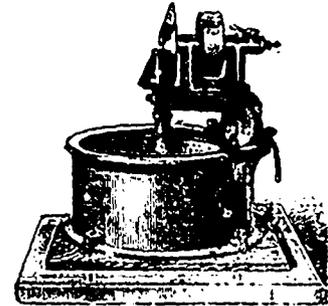
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For Wool and Cotton Dyers, with direct acting steam engine.

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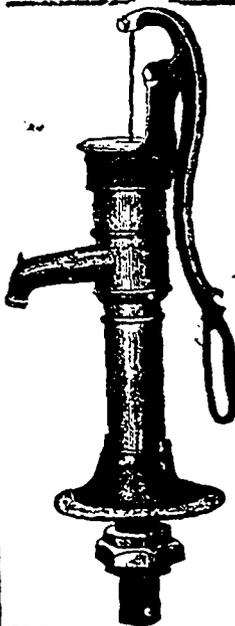
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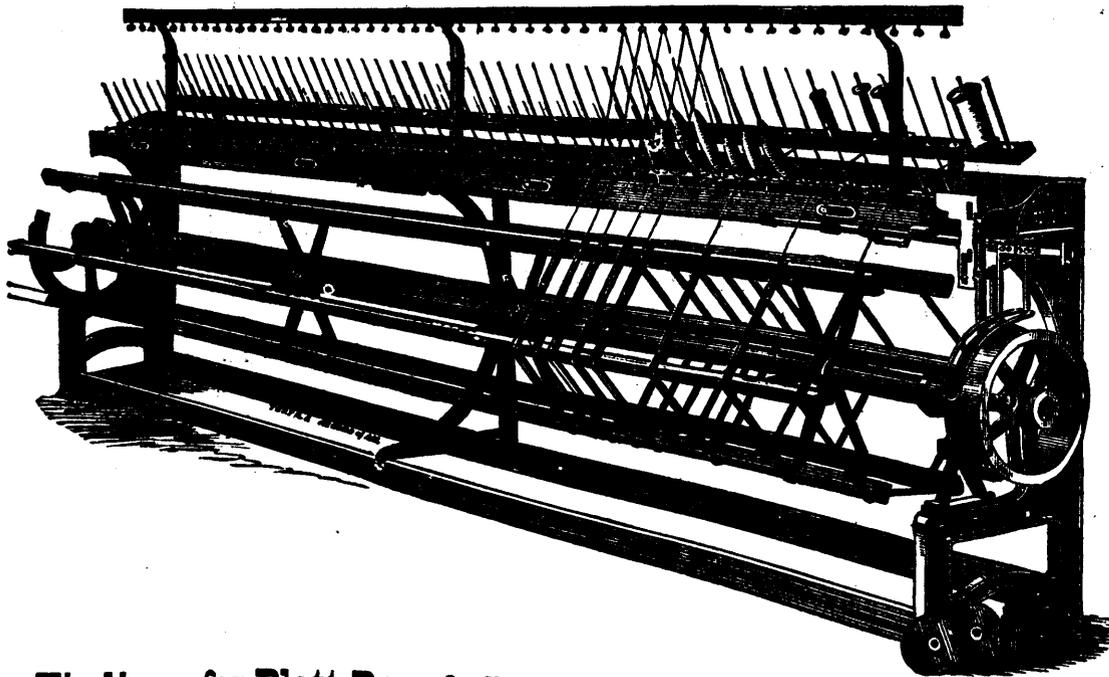
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We respectfully call the attention of woollen manufacturers to an important addition we have made to our method of preparing Teasels for use. We have succeeded in perfecting a machine which automatically performs the work of grading Teasels into *perfect exact diameters*, making, instead of the *six* sizes of the old way of assorting, *thirty six* perfect grades, beginning with the smallest, which is 61-64 of an inch in diameter, and is numbered 61, and so on in consecutive order, each number or grade increasing 1-64 of an inch in diameter, to number 96, which is 96-64 or 1 1-2 inches in thickness and is the thickest grade.

We have had our attention repeatedly called to this subject, and it has been suggested by practical manufacturers, that having teasels agreeing as to thickness, while saving labor in placing upon the "gig," will require less experience in the "gigging" to avoid *streaked cloths*, and assure more uniform work generally.

The "gig" makers have, to some extent, obviated this difficulty, by making the "gig" cylinder "vibrate," which prevents teasels of uneven thickness striking the cloth every turn of the cylinder at the same point; but this has only been a makeshift, as zig-zag streaks are often traced upon the surface of faced goods finished upon a vibrating cylinder gig.

As teasels were assorted, viz: 1 to 1 1-2 inches, 1 1-4 to 1 3-4 inches, 1 1-2 to 2 inches, 1 3-4 to 2 1-4 inches, 2 to 2 1-2 inches, 2 1-2 to 3 inches, sized as to *length only*, streaks in goods more or less could not be prevented.

In the above classification teasels will be found of the *same diameter* in each of the six sizes, although differing in length. Such assorting is very faulty, as the *diameter* of the teasel should regulate its grade, and this is what our invention does. In some of the best regulated mills skilled labor is employed in selecting from such a diversity of sizes, those that will answer for the work to be performed, *accuracy* being out of the question, and more or less imperfections in the finishing are sure to follow even with the best of help and with the greatest care.

The saving made by using gauged teasels, both from rejected teasels on account of some being uncommonly thick or thin, and in the labor of selecting these suitable to set, is fully equal to their first cost, and an equal gain is made in the perfection of cloths, thus saving twice the cost of the teasels, besides having the satisfaction of making perfect goods, and no claims for damages or tender cloths.

Our teasels are neatly clipped, and the quality well graded, carefully hand packed with stems only 3 inches long. We shall sell them strictly gauged an exact diameter at the very lowest price in the market for the quality with 2 1-2 cents per pound additional to pay for extra labor in gauging them, and we trust you will appreciate our efforts in your behalf.

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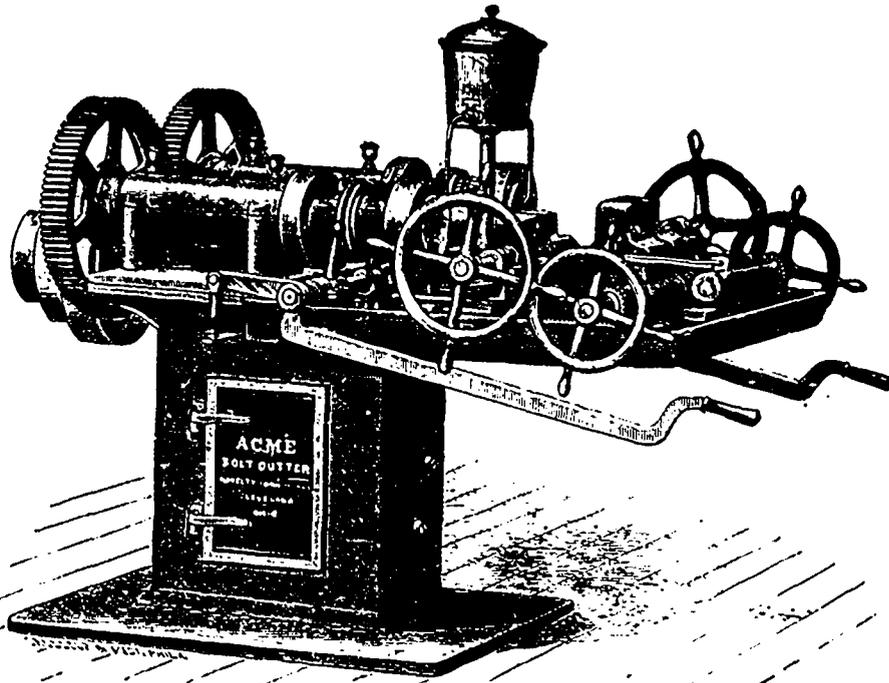
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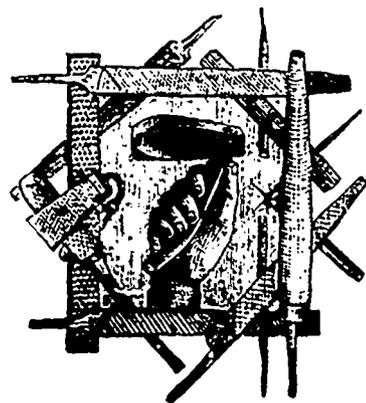
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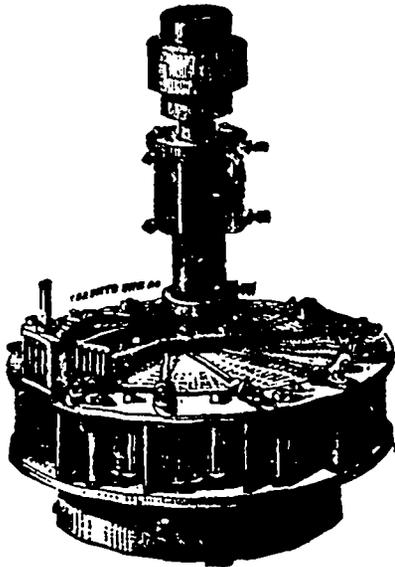
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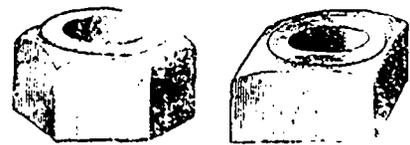
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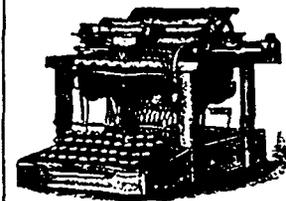
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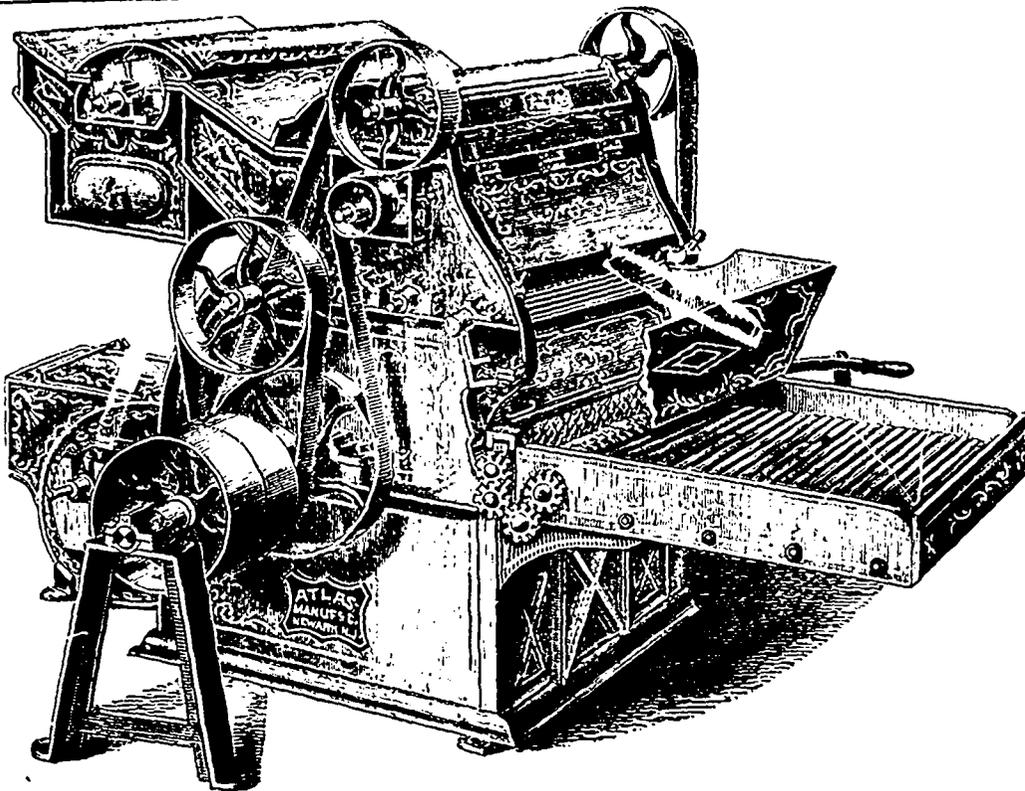
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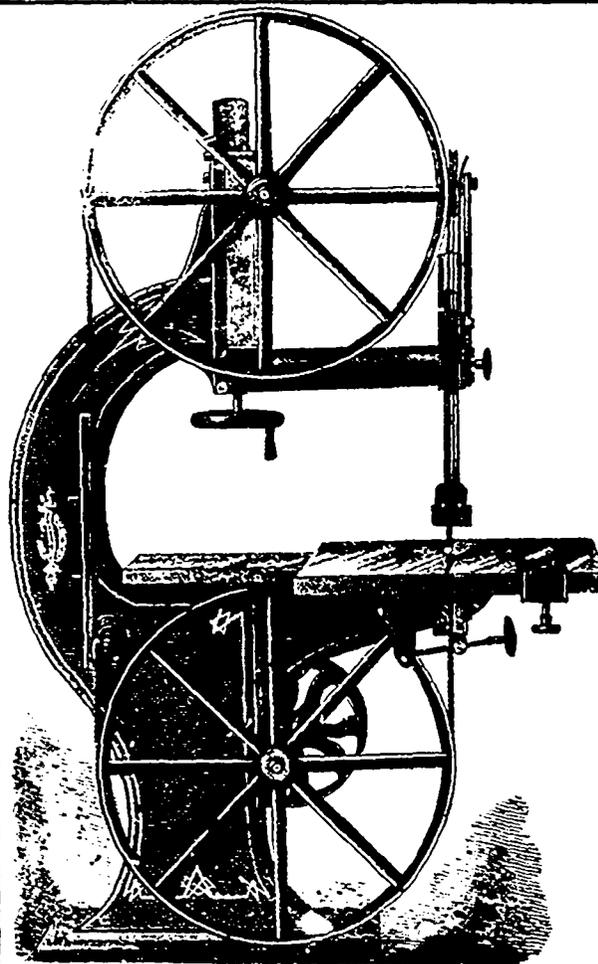
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W. H. STOREY & SON, Acton, Ont.—Manufacturers of fine gloves and mitts in every variety and style.

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LEITCH & TURNBULL, Central Iron Works, cor. Rebecca and Hughson Streets, Hamilton, Ont.—Patent safety hand and power elevators.

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Iron Works.

COWAN & CO., Galt.—Manufacturers of every description of wood working machinery.

H. R. IVES & CO., Montreal.—Hardware manufacturers and founders; iron railing and ornamental iron work a speciality.

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THE OSHAWA MALLEABLE IRON CO., Oshawa, Ont.—Manufacturers of malleable iron castings; also patent screw wrenches.

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ST. THOMAS RIVET WORKS (Brent & Sherman).—Manufacturers of boiler, tank, and cooper rivets, plate nails, wrought spikes, cotter pins, spring keys, &c.

B. W. RICHARDS, Brockville, Ont.—Manufacturer of selected Norway iron and Lake Superior copper rivets and burs, kettle ears, &c.

COLBORNE FOUNDRY AND STEAM MILLS (J. C. Scripture & Bro.), Colborne, Ont.—Manufacturers of mill gearing and agricultural implements, and stoves of all kinds.

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THE HANCOCK INSPIRATOR CO., Montreal.—Manufacturers of inspirators, ejectors, and general jet apparatus.

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THE WHITEMAN & BARNES MANUFACTURING CO., St. Catharines, Ont.—Manufacturers of mowing and reaping machine knives, sections, guard plates, cutting apparatus complete, spring keys and cotters, etc.

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S. LENNARD & SONS, Dundas.—Manufacturers of plain and fancy hosiery.

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DOMINION BELT AND HOSE CO., Toronto.—Oak tanned belting, lace leather, etc.

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SHURLY & DIETRICH, Galt, Ont.—Manufacturers of circular and cross-cut saws, plastering trowels, etc.

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NOTRE TO CONTRACTORS.

SEALED TENDERS, addressed to the undersigned, and endorsed "Tender for the Formation of Basins near St. Gabriel Locks," will be received at this office until the arrival of the Eastern and Western mails on WEDNESDAY, the SIXTH DAY OF JUNE next for the formation of TWO SLIPS or BASINS, on the north side of the Lachine Canal, at Montreal.

A plan and specification of the work to be done can be seen at this office, and at the Lachine Canal Office, Montreal, on and after TUESDAY, the 22nd day of MAY next, at either of which places printed forms of tender can be obtained.

Contractors are requested to bear in mind that tenders will not be considered unless made strictly in accordance with the printed forms.

An accepted Bank cheque for the sum of \$2,000, must accompany each tender, which sum shall be forfeited, if the party tendering declines entering into contract for the works at the rates and on the terms stated in the offer submitted. The cheque thus sent in will be returned to the respective parties whose tenders are not accepted.

This Department does not, however, bind itself to accept the lowest or any tender.

By order,

A. P. BRADLEY,

Secretary.

Dept. of Railways and Canals,
Ottawa, 21st April, 1883.

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Arrive St. John, N.B. 7.30 a.m., day after.	" Montreal, 6.00 a.m. day after.
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GEORGE TAYLOR,
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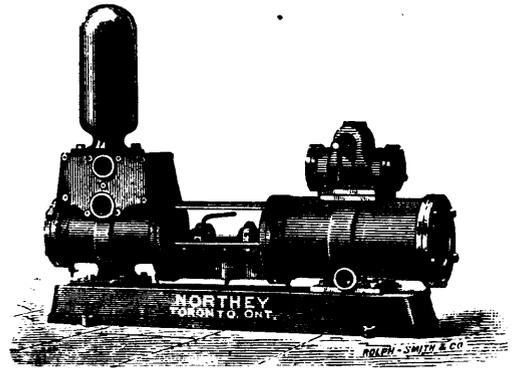
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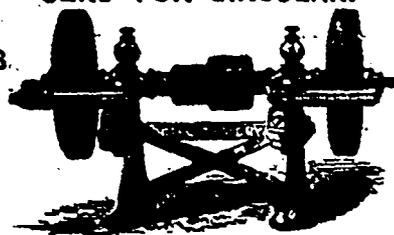
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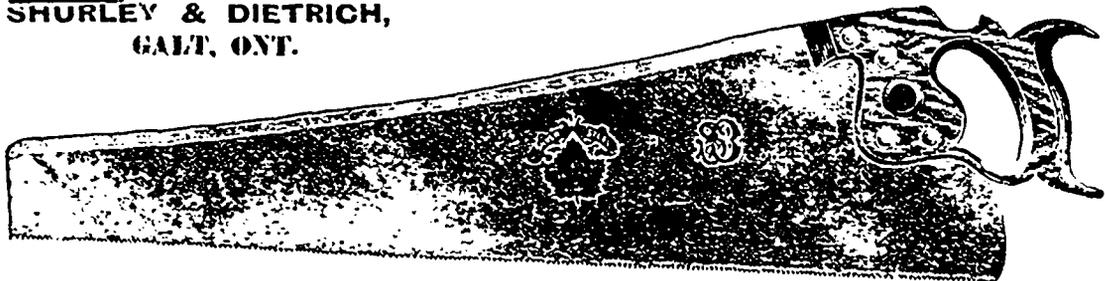
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