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DOMINION MANUFACTURER
AND INDUSTRIAL WORLD.
DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION.

ANATION THAT MANUFACTURES FOR ITSELF PROSPERS

Vol. 27.

TORONTO, FEBRUARY 16, 1894.

No. 4.

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See Advertisement, page 83

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This system uses oil, with a higher pressure of air, and is adopted in the United States and Canada for all kinds of iron and steel forging, tempering, welding, annealing, etc.; for generating steam; for burning lime, cement, sewer pipes, terra cotta, brick, etc.; for heating chemicals and asphalt; for jappanning; for oxidizing lead; for drying sand, salt, etc.; for steaming cloth, etc.

Its advantages over coal and wood are:—A perfectly even fire, at all times under complete control, free from gas and dust, and ready for use in a minute after turning valve, and no increase in insurance rates.

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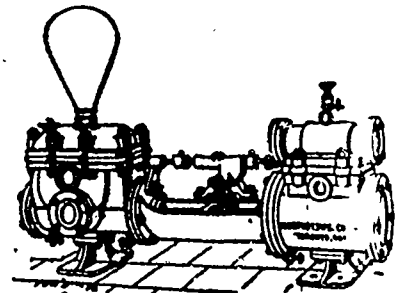
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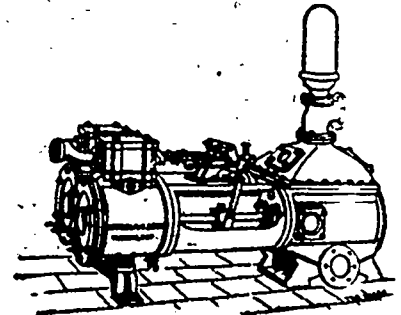
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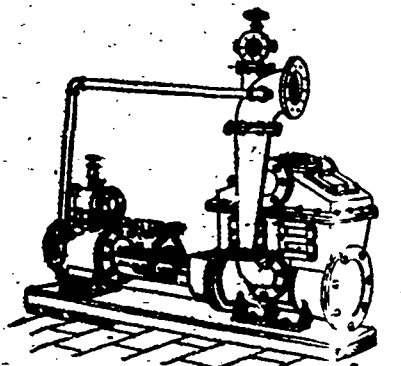


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NINETEENTH ANNUAL MEETING

OF THE

CANADIAN MANUFACTURERS' ASSOCIATION.

REPORT OF PROCEEDINGS.

The nineteenth regular annual meeting of the Canadian Manufacturers' Association was held at Webb's dining parlors, Toronto, on Wednesday, February 15, 1894. Among those who were present were John Bertram, Dundas, Ont., president; P. W. Ellis, Toronto, first vice-president; W. H. LAW, Peterborough, Ont., second vice-president; George Booth, Toronto, treasurer; R. W. Elliot,

Toronto, chairman Tariff Committee; J. J. Cassidey, secretary; Geo. E. Drummond, Montreal; John C. Gardner, William Chaplin, St. Catharines; W. K. McNaught, William Christie, Joseph Simpson, Samuel May, John Taylor, Robert Watson, C. E. Pease, A. E. Kemp, J. P. Murray, William Stone, Herman Heintzman, Toronto; John Cowan, Jonathan Schofield, Oshawa; W. H. Storey, W. H. Storey, Jr., Acton, Ont.; Thomas Cowan, Galt, Ont.; F. Wiley, F. P. Mackintosh, C. H. Hubbard, C. E. Robinson, E. G. Gooderham, J. C. Copp, Wm. Graig, S. Frank Wilson, John R. Barber, John Macfarlane, James Watson, Hon. W. E. Sanford, B. Rosamond, M. P., A. W. Brodie, George Pattinson, Hon. John Ferguson, F. H. Wright, J. N. Shenstone, Wm. Pender, J. O. Thorne, J. Hewton, Isaac Waterman, T. H. Smallman, A. G. Booth, C. H. Booth, John M. Taylor, Edward Gurney, Henry Stroud, J. S. Anthes, L. J. Breithaupt, P. Freysing, C. A. de Lisle, E. C. Boeckh, F. J. Phillips, W. C. Phillips, W. F. Cowan, G. H. Hastings, Robert Crean, James Warnock, James Wylie, William Morrison, Reginald R. Lockhart, John Dick, W. J. McMillan, E. G. Swift, F. A. Staunton, F. B. Fetherstonhaugh, H. J. Bird, R. MacGregor, E. Dennis, E. P. Sharpe, J. P. Murray, M. B. Perine, Reuben Millichamp, John F. Morley, James Kendry, W. D. Beardmore, John T. Smith, John F. Ellis.

John Bertram occupied the chair and J. J. Cassidey was secretary.

The minutes of all meetings held since last annual meeting were approved.

The president stated that because of the presence of Hon. Mackenzie Bowell, Minister of Trade and Commerce, who had visited Toronto on the invitation of the Association, and had delivered to them a most interesting and instructive address regarding Canadian-Australian trade, he would not then indulge in any extended remarks, and that the reading of the reports of the treasurer and secretary would be dispensed with.

The treasurer, Mr. Booth, stated that the finances of the Association were in a very satisfactory condition, and that the membership was greater than on any previous occasion.

The secretary, Mr. Cassidey, stated that he had prepared a large amount of matter relating to the interests of members of the association and of Canadian manufacturers generally, which he had submitted to the Tariff Committee, and which was then being discussed by them.

Mr. R. W. Elliott, chairman of the Tariff Committee, stated that because of the large amount of business laid before his committee and the great importance of it, further time was necessary for its discussion.

The following resolution offered by Mr. George E. Drummond and seconded by Mr. John Macfarlane, was passed unanimously:—

That this association view with alarm the establishment by the Governments of the Dominion and the Province of Ontario of factories within their respective prisons for the manufacture of binder twine; thus bringing prison labor in direct competition with that of honest free men; and this Association respectfully submit to these Governments that instead of doing this it would be better to employ their convict labor in industries not now in operation in Canada.

A resolution was also passed strongly sustaining the Na-

tional Policy and demanding a close observance of it. If the Dominion Government should find it necessary to make important changes or modifications of the tariff, they should be effected strictly along the lines of the National Policy.

A committee consisting of Messrs. W. H. Law, Thomas Cowan, B. Rosamond, M. P., W. K. McNaught and J. J. Cassidey was appointed to draft a resolution embodying the sentiments of the association regarding the National Policy, to be laid before the Government.

The following officers were unanimously elected for 1894:

<i>President</i>	- - -	W. H. LAW.
<i>First Vice President</i>	- - -	GEO. E. DRUMMOND.
<i>Second Vice President</i>	- - -	WILLIAM CHAPLIN.
<i>Treasurer</i>	- - -	GEORGE BOOTH.
<i>Chairman Executive Committee,</i>		FREDERIC NICHOLLS.
<i>Chairman Tariff Committee,</i>		R. W. ELLIOT.
<i>Secretary,</i>	- - -	J. J. CASSIDEY.

Representatives to Toronto Industrial Exhibition Association :

R. W. ELLIOT,	GEORGE BOOTH.
W. K. MCNAUGHT,	SAMUEL MAY.
J. J. CASSIDEY.	

The address of the retiring president, Mr. John Bertram, will be published in our next issue.

PROFIT SHARING.

As has been frequently mentioned in this journal, the system of profit sharing in manufacturing industries is extending very rapidly in the United States, and to some extent in Canada, and to our mind it will go far towards the solution of that vexed question of relationship between capital and labor, and between employer and employe that so constantly brings those two important elements of national prosperity into unhappy collision. Even at this very time, when it is of the utmost importance that capital invested in manufacturing pursuits should be particularly careful and conservative so as to avoid the precipitation of such a condition as prevails in the United States and elsewhere, and when so many thousands of workmen are in enforced idleness, we observe a strike in progress in this city which should not have occurred and which cannot but result in loss and disappointment to all concerned. How much better would it have been if instead of a disastrous strike a system had prevailed by which a strike would have been impossible?

Unfortunately for the system of profit sharing, very erroneous ideas prevail concerning it, the impression prevailing very generally that it means that employes have a voice in the management of the business. This is absolutely not so. Sharing whatever profits there may be made in the operation of an establishment does not imply that the employe has any voice whatever in the management, of the business. Having no voice in such management he has no share, of course, in any of the losses that may occur, and none in the profits beyond what is previously stipulated for.

Usually, in instances where the system of profit-sharing obtains, the agreement between employer and employe is to the effect that, as in all other instances, the claim of the employe for wages is absolute and a first lien, and no system contemplates any different arrangement. Under profit sharing the value of the money and investment owned by the employer represents a pro rata share of the profits of

the business gained by the labor of the employes; and the labor of the employes, as valued by the aggregate amount of wages they earn in a given time, say a year, represents the pro rata share of the profits of the business, over and above expenses, to be paid to the employes.

If the investment of the employer in plant, machinery, etc., is valued at say a hundred thousand dollars and the amount paid to labor during the year is a hundred thousand dollars, there should be an equal division of the profits gained in the business during the year. But before these profits can be ascertained there must first be charged against them the interest on the investment in plant and machinery; an allowance for wear, tear and depreciation; an allowance for office expenses and administration; salaries to officers, etc., cost of materials consumed; amounts paid for wages to employes, etc. Such charges are legitimate and must be made under any system. When all these charges are found and set off against the gross profits of the business, if it is discovered that there is a clear, net balance of say twenty thousand dollars accrued to the business from the transactions of the year, the capital of the employer and the amount of wages paid to labor being the same, the net profits are equally divided between them, ten thousand dollars to employer for his share, and ten thousand dollars to labor for its share. If there was but one laborer employed through whose efforts this twenty thousand dollars had been gained, his share would be one half of the amount. If there were a thousand employes the distribution of the ten thousand dollars would be among them, pro rata, as they had earned it. If one man's value to the concern was but one hundred dollars during the year, represented by that amount of wages paid to him, and another man's value was five hundred dollars, represented by his wage earnings, in the distribution of profits the first man would receive but one fifth the amount paid to the second man.

The system is plain, simple and feasible, and could be readily adopted in any establishment. Under it every employe would receive on the regular pay days whatever he had earned as wages in the meantime, and he would be free to come and go, work or not work, just the same as under existing arrangements. It would be to the interest of every employe to do good work and to do all he could to prevent unnecessary waste; knowing that in these matters depends whether a profit is made in the business. It would also be to his interest to see that other employes rendered equally valuable service and that there should be no unnecessary waste anywhere; and if it were discovered that there were some employes who were inefficient or wasteful, it would be to the interest of the faithful and economical employe to have the grand bounce administered without delay.

Of course, if no profits accrued in the business there would be none to divide with the employes, and it would be a question for the employer only to decide whether he would pay wages and keep his establishment in operation or not. Not having a voice in the management of the business, the employe would have nothing to say in the matter.

The question then resolves itself into the proposition whether the employer, desiring to pocket all the profits he may make in his business, will take the chances of the labor troubles and other annoyances that may arise, which would inevitably be the cause of loss to him, or whether, by

agreeing to divide profits with employes, he secures a better and more economical class of labor whose interests are most thoroughly identified with his own, and where strikes and labor troubles would be practically impossible.

As an indication of how this system operates in one of the largest cotton mills in the United States, we republish an item from the Fall River, Mass., Herald of a recent date :

The profit-sharing system at the Bourne mills continues to be a success. In accordance with the plan, already described many times, the dividends due to the help have been paid to them, and the feasibility of the plan adopted by Treasurer George A. Chace has been again confirmed. For a long time the success of the plan was doubted, but the directors of the mill had faith in Mr. Chace's ideas, and now his work is pronounced by all to be a most gratifying success. "There is not a happier and better lot of mill hands in Fall River than we have in the Bourne," said an old employe to a "Herald" man to-day. "Why, you ought to have seen them the pay-day before Christmas, when Pay-master Barker handed them the envelopes containing their wages and dividend. Were they a joyous lot? Well, I guess, yes. They did not look upon the extra money as a dividend, but as a Christmas present. The smallest amounts in dividends were paid to the little girls and boys. They received \$4 and \$5 apiece. The dividends ran from those amounts up to \$18 for the six months. Now I will tell you how the profit-sharing is conducted, and explain the principles," continued the old hand. "The mill hands share with stockholders, and for every \$100 paid to the stockholders as dividends each six months the mill hands receive at least \$6. At the end of six months the employe receives upon every dollar of wages earned by him during that time a dividend more than 26 per cent above the semi-annual rate of dividends of all the savings banks in this state during the past five years; that is to say, the savings banks paid \$2.05½ on \$100, while the employe would receive \$3 on every \$100 earned by him, and have the use of his money as he earns it. When the success of the profit-sharing scheme was assured, Mr. Chace established a banking system, where the mill employes could deposit amounts from five cents upwards. After \$100 is on deposit, the depositor must withdraw it, or notify Mr. Chace to which bank he or she would like it to be transferred. This banking system has taught a great many to save money, and many poor women who have started their banking account with their easily gotten dividend or profit-share found that in time of need they had \$50 or \$60 in the office at their disposal. The profit-sharing has proved satisfactory to the directors because it has made a better class of help, and made them more attentive to their duties. The help recognize the fact that, by being prompt and industrious, by being careful about waste, by seeing that the machinery is turning off the best quality of work as well as the largest quantity, they are only helping themselves by earning larger wages and paving the way for larger dividends."

AS TO COAL.

Free coal carried in the House of Representatives at Washington the other day. The Americans need our coal. New England manufacturers cannot get along very well without it, while the California consumers, unable to obtain as good a quality along the coast as our British Columbian mines turn out, pay duty sooner than do without the Canadian article. In these circumstances the Americans voted in their own interests recently. In this case, as in others, Canada may use the American market, while admitting that the best business is done in the home market.

But a few days ago The Empire declared that the idea that Canada needs the United States market for coal as earnestly as that country needs Canadian coal was "utter-

ly fallacious." It may be that New England manufacturers cannot get along very well without Nova Scotia coal but it is equally true that Ontario manufacturers are handicapped to the extent at least of the duty Canada impose upon American coal. The Empire tells us that in placing coal upon their free list the Americans voted in their own interests; and by the same argument it would be to the interests of Canada if coal were placed on our free list. It is not clear just what the Empire means in saying that in the case of free coal in the United States Canada can use the American market, while admitting that the best business is done in the home market. If Nova Scotia coal mines can do a better business in their home market, meaning the Canadian market, why are they so anxious to have the privilege of entering the American market, while they are unable to supply the demands of the home market, the imports of American bituminous coal into Canada in 1893 having been 1,638,975 tons, valued at \$4,137,964. If the Government require the duty that was paid upon this coal—\$940,189—and if that sum could not be obtained in any more appropriate way, it is well enough to maintain the duty upon coal. Because of the difficulties and expense of transportation it is impossible to profitably market Nova Scotia coal in Ontario; and the supplies of this province and the west must necessarily be drawn from American mines, regardless of the duty. Nova Scotia can and does supply large quantities of coal as far west as Montreal, but this is because of the cheap transportation by water during the season of open navigation; and any competition from American mines at Montreal must be handicapped by a more expensive cost for carriage. Therefore Nova Scotia would not stand to lose much, if anything, in its coal trade with Montreal by the competition of American mines, even under reciprocally free trade in coal with that country. But Nova Scotia can never supply Ontario and the west with coal, even if the duty were higher than it now is; and as under the proposed new Wilson tariff New England will become a large consumer of Nova Scotia coal, there can be no good reason why Ontario should be handicapped by having to pay duty upon the American coal it consumes and cannot do without.

SUBSIDIZED MERCHANT NAVIES.

Mr. Richard P. Joy in a pamphlet entitled "How Foreign Nations Protect Their Merchant Marines," deals with substantial truths in his advocacy for the betterment of the United States mercantile marine.

Mr. Joy says: "By extending protection to their great steamship lines foreign nations achieve two highly beneficial ends at one stroke, namely, pay into their own pockets for transporting their own commerce, and also receive pay from Americans for transporting theirs, besides having naval reserve cruisers in case of war. Ninety per cent. of American commerce is carried in foreign vessels, which means that the people of this country pay into the pockets of foreigners \$200,000,000 yearly for transportation. In addition to this enormous sum the United States Government paid to foreign steamship lines for transporting the United States mail during the fiscal year 1892, \$449,405.14. Thus we subsidize foreign steamship lines and aid them to maintain themselves against American lines.

Thus for transporting passengers, mails and freights, the American people pay abroad \$200,449,405.14 yearly, which is an indirect and unjust tax levied by the neglect of the Congress of the United States upon its citizens at the rate of \$3.33 per year for every citizen.

"The following figures are from the inaugural address of the President of the 'Institution of Engineers and Ship-builders in Scotland.'

"The total sum of subsidies paid by Great Britain, France, Germany, Russia and Italy is \$16,657,865, of which Great Britain pays twenty per cent.' This does not include the bounties paid. From the following table it is seen that foreign governments appreciate the value of maintaining sea-power at any cost, and of paying to themselves for transporting their own commerce and ours.

Company.	Subsidy in Dollars.	Earnings and Dividends.	Adverse Balance Without Subsidy.
French Transatlantic.....	\$2 231 000 00	800 000 00	\$1 831 000 00
Messageries Maritimes.....	2 770 000 00	600 000 00	2 170 000 00
North German Lloyds.....	1 100 000 00	150 000 00	950 000 00
Peninsular and Oriental.....	1 700 000 00	600 000 00	1 011 000 00
Cunard Line.....	250 000 00	34 570 00	215 430 00
Royal Mail Packet Co.....	450 000 00	1 510 00	448 490 00

"In addition to the above postal subsidies the Cunard Line has subventions from the Admiralty annually of \$67,500 and the Peninsular and Oriental of \$61,745, besides the mail subsidy paid to foreign steamship companies by the United States Government. Thus we aid in maintaining cruisers for foreign governments to be used against the United States in case of war.

"The above table shows conclusively that it is the greatest folly for Americans to endeavor to compete with these foreign subsidized lines without a like subsidy, and as yet we have no adequate subsidy sufficient to encourage an American company to enlist in foreign trade. Can any of my free ship friends show me how free ships will help us out of this hole? We could not operate against such odds if foreigners would give us ships for the asking, and we must be content to pay still to foreigners for transportation unless wisdom can be driven into the brains of our legislators.

"No one asks for free ships—even shipowners have testified in Congress that Fithian's Bill would do more harm than good, as Americans could not operate them if they had them. Give the American shipowner the benefit of discriminating duties and also the mail subsidy now paid by the United States to foreigners.

"In building a steamship in America it has always been the pride of our naval architects to turn out a ship of the best design and superior workmanship, and to slight no part of the construction. Thus our ships cost more to build than do the cheap built foreigners, 'which are built by the running mile and chopped into the length desired by purchasers.'

"The cost of a cheap steamship in England is about twenty-five per cent. less than in America, for the reason that material is cheaper in England and labor receives pauper wages, and as labor is ninety per cent. of the cost of construction it gives English shipyards a great advantage over American, where are paid comparatively high wages. For the same reason a ship can be operated more cheaply under the British flag than under the Stars and

Stripes, and the British Lloyds help on the good work of protecting the British Marine by granting a better rating to poorly built British vessels than to the superior product of the American shipyard. These natural advantages are aided in some countries by bounties paid to shipowners.

"Thus it is seen we can neither compete on the ocean under present conditions with the swift mail steamer nor the cargo carrier, unless our Congress extend some aid to American shipping. I have always advocated discriminating duties as a remedy, and I still believe that our shipping could be restored by charging goods imported in foreign vessels a higher rate of duty than goods imported in American vessels, thus increasing the revenue of the Government, restoring the American vessel to the seas, and securing to our people the enormous sum now paid to foreigners, which aids in throwing the balance of trade against us, as we receive no adequate return."

A TWENTY-FOOT CHANNEL.

The Toronto World urges that the building of a twenty-foot waterway from Duluth and Chicago to Montreal is of vastly more importance to Canada than any benefit that might be derived from any tariff reform. It tells us that the greatest waterway between the heart of America and Europe passes through Canada, and that nothing but international jealousy has prevented the deepening of the canal heretofore; and that that is the only cause that will operate to prevent its deepening in its immediate future. The construction of a twenty-foot channel to Lake Superior and Michigan is an undertaking that ought to appeal strongly to the people of Chicago and the Western States; that with such an approach to and from the sea, Chicago ought to become the greatest city in America. The grain and other products of the American farm would then be placed on ship at Chicago and sent without trans-shipment through to Europe. When this question becomes a live issue, The World tells us, as it must before long, it will be discussed as an international problem and executed as such. There is no question of greater importance to Canada than the construction of a ship canal to Chicago, unless it be the development of our mines.

All Canadians, and Americans too, as to that matter, appreciate the importance and benefit it would be to both countries if a twenty-foot waterway could be established between Duluth and Chicago and Montreal. From an engineering standpoint the project is entirely feasible, and the great objection, perhaps the only one, from a Canadian standpoint, is on the ground of expense. It is financially impossible for Canada to embark in any such stupendous enterprise at this time.

Under existing arrangements with the United States the vessels of that country possess the same privileges in our canals as Canadian vessels, and we know that the tonnage of American vessels plying on the Great Lakes is perhaps ten times as great as that of Canadian vessels. And while it is true that Canada would derive great benefit from the use of such a waterway, it is equally true that the benefit to the United States would be very much larger. The cost of enlarging our canals and deepening our waterways would be enormous; and if the interest upon such cost were raised in the form of tolls upon vessels and freights using them,

this tax upon the commerce would be so great as to be practically prohibitory. It would be much cheaper to haul grain by rail from Buffalo, or even Chicago or Duluth, and nothing better could, therefore, be hoped for for Canada than the existing conditions.

The World does not explain what it means when it says that "when the question becomes a live issue, as it must before long, it will be discussed as an international problem and executed as such." To our view the only way the matter could be discussed as an international problem would be from the standpoint that the United States Government might pay the cost of the undertaking under arrangements that would be perfectly satisfactory to both countries. That country, because of its greater number of vessels and larger quantities of freight to be handled, has a correspondingly greater inducement to go into the enterprise than Canada; and therefore if that waterway is to be opened the cost of it must necessarily be borne by the United States.

No doubt the objection would be quickly raised that Canada could not concede any peculiar rights or privileges in a waterway lying wholly within Canadian territory. We do not think this an insuperable barrier to the execution of the project; for we have accomplished lawyers and statesmen who could, we are sure, frame an agreement in which our rights, honor and dignity would be abundantly protected.

Suppose, then, that the United States undertook to meet the cost of the work, and that for doing so that country was guaranteed equal rights and privileges therein for a term of years; Canada's contribution to it in the way of interest upon the cost, and just proportion of working expenses, might be based upon a pro rata accounting of the vessels and freight of the two countries using the waterway. Probably the most feasible and convenient mode of management would be by joint commission and ample provision for arbitration in the event of dispute.

It is said that it would cost \$500,000,000 to enlarge the Erie Canal so as to admit of the passage of vessels drawing twenty feet of water. It is also said that that canal could not be operated in that way because of insufficient water supply. We know that if it were possible to thus operate that canal, progress through it would of necessity be very slow, and the question of economy would quickly present itself, whether large and expensive vessels, such as they would be to draw twenty feet of water, could be economically operated at a progress of only about four miles an hour. The interest on the cost of the vessel, and the expense of the necessary crew, during the slow passage through the canal would probably more than counterbalance the advantage to be gained by the transportation of the larger cargo. It may sound well, as The World puts it, the idea of large seagoing steamers plying between Liverpool and Chicago; but it should be remembered that ocean-going steamers must of necessity be stauncher and therefore more expensive than such steamers as ply the Lakes; and that to either class the time consumed in making a passage is an important element that must be taken into consideration. For these and other obvious reasons it is not likely that the Erie Canal will ever be enlarged to admit of the passage of vessels drawing twenty feet of water.

Another project that has been discussed in the United

States is that of a ship canal around Niagara Falls on the New York side, connecting Lakes Erie and Ontario. Engineers say that such a canal is feasible, but the cost of it would amount to hundreds of millions of dollars, and as access to Lake Ontario for large vessels by such a route does not mean progress below that body of water, via the St. Lawrence, unless the canals along that stream be sufficiently enlarged, it is not probable that a ship canal around Niagara Falls on the American side will ever be built.

ADAPTABILITY TO CIRCUMSTANCES.

In discussing the strike of the employes in the boot and shoe factory in Toronto of Messrs. J. D. King & Co., The Montreal Herald utters some very ridiculous things regarding tariff protection. It mentions that a statement had been made to the effect that whereas Toronto should be the greatest boot and shoe manufacturing centre in the Dominion, the number of shoes manufactured there has fallen within a few years from 40,000 to 10,000 pairs a week. Where the King firm made 5,000 pairs a week some years ago, only 1,000 to 1,300 pairs a week are now turned out. Mr. King says, so The Herald informs us, that the cause of this decrease is the cheap labor in Quebec. "The tanneries are nearer us," he says, "yet the leather is taken all the way to Montreal, manufactured, and the product in boots and shoes sent back to Toronto at prices with which we cannot compete and pay the rates demanded by unions. The whole trouble arises over the cheap labor in Montreal factories. We have now a factory at Point Levis, Que. If things do not improve, our factory may have to be transferred there altogether."

The Herald thinks that a case precisely similar to the one here alluded to is that of the recent differences between Andrew Carnegie and the other American manufacturers of steel; and it declares that these need protection against Carnegie rather than against John Bull; that if they are entitled to any protection at all they are entitled to it as much against Carnegie as against the British iron masters; that if J. D. King, of Toronto, is entitled to protection at all he is entitled to it as much against what he calls the cheap labor of Quebec as against the American manufacturer. "This is all very plain," it says, "and the argument may be easily reduced to absurdity."

If The Herald means that its argument may be easily reduced to absurdity, we quite agree with it. It is absurd all the way through. It makes the mistake of not knowing the value of comparisons. It fails to comprehend the fact that New York and Massachusetts are not parts of Canada, although Point Levis, Montreal and Toronto are. Why is it that Lynn, Massachusetts; is a large producer of boots and shoes, and that most of the other towns in the United States, particularly in the South, the West and the Southwest are not such producers. They are all in the same country, subject to the same tariff and other laws, and the same political influences. It is, undoubtedly, the peculiar circumstances that environ Lynn that make it specially adapted for the production of boots and shoes; and it is the absence of such circumstances that prevents the development of that industry in other parts of that country. This same fact applies also to Canada. The King people have discovered that although they first established their

factory in Toronto, where commercial facilities are so great, they could conduct their manufacturing business to much better advantage at Point Levis than at Toronto. Being citizens of Toronto their natural desire was to operate their factory in this city. They invested their capital in land, buildings, machinery, etc., and gave employment to large numbers of operatives. Other enterprising men invested their capital in similar factories in Point Levis. It is not probable that any of these men would have thus invested their money if they had not thought that they would receive reasonable remuneration therefor; and one important element entering into their calculations was the protection their industry would receive, through the tariff, against the importations of similar goods from foreign countries. The American tariff was not made to protect Arizona against Massachusetts, or Texas against Maine; nor was the Canadian tariff made to protect Ontario against Quebec, or Toronto against Montreal. The protection is for the benefit of the whole country.

The Herald imagines that Toronto, laboring under disadvantages that do not exist at Point Levis, stands as much in need of tariff protection against that place as against Lynn; and herein its argument is reduced to the most absurd sort of an absurdity. The answer of Lynn to the South and West is that if those sections possessed precisely the same advantages as the Massachusetts town, they would stand on equal footing with it in the particular industry that has done so much for it. And the same answer may be given as regards Toronto and Point Levis. Does The Herald understand why it is that most of the sugar refining industry and the rolling mill industry of Canada is concentrated at Montreal and not at Ottawa, or Toronto, or Sarnia, or Winnipeg? A correct answer to this will show the utter absurdity of The Herald's contention. A duty of fifty dollars per ton upon sugar, or fifty dollars per ton upon rolled iron would not be sufficient protection to those industries if they were established at Sudbury, or Lethbridge, or Winnipeg; but a very material reduction of the duties now existing upon these articles would not destroy the industries. They would still thrive.

Another ridiculous absurdity is for The Herald to suppose that Canada is not benefited by the existence and operation of the King boot and shoe factory, although it may be transferred from Toronto to Point Levis. The National Policy would have absolutely nothing to do with the change of location; and its end would be accomplished quite as effectively by the employment of a given number of workers in either place.

The trouble in the Toronto factory does not arise from any political cause whatever. The questions of protection or free trade have nothing to do with it. The National Policy was intended to stimulate and build up manufacturing industries in Canada, including the manufacture of boots and shoes; and this it has done to a most gratifying extent. Under this policy factories have sprung up, and the competition between them to sell their products has reduced prices lower than ever before. To lower prices implies the use of the best materials, the best and most approved machinery and appliances, and the best skilled labor obtainable. Of course labor is the most important element to be considered in the business. With a large and valuable factory already in working order in Toronto,

with all materials within easy reach, and in a splendid market for distributing goods, because of circumstances easily understood, but which are not essential to be mentioned at this time, the Toronto manufacturers find it impetive that they should not be handicapped by these circumstances which do not exist at Point Levis; and therefore it is probable, unless these circumstances are modified, or changed, that Toronto's loss will be Point Levis' gain. And because this situation exists The Herald considers it an argument against protection. This argument, we think, has been reduced to an absurdity.

O RIGHTEOUS JUDGE.

A case of exceeding interest to commercial and business men was decided before Mr. Justice Street in the High Court of Justice in Toronto a few days ago; we refer to the case of Barwick vs. Legal and Commercial Exchange; and the importance of it is our warrant for the extent of this notice.

Mr. Barwick had been employed as manager of the Legal and Commercial Exchange, and, for reasons which the proprietors thereof deemed good and sufficient, was dismissed. Barwick brought an action for improper dismissal, for damages and for arrears of salary. On the hearing of the case, after all the testimony was in, His Lordship declared that, regarding the improper dismissal, no case had been made out—that there had been a great deal of carelessness in the management of the business during the time Barwick had control. Having dismissed the action with costs to plaintiff so far as the wrongful dismissal was concerned, His Lordship took the other questions to himself, and a few days later he handed down his decision as follows:—

The only question that was reserved in the case was as to whether there should be judgment or not against the plaintiff on a counterclaim charging deceit. Since the trial of the case I have considered the matter and had portions of the evidence read to me. The circumstances are by no means free from doubt, and are such that if the matter had come promptly before me, when the state of affairs was first discovered, I think I should very probably have found in favor of the defendant upon the point, but it appears to me that the discovery was made within a few months after the partnership was entered into—that the statement, with regard to an asset of \$2,000 being a subscription by the Massey Company was not true in fact; and yet the parties went on dealing without complaint. So that it does not appear to have struck the defendants, when they discovered it, that they had been deceived—that is to say, that they had been deceived in a way which gave them any remedy, at all events. No serious complaint seems to have been made against the plaintiff in connection with this item; and at this stage—after the parties had quarrelled—I do not think that I can give effect to the charge of deceit. I think that the plaintiff misrepresented very considerably indeed the condition of his affairs in order to induce the defendants to go into partnership with him or to come to his assistance. That idea is borne out, I think, by the letter which he wrote to his clerk in Montreal, urging the clerk, when Mr. Morrison went down there before the transaction was closed, that the clerk should endeavor to make everything appear as favorable as possible to Mr

Morrison. Then it is urged that although there may be no right to recover upon the ground of deceit—no action for deceit—that still the plaintiff is entitled to recover upon the 17th clause in the transfer from him to the defendants. I cannot agree in that. The assets which are transferred are not specified, and the covenant merely is for a right to transfer, and they appear to have known the general nature of the assets which were transferred. Then I do not think there is any ground for the contention that there is a collateral agreement. I do not think it was intended. And there is no evidence that it was intended there should be two agreements, one parole and the other by deed. So that I think the defendants are not entitled to recover anything upon their counterclaim. Then with regard to costs. I dismissed the other day the plaintiff's claim for damages for wrongful dismissal and directed that it should be with costs. I think probably the better plan will be to give the plaintiff judgment for the amount which was agreed upon—that is to say \$303.70—against the defendants, but to make it without costs, and to dismiss his action for wrongful dismissal without costs; and then there will be a declaration as asked for by the defendants that they are to pay all outstanding debts of the Legal and Commercial Exchange appearing upon the schedule of the agreement which are not yet paid. I do not think that the plaintiff's conduct, in connection with the agreement and the transfer to the defendants, is such as to entitle him to costs. There will be no costs to either party on the action of counterclaim.

EDITORIAL NOTES.

The blacksmiths in a Missouri town who do much work for the neighboring farmers, have suffered to such great extent because they could not collect their outstanding accounts that they felt themselves compelled to enter into an agreement for mutual benefit and protection in the matter; and this is the substance of it:

We, the undersigned, have framed the following rules, which will be strictly observed after January, 1894, and which we hope will not offend any of our customers. These rules have been enacted for the purpose of establishing a better credit system by avoiding to get so many bad accounts on the books. Our rules are as follows:

1. Any party owing a long standing account with one or more blacksmiths, who fails to come up when due notice is given him to make satisfactory settlement, shall be placed on a list, of which every blacksmith holds a copy, and from that time on further services shall be refused him, for either cash or credit, by all of us, until satisfactory settlement is made with all.

2. All accounts remaining unsettled on our books after September 1, 1894, will be charged interest at the rate of 8 per cent. from that time on. Parties refusing to comply with this rule shall also be placed on a list and will be asked to make settlement either by cash or secured note when accounts are due.

The adoption of these rules enables us to work cheaper, inasmuch as we shall no longer be compelled to make good regular-pay customers help pay the debts of those who never pay. We do not demand cash payments in all cases, only satisfactory settlements, as bankable papers will be sufficient.

It is said that no man is great to his valet; and on this principle the farmers in the vicinity of this western town seem to be in rather bad repute with the blacksmiths. Farmers in many instances seem to think that they are

badly treated if they are urged to pay their debts; and this reminds us of their similarity of disposition to the Mormons, who regard that (1) The earth and the fullness thereof was intended for the children of the Lord and (2) that they were the children of the Lord. The blacksmiths have to hammer away very hard for their living, and the farmers ought to pay up.

The runaway car on St. Denis St., Montreal, will probably result in a great outcry for brakes, and more than likely some bright genius will want an electric brake, possibly after some design of his own. Evidently something better is required than the usual hand-brake for extraordinary grades, but of what use would an electric brake be when the trolley is off?—*Electrical News*.

Of absolutely no use at all; but why think of depending upon an electric brake when something more reliable may be had? In these days of rapid transit on electrically propelled cars, where the trolley is liable to come away from the wire at any moment, and where the lives of human beings may be jeopardized by such an event coming in conjunction with the refusal of the ordinary brake to act, it is of the utmost importance that some brake not actuated by electricity be adopted that will do what is required of it.

The American Machinist has the following to say upon a matter which is of much interest to all concerned:—

We find upon "the woman's page" of a daily paper an item which, presumably, is put there to please its women readers, and is to the effect that an overseer of a spinning room declares that girls are better spinners than boys, among the reasons given being that girls are "more tractable, less inclined to strike for higher pay," etc. We wonder who can be so short-sighted as to be gratified by such a statement. Is it not true that men and women stand or fall together in the matter of wages when pursuing such occupations as spinning? When men demand higher wages, or resist a lowering of them, are not women at least as much interested in the result as the men themselves can be? There can be no doubt whatever that the entrance of women into occupations formerly monopolized by men has resulted in the injury of both men and women, and by the cheapening of labor tended directly to lessen the effect of what has been one of the principle incentives to the use of labor-saving machinery, *i. e.*, high wages. Low wages are not economically advantageous either to manufacturers or to any one else. Though it is, of course, to the advantage of any individual manufacturer to get the grade of labor required by him at as low cost as possible, it is at the same time to the interest of that same manufacturer that the general rate of wages should be high, because the purchasing power of the masses determines demand for manufactured goods. Just in proportion as women enter factories, become industrial employes and by being "tractable" reduce wages, will they make it the more necessary for men to contend for living wages and we are thoroughly convinced that there is absolutely no class of people living in this country which is not interested in having high wages—wages which enable one man to support in reasonable comfort, not only himself, but also a wife and children.

Speaking of the tariff discussion at Washington The Empire says:—

If the United States decide to take down a few of their high tariff bars and the revision of our own tariff tends to stimulate industry instead of choking it, this country may

reasonably look for a good year in 1894. The indications now all point that way.

Excusing the bad grammar in this sentence we are glad to announce that The Empire has at last come somewhat to our way of thinking, and now actually proposes that the proposed revision of our tariff should be in the direction of stimulating our important industries instead of choking them. The Empire has a sly and very neat way of putting it that raw sugar up to No 16 standard be admitted free; that the duty upon refined sugar be reduced to a half cent per pound at least; that the duty upon wrought scrap iron be made at least \$9 per ton, and that a duty of at least \$6 per ton be levied upon all steel rails. This would stimulate industry in Canada and don't you forget it, dear Empire. The poor man would then have free sugar upon his breakfast table in fact, instead of in theory only, the country at large would not be compelled to pay the sugar refineries hundreds of thousands of dollars annually, as they are now forced to do by the tariff; our blacksmiths and machinists would be supplied with best refined bar iron made in Canada of Canadian materials at no higher cost than they now have to pay for an inferior quality made of old scrap; and the railroads, those spoiled pets of the Government, would have to make up any deficit that might be encountered by the payment of duty on rails; over which event neither the farmers nor any other class of the community would shed many briny tears. We are pleased to see The Empire take a stand in this matter.

The Engineering News says that the proposed enlargement of the Erie Canal with dimensions sufficient to permit the passage of light warships to the lakes and grain in unbroken bulk from Duluth to Europe is not approved of by State Engineer Schenck, who estimates the cost of such an improvement at \$500,000,000, and says that before it would be completed the present northern international boundary may have ceased to exist. Which means that the people of the United States recognize the value of the St. Lawrence route and its possibilities. The St. Lawrence route could be deepened for one-fifth of what the enlargement of the Erie Canal would cost. In addition, it would answer the requirements of two nations instead of one. It is the natural outlet to the sea. It is the shortest route to Europe. It has no rival. Canada has a trump card in her hands. The only debatable question is how and at what stage of the game she will play it.—Toronto World.

The World tells us that the St. Lawrence route could be deepened at a cost of \$100,000,000; that if it were deepened it would answer the requirements of two nations as a natural outlet to the sea, and that Canada as the possessor of this route holds a trump card. The World advocates the enlargement of the St. Lawrence route, but it does not tell how it can be done. At four per cent. the interest upon the money necessary to do the work would be \$4,000,000 per year; is Canada able and willing to assume such a burden? Under our treaty with the United States, vessels of that country would enjoy equal privileges in that route with Canadian vessels. The tonnage of Canadian vessels that might have occasion to use that route would be probably not more than a fifth—possibly not more than a tenth—of that of American vessels. The World wants Canada to pay \$4,000,000 per year to enable ten American vessels to pass between the great

lakes and the ocean where but one Canadian vessel would make use of the route. As far as Canada is concerned it would be better to pay all the cost of transportation by existing routes from Port Arthur and intermediate points to the salt water out of the public funds than to pay interest to the tune of \$4,000,000 per year to open the St. Lawrence route for the benefit of American commerce. It won't do. If the Yankees desire to have the route opened, let them put up the money to pay for it

The Montreal Star a few days ago told how a man in that city stole and ran away with a motor car. It says:—

It was five o'clock this morning and several trolley cars on the St. Catherine street track were waiting for the conductors and motormen to take charge and start on their day's labors. The front car was near Parthenais street and McKeirnan came along and boarded the car. He was surprised to find himself the only passenger and rang the bell several times without any effect. He waited several minutes and still the car was stationary. He thought the time for action had arrived, and made his way to the front platform and turned the crank that connects the current. The wheels revolved with astonishing rapidity, and the car shot along the track up St. Catherine street. The rapid transit was exhilarating, and at this early hour the track was clear. But the man began to be afraid and tried to stop the car. He did more than that; he reversed the crank and the car was soon going as fast in the opposite direction. In the meantime the watchmen of the yard had started to chase him and the two cars met in collision. The platforms were smashed and about two hundred dollars worth of damage done.

Complete returns to the American Iron & Steel Association show that the total production of pig-iron in the United States in 1893 was 7,124,502 gross tons, against 9,157,000 tons in 1892, 8,279,870 tons in 1891, and 9,202,703 tons, in 1890. The production in 1893 was 2,032,498 tons, or over 22 per cent. less than in 1892. This great decline in production may fairly be said to have occurred wholly in the second half of 1893, as the production of the first half was larger than that of the second half of 1892 and almost as large as that of the first half of 1892. The production of pig-iron by half-years during the last two years is as follows; First half, 1892, 4,769,683; 1893, 4,562,918; second half, 1892, 4,387,317; 1893, 2,561,584; total, 1892, 9,157,000; 1893, 7,124,502. As compared with the first half of 1893, the production in the second half of that year shows a decrease of nearly 44 per cent., the largest semi-annual decrease in production of which there is any statistical record. The number of furnaces in blast on December 31, 1893, was 137, which was the smallest number in blast at the close of any year on record. The number of furnaces in blast on June 30, 1893, was 226, against 253 on December 31, 1892, and 256 on June 30, 1892. The number out of blast on December 31, 1893, was 381. The stocks of pig-iron unsold in the hands of manufacturers or their agents on December 31, 1893, and not intended for their own consumption, aggregated 662,068 gross tons, against 506,116 gross tons at the close of 1892, 596,333 tons at the close of 1891, and 608,921 tons at the close of 1890. On June 30, 1893, the stocks of unsold pig-iron amounted to 549,141 gross tons. There was, therefore, an increase in unsold stocks in the last half of 1893, of 112,927 tons. The total production of Bessemer steel ingots in 1893 was 3,123,524 gross tons

against 4,168,435 gross tons in 1892, showing a decrease in 1893 of 1,044,911 tons, or over 25 per cent. The production in the last half of 1893 was less than half the production in the first half, being 1,031,467 tons in the last half, against 2,092,057 tons in the first half. The total production of Bessemer steel rails in 1893 was 1,036,353 gross tons, against 1,458,732 gross tons in 1892, a decrease of 422,379 tons, or almost 29 per cent. The production in the first half of 1893 was 704,240 tons, and in the second half it was 332,113 tons. The production of Bessemer steel rails in 1893 was the smallest since 1885.

A German artisan's breakfast consists of coffee and bread; his dinner, soup made of water, slices of bread, slices of onion, and a little butter; meat once or twice a week; soup, cheese, potatoes and bread, with sausage and beer.—Toronto Globe

Labor is cheap in Germany—very cheap—and therefore the cost of producing manufactured articles is correspondingly cheap—very much cheaper than the cost of producing similar articles in Canada. The Globe, however, and all the other free trade journals, are denouncing the tariff that prevents Canada from being flooded with cheap German goods. They tell us that what Canada needs is the cheap goods of Germany, and of course the low wages of Germany for those in Canada who wish to compete in such lines. The Globe shows us what a German artisan's breakfast consists of; and that class in that country live quite as well as, or better than, the class employed in agricultural pursuits. It is because these people obtain so little for their services that goods can be produced so cheaply there. There they have cheap merchandise of all sorts—food and raiment—but unfortunately for them they obtain so little for their services that they have no money with which to supply their wants. In Germany women are forced to perform all manner of labor, entirely unsuitable for their sex, such as carrying hods of mortar and brick up ladders where buildings are being constructed. They do not do this from choice but from necessity, and it is simply work or starve. And it is against this cheap labor that The Globe wants Canadian labor to contend.

Now that, according to the Wilson Tariff Bill, sugar is to be placed upon the free list, and the bounty upon the home production of sugar withdrawn, it will be interesting to observe the effect of this hostile legislation upon what has become one of the most thriving and important industries in the United States. Under the bounty system provided for by the McKinley tariff the production of sugar in the United States was increasing so rapidly that it was hoped and expected that in a few years more the entire home demand would have been supplied from home sources. A recent issue of the New Orleans, La., Picayune had the following to say regarding the industry in that state:—

Yesterday, for the first time on record, the receipts of sugar at New Orleans reached and passed the million-barrel mark. The movement of the crop has been heavy ever since the commencement of the present season, and yesterday the arrivals since September 1 reached the immense figure of 1,004,856 barrels.

The movement last season up to this date amounted to 761,801 barrels. There has, therefore, been an increase in the movement this season over last of 243,000 barrels, or more than 30 per cent. The arrivals for the whole of last

season amounted to 949,758 barrels, so that there has already been received this season 55,000 barrels more than during the whole of last year.

These facts should serve to set at rest all doubts as to the size of the present crop. Judging from the movement to date, the total receipts at New Orleans this year will reach 1,300,000 barrels, and possibly more, and the crop itself will scarcely prove a pound less than 600,000,000 pounds, or 300,000 short tons.

The present crop is, therefore, likely to prove the largest yield on record, a fact which speaks eloquently of the beneficial results to the industry which have followed the granting of the bounty three years ago. Some of the increase must of course be attributed to the favorable character of the growing season, but the main increase is directly due to the larger acreage planted, especially by those planters who sell their cane to neighboring central factories.

At the recent annual meeting of the Halifax, N.S., Board of Trade a resolution was adopted to memorialize the Dominion Government to raise the standard of free sugar from No. 14 to No. 16 Dutch standard. Considering the fact that a large sugar refinery is operated in Nova Scotia, and that Halifax men and capital are interested therein, this act of the Board of Trade is very much like bearding the lion in his den. It is not at all probable that the business men of Halifax would memorialize the Government in this matter if they did not know that the law as it now stands was unjust and unequal in its operations. Good, clean, wholesome, bright raw sugar, of No. 16 standard, if free, could be sold at a very much lower price than granulated sugar; and if it were free the consumption of it in Canada would amount to perhaps ten, fifteen or twenty per cent. of all that was used. This would mean a large reduction in profits to the sugar refiners, but it would also mean a large saving to Canadian consumers. The contention of this journal has always been that sugar of No. 16 standard should be admitted duty free. It has also contended that the duty upon refined sugar is entirely too high, and that the refiners were making an unjustifiably high profit in their business, enabled thus to do by the tariff which places a duty of \$16 per ton upon refined sugar, while even the McKinley tariff imposes a duty of only \$10.

A petition is being very numerously signed by those interested in the matter, praying the Ontario Legislature to amend the Act of 1891 entitled "An Act Respecting Stationary Engineers", so as to provide that after a date that may be named all persons in charge of steam boilers, engines, etc., constituting a steam plant of a certain horse power, to be named, situated in cities, towns and villages having a population to be named, be required to pass an examination before, and obtain a certificate of competency and sobriety from, a board of examiners of the Ontario Association of Stationary Engineers. The clauses which it is hoped may be added to the present Act provide that engineers holding certificates under the Act shall expose them in some conspicuous place in their engine room; that it shall be lawful for anyone to cause to be summoned before any magistrate any person found in charge of any steam plant coming under the provisions of the Act who has not such a certificate, and that the registrar of the Association shall provide to the Government an annual statement containing the names and class of certificate issued during the year, with the address of the holder thereof.

An exception is made to steam threshing machinery or boilers used on the farm for farm purposes. It is to be most sincerely hoped that the prayer of this petition be granted. The cupidity of foolish owners of steam plants and of incompetent engineers should not be allowed to jeopardize the lives of unsuspecting persons, as is now the case. Let the law be amended.

St. John, N. B., has bounded into existence as a grain-shipping port, and will hereafter be included among the North American cereal exporting points covered by wire by Bradstreet's each week in reporting totals of wheat, corn and flour sent abroad from the United States and the Dominion of Canada, both coasts. The Canadian Pacific Railway Company seems to be responsible for this added glory of the New Brunswick capital. Hitherto the winter grain export business of Canada has been done largely from New York, Boston and Portland. Recently the Canadian Pacific Railway acquired the short line between Montreal and St. John, with a view, as now appears, to use St. John as a winter port. To further the plan the city gave a bonus of \$40,000 for the erection of an elevator, which has been completed. The first consignment from St. John has been made, 16,000 bushels of wheat, and is the commencement of a trade "which is expected to expand enormously." The new elevator has a frontage of 400 feet and a depth of 27 feet and upward at dead low water, spring tides, and the wharf is therefore capable of accommodating "one steamship of the largest size or two smaller vessels." The elevator on the wharf is modern in construction, and has been pronounced by good judges "the best elevator in Canada," having a storage capacity of 360,000 bushels, and machinery sufficient if its storage capacity should be doubled. It will load an ordinary freight steamship in from four to six hours, and it is estimated "that 4,000,000 bushels of grain can be shipped there monthly, provided that there is not too much detention on the railway. It is further explained that the first cargo of wheat to go abroad from St. John under the new order of things is via the City of Lincoln.—Bradstreet's.

A remarkable election occurred in New York a couple of weeks ago. There were two vacant places in the New York delegation in the national House of Representatives. The districts have been strongly Democratic and they have been held firmly in the grip of the Tammany organization. In one of them the Republican candidate was elected by a plurality of more than 900, and in the other the Democratic candidate was successful by a largely reduced plurality. The measure of the Democratic loss however may best be taken by noting that the Republican gain over 1892 in the Fourteenth District was 9,730 and in the Fifteenth District 7,359. The same percentage of gain in the whole State would give New York to the Republicans by a majority of 400,000. The significance of these changes cannot be exaggerated. They show clearly how deep and intense are the feelings of resentment and disgust with which the people regard Cleveland's administration and the wicked attempts of his fellow wreckers in Congress to inflict injury upon the business of the country. Pennsylvania will speak within a few days. The people of the whole state will have an opportunity to express their opinion of

the piratical crew now in power at Washington, and it will be found then that patriotic Americans in New York and in Pennsylvania have made common cause against the common enemy.—The Manufacturer.

A motor car on the Niagara Falls Park and River railway became unmanageable on a steep grade near Queenston Heights a few days ago and flew down the hill at frightful speed until it reached a curve near an old deserted church. Here it jumped the track and crashed into the church building, demolishing a considerable portion of the walls. Fortunately there were no passengers in the car and the motorman jumped before the car got well started. It is fearful to contemplate the loss of life that is liable to occur at any time on this road because of the refusal of the company to equip its cars with brakes that will operate when an emergency arises. This is not the first incident of this character that has occurred on that road.

Under the Wilson Tariff Bill as passed by the House of Representatives a few days ago, iron ore and wool are free; timber and lumber are free; coal is free; agricultural implements are free; eggs are free. Dressed poultry is reduced from 5 cents a pound to 3 cents; live poultry from 3 to 2. Refined sugar is free; salt is free; apples are free. The duty on hay is cut one-half, the new duty being \$2 a ton. Horses are admitted at 20 per cent., instead of \$30 a head, or 30 per cent. for all over \$150 in value, as under the McKinley law.

The Committee on Finance of the United States Senate has prepared and made public a series of circular letters, addressed to manufacturers and others, containing a large number of interrogatories which are intended to elicit information that would be useful to the committee in the preparation of a new tariff bill. One circular is addressed to manufacturers, another to importers, another to merchants, another to chambers of commerce and boards of trade, another to labor organizations, and another to farmers. The widest publicity for these circulars is desired by the committee, and the newspapers of the country are requested to print the interrogatories and to urge a prompt response to them by representatives of any of the interests mentioned.

The use of liquid fuel for steamers is attracting much attention among maritime nations, as is illustrated by the following item taken from the Cleveland, O., Marine Record. It is also receiving equally earnest attention from manufacturers in Canada and elsewhere:

From an account recently published relating to the statistics of inland navigation in Russia, we are led to remark on the increasing use of petroleum fuel, in place of wood or coal, for generating steam in the boilers of their tug boats. The different fuels used and their respective quantities are as follows:

	1884.	1886.	1890.
Wood, cords.....	742,121	801,020	595,867
Coal, tons.....	138,136	182,881	270,650
Petroleum residue, tons.....	214,975	276,237	308,143
Total horse power.....	72,105	84,494	103,177

A cord of wood averages about two tons. It is evident, therefore, that with an increase of over 30 per cent. in the total horse power from 1884 to 1890, the decrease in the consumption of wood has been 19 per cent., and of coal 70 per cent. On the other hand, there is the great increase of over 160 per cent. in the use of petroleum. In this relation absolute weight is not of the same importance as absolute bulk, and in this respect the proportion between petroleum and wood is as one to six. It may also be ob-

served that a tug boat can usually take on board a quantity of wood sufficient to last for two or three days and that from six to ten hours are required to load it. The same vessel can in a very limited time, say four hours, "coal" herself with petroleum fuel sufficient to last her for eight to ten days.

Another feature of importance in favor of this fuel is that there is no stoking required; the fire being once lit all that remains to be done is to regulate the supply of oil to the furnace, which in most cases can easily be attended to by the engineer, thus reducing the number of hands required and getting rid of what is usually a very hot and laborious occupation, that of stoking; also doing away with the necessity of frequent opening of the furnace door and the constant influx of cold air, which helps considerably towards shortening the life of a boiler.

The United States, as is well known, possesses immense resources in mineral oils, and a great number of large tank steamers are engaged in the transport of it from this country. Its use as a fuel has hitherto been confined to launches and pleasure boats, but we expect the day is not far distant when we will see some enterprising tug owner on the lakes strike out in this direction, to be followed up soon after by a larger class of vessels, carrying it as permanent fuel for ballast in their water bottoms.

Mr. D. R. Wilkie, the retiring president of the Toronto Board of Trade, in his valedictory address, speaking of Canada's relations with Great Britain, said:

Canada was never so prosperous as it was during the existence of a preferential tariff in Great Britain in favor of her colonies. The reimposition of such a tariff would afford the colonies the advantages in the markets of Great Britain over foreign rivals to which we think they are entitled, without pressing upon the consumer; would ultimately compel the revision of tariffs at present hostile to the Empire; would conduce to the rapid settlement of our Northwest; and would give the manufacturers of Great Britain an equivalent in the shape of an enlarged market for their products, without the cost to the nation of endless sacrifices of blood and treasure.

We would be pleased to see the Mother Country favor us by the adoption of a preferential tariff, but we don't expect to live long enough to see that day. If it should be done, however, it would have to be on the basis of increased duties on imports from other countries, not by decreased duties on imports from Britain. But then this would give Britain no better opportunity to enlarge her market here than what now exists. Our opinion is that it would be much better for Canada to legislate in favor of Canadians than to freeze out our manufacturers in favor of those of Great Britain.

At the Republican Convention held in Philadelphia in January, the indictment of the Wilson Tariff Bill was made in the following manner:

It has reduced to idleness 2,000,000 of workers, and soup houses now displace former hives of industry.

It has reduced values to an amount greater than the national debt.

It will strike with equal cruelty the farmer, the miner, the lumberman, the iron worker, the glass blower and the textile worker.

It will transfer work from our own mills, mines and workshops to those of foreign countries.

It is sectional in its authorship, and is all too plainly aimed at Northern industries.

It strikes Southern industries only where the same blow reaches greater Northern industries.

It fosters the plantation system and destroys the farm. It is an attempt upon the part of the free traders of the South to reduce the industries of the North to the level of those of the South.

It is vicious in its change from specific to *ad valorem* duties, the latter inviting foreign undervaluations and leading to constant and cumulative frauds upon the revenues.

It is vicious in reducing instead of increasing revenues.

It will reduce the revenues many millions of dollars, and the reductions will grow with time.

It is vicious in compelling the Government to make up these deficits by means of increased internal and direct taxes.

It is doubly vicious in compelling its supporters to resort to the most serious war taxes or borrow money.

It is wholly erroneous in the theory that the less work there is to do in this country the higher will be the wage of the workmen. The protective policy conveys the opposing thought, and says that the policy which secures the largest amount of work at home is the one which secures the best wages to the home workman.

If the Wilson bill does all of these things in the threats which it conveys, what will it do in its fruition?

In referring to the numerous petitions which had been presented to Congress protesting against the passage of the tariff bill, its author, Mr. Wilson, intimated that they had been signed under coercion. He said he had just received a letter from a former constituent stating that he had been discharged from an iron mill in Youngstown, Ohio, because he refused to sign a petition, and this was not an isolated case. His mail every day was filled with letters from workingmen stating that these petitions had been signed under duress, and hoping that he would not be influenced by them. It is well known that certain protected manufacturers, both in this country and the United States, have been guilty of similar intimidation in elections in which protection was in jeopardy.—Toronto Globe.

Evidently Mr. Wilson says some things besides his prayers. Why didn't he give names as well as make insinuations? This statement is of the old roorback style so prevalent in the United States during election times, and the Globe, too, lends itself quite willingly to slander Canadian manufacturers after the American style.

The collector of customs at Detroit a short time ago submitted to the treasury department the question whether it is not an infraction or evasion of the customs laws for American boats, running between upper and lower lake American ports, to take on coal at Canadian ports in the Detroit river as fuel and consume the same in American waters without payment of duty thereon. The question is a new one, although the practice of getting fuel at Canadian ports has been common for years past. In the latest list of printed decisions, Assistant Secretary Hamlin holds that there is no infraction or invasion of the law, provided the coal is regarded strictly as a part of the vessel's stores and none of it is unloaded.

It is rather remarkable that this question in this form should have arisen at the port of Detroit, and been submitted to the Washington Government, when if American steamers actually took on supplies of coal fuel at Canadian ports in the Detroit river it must have been American coal, against which no duty could be charged when supplied to American steamers or when returned to that country. Coal is mined in large quantities in the United States within a day's haul of any Detroit river ports; but no such coal is mined, or even known to exist, within that distance on the Canadian side.

Owing to the substitution of *ad valorem* for specific duties, the Wilson bill in its present shape would make Canadian competition particularly effective in our New England markets. Canada pays a bounty of \$2.24 per gross ton on all pig iron made in the Dominion, with an *ad valorem* duty. Canadian pig iron manufacturers will deduct this bonus from furnace cost and pay duty on the remainder. It seems that heretofore this point has almost escaped notice. A gentleman connected with the Eastern iron trade informs us that during the past summer he had to meet Scotch irons in Montreal, Quebec, Hamilton and Toronto. At that time the best brands of Scotch pig iron were shipped from Glasgow to Montreal at a cost of only 36 cents per ton freight. The duty was \$4.48, which, with the freight added, put Scotch iron *f. o. b.* in Montreal at \$4.84. The selling price at Montreal was \$17.50, which, less \$4.48, made the selling price at Glasgow about \$12.

Under a tariff law such as is proposed, Nova Scotia iron manufacturers will look to New England for their salvation. With cheap water freights they can afford to give up the Montreal and Western market in exchange for one nearer home. We are informed that there is a point near St. John, N. B., where Bay of Fundy ores yielding 52 to 55 per cent. and washed coal coke from Cumberland basin will make an iron costing not more than \$10 at the furnace. Taking from this \$2.24 bonus and with low water freights, not over 75 cents per ton at the highest, to Boston, it will be seen that this iron would have a sweep in the New England market.—American Manufacturer.

It is said that the Canadian Pacific Railway will adopt the trolley system for moving its trains over two sections of the Rocky Mountains. Work on the necessary machinery is now under way, and the system will be in operation this summer. This event is of more than ordinary importance. It marks the beginning of what will be one of the greatest factors in the economics of transportation. The power that will move the C.P.R. trains over the mountains will be developed from the waters that tumble over the precipices and rush down the mountain sides. These waters are richer in power than the most fertile coal mines. The latter become exhausted and are less valuable as the years go by, but the power of the water remains a constant quantity and is inexhaustible. It is said that electric power is now being economically transmitted in Germany for a distance of 300

miles from the source of its production. During the current year we will probably get more certain and practical information nearer home on this branch of electricity. It has been said, and we believe it is true, that Canada is richer than any other country in the world in water power resources. As soon as the power that is now running to waste in hundreds of widely-scattered streams in Canada is harnessed and distributed we will have enough to render coal for power production an unnecessary article. And that we will be able to economically distribute this power is a fact about which there is very little, if any, dispute among electricians. It does not require a great effort of the imagination to predict how great a revolution will be effected by the development of these wonderful resources. A prominent Canadian railway man who knows whereof he speaks, says that within 20 years all the railways in America will be operated by electricity.—Toronto World.

There is a very marked discrepancy between free trade theory and protectionist fact. The theory urges that the sugar bounty is a tax upon the many for the benefit of the few. The fact is that the many saved money when the bounty system was substituted for the duty system. The theory is that high protective tariff duties are obstructive to the progress of the nation towards prosperity. The fact is that this nation has become, under thirty continuous years of high protection, the most prosperous that ever existed. The theory is that high duties make high prices. The fact is that prices have persistently declined under such duties and that they are lower under the McKinley tariff than at any preceding time. The theory is that the American consumer pays the whole of the duties upon imports. The demonstrable fact is that the foreign exporter pays part of them. The theory is that protection oppresses the workingmen. The plainly apparent fact is that the nation which has the highest tariff pays the highest wages. The theory is that free raw materials will permit the American manufacturer to export his fabrics. The fact is that with free silk the American silk maker exports less of his wares than does the American woolen manufacturer with dutiable wool. The theory is that the duties upon woollens are particularly oppressive to the American consumer. The fact is that the people of America consume nearly one-third of all the wool grown in the world. The theory is that the duty on steel rails taxes the American shipper severely. The fact is that transportation over American dutiable rails costs about one-fourth the same charged for transportation over British free rails. The theory is that free trade will bring to the nation prosperity. The fact is that the mere promise of a movement toward it has filled the land with disaster and misery.

The first practical test of the hydraulic works at Niagara Falls, which have been under construction for three years past, was made January 25th, when the machinery at the Niagara Falls Paper Mills was put in motion. These mills have contracted with the power company for 3,300 H. P., which is to be increased to 6,600 H.P. later. The general power station, where it is expected to begin with dynamos of 5,000 H.P., from which power will be transmitted to purchasers, will be ready by June next. The station has been designed in such a way as to permit of future extension to any amount required. There has been a good deal of criticism on the designs of the power plant, which were mainly the work of Swiss engineers, and its workings will be watched closely and with much interest. It is stated that the contract with the paper mills provides for a rental

of \$8 per horse-power yearly, which is certainly a moderate rate.

The Insolvency Bill which is now before the Boards of Trade of Montreal and Toronto for their consideration is a document of 128 clauses. Power is given to appoint official receivers, who, however, must hold no political positions in the country, and who must provide bonds for not less than \$2,000 and not more than \$20,000. The court to which the case has been referred, and which will have jurisdiction over such matters, will appoint a liquidator, and the receiver shall hand over all the books, accounts, etc., to the former. If the debtor fails to make a clear and specific account of his indebtedness, he may be imprisoned for six months. If it be shown that the debtor is about to abscond he can be arrested. All his letters, etc., can also be stopped at the post-office by the liquidators for three months, and opened in his presence. If the debtor is found to be guilty of any fraud his discharge is held back for five years. If he is found guilty of presenting a false balance sheet, a penalty of two years' imprisonment is provided, and if he fails to give up all his property under his control then he is liable to three years' imprisonment.

The Halifax Critic, which has built up a most enviable reputation as the exponent of the mining, manufacturing and commercial interests of the Maritime Provinces, is to enter upon an advanced field of usefulness, and makes its last appearance as The Critic with its issue of February 9th, having been absorbed by a limited company with ample capital and influence to maintain and rapidly promote the high aims of the founder of that journal. It will hereafter appear as the "Canadian Colliery Guardian, Critic, and Journal of the Iron and Steel Trades."

Our Dumb Animals is a most excellent little publication issued monthly at Boston, Mass., by Mr. Geo. T. Angell, president of the American Humane Education Society, and is the organ of that society and of the Massachusetts Society for the Prevention of Cruelty to Animals. It is always a most cheerful and welcome visitor to his office, and one cannot but feel better and happier after having read its instructive and entertaining pages. As its name indicates, it is devoted to the inculcation of kindness of human beings to dumb animals; and it always abounds in pleasant reading matter having this object in view. Parents cannot do better than place this little monthly publication in the hands of their children and to retain it in their own hands until they have read it themselves. If you are not already a subscriber to it, and wish to learn more about it, send five cents to Mr. Angell for sample copies.

The February number of Good Housekeeping has several interesting short stories by well-known writers, the usual assortment of practical papers devoted to the interests of the household, and an exceptionally valuable article by Rev. W. T. Hutchins on "Trees of New England," dealing especially with "the stately elm and the beautiful maple." The verse includes an illustrated poem, "At Niagara," by Clark W. Bryan, and the frontispiece, "Farm Memories," by John S. Barrows. The magazine introduces some commendable new features with the number and was certainly never brighter or more attractive than in the present volume. Clark W. Bryan Company, Springfield, Mass.

Funk and Wagnalls' Literary Digest for 1894 appears weekly in a substantial cover. The arrangement of editorial work also has been improved upon by a plan which manifestly means a larger expenditure of work and money. These are indications of prosperity and appreciation during the past year, and if the readers of the review have heretofore found it an indispensable aid in keeping abreast of the complex literature of the politics of the world their appreciation will be increased by the new order of things. Two features of improvement are the adoption of illustrations and a column of humor. The Literary Digest is one of the most valuable publications in the field of weekly literature.

The Cleveland, O., Marine Record has presented its readers with a most handsome and instructive souvenir in which is assembled pictures of some of the most characteristic steamers that have sailed or do or will sail the Great Lakes. The small steamer in the lead was one of the pioneer steam vessels of modern lake navigation. She was built by David Bell, of Buffalo, in the year 1862, and has been out of existence for a number of years. The Christopher Columbus gives a representation of the whaleback type, and on her starboard quarter is the new steamship Northwest, just now afloat. The City of Alpena and City of Toledo represent two of the finest sidewheelers on the

lakes, and the Manitou is almost the finest boat that plies Lake Michigan. The Alva, Chemung and Centurion are some of the finest specimens of model lake steamers.

The February number of The Canadian Magazine shows its excellence to be well sustained. Rev. Dr. Scadding writes of "Pioneer Literary Efforts in Western Canada," in a wise and interesting way. Those who are following or trying to follow the complicated and somewhat amusing warfare of Brazil will read the article by Madge Robertson-Watt, "On Board the Aquidaban," this being Da Gama's rebel ship which Admiral Benham is alleged to have fired upon and threatened to sink the other day. Canadian topics are well contributed, Hon. David Mills giving a glimpse into the schools of rural Ontario 50 years ago in a paper entitled, "The Schools of the Olden Time," whilst Prof. John Campbell, of Montreal, tells of the origin, character and general civilization of the Indian tribes of the continent. Mrs. Molson Spragge also contributes a Canadian paper, "The Eldorado of British Columbia," a sketch of the West Kootenay country.

Goodhue Cycle Lock.

The accompanying illustration is of the Goodhue Cycle Lock, manufactured by the Independent Electric Co., of Chicago, and which was exhibited at the recent New York Cycle show. The illustration is full size and it shows one of the many thousands of combinations in which the lock is made. It is very easily opened when one knows how to do it, but it is as difficult to pick as any ordinary safe lock. The locks and chain are highly finished in polished nickel, and are neatly packed in individual boxes in cases of one dozen each.

This is an entirely new device for use with bicycles, and it should



find as much favor in Canada as it has already found in the United States it will undoubtedly meet with very large sales.

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The Starr Automatic Annunciator.

Messrs. John Starr, Son & Co., Halifax, N. S., manufacturers of electrical supplies, electric light, telephone, telegraph and general electrical apparatus, are now offering their Starr automatic annunciator, which they say is an altogether new departure in annunciators, and one that will be appreciated by all who have experienced, with the ordinary kind, the annoyance of not resetting the drop at the time, so that when another call is made it is impossible to tell which



of the two, or more, numbers indicating has called. In the "Starr" there are no drops, instead of which we use a suspended shutter indicator, so arranged that when the bell is rung the shutter is etc in motion, which shows at a glance which number is wanted. The shutter is made to vibrate sufficiently long to show, when it will stop by itself and be ready for another call. By using this system the Annunciator never requires attention and there is no set-back or other mechanism to get out of adjustment; also the vibrating shutter is much more readily discernible than the ordinary drop.

They are gotten up in handsomely finished cases, with nickel-plated bells and gilded glass fronts, with indications num-

bered in gold. The Starr Company have already placed a large number of these annunciators in hotels as well as private residences, and have recently placed a 70-point instrument in the new hotel at Sydney, C.B.

Frick's Crushed Coke.

The H. C. Frick Coke Co., Pittsburgh, Penn., are now making a specialty of manufacturing crushed Connellsville coke for domestic and similar purposes. For family use it is claimed to be better and cheaper than any other fuel, as there is no smoke, no gas, no clinkers, no smell, no waste, no ashes. It affords a clean, quick, hot, strong, cheerful fire, and is rapidly taking the place of anthracite coal. It is adapted to use in ordinary heaters, ranges and stoves, and one ton of it equals three tons of gas house coke. Frick's coke for family use is

Buffalo Planing Mill Exhaust Fans

EFFICIENCY UNEQUALLED
DURABILITY UNSURPASSED
SMOOTH RUNNING
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THE LARGEST FORGE IN THE WORLD

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BUFFALO LUMBER DRY KILNS
 Blowers, Blacksmiths' Tools, etc.

BUFFALO FORGE CO., Buffalo, N.Y., U.S.A.

prepared and screened just like anthracite coal, and it is claimed that four tons of it will go further than five tons of the best hard coal. One ton of this coke equals in bulk two tons of hard coal, so that in addition to the greater number of heat units from a pound of coke over a pound of coal, the wasteful overfilling of furnaces and stoves is more difficult to accomplish. In using this article the size of coke used should be a size smaller than that of anthracite coal for the same purpose. Suitable sizes are: Egg- for large and medium sized house furnaces; stove for small house heaters and grates; small stove for large ranges and large stoves, and nut—for self-feeding and cooking stoves and ranges.

The following is suggested as the proper method of using Frick's family coke:

No. 1. The size of coke must be one size smaller than hard coal for similar use.

No. 2. Fire must be deep and broad. One ton of "Frick's" coke equals in bulk two tons of hard coal, therefore grate full of coke does not mean the same waste as with coal.

No. 3. It requires much less raking, and will burn down to a fine powder without clinkers, therefore it causes less wear to the grate or range.

No. 4. From low fire it comes up more quickly than coal, and gives more intense heat, therefore draught must be reduced quickly.

No. 5. To start fire put on moderate quantity of coke, and when kindled add as much as the fire-place will hold, using ordinary draught.

No. 6. To keep fire over night, shut off draught.

No. 7. Bulk of coke is necessary to make it burn properly. It will not burn in shallow fires.

In this Canadian climate where it is absolutely necessary to keep fires going in furnaces and stoves so many months of the year, and where fuel is such a large item of expense, it is of great importance to know that so good and efficient a fuel as coke can be bought at much lower cost than anthracite coal, the article now so generally used, and that it answers even a better purpose. It seems from what the Frick Company claim that the advantages claimed for the article are easily demonstrable, and in view of the large saving to be effected by its use, it should be in strong demand in every family. It can be laid down in Toronto and other Ontario points quite as cheaply as in many places in the United States where it is extensively used, and the following testimonials regarding it illustrate the advantages of it:

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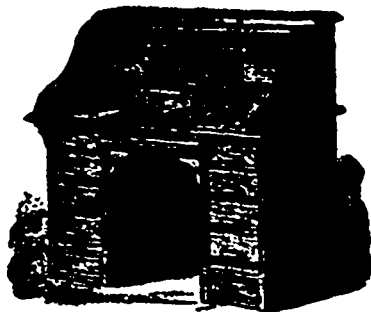
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=: Globe Valves :=

These Valves are provided with Vulcanized Asbestos Discs, composed of the fibre of Asbestos, which cannot be cracked or broken. The Disc is practically indestructible, being composed of a fireproof material, to which is added the waterproof vulcanizing material.

The Discs are furnished all complete and ready for use and may be put into one of these valves by simply unscrewing the bonnet of the valve, slipping off the old disc, replacing it by a new one, and screwing on the bonnet again, requiring only a few moments' time for the entire operation.

The Stuffing Boxes are all packed before they leave the factory with VULCANIZED ASBESTOS PACKING, which is very durable, and cannot be blown or washed out. Only first quality new metal is used.

We invite inspection and trial by all interested in this line of goods. All goods are warranted to give satisfaction.

RICE LEWIS & SON, Ltd.

Cor. King and Victoria Streets, Toronto

Ingot Copper and Tin

Zinc and Brass Spelter

Antimony and Babbet Metal

M. & L. SAMUEL, BENJAMIN AND CO.

39 Front Street West, Toronto

ENGLISH HOUSE:
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164 FENCHURCH ST., LONDON. E.C.

SHIPPING OFFICE:
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WHEN WERE

YOUR

Boilers

LAST

INSPECTED?

CONSULTING ENGINEERS:
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PRES.

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VICE-PRES.

THE BOILER INSPECTION & INSURANCE CO.

OF CANADA



Head Office: TORONTO

ARE YOU
SURE

THEY ARE

SAFE

AND

IN GOOD

CONDITION?

Mr. J. N. Kalbaugh, a division master mechanic of the Baltimore and Ohio Railway Co., writes to his general superintendent as follows :-

During the month of January, 1893, a comparative test was made with Crushed Coke furnished by the H.C. Frick Coke Co. vs. Anthracite Coal for heating passenger cars on trains 1 and 2, making daily round trip between Pittsburgh and Uniontown, and trains 11 and 12, making daily round trip between Pittsburgh and Cumberland, Md., the former making 139.2 miles per day and the latter 300.4, both trains being local with frequent stops; this, with the cold weather at the time, made the test a severe one. The average temperature during



the test was virtually the same, 13.3 above zero. Average temperature of cars during the test with coal was 74.3, with coke 76.8 on one train, and on the other, coal 74.4, coke 75.1. The percentage in saving in favor of Crushed Coke as against Anthracite Coal, (Pittsburg delivery for both) 86 per cent. The test extended from January 11th to 25th, inclusive. Similar test was made during the latter part of December and early part of January, which resulted in such a remarkable showing in favor of the coke, that, fearing the man in charge of test had not been sufficiently accurate in his weights, it was repeated with the above result.

Mr. W. R. Vorce, Cleveland, (with Union National Bank) says: "I have used your Crushed Connellsville Coke in my base burner for several seasons and consider it much cheaper than hard coal, both for

heating purposes and cleanliness. I can run my stove easily and get plenty of heat at a cost not to exceed ten cents per day."

Mr. John C. Callaghan, Cleveland, (J. Callaghan & Son, Furnaces Ranges, House Furnishing Goods, 242 Erie street), writes: "I am very much pleased with your Crushed Coke for furnace use; in comparing hard coal with same, it lasts as long, burns freely and no clinkers whatever. I have a hotter fire with the same amount of fuel, and also find it cleaner than half the hard coal in the market; what is more than all I save money by its use. I recommend your Crushed Coke to any one desiring a clean, durable fuel."

Mr. James W. Millen, Detroit, Michigan, writes: "I have used 'Frick' Crushed Connellsville Coke for the past year, both in my furnace and cooking range. It is clean to handle, free from gas, and makes a very nice fire for broiling and toasting. I use 'Stove' and 'Egg' sizes mixed for my furnace, and I found that 14 tons heated my house last winter better than 22 tons of anthracite coal did the winter before. I consider it the best fuel in the market."

Mr. James B. Pierce, Iron Mfr., Sharpville, Pa., writes: "Having used your Crushed Coke 'Stove' size, for several winters past in my hot air furnace at my residence, I can heartily recommend its use for this purpose, the heat produced being ample and easily regulated, with no unpleasant effect from gases, or clogging up of furnace, and is very easy on grate and other parts of heater."

Church, School and Office Furnishings, Business and Library Desks
Office Chairs, Revolving Book Cases



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CABINETS

... RAPID ROLLER COPIERS ...

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All Kinds Labor-Saving
Office Devices.

OFFICE DESKS—FORTY STYLES

OFFICE SPECIALTY M'FG CO.

118 Bay Street, Toronto.

IN METALLIC VAULT
FURNITURE WE LEAD.

Write us for Catalogues of our goods.
State your needs.

Second-Hand Engines and Boilers

for Sale by the

GOLDIE & McCULLOCH CO., Ltd.
GALT, ONT.

- 100-h.p. Wheelock Engine.
- 90-h.p. Wheelock Engine.
- 75-h.p. Slide Valve Engine.
- 60-h.p. Buckeye Engine.
- 50-h.p. Slide Valve Engine.
- 40-h.p. Slide Valve Engine.

- 35-h.p. Slide Valve Engine.
- 30-h.p. Slide Valve Engine.
- 15-h.p. Slide Valve Engine.
- 10-h.p. Slide Valve Engine.
- 100-h.p. Return Tubular Boiler.
- 90-h.p. Return Tubular Boiler.

- 80-h.p. Return Tubular Boiler.
- 70-h.p. Return Tubular Boiler.
- 55-h.p. Return Tubular Boiler.
- 30-h.p. Return Tubular Boiler.
- 18-h.p. Return Tubular Boiler.

The above Engines and Boilers have been replaced by Wheelock Engines and New Boilers of greater power, and will be rebuilt and sold at very reasonable figures.

For Particulars Apply to
The Goldie & McCulloch Co., Ltd. - Galt, Ont.

DENNIS'
Tubular Steel Barrows

COAL
DIRT
FOUNDRY
ROLLING MILL
and PIG IRON

BARROWS

For Hard Wear, Strength and Durability they are Simply Unequaled.

Though "Extra Strong" they are not heavy to handle.

MANUFACTURED BY

Dennis Wire and Iron Works, London, Ont.

Michigan Emery Wheel Co.

195 Catherine St., Detroit, Mich.



Solid Emery
AND
Corundum
Wheels..

To run wet or dry, special shapes

Perfection
Saw Grinders

Send for Price List

CAPTAINS OF INDUSTRY

This department of the "Canadian Manufacturer" is considered of special value to our readers because of the information contained therein. With a view to sustaining its interesting features, friends are invited to contribute any items of information coming to their knowledge regarding any Canadian manufacturing enterprises. Be concise and explicit. State facts clearly, giving correct name and address of person or firm alluded to, and nature of business.

A stone church will be erected at Munster, Ont.

A new Baptist church is to be erected at Amherst, N. S., at a cost of \$25,000.

A Roman Catholic Church is to be erected at Cornwall, Ont., at a cost of \$50,000.

The Waterloo, Que., Knitting Factory are placing a number of new knitting machines.

Mr. R. Hewat is making important changes in his oatmeal mill at Rockwood, Ont.

The Thamesville, Ont., Gas Company's second well, recently bored, is yielding good results.

Considerable new machinery will be placed in the Richardson Mine at Isaacs Harbor, N. S.

Messrs. Nichols & Son, Carleton Place, Ont., has commenced the manufacture of broom handles.

Messrs. Arthur Hill & Co., of Saginaw, Mich., will purchase or build a sawmill at or near Ottawa.

The Canadian Pacific Railway Co. will erect a large sorting and accumulating elevator at Winnipeg, Man.

The saw and flour mills of Messrs. Moore & Vandurson, at Lion's Head, Ont., were consumed by fire Jan. 28.

The Watson Manufacturing Co., Ayr, Ont., are in receipt of a large order for reapers and mowers to go to Russia.

The Dominion Box Co., Toronto, are increasing their capacity for production by the addition of more room and machinery.

Estimates are invited for the erection of a church at St. Germaine, Que., to cost \$12,000. Mr. David Ouellett, of that place, is architect.

The Canada Paper Co. will erect a dam across the St. Francis River near Windsor Mills, Que., from which to obtain power for their mills.

New highway bridges are to be erected over Dignan's Creek between Delaware and Westminster, Ont., and between Caradock and Metcalfe, Ont.

Letters patent have been granted incorporating the Oxford Milling Co., at Norwich, Ont., with a capital stock of \$50,000, to manufacture flour, oatmeal, etc.

The New Vancouver Coal Co., Nanaimo, B. C., have erected an extensive plant at their Protection Island shaft and will also erect an electric hauling plant at the same place.

The Curtain & Upholstery Manufacturing Co., at Guelph, Ont., has been incorporated with a capital stock of \$20,000, to carry on the business of manufacturing curtains, covers, fringes, rugs, upholstery goods, etc. Messrs. A. R. Burrows and Robert Dodds are interested.

Messrs. George White, George A. White, A. G. Allen and associates are applying for the incorporation of the White-Allen Co., Toronto, with a capital stock of \$20,000, for the purpose of manufacturing fringes, cords, tassels, gimps, upholstery, dress and cloak trimmings, laces, twines and all other articles required in the upholstery business.

The new mills and plant of the Dominion Blanket and Fibre Company, Montreal, are nearly ready to commence operations. The main building is 163x82 ft., four stories high, with basement, in which latter is the designing room, machine shop and heating apparatus, dynamo and electric plant and finishing rooms. The first floor is occupied by new and latest improved looms for weaving all kinds of heavy woollens, blankets, rugs, etc. The second floor is occupied with mules for spinning yarns; the third floor with carding machines, which are of the latest and most modern character; and the fourth floor is used for storing materials, both raw and finished. A wing attached to the main building, 100x50 ft., contains fulling rooms and dye house, and water power wheels, which develop a capacity of 300 horse power. This business was first established in a small way in 1886, but its growth has been so steady and rapid that new and enlarged facilities became imperative; and from this has grown the present establishment. It is claimed by the proprietors that this is the best woolen mill in Canada. This factory is at Beauharnois near Montreal.

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CARBON & PORCELAIN CO. LIMITED

MANUFACTURERS OF

Carbon Points for All Systems of Arc Lights

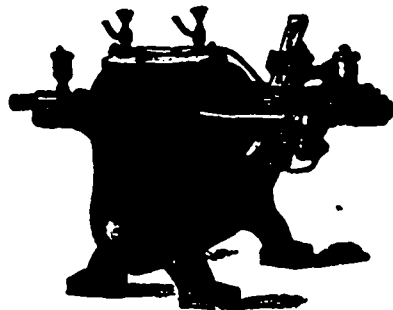
BATTERY PLATES, CARBON BRUSHES, and all kinds of PORCELAIN for Electrical and Hardware Lines.

All goods guaranteed equal in quality to the best manufacturers in the world.

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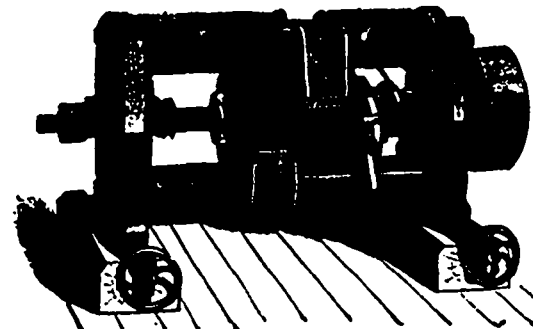
Plating Machines,

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AND ALL KINDS OF

ELECTRIC APPLIANCES

HAMILTON, ONTARIO



THE RELIANCE ELECTRIC MANFG. CO. Ltd.

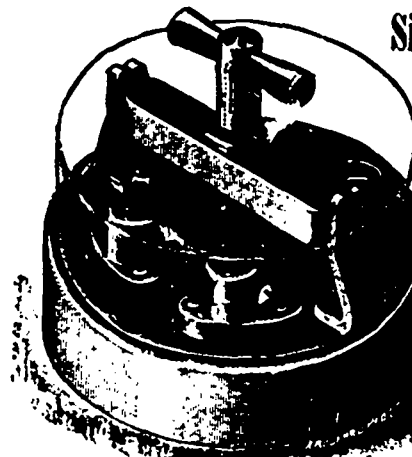
Manufacturers of The Reliance System of Arc and Incandescent Lighting

and Power Apparatus. The Itao System of Electric Railway.

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Single and Double Pole Switches

From 5 to 150 Amperes

DETAIL ROSETTES

LAMP SOCKETS

All of Superior Workmanship and Design

Manufactured by the

Perkins' Electric Switch Mfg. Co.

Waterford, Ont.

For Sale by The Canadian General Electric Co., Toronto.

Mr. James Gray is making extensive repairs to his flour mill at Rockwood, Ont.

The biscuit factory of Messrs. Hamm Bros., St. John, N. B., was destroyed by fire Jan. 29. Loss about \$4,000.

It is said that Messrs. Newton Bros., Georgetown, Ont., will form a joint stock company and build a woolen factory in that place.

The Gulf of Georgia Canning Co. has been incorporated at Vancouver, B. C., with a capital stock of \$200,000, to cure and pack fish.

The Riverside Mfg. Co., of Montreal, has been incorporated with a capital stock of \$50,000 to manufacture all kinds of cotton and woolen goods.

About 500 tons of machinery, iron pipe, apparatus, etc., is being transported from Kamloop, B. C., to the Horse Fly Hydraulic Mines.

Mr. I. N. Fulton, Montreal, has taken over the business of Messrs. E. Chanteloupe & Co., and will continue the manufacture of iron castings, etc.

Supplementary letters patent have been granted to the Canada Paint Company, Montreal, by which the capital stock is increased from \$150,000 to \$750,000.

The factory of Messrs. J. W. Patterson & Co., Montreal, manufacturers of roofing material, building paper, etc., was damaged by fire Feb 5th to the extent of about \$2,000.

Messrs. Barber Bros., Georgetown, Ont., have been awarded a contract by the Ontario Government for the supply of various kinds of writing paper, the contract to extend over five years.

The Cant Bros. Co., Galt, Ont., have recently made shipments of wood-working machinery to different places, including a large planer and a combined rip and cross-cut saw to Sorel, Que.

Messrs. Sterling & Brownly, St. John, N. B., have sold to parties in the United States the right to manufacture the Brownly steam injector for forcing water into boilers. The price realized is \$20,000.

The Beauce Mfg. Company, whose factory is at St. Mary de la Beauce, Que., are engaged in the manufacture of men's and women's hosiery, etc. They have met with so much success since they began business that they are now contemplating an extension of their works.

Mr. James Ingells, of East Jordan, Mich., who is a large manufacturer of home fasteners, was in Windsor, Ont., a few days ago looking for a suitable place at which to establish a branch factory in Canada for the manufacture of his specialty. His Michigan plant turns out about 4,000 fasteners per day.

... USE ...

PACKARD'S MOGUL LAMPS

200, 300 and 500 C.P.

For Lighting Large Interiors

They Cost Less and Use Less Current

Than Smaller Incandescent Lamps for the same purpose, and

Have None of the objections of Arc Lamps

WRITE US FOR PARTICULARS AND PRICES.

Packard Lamp Co., Ltd.
96-100 King Street, Montreal

Manufacturers of

The "Packard" High Grade Incandescent Lamp
Any Candle Power, and Any Voltage, to fit any Base.

The Montreal Packing Co. has been organized at Vancouver, B. C., with Mr. J. L. Anderson at the head, to conduct a canning factory.

John Abell Engine & Machine Works, Toronto, have just completed a contract for building three large steel boilers, over 100 h.p. each, for the Hamilton mills of the Canadian Colored Cotton Co.

Messrs. G. B. McGillivray, W. B. Lindsay, Charles Grist and associates are applying for the incorporation of the Strathroy Oil Co., with a capital stock of \$50,000, to carry on the business of producing crude petroleum in the county of Lambton, the chief place of business to be in the town of Strathroy.

Messrs. Wm. Kerns, A. B. Coleman, George Allen, David Chambers and John Smith, and associates are applying for the incorporation of the Coleman Planing Mill and Lumber Co., of Burlington, with a capital stock of \$50,000, with headquarters at Hamilton, Ont. The business is indicated by the name.

Engineer Jennings, of the Niagara Falls Park and River Railway, and Mr. W. A. Grant, General Manager of that road, passed over it a few days ago inspecting the engineering work of the new bridges to be used for the double tracking of the road, which it is expected will be accomplished in time for the spring traffic.

PHENIX Assurance Company OF LONDON, ENGLAND.

Established 1782. Agency Established in Canada 1804

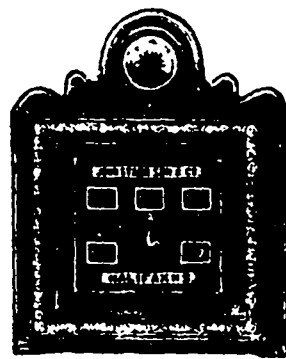
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General Agents for the Dominion,

LEWIS MOFFATT & CO., 35 St. Francois Xavier St., Agents at Toronto. MONTREAL.

"STARR" Automatic Annunciators

THIS IS AN ENTIRELY NEW DEPARTURE IN ANNUNCIATORS, AS ALL THE TROUBLE AND ANNOYANCE OF RE-SETTING THE DROPS IS DONE AWAY WITH.



THE ONLY ANNUNCIATOR MADE THAT NEVER REQUIRES ATTENTION; HANDSOMELY GOTTEN UP; SIMPLEST, CHEAPEST AND BEST ELECTRIC ANNUNCIATOR IN THE MARKET.

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JOHN STARR, SON & CO. (LIMITED)

Manufacturers and Dealers in

ELECTRICAL APPARATUS AND SUPPLIES,

2, 4 and 6 Duke St., Halifax, N. S.

The Fort Henri Chemical Co., Montreal, has been incorporated with a capital stock of \$50,000, to manufacture acids, alkalis and other chemical substances, especially refined and distilled glycerine. Mr. James Watson, of Hamilton, is one of the incorporators.

Letters patent have been issued to Messrs. Sykes and Ainley, and associates, incorporating the Sykes and Ainley Manufacturing Co., of Glen Williams, Ont., with a capital stock of \$100,000. They will manufacture dusters, blankets, rugs, cottons, linens, carpets, yarns, flannels, and other textile fabrics.

Mr. T. D. Ledyard, of Toronto, and associates, are applying for the incorporation of the Ledyard Gold Mines Co., the object being to operate the Ledyard Gold Mines in the township of Belmont and elsewhere in the counties of Peterborough and Hastings, the amount of the capital of the Company to be \$1,000,000.

Messrs. A. B. Lee, J. P. Northey and associates are applying for incorporation of the Ketchum Gas Co., of Toronto, with a capital stock of \$50,000, to manufacture gas machines and other articles connected with the use of gas and with the economical consumption of fuel. Messrs Lee, Northey and O. W. Ketchum will be the first directors of the Company.

Messrs. Doty Bros. & Co., Toronto, are placing new compound engines in the steam tugs Queen and Armstrong now undergoing repairs at Warton, Ont. The work of lengthening the steamer City of Midland, now being done at Collingwood, Ont., is nearly completed, which will make her one of the finest steamers sailing on Georgian Bay. Messrs. Doty Bros., are building the compound engine for a tug being built for Mr. H. McGinnis, at Collingwood, Ont. They are also building Finlayson water tube marine boilers for a new steamer now being erected in Collingwood.

Mr. Henry Marsh, of King, Ont., has put in a fine new 75 h.p. steel boiler at his saw mill. It was made at G. John Abell Engine & Machine Works, Toronto.

The Buffalo Forge Co., Buffalo, N. Y., inform us that they have been awarded the contract for the heating of the Hudson Paint Works at Knoxville, Tenn., including two buildings, each 337x908.33 feet. The heating plant for each of these buildings entails the use of a very large fan and suitable heating coils.

Messrs. H.A. Everett, T. H. Smallman, S. R. Brake and others, of London, Ont., are applying for the incorporation of the London and Spring Bank Electric Railway Co., with power to construct and operate an electric railway from a point in or near the City of London, Ont., to a point on the River Thames, near Spring Bank; and with power to acquire or build a hotel and recreation grounds at Spring Bank.

It is worthy of more than passing notice that the John Abell Engine & Machine Works, Toronto, have just shipped the 45 horse power compound traction engine built by them for Monsieur Seferiades A. Seferiades of Smyrna, Asia Minor. Mons. Seferiades, who is a Greek merchant doing business in Smyrna, purposes taking this engine to his farm of 4000 acres about 140 miles inland, where it will be used for irrigating, threshing, grinding and probably plowing purposes. Mons. Seferiades visited the World's Fair at Chicago and saw Mr. Abell's exhibit, including his new patent compound traction engine, and was so taken with it that after comparing it with English and United States engines he awarded it the palm and came to Toronto, where he ordered one of similar pattern but of greater power. Mons. Seferiades sailed from New York early in February for his distant home.

ECO MAGNETO

Watchman's Electric Clock

... WITHOUT BATTERIES ...

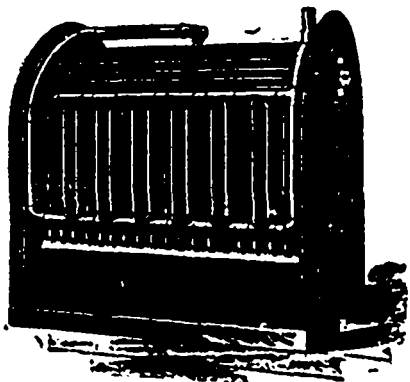


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MONTREAL ELECTRIC CO., Agents for Province of Quebec



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FINLAYSON WATER TUBE MARINE BOILER

... FOR ...

YACHTS, LAUNCHES and OTHER STEAMERS

The most efficient and Reliable Water Tube Boiler in the market. Has entirely new features and improvements.

Send for Illustrated Catalogue of Boilers and Engines.

Doty Engineering Works

DOTY BROS. & Co., Proprietors.

5 YORK STREET, Opposite Union Station, : : TORONTO, ONT.

WE MANUFACTURE

THE MOST PERFECT

...Watchman's Clock...

IN THE MARKET.

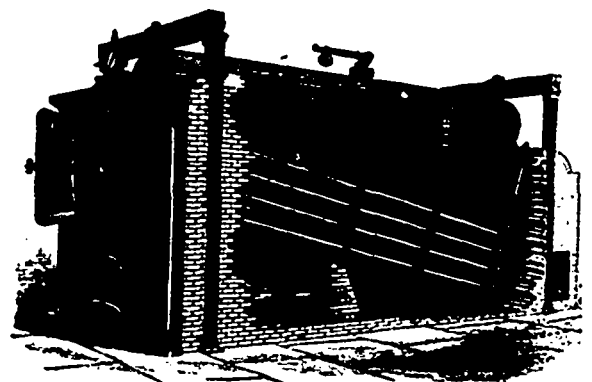
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MANUFACTURERS
FINE WATCHES & CLOCKS

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SAMUEL LITTLE, Pres. RUFUS B. CAHILL, Gen. Mgr.
ARTHUR M. LITTLE, Treas.



The BABCOCK & WILCOX CO.



:: Water Tube Steam Boilers ::

Now being manufactured in Canada

Agents for the Dominion ...

A. HOLDEN & CO.

Waddell Building : : : 30 St. John St., MONTREAL

Send for book "STEAM" free on application.

New fulling has recently been placed in the Auburn Woolen Mill at Peterborough, Ont.

A new Hoberger weaving machine has been placed in the factory of the Guelph, Ont., Carpet Works.

The capital stock of the Goold Bicycle Co., Brantford, Ont., has been increased from \$20,000 to \$100,000.

Messrs. Boutillier, Dion & Co., will build a factory at Roxton Falls, Que., for the manufacture of window blinds, barrel staves, etc., at a cost of \$13,000.

We are informed by the Aylmer Furniture Co., Woodstock, Ont., of which Mr. Jas. Hay is president, that they have been awarded a contract to manufacture all of the cabinet works to be used in the construction of the Singer machine for the Canadian market. This contract will extend over a number of years, and will amount to about \$60,000, or more. Heretofore such work has been done in the United States; and it is much to the credit of the concern that the work is now done in Canada. The company also expect to supply large quantities of similar cabinet work for the Singer Co., for their export trade from the United States.

The Buffalo Forge Co., Buffalo, N. Y., have put in operation their heating system in the general office buildings of the East Tennessee Railroad at Knoxville, of which the Knoxville Daily Journal has the following: The new system is a model of comfort and convenience, its excellent sanitary features especially commending itself to the numerous inhabitants of the big four storey building. Through the courtesy of General Manager Hudson, a Journal representative was shown the plant of the system, which is located in the basement of the building. An eighty inch Buffalo Forge Co.'s fan draws air through a heater of 1,800 feet of steam pipe. The fan at normal speed will change the entire air of the entire building every fifteen minutes, and can be regulated at will. It will run or furnish 12,000 cubic feet of air per minute, and its distribution, after leaving the fan in pipes, varies according to the amount necessary to furnish the various rooms of the building. The steam is furnished from a locomotive boiler. The fan is operated by a gas engine, both of which are located in the basement. This fan's work will be greatly appreciated in the summer for its distribution of refreshing whiffs of air during the sultry months. The system was arranged not so much to economize on coal, as to provide for the comfort and convenience of the several officials and numerous clerks in the building.

Mr. F. McQuillan and associates, Vancouver, B. C., will erect a stamping mill at Alberni, B. C.

The City of Toronto will add a steam fire engine to their fire equipment at a cost of about \$8,000.

Messrs. Ridout & Maybee, solicitors of patents and experts, 103 Bay street, Toronto, have sent us a copy of their "Inventor's Guide" just published by them. It is of a size convenient to be carried in the pocket, 36 pages and good stout cover, and is intended to give inventors and others such information as may be necessary to enable them to act to best advantage in procuring patents, or in defending their rights before the law courts. Mr. J. G. Ridout has been a barrister and solicitor of the courts since 1871, and since 1884 has especially devoted himself to patent law. For eight years he was associated in business with the late Donald C. Ridout, the well-known patent solicitor. Mr. J. E. Maybee had the advantage of ten years experience with the late Mr. D. C. Ridout, and was for a number of years head clerk and draughtsman in his office, and up to the time of his death in August, 1893.

PAPER

We carry in stock and make to order every description of Wrappings, Pulley Board and Press Papers. Fine Cartridge Hosiery a Specialty.

... Write for Samples.

Special attention to letter orders.

CANADA PAPER CO., Ltd., 15 Front St. W., Toronto.
578 Craig Street, Montreal.

DOMINION WIRE MFG. CO.

MONTREAL and TORONTO

Wire Drawers, Galvanizers

... and ...

MANUFACTURERS OF

Iron Steel **WIRE** Brass Copper

FOR ALL PURPOSES

... also ...

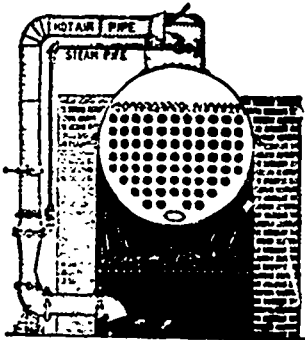
Steel and Brass Wood Screws, and
.. Wire Nails..

Crescent Coat and Hat Hooks, Steel and Brass
Jack Chain, 2 and 4 Point Barb and
Plain Twist Fencing.

Write for Prices and Discounts

EARLE'S

STEAM and AIR INJECTORS, .. EXHAUSTERS, ETC.:::



For burning hard and soft coal, screening run mine and lump coal under steam boilers, exhausting air and vapors from buildings, ventilating ships, mines, etc.

Highest Medal and Diplomas given at the World's Columbian Exposition, Chicago, 1893.

The Best Blower in the market for Steam Boilers.

Send for Illustrated Catalogue to

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BELLEVILLE, : : ONT.

EAGLE BRAND THE BEST ROOFING

It is superior to any other Roofing, and unequalled for House, Barn, Factory, or Out-Buildings; it costs half the price of shingles, tin or iron; it is ready for use, and easily applied by anyone; it is the best thing in the market, in durability, to all others.

Send for estimates, and state size of roof.

... RUBBER PAINT ...

The best known Paint in the world for Tin, Iron, or Shingle Roofs, Fences, Sides of Barns and Out-Buildings. It costs only 60 cents per gallon, in barrel lots, or \$1.50 for a 3 gallon tub. Color dark red. It will stop leaks in tin or iron roofs that will last for years. It is guaranteed not to peel, crack, scale, nor wash off, and is fire-proof against sparks. TRY IT.

... SHEATHING PAPER ...

300 square feet, \$3; keeps building cool in summer, warm in winter.

EXCELSIOR PAINT AND ROOFING CO., 155 and 157 DUANE ST., NEW YORK, N. Y.

FOUNDRY FACINGS

Core Compound, Ceylon Plumbago
Foundry Supplies and
Moulding Sand

CANADIAN AGENTS FOR

Root's Positive Blower
Colliau Cupola Furnace

Hamilton Facing Mill Co.

HAMILTON . . . Ontario

The town of Kincardine, Ont., will purchase and operate the water works and electric light plant in that town.

The large implement warehouse of the Sylvester Bros. Manufacturing Co., at Winnipeg, Man., was destroyed by fire Feb. 9. Loss about \$5,000.

The Wier Boiler Works at Montréal have been awarded the contract for the construction of two boilers to go into dredges, now being built at Sorel, Que., for the Dominion Government.

Messrs. Cowan & Co., Galt, Ont., have just shipped combination saw bench to Bertie Station, Ont., a hand re-saw machine to Grimsby, Ont., and a car-load of wood-working machinery to Ottawa.

The Bristol Co., of Waterbury, Conn., are successors to the Bristol Mfg. Co. This is in consequence of the enlargement of the business of the concern. They are manufacturers of recording instruments for pressure, temperature and electricity, steel belt lacing etc. Their attractive business card is to be found on the outside back cover of this journal.

The two new steam engines in the new power house of the Montreal Street Railway Co. were successfully started up a few days ago, developing 1,000 horse power. Mr. Cunningham, the superintendent, states that the number of motor cars in use in the streets of that city will be increased to 61 by the end of the present month. When this power house is completely finished there will be six engines giving a horse-power of 600, but capable of being worked up to 800. The total overplus of motors for the 65 miles of railroad will be 130 and it is expected that this number will be in operation at the beginning of the summer.

Messrs. Heintzman & Co., Toronto, manufacturers of high-class pianos, have succeeded in producing a transposing piano, which transposes music into any key by a simple lever movement. By means of this invention one can now accomplish what has long been desired by practical men, viz., an adjustability of pitch. By its use the performer is enabled to render the music in all the different keys with regard to pitch; at the same time the change may be produced by the slightest effort, the keyboard being operated by a lever within reach of the performer, and the change of pitch being produced instantaneously. Music played as written may be rendered in any of the various keys desired. All music can be played in the key of C and its relative A minor or rendered in any of the various keys or scales. The invention is a happy one, as it simplifies the playing of music, and is adapted to all the different systems of music. This Heintzman piano is so exactly constructed that it does not get out of tune, nor does the arrangement affect the action in the slightest degree, and the mechanism is of so simple a character that its liability to get out of order is practically nil.

During the season just closed the German Union Cheese Factory at New Hamburg, Ont., manufactured 107 tons of cheese. Their patrons were paid 83 cts. per 100 lbs. of milk. The average price for the season's productions averaged 10 1/4 cts. per lb.

Messrs. Davis and Son, Kingston, Ont., inform us that they are now engaged in the construction of 12 pleasure yachts of lengths varying from 22 to 43 feet and that they have already completed the building of four such vessels this season. All these yachts are to be propelled by the Sintz oil gas engine, of which they are the Canadian agents.

The E. Howard Watch and Clock Co., 386 Washington St., Boston, Mass., call attention in their advertisement to the watchman's clock for factory use, manufactured by them, and of which they say it is the most perfect clock of the sort in the market. This is an old established concern which has a fine reputation in the United States, and the clocks that they make are in use in many of the largest manufacturing establishments in that country.

The Goldie & McCulloch Co., of Galt, Ont., did a heavy business during the last year, and orders are still coming in. They have recently placed one of their Wheelock engines, with boiler, condenser, and all connections, in the Carleton Place Electric Light Co.'s power house. Breithaupt Bros. & Hall, of Penetanguishene, have just started up a Wheelock of 75 h.p. The Chaudiere Electric Light Co., of Ottawa, are now getting in two Tandem compound condensing Wheelock engines, with six steel boilers, and all connections. These engines will develop 1,200 horse power. The Penetanguishene & Midland Light & Power Company are putting in a Wheelock engine and steel boiler, to develop 140 horse power; J. R. Vanfleet, of Brantford, 30 h.p. Wheelock engine; T. A. Code, Perth, Ont., 40 h.p. Wheelock engine; Peterboro' Electric Light & Power Company, 180 h.p. Wheelock condensing engine, with boilers, condenser and all connections; the Canadian General Electric Co., for their new London power house, 150 h.p. Tandem compound condensing Wheelock engine—this is the second engine of this size now in the company's new power house in London; a 40 h.p. Wheelock engine and boiler for the Vankleek Hill Electric Light Co.; 75 h.p. Wheelock engine and boiler for J. M. Green & Co., St. Thomas; 150 h.p. engine for the Knechtel Furniture Company, Hanover; 75 h.p. Wheelock engine to the R. W. Smith Saw Co. of St. Catharines; 75 h.p. steel boilers to Paris Winney Mills Co.; 75 h.p. steel boiler to Ontario Agricultural College, Guelph; 75 h.p. engine and steel boiler to H. McElroy & Sons, Carp, Ont.; and 40 h.p. Wheelock engine to Hamilton Electric Light & Power Company, Hamilton; besides many orders for shafting, friction pulleys, friction couplings, flouring mill and other machinery.

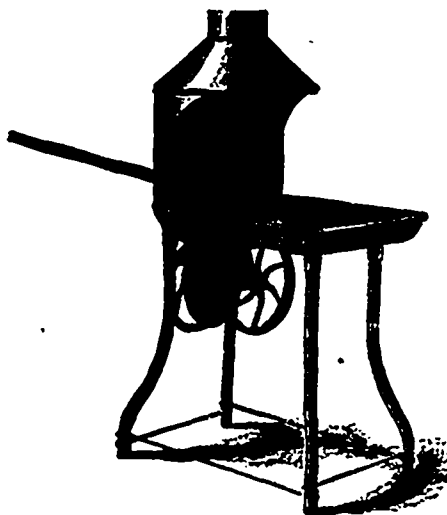
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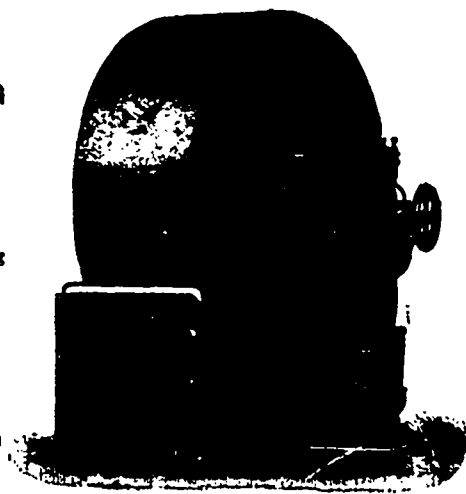
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Mr. A. C. McCracken will build a woolen mill at Mission City, B. C.

The House of Industry about to be erected at Brockville will cost \$16,000.

John Murchy, Hutonville, Ont., is adding new machinery to his woolen mill.

Mr. John Baird, Almonte, Ont., is placing an electric light plant in his woolen mill.

Messrs. Gemmill & Son, Perth, Ont., are placing new machinery in their woolen mill.

Messrs. Folger Bros., Belleville, Ont., will build a tramway across Wolfe Island near that city.

Messrs. Ferguson & Pattinson, Preston, Ont., have begun the erection of an addition to their woolen mill.

Mr. N. B. Berry, City of Quebec, manufacturer of blankets, tweeds, etc., has six looms in operation, operated by steam.

The Canadian Colored Cotton Mills Co. are operating their two mills at Cornwall, Cat., 35 hours per week, giving employment to 1,500 hands.

The Ottawa Electric Light Co. have purchased the water power used by them and heretofore rented from Messrs. Perley & Pattee, the price paid being \$75,000.

The Mercer Mfg. Co., have received letters of incorporation with a capital stock of \$120,000, with headquarters at Weston, Ont., to manufacture harvest machines, agricultural implements, etc.

During the past few days Messrs. Cowan & Co., Galt, Ont., have shipped wood-working machinery to British Columbia, to the North-West Territory, and to several different places in Ontario. Their works are fully engaged.

At the recent annual meeting of the Canadian Marine Association, held in Toronto, a resolution was passed endorsing the action of the Dominion Government in its resolve to build a dry dock directly on the line of the Welland Canal, of sufficient capacity to accommodate the largest vessels passing through that canal.

Messrs. Stevens, Hamilton & Co., Galt, Ont., have recently shipped machinery as follows: a lathe to Jackson & Cochrane, at Berlin, Ont.; a shaper and two drilling machines to the Verity Plow Co., at Brantford, Ont.; a lathe and shaper to the Erie Railway Co., at Walkerville; a power hammer and other machinery to Fleck & Co., at Ottawa; and are now building a large machine for the Gould Bicycle Co., at Brantford.

Vaughan's Saw Mill, at Port Arthur, Ont., was destroyed by fire Feb. 1st, loss about \$3,000.

The Mustard Roller Flour Mill, at Wyoming, Ont., was destroyed by fire on Feb. 1st, loss about \$12,000. The fire also consumed a large grain warehouse adjoining the flour mill, loss about \$3,000.

30,000 square ft. of space has been apportioned to Canada at the forthcoming Antwerp Exhibition. It is probable that the fisheries department will make a fine display on that occasion.

Before the next Dominion general election, it will be necessary to supply a deficiency in the number of ballot boxes to be used on that occasion, to the extent of about 1,500. The Clerk of the Crown in Chancery thinks that the manufacture of these boxes should be commenced immediately.

The Toronto Street Railway Co. will expend about \$1,000,000 in improving their plant. A new power house will be added and tenders have been asked for engines aggregating about 6000 horse power. In the car shops of the Co. work has been begun in the construction of 50 new motors and 50 trailers. These car shops have already turned out about 180 cars, many of which have been sent to Montreal, Winnipeg and other places.

I. Matheson & Co.

... New Glasgow, N. S.

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STEAM PLANTS EQUIPPED FOR ALL PURPOSES

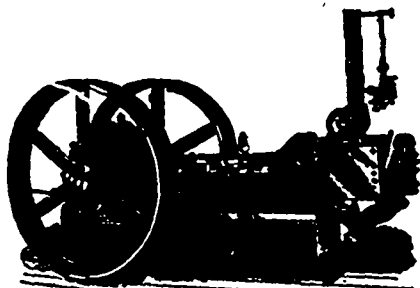
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- One 80 H. P. Leonard make, nearly as good as new.
- One 60 " " " in fair condition.
- One 70 " Goldie & McCulloch make, in fair condition.

The above were replaced by "Monarch Economic" Boilers, and may be inspected at London, Ont.

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EVERY VALVE TESTED

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Sole Manufacturers for Canada.

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Effective Heating Apparatus.

The Buffalo Forge Co., Buffalo, N. Y., have sent us a copy of a letter received by them from Mr. C. L. Plunkett, of Salt Lake City, Utah, in which reference is made to the heating apparatus supplied by the Buffalo Forge Company for a public school in Salt Lake City as follows:—

Yesterday, with the temperature hovering close to zero, a test of all the school buildings in this city was made, and one of the Buffalo Forge Co.'s plants—that in the Lincoln School in the Sixth Ward—carried off all the laurels. The temperatures in the nine rooms during the entire day varied only 2 one from the other, and to accomplish this result only 700 pounds of slack were used at a cost of less than \$1. The apparatus in this building delivers 30 cubic feet of outside air for each of the 500 pupils per minute. Standing just outside the door of the apparatus room, a member of the Board could not be made to believe that the fan was running. Imagine his surprise when the engineer opened the door, and he saw the plant running at full speed. The fact that no one of the competitors knew that any test was being made is very significant. In this building the velocity of all horizontal ducts is 2,800 feet, in vertical flues 800 feet and through registers 660 feet. You will note that the above results are even better than in the Lehi plant last winter, which plant by the way, is the pride of all the people of Lehi, and the people in a neighboring town, three miles distant, regret that they did not adopt the Buffalo Fan system instead of furnaces, which cost them less than one half as much to instal. The Latter Day Saints' College, also the

Hospital and First Ward plants with Buffalo Forge Co.'s apparatus, are all running beautifully.

The Lehi heating plant, above alluded to, is that in a school building at Lehi, Utah; and Messrs. A. A. Peterson and Edson Whipple, of the Board of Trustees of the Lehi school, under date of Feb. 1st, inst., wrote the following letter to the Buffalo Forge Company:—

In reply to your inquiry concerning the heating and ventilating system furnished by you for our new school building, we are glad to say that it is in every way perfectly satisfactory.

We entertained seven representatives and bids for different systems when deciding upon our heating and ventilating plant, and while your price was much higher than several others, the admirable working of the system has proven conclusively to us that we made no mistake in our selection.

You guaranteed 70° in zero weather, and we admit that when the plant was being installed we had grave doubts on this point, but with the outside temperature 14° below zero you maintained an average temperature in all six rooms of 78°, the lowest being 76°; they were effectually removed and our final payment cheerfully made.

As to the economy of the plant, we use on an average 450 lbs. of coal per day, which, at \$3 per ton, makes the cost of heating and ventilating our school building 11 cents per day per room, containing from 55 to 60 pupils each.

These letters present a clear idea as to the good results obtained in the use of the apparatus manufactured by the Buffalo Forge Company, and of the cost of operating.

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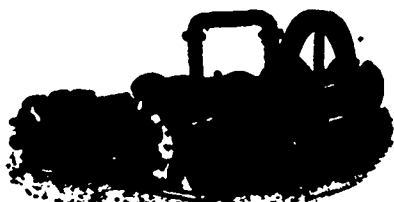
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Straight Line
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Cordcasting.

Duplex Compound Steam Air Compressor with Halley's Mechanical Valve

**The Rand "Slugger" and "Giant" Air Drills
For Mines and Quarry Work.****AGENCIES:**

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HALIFAX HOTEL, HALIFAX, N. S.

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If Contemplating transmission of power any considerable distance write to us for estimates.

Patent Metallic Drawing Roll.

An invention which can force attention and gain a constantly increasing hold on the trade in the face of dull business and a deep rooted determination to economize among manufacturers, shows that it must have paramount features of advantage. Such features the patent metallic drawing roll possesses, and the very motive of economy has led to its widespread introduction during the months in which most lines of manufacture have been very inactive. True, the business has been ably managed and energetically pushed, but the mill trade is most conservative, and no amount of advertising or pushing will command success in this line unless it is backed up by a meritorious article.

We have in previous issues of THE CANADIAN MANUFACTURER described the peculiar features of the metallic drawing rolls, and pointed out the force of their claim to being the "most important improvement in cotton spinning since Arkwright's time." The trade is very generally familiar with the principle of this system of drawing, and those manufacturers who have not adopted it have probably been actuated by a feeling of "letting well enough alone," and a desire to wait until their merits were more fully demonstrated by time and experience. Sufficient time has now elapsed, and certainly enough experience has been gained in the leading mills, to demonstrate that the claims of the company are well founded. These are not the times to let well enough alone, but every effort must be made to decrease cost and improve quality, and it is on these special points that the case of

the metallic rolls has been argued, and in so many instances, won. This system of drawing is successfully applied to every operation up to the spinning, and we are informed that it will not be long before it will be applied successfully to that operation as well.

The Metallic Drawing Roll Co., of Indian Orchard, Mass., comprises among its directors, officers and stockholders many large capitalists who are shrewd mill men, and who have been quick to appreciate the value of the invention, and whose opinions have been substantiated by the result.

To those who are hesitating about the introduction of the metallic drawing rolls, or who have not hitherto considered the subject as of sufficient importance for action, we would sincerely recommend a thorough investigation of the subject, believing it would be a most profitable procedure for any manufacturer, and one that he will not regret doing.

On page 160 in this issue the company make a clear and forcible statement of their case, which we commend to the attention of cotton manufacturers.

Northey Pumping Machinery.

The Northey Manufacturing Company, Toronto, have sent us their 1894 general catalogue of pumping machinery, and in the introduction it is stated:—

In presenting this Illustrated Catalogue of our Pumping Machinery to the public, we beg to call attention to the substantial advances

Emery Wheels AND MACHINERY

Standard Emery Wheel Co., Albany, N.Y.

SITUATION WANTED

Young man, with thirteen years practical experience in all branches, wants situation in Woolen Mill.

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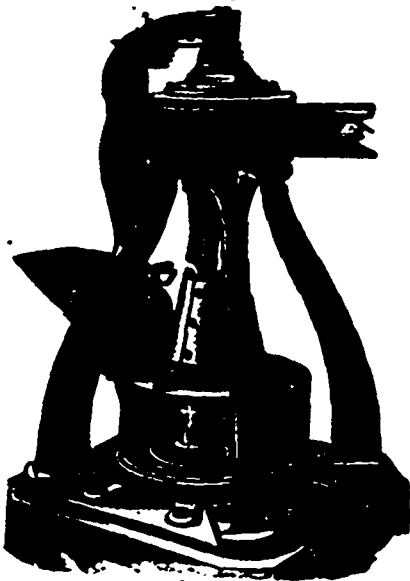
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Will work either wet or dry, and deliver a finished product. Capacity, 3 to 4 tons per hour on Phosphate Rock, 1 1/2 to 2 tons per hour on Portland Cement, Quartz or Ores, depending on hardness of material to be pulverized and fineness of product. Grinds from 30 to 250 Mesh with equal facility.

No JOURNALS IN GRINDING CHAMBER. FALL RIGID ON SHAFT HAVING DIRECT POSITIVE ACTION ON MATERIAL. MINIMUM POWER PRODUCES MAXIMUM AMOUNT OF PRODUCT. IT IS ABSOLUTELY GUARANTEED IN EVERY RESPECT, BOTH AS TO CONSTRUCTION AND CAPACITY. FIRST COST, WEAR, AND OPERATING EXPENSE MUCH LESS THAN STAMP MILLS. LARGE NUMBER OF MILLS IN USE ON DIFFERENT MATERIALS WITH POSITIVE SUCCESS IN EVERY INSTANCE.

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made in the number, quality, and general get-up of our machines since our last Catalogue was issued. We do not hesitate to invite fair comparison of our goods with those of any other maker, both as to design, adaptability to the work to be performed, and excellence of material and workmanship, and we would especially call attention to our new Valve Gear, which is simple, positive, noiseless, adjustable, and positively reliable. In a direct-acting Steam Pump, the reliability of the Valve Gear is the point to be first considered by the purchaser, and we invite close examination of that used by us, as we claim it to be perfection.

Having the largest and best equipped Steam Pump Works in Canada, amply provided with Tools specially designed for the manufacture of Steam Pumping Machinery, we are in a position to produce the highest class of work in our line, and to absolutely guarantee the quality of our product.

By the terms of our guarantee we hold ourselves under obligation to refund the purchase money in case a pump fails to do the work for which it is warranted.

Every pump is thoroughly tested before shipment.

Included in the catalogue are both exterior and interior views of the Company's new and extensive work in Toronto.

These buildings were erected in 1893 after careful examination of the most recent examples of English and American machine-shop plants, and are therefore modern in every respect. The arrangement of the various buildings is calculated to insure the greatest economy in manufacture, and the interior transportation facilities are most com-

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plete, covering surface railway, overhead travelling crane, jib cranes, etc. The location on King Street West is unsurpassed for convenience of access and for prompt shipping facilities. It is only 12 minutes by electric cars from the corner of Yonge and King Streets, and the company's own railway sidings enable them to load goods direct from factory to cars. The tool equipment embraces some of the heaviest modern machine tools to be found, as well as many special tools put in exclusively for pump building, enabling the company to turn out their product with special rapidity and precision, and putting them easily in the front rank in Canada in their line. The shops are lighted throughout by electricity, heated by steam, and combine every convenience for the proper conduct of their business. Visitors are cordially invited to make an inspection of the works.

A Canadian Timber Enterprise.

About two years ago the Ontario Government sold a large quantity of timber land in the Nipissing district to Messrs. Gilmour & Co. of Trenton, Ont., for which more than \$700,000 was paid. Messrs. Gilmour desired to bring the timber which they cut from this land to their mills at Trenton. The timber was contiguous to the navigable waters of the Muskoka lakes; but a height of land intervened in reaching the Trent river. Mr. David Clark, the engineer of the concern, laid out and built roads from the timber belt and spanned rivers and smaller streams with suitable bridges to enable the hauling of the timber as desired. During last summer more than 500 men were employed in cutting this timber and getting it to the Trent river where it was to be rafted. The intervening height of land spoken of is more than two miles wide, separating the Raven Lake waters from Trading Lake, and to bring the logs into Raven Lake, where they were to be rafted for transportation down the different water courses to Trenton; it was necessary to transport them across this height of land.

After the logs were cut they were towed by steam warping tugs, or alligators, as they are sometimes called, to the shore of Trading Lake, where there was placed a "jack ladder." This ladder elevates the logs to a height of forty feet and conveyed them a distance of two hundred feet by an endless chain, finally dumping them into a reservoir. This reservoir is eighty feet in length, seven feet in width and eight feet in depth; and is filled with water by a set of centrifugal pumps.

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PRESTON : : : ONT.

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Fine and Medium TWEEDS.

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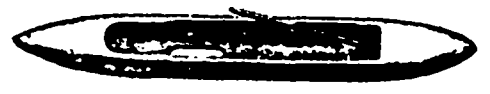
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Manufacturers of

Power and Hand Loom..
SHUTTLES



Of Every Description.

Write us.



... WE MANUFACTURE ...

FANS FOR NOTHING

But hard work, and having had twenty years experience we know how to get steam out of

Dye Houses and the largest possible product from **Dry Rooms**

OUR COMPOUND WHEEL is the most powerful in the world, and if we can't be of actual value to you we don't want your money. No CUSTOMS DUTIES on our Fans.

Send for Circular and information

Barney Ventilating Fan Co., 79 Pearl St., Boston, Mass., U.S.

having a capacity of twenty thousand gallons per minute. These pumps were manufactured by Messrs. M. Beatty & Son, at Welland, Ont.

From the reservoir the logs were guided into an immense slide or trough 3100 feet in length, and built after the manner of an immense water spout. This was filled with water from the reservoir, and admitted a log five feet in diameter. Through this trough the logs were floated at the rate of ten thousand per day.

After passing through this slide they reached the long jack ladder. This is 2500 feet in length, built in eight sections, the 1st section being 400 feet long and the remaining seven 300 feet each; and over this ladder the logs were passed one at a time, with marvellous swiftness and steadiness. The elevation in this length is ninety feet. This was the last journey of the logs by artificial means, for, upon reaching the terminus of the long jack ladder, they were projected into a dam 250 feet wide and 35 feet high. Here they were placed in booms, to be finally towed down through Raven Lake, and thence into the lower rivers and lakes tributary to the Trent waters.

The motive power for driving the long haul is a 400 h. p. horizontal turbine water wheel placed near the centre of the haul, driving a counter shaft. From this shaft connections are made with each section of the log haul by means of rope transmission, until the whole are connected together, by which means the endless chain on the haul is driven; and arrangements are so made that everything works simultaneously.

The Company intend to use six warping tugs for towing logs, and are having them fitted up with independent engines and dynamos and an 8000 c.p. arc lamp to enable them to work night and day. The lamp is placed on top of a pole 25 feet in height, and is arranged in such a manner that it will revolve and move at any angle in order to concentrate the light on any point where the men are working on the logs. These tugs were patented and manufactured by Messrs. West & Peachy, of Simcoe, and are used by a great many Canadian lumbermen.

Electricity is also used as signals when requiring to start or stop

the log haul. Electric buttons are placed at intervals along the haul, and when occasion requires they are simply pressed by the men in attendance, starting or stopping the haul as may be desired.

A few weeks ago Mr. Clark and other experienced engineers made a practical test of the whole work, and most satisfactory results were obtained, notwithstanding the fact that the weather was intensely cold, and ice and snow interfered with the test to a certain extent. However, the engines were started up, the jack ladder moved in unison, the reservoir filled up rapidly, the long log haul responded noiselessly in obedience to the rope drive, and a 30 inch pine log rolled through the various openings until it finally reached the dam. Months of patient toil and labor were thus rewarded, and a path was opened from the waters of Trading Lake to the Trent river.

The turbine water wheel, log haul chains and all gearing and shafting in connection with the jack ladders were manufactured by the Wm. Hamilton Manfg. Company, of Peterborough, Ont.

The rope drives cut a very important figure in this great undertaking, as upon its successful working depended the carrying out to completion of the designer's ideas. Before finally settling matters, therefore the Dodge-Wood Split Pulley Co., of Toronto, were called to the scene, and after going over the ground, submitted their plans, which were accepted by Messrs. Gilmour & Co. This equipment consists of one main drive of 400 h. p. from the water wheel shaft to a main central jack shaft, and a series of seven distributing drives running both ways from centre, dividing the power equally over the entire jack works, something more than 2500 ft. in length. The work, including more than ninety grooved pulleys and sheaves, over two miles of patent transmission rope, all the necessary turned iron spindles, journal boxes, patent slack "take up" carriages, tension weights, etc., was delivered by the Dodge Pulley Co. within the specified time, just ten weeks from date of the order. The laying out of all frame work carrying the drives, as well as the entire erection of drives, splicing ropes and starting up, was under the superintendence of the Dodge Pulley Co., and we believe we are safe in saying that no such extensive piece of rope drive work is to be seen anywhere in America as this.

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CANADIAN PATENTS.

The following patents have been issued from the Canadian Patent Office, from December 5 to December 18, 1893, inclusive.

Information in regard to any of these patents may be had free on application to THE CANADIAN MANUFACTURER, or copies of American patents corresponding to these, where the American patent has been previously granted, can be procured through us for the sum of twenty-five cents.

LIST OF PATENTS.

- 44,821 Axle bearing for wheels, Chas. F. Lavender and Thos. Fane, Toronto, Ont., December 5th.
- 44,822 Screen, David J. Davidson, Abraham S. Martin and Stephen Martin, Port Huron, Mich., December 5th.
- 44,823 Separator and grader, David J. Davidson, Abraham S. Martin and Stephen G. Martin, Port Huron, Mich., December 5th.
- 44,824 Sieve cut-off, David J. Davidson, Abraham S. Martin and S.G. Martin, Port Huron, Mich., December 5th.
- 44,825 Sieve cut-off, W. Allen Pendry, Detroit, David J. Davidson, Abraham S. Martin, and S.G. Martin, Port Huron, Mich., December 5th.
- 44,826 Multiple telephone switchboard system, the Bell Telephone Company, of Canada, Montreal, P.Q., December 5th.
- 44,827 Multiple telephone switchboard system, the Bell Telephone Company, of Canada, Montreal, P.Q., December 5th.
- 44,828 Multiple switchboard system for telephone exchanges, the Bell Telephone Company, of Canada, Montreal, P. Q., December 5th.
- 44,829 Telephone exchange apparatus, the Bell Telephone Company, of Canada, Montreal, P. Q., December 5th.
- 44,830 Switch for telephone exchanges, The Bell Telephone Company, of Canada, Montreal, P. Q., December 5th.
- 44,831 Machine for suspending hogs, cattle, etc., Charles A. Donnelly, Hamilton, Ont., December 6th.
- 44,832 Pump, Melchi M. Groove, Garfield, Washington, U. S., December 6th.
- 44,833 Milk agitating machines, Benjamin Ewing, Brighton, Ont., December 6th.

- 44,834 Cultivator, William Hewitt, Brantford, Ont., December 6th.
- 44,835 Signal buoy, James Bigler, Newburgh, N.Y., December 6th.
- 44,836 Folding up steam bath, Gustav Heinrich, Heinsius von Mayenburg, of Dresden-Neustadt, Germany, December 6th.
- 44,837 Sign, Alonzo L. Brumfield, Paterson N.J., December 6th.
- 44,838 Syphon, Theophile Lessard, Montreal, P.Q., December 6th.
- 44,839 Change maker, Charles Leslie Travis, Minneapolis, Minn., December 7th.
- 44,840 Last for boots and shoes, Lucien Laporte, Bordeaux, France, December 7th.
- 44,841 Spring for vehicles, James J. Duffy, Carrickmacross, Ireland, December 7th.
- 44,842 Combined clod crusher and land roller, Herman F. Dornell Athens, N.Y., December 7th.
- 44,843 Thill coupling, Jacob R. Mikesell, Charlotte, Mich., December 7th.
- 44,844 Roller bearing, Everett F. Morse, Trumansburg, N. Y., December 7th.
- 44,845 Music leaf turners, John H. Redfield and Samuel H. Redfield, Medford, Oregon, U.S., December 7th.
- 44,846 Hay press, Louis Primeau, Beauharnois, Que., December 7th.
- 44,847 Scaffold, John Ennis, Duluth, Minn., December 9th.
- 44,848 Means for displaying samples, Alex. Ramsay & Son, Montreal, Que., December 9th.
- 44,849 Clothes pins, James H. Russell, Manistee, Mich., December 9th.
- 44,850 Marine vessel, John B. Davids, North Dartmouth, Mass., December 9th.
- 44,851 Cap for flues and ventilating shafts, William E. Watson, Orangeville, Ont., December 9th.
- 44,852 Lawn sprinkler, George Steinmetz, Berlin, Ont., December 9th.
- 44,853 Sewing machine, Felix Maginn and James Shovelton, Manchester, Eng., December 9th.
- 44,854 Wagon end gate, the Acme End Gate Mfg. Co. Chicago, Ill., December 9th.
- 44,855 Wire connector, William S. Kisinger, Bantam, Ohio, December 9th.
- 44,856 Combined try square and bevel, Geo. A. Topp, Indianapolis, U.S., December 9th.

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- 44,857 Truck cleaner, George W. Ruggles, Charlotte, N. Y., December 11th.
- 44,858 Wheel journal, Wm. J. Miller, Colorado, Texas, December 11th.
- 44,859 Curtain hanger, Wm. H. Case, South Oil City, Penn., December 11th.
- 44,860 Steam turbine, Frederick Hart, Poughkeepsie, N. Y., December 11th.
- 44,861 Grain drill, William Hewitt, Brantford, Ont., December 11th.
- 44,862 Self-locking hoist device, Albert Hillerscheidt, Berlin, Prussia, December 11th.
- 44,863 Saw horse, Joseph Chattaway, Petoskey, Mich., December 11th.
- 44,864 Brake for wagons, Wilhelm Plotz and Robert Watt, Plevna, Ont., December 11th.
- 44,865 Metallic fencing, Hiram A. Harrington, Anoka, Minn., December 11th.
- 44,866 Generator for steam, Edward E. Roberts, Red Bank, N. J., December 11th.
- 44,867 Sifter for ashes, Carey F. Abbott, Chicopee, Mass., December 11th.
- 44,868 Wind engine, Samuel W. Martin, Springfield, Ohio, December 11th.
- 44,869 Wood wall covering, Hugh Silver, Lindsay, Ont., December 11th.
- 44,870 Steam boiler, Dixon Best and James H. Metherel, Peterboro', Ont., December 11th.
- 44,871 Canopy top for vehicles, Jesse U. Tabor, Los Angeles, Cal., December 11th.
- 44,872 Method of attaching pneumatic tires to runs, John S. Smith, Christopher J. Tate and George E. Tate, London, Eng., December 13th.
- 44,873 Heating apparatus, John W. Hilton, Charles R. Mullen, and Nicholas Sattler, Cincinnati, Ohio, December 13th.
- 44,874 Cultivator, Thomas J. McBride, Winnipeg, Man., December 13th.
- 44,875 Nut lock, Alexander A. Johnson and Franklin S. Beaumont, Clarksville, Tenn., December 13th.
- 44,876 Refrigeration and storage, Charles S. Hardy, San Diego, Cal., December 14th.
- 44,877 Friction wheel, Wilson R. Smith, Beloit, Wis., December 14th.
- 44,878 Sleigh, Frederick A. Schaefer, Truckee, Cal., December 14th.
- 44,879 Fender for Cars, Louis E. Dubois, Toronto, Ont., December 14th.
- 44,880 Device for raising and lowering electric lamps, William Doran, Skowhegan, Maine, December 14th.
- 44,881 Harrow, Hiram Chamberlain, Leamington, Ont., December 14th.
- 44,882 Vehicle spring, Henry Timken, St. Louis, Mo., December 14th.
- 44,883 External joint for escape pipes, etc., Frederick R. Nies and Francis J. Linnehan, Swampscott, Mass., December 14th.
- 44,884 Sleigh, Henry Umprey and James Weekes, Carleton Place, Ont., December 15th.
- 44,885 Caster, James H. Russell, Manistee, Mich., December 15th.
- 44,886 Optical instrument, Alfred C. Biese, Berlin, Prussia, December 15th.
- 44,887 Spring mattress and frame, Adelbert H. Gale and Francis G. Gale, Waterville, Que., December 15th.
- 44,888 Cash register, William T. McGraw, Plymouth, Mich., December 15th.
- 44,889 Seed planter, Francis W. Banan, Knox, Maine, December 15th.
- 44,890 Refrigerator, Avelyn J. Dexter, Nauwatosa, Wis., December 15th.
- 44,891 Pilot car, Gustav Link, Duff, Nebraska, December 15th.
- 44,892 Tug clip for hames, Jas. Scott, Byron, Cal., December 15th.
- 44,893 Tire for bicycles, Stanley C. Peuchen, Toronto, Ont., December 15th.
- 44,894 System of heating and ventilation, Joseph McCreery, Toledo, Ohio, December 16th.
- 44,895 System and means of ventilation and purification, Joseph McCreery, Toledo, December 16th.
- 44,896 Shipping device for bricks and similar articles, Thomas Parker, John D. Wright, Francis F. Stuart, and Alexander M. Colquhoun, Toronto, Ont., December 18th.
- 44,897 Rotary engine, The Consolidated Car Heating Co., Albany, N.Y., December 18th.
- 44,898 Harness loop attachment, Jay Reed and George P. Wyatt, Butler, Mo., December 18th.
- 44,899 Crank shaft, John P. McCloskey, Sarnia, Ont., December 18th.
- 44,900 Carriage brake, John B. Crosby, Bonshaw, P. E. I., December 18th.

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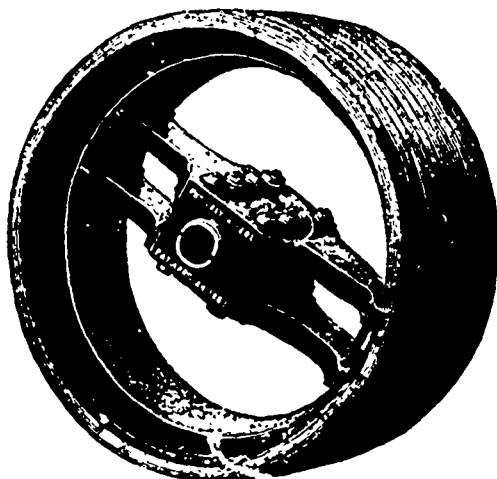
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1 1/2	1 1/2	5.01	"	3	2 1/2	22.59	"
1 3/4	1 3/4	5.94	"	3 1/4	3 1/8	26.60	"
2	1 1/2	7.46	"	3 1/2	3 1/8	30.94	"
2 1/4	1 3/4	9.83	4 cts.	4	4	42.33	5 cts.
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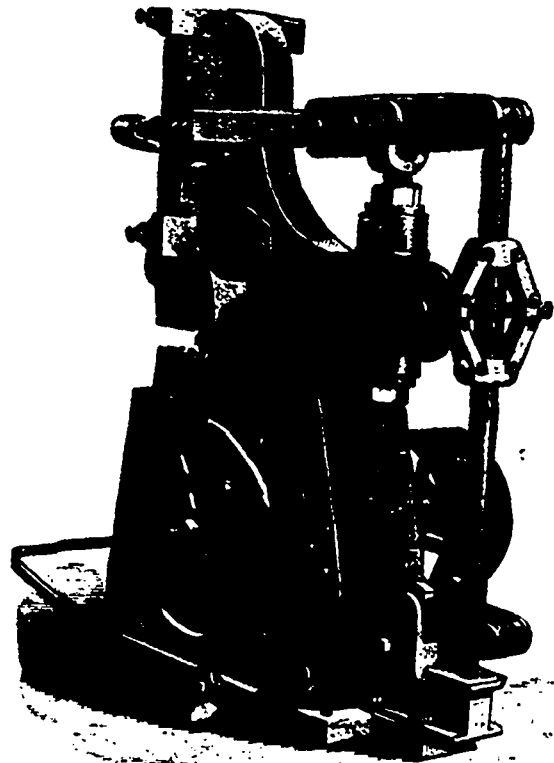
It is the Only Power Hammer in the world in which the ram can be made to travel the full length of stroke or short strokes for all thicknesses of metal the hammer is designed to forge, without the operator leaving the anvil or stopping the operation.

W. H. LAW Inventor

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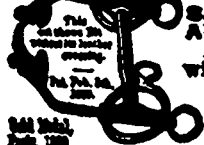
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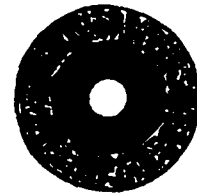
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Made to
Fit Any
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Cuts every substance with unexampled rapidity;
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Preventing Condensation and Loss of Steam.
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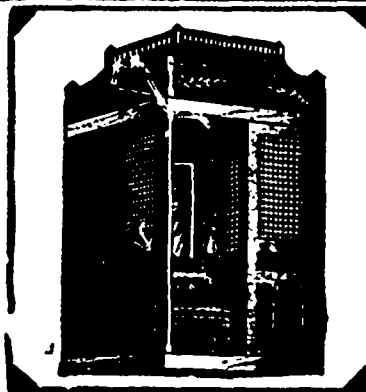
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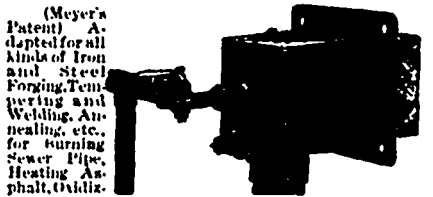
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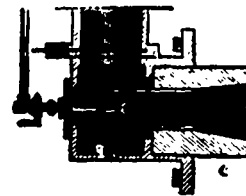
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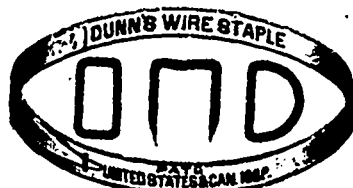
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IN LENGTHS TO THIRTY-FIVE FEET

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Lathes, Planers, Drills, Column, Radial and Suspension Shapers, Slotters, Ball Cutters, Milling Machines, Turret Lathes, Automatic Gear Cutters and Cutting-off Machines, Boring and Turning Mills (up to 20 feet swing), Driving-wheel Lathes, Tire-boring and Turning Mills, Cylinder Boring Machines, Frame Slotters, Slab Millers,

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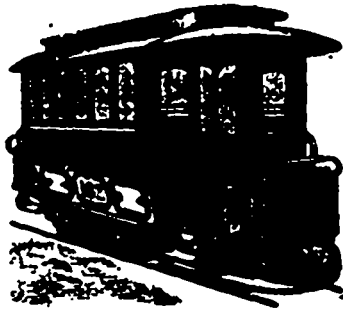
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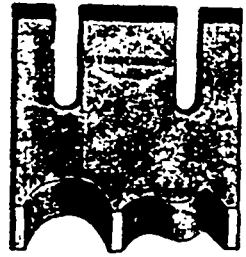
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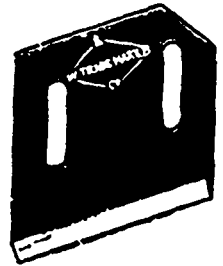
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We are constantly adding to our stock of Patterns for the above equipments. Intending purchasers should write us before placing their orders. Correspondence Solicited.

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MAIL BUILDING, TORONTO.

**Millers' and Manufacturers' Insurance Co'y**

STOCK AND MUTUAL

ESTABLISHED 1885

The President, James Goldie, Esq., in moving the adoption of the report on the business of 1893, said: I have much pleasure in drawing your attention to the fact that this Company has verified, in a marked degree, every expectation set forth in the original prospectus when organized in 1885.

Up to the present time the insurers with this Company have made a saving, when compared with the current exacted rates, of \$1,041,200. And in addition thereto bonus dividends have been declared to continuing members amounting to \$21,522.72.

Besides achieving such result, we now also have, over all liabilities, including a re-insurance reserve (based on the Government standard of 50 per cent), a cash surplus of 1.53 per cent. to the amount of risk in force.

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

The report was adopted and the retiring Directors unanimously re-elected. The Board of Directors are now constituted as follows: James Goldie, Guelph, pres.; W. H. Howland, Toronto, vice-pres.; H. N. Baird, Toronto; Wm. Bell, Guelph; Hugh Mculloch, Galt; S. Neelon, St. Catharines; Geo. Pattinson, Preston; W. H. Story, Acton; J. L. Spink, Toronto; A. Watts, Brantford; W. Wilson, Toronto.

JAMES GOLDIE, Pres.      W. H. HOWLAND, Vice-Pres.      T. WALMSLEY, Treas.      HUGH SCOTT, Man. Dir.  
*Applicants for insurance and other information desired*

Please address MILLERS' AND MANUFACTURERS' INSURANCE CO., No. 32 Church Street, Toronto.

**Manufacturers . . . . .  
Life Insurance Company**

**RESULTS FOR 1893**

|                                                   |             |                                           |           |
|---------------------------------------------------|-------------|-------------------------------------------|-----------|
| New Business Issued . . . . .                     | \$1,490,210 | Gross Cash Income . . . . .               | \$227,340 |
| (Increase over 1892) . . . . .                    | \$467,900   | (Increase over 1892) . . . . .            | \$45,525  |
| Assets 31st December, 1893 . . . . .              | \$673,738   | Surplus on Policyholders' acct. \$164,598 |           |
| (Increase over 1892) . . . . .                    | \$137,671   | (Increase over 1892) . . . . .            | \$36,922  |
| Insurance in Force 31st December, 1893, . . . . . |             | \$8,937,834                               |           |

**GEORGE GOODERHAM, President.**      **JOHN F. ELLIS, Man. Director.**

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MACHINE  
MOULDED  
STEEL RIM  
AND GRIP

Steel Rim Pulleys are practically unbreakable, are lighter and easier on shaft, and cost same as cast pulleys.

ANY STYLE FURNISHED SPLIT

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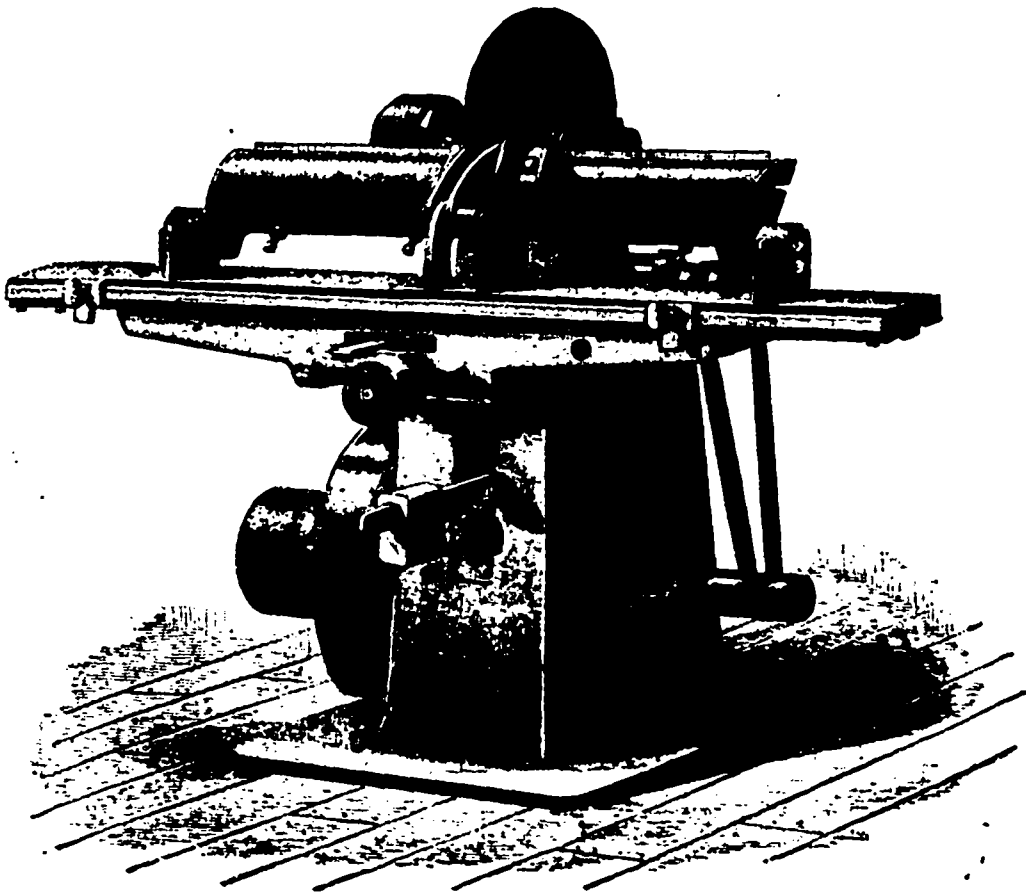
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PERFECTLY TRUE AND POLISHED.  
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Improved Automatic

# KNIFE GRINDING MACHINE

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For the prevention and removal of Incrustation, Corrosion and Pitting; also for Preserving the Plates, and for Preventing Leakage.

OBSERVE THE FOLLOWING:

THE CONSUMERS OIL REFINING CO.,  
PETROLEA, ONT.,  
LONDON, ONT.,  
Aug-12-1893.  
Dear Sir, -Replying to your letter of the 14th inst., we would say that the drum of "Anti-Scale" which we purchased from you gave us good satisfaction. We have found it very efficient in removing the scale, and keeping the boiler clean, without injury to the steel.  
Yours truly,  
T. WOLFE, Manager.

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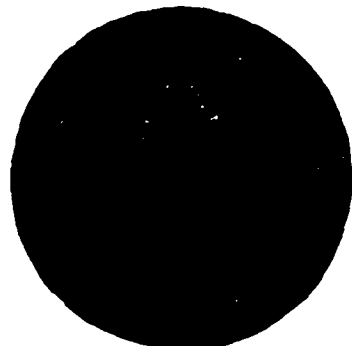
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| TRADE    | MARK         |                     |
| J.C. CO. | COMPBUI      | Saves from 15 to 17 |
| Patented | Feb. 21. 91. | per cent. in        |
|          |              | FUEL ALSO           |

No Smoke! No Gas! No Chimneys! No Change in Furnaces, Grates or Machinery! Preserves Iron! Paralyzes Chemical!

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JOHN BERTRAM, President. J. J. CASSIDY, Secretary.  
GEORGE BROWN, Treasurer.

Office, Room 68 Canada Life Building  
KING STREET WEST, TORONTO TELEPHONE 127

### THE OBJECTS OF THIS ASSOCIATION ARE:

- To secure by all legitimate means the aid of both Public Opinion and Governmental Policy in favor of the development of home industry and the promotion of Canadian manufacturing enterprise.
- To enable those in all branches of manufacturing enterprises to act in concert as a united body whenever action in behalf of any particular industry, or of the whole body, is necessary.
- To maintain Canada for Canadians.
- Any person directly interested in any Canadian manufacturing industry is eligible for membership.
- Manufacturers desiring to hold meetings for the promotion of their business, are invited to avail themselves of the Board Room of the Association for the purpose, which is offered to them free of charge.

J. J. CASSIDY, Secretary.

A. ALLEN, *President.*

J. O. GRAVEL, *Secretary-Treasurer.*

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Manufacturers of First Quality Rubber Boots and Shoes, Superior Quality Rubber Belting, including The Forsyth (Boston Belting Co.) Seamless Rubber Belting, for which we are Sole Agents and Manufacturers in Canada.

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Coppered Steel Spring Tinned Mattress Wire  
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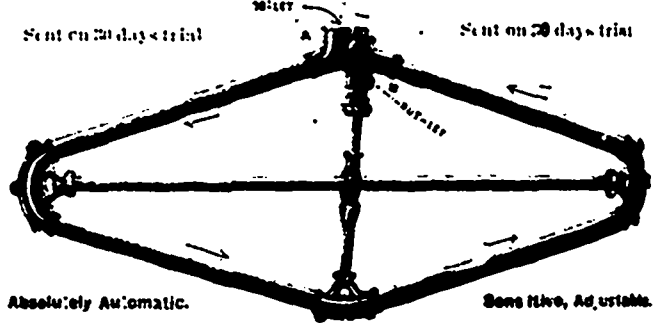
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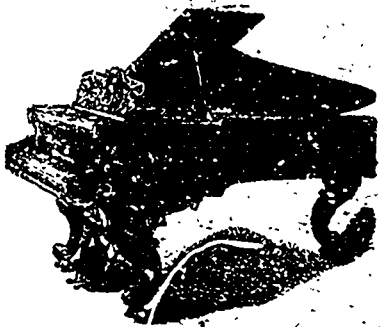
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