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AN ADIAN MANUFACTURER
AND INDUSTRIAL WORLD
DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

Vol. 52.

TORONTO, FEBRUARY 16, 1906.

No. 4.

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Over **5,000,000 H.P.** in use.

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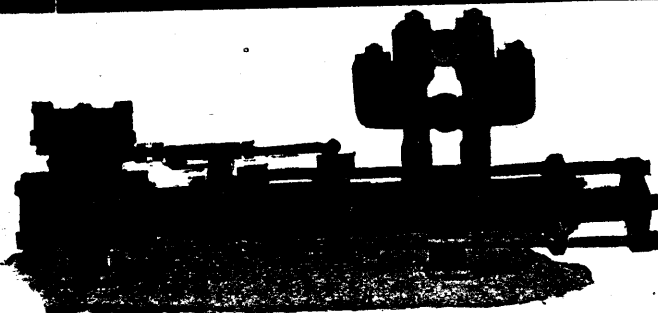
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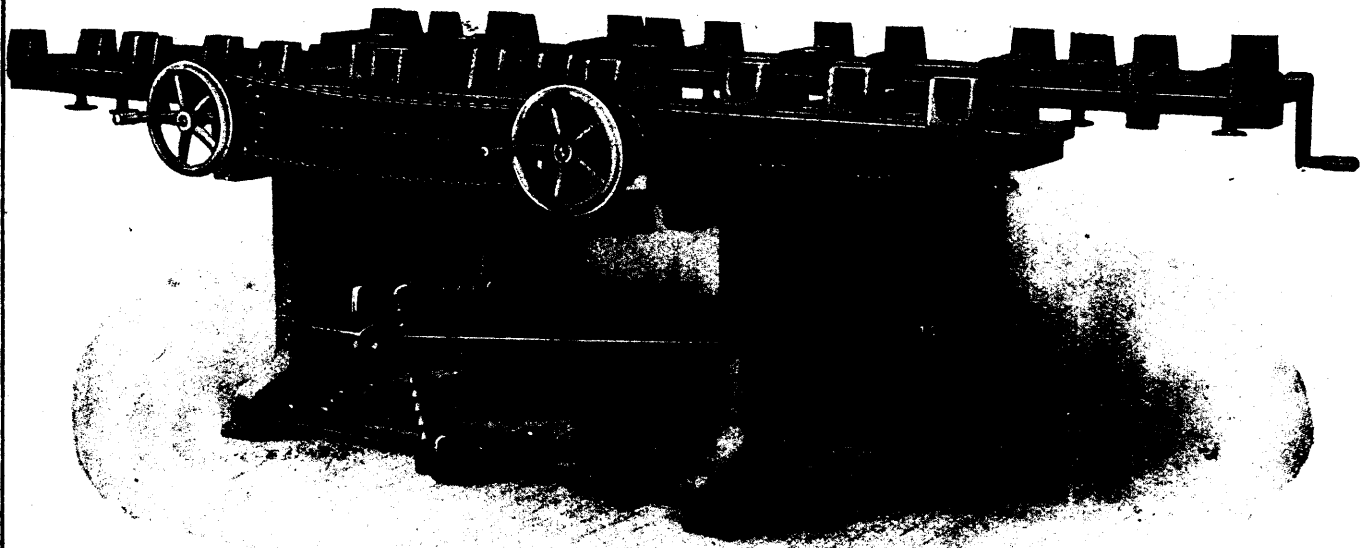
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The Classified Index

Beginning on page 37 of this issue of *The Canadian Manufacturer* will save our readers money, and should be consulted by them before purchasing.

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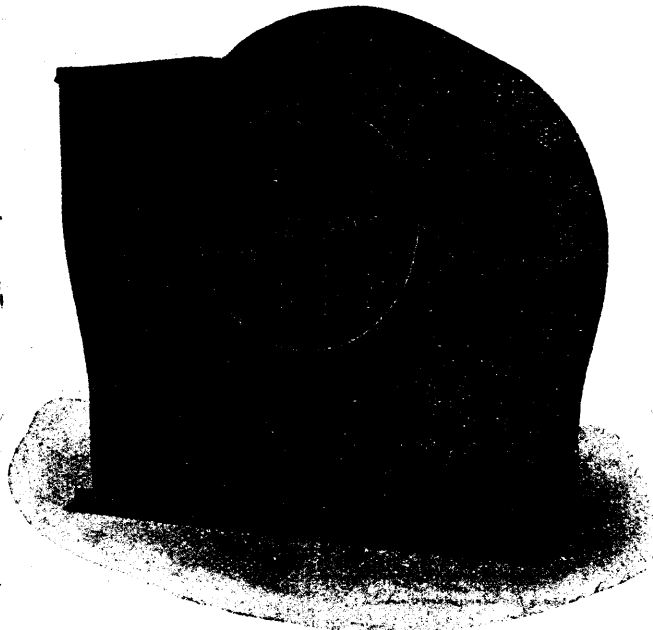
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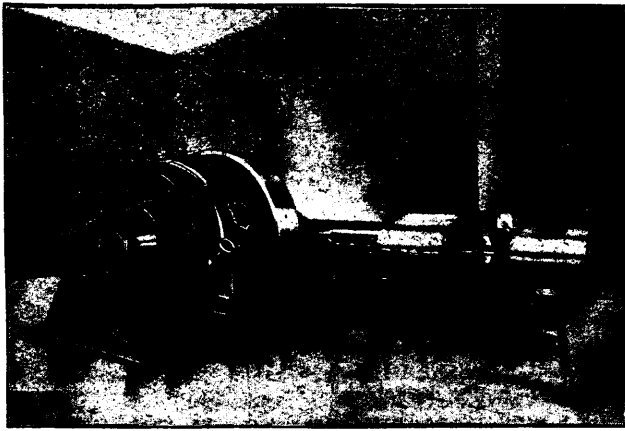
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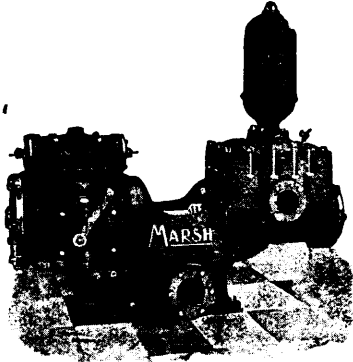
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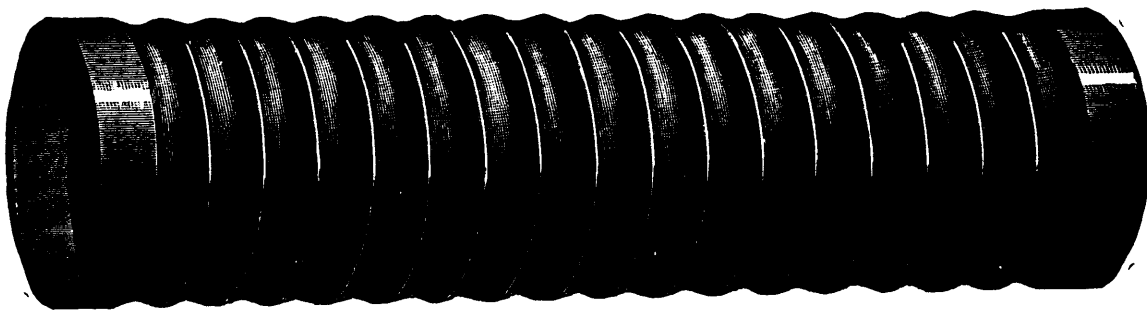
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Uniform Thickness, Easily Cleaned, Unexcelled for
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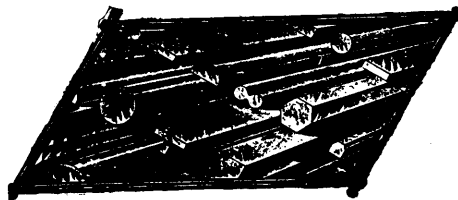
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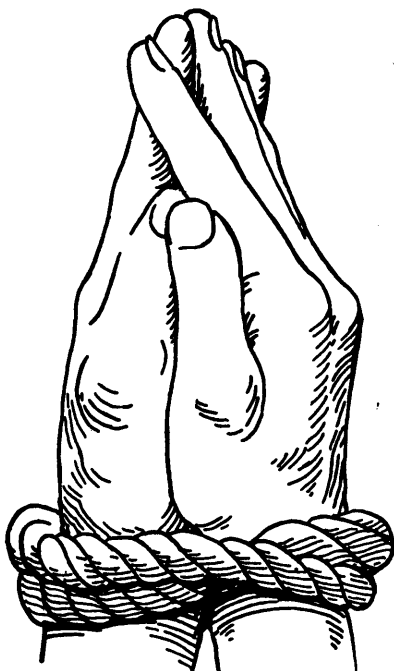
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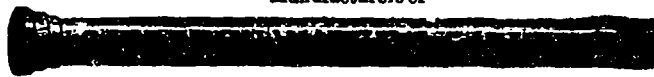
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The Best Bituminous Coal for Steam and Domestic Purposes.

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One of the strongest steam coals.

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"RED JACKET"—Determined by 50 weeks' test at Cincinnati Edison Plant, in 1901-2, the daily use of the coal tested being two hundred tons, 13,600.

BOILER TEST OF THE CINCINNATI EDISON CO., OF CINCINNATI.

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Equivalent evaporated from and at 212 degrees per pound of combustible pounds, 12:33.

We also handle Pocohontas Coke. Correspondence solicited.

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Best Grades of BLACKSMITHS' COALS.
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HIGH GRADE COKE

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 From Chips, Screws, Nuts, Bolts, or any other small parts which are finished in oil, and

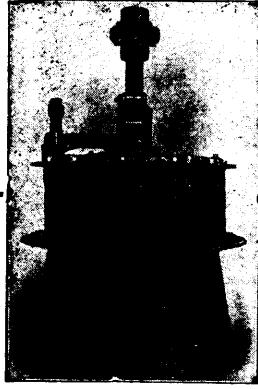
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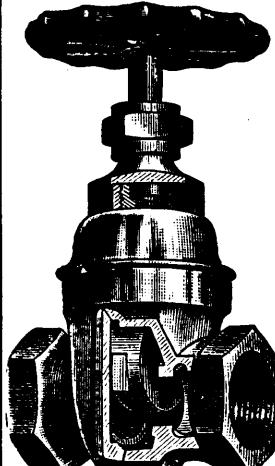
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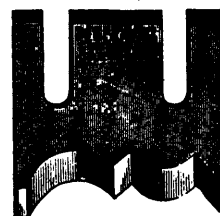
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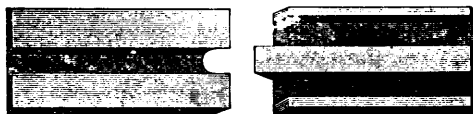
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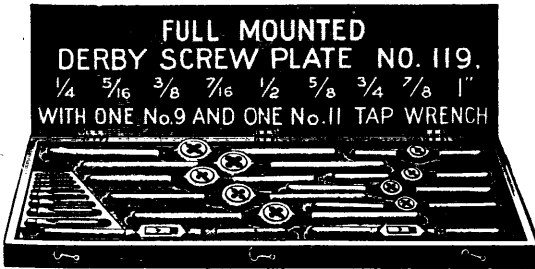
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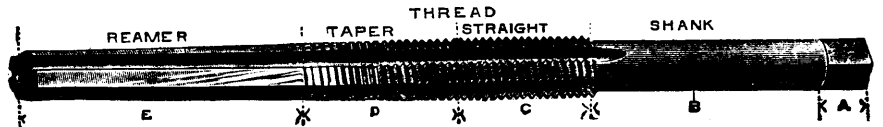
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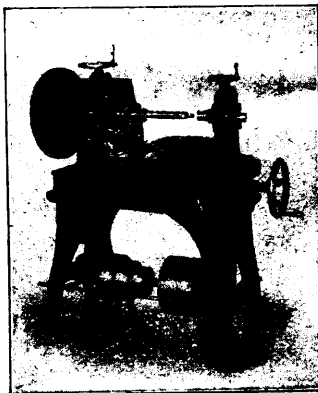
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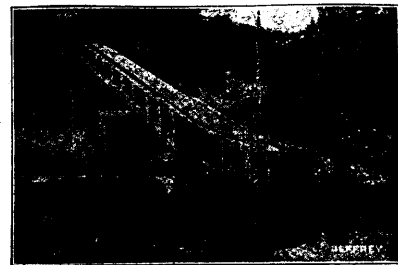
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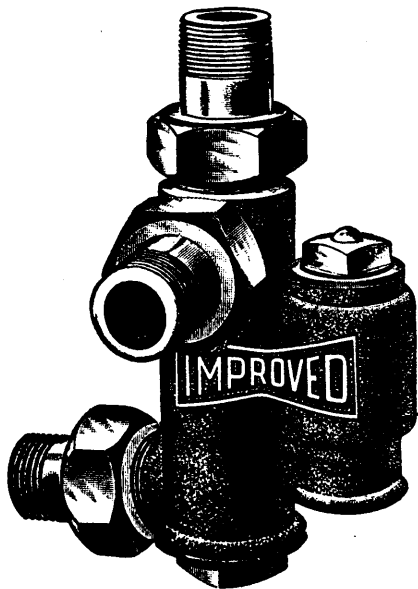
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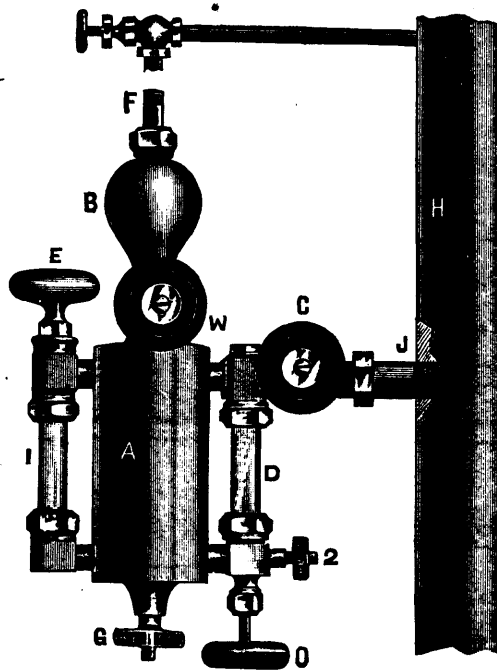
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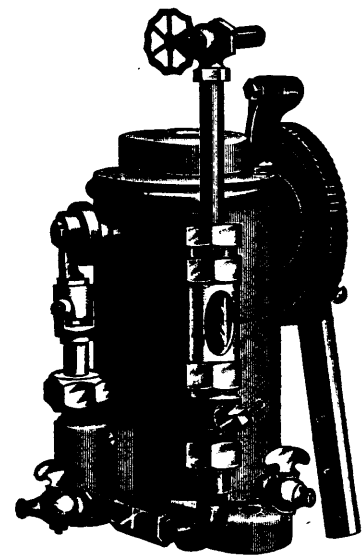
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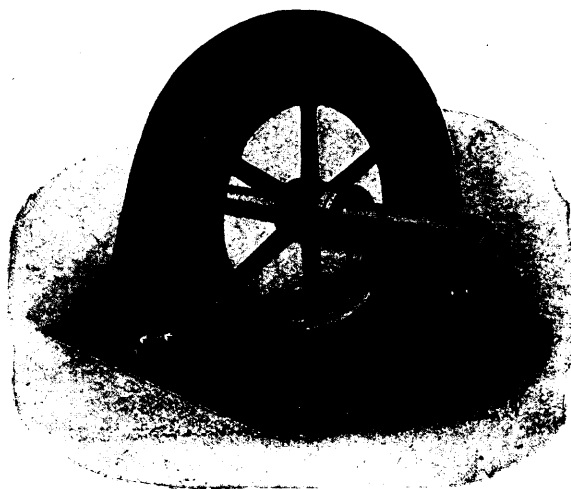
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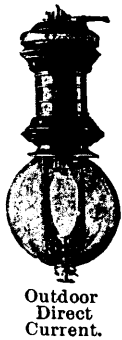
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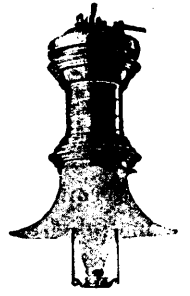
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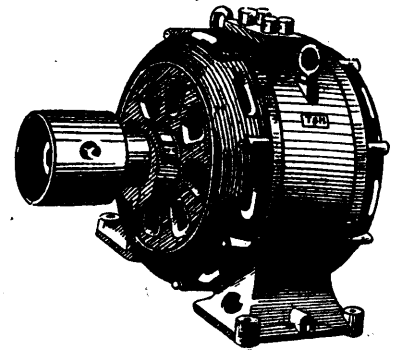
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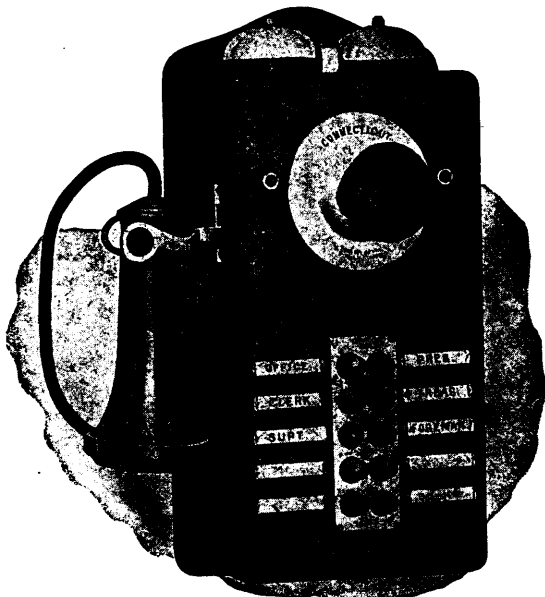
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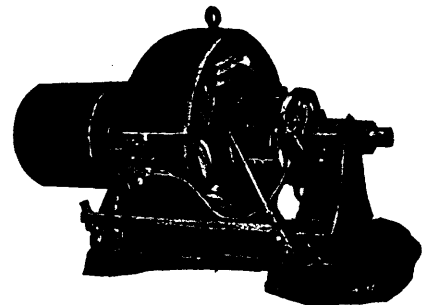
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Manufacturing Plant Number.	Total Horse-Power.	Horse-Power to drive Shafting.	Per Cent. to Drive Shafting.	Manufacturing Plant Number.	Total Horse-Power.	Horse-Power to Drive Shafting.	Per Cent. to Drive Shafting.
1.....	400	157	39.2	7.....	40.4	20.7	51.2
2.....	74	57	77	8.....	74.3	40	53.8
3.....	38.6	25.3	65.6	9.....	47.2	24.5	51.8
4.....	59.2	47.9	80.7	10.....	190	108	56.9
5.....	112	64	57	11.....	107	74.5	69.7
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Average, heavy machine work,	62.3	Average, light machine work,	55.1

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J. J. CASSIDEY, Editor and Manager

Classified IndexPage 37

Index to AdvertisersPage 45

THE NEED OF THE IRON INDUSTRY— A SYMPOSIUM.

Following are more expressions of opinion from leading Canadian manufacturers regarding "The Need of the Iron Industry." It will be observed that there is a large divergence of views, but the general concensus is in the direction of the government rendering adequate protection to the industry to a certain extent by tariff duties, supplemented by bonuses to cover the deficiency. While views differ in detail, all are united in the expression that a generous helping hand must be extended for some years to come.

C. A. Birge, a past president of the Canadian Manufacturer's Association, president the Canada Screw Co., Hamilton, Ont.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—Regarding your editorial in THE CANADIAN MANUFACTURER, on "The Need of the Iron Industry," let me say that I have read the article with a great deal of interest.

Your statement that "The new iron and steel works during the course of construction added to the Government revenues far more than sufficient to pay the bounties due for the output of the works already in operation," is an "eye opener" to most of us, and should go far to remove opposition to that form of assistance in building up a great national industry, which you rightly say requires the investment of enormous capital, which, for quite a long period, can receive no returns. Personally I am strongly in favor of this form (bounty system) of assistance, or protection, on the coarse or crude forms of iron products, particularly in view of the fact, as you state, that the establishment of the industry produces more than sufficient revenues directly and indirectly, to meet the sums required for bounties, and I hope the Government will see their way clear to continue, and extend their operations in this direction.

If a higher duty is placed on the coarse iron products, then a correspondingly higher duty must be placed on the finer products of which iron is the base, particularly in view of the preferential tariff on the one hand, and the established policy of the United States manufacturers on the other hand, of securing export trade

for their surplus products at less than they can be produced for in Canada, and even at less than their own cost of production. They get their profit in the decreased cost on their entire larger production required for the home and export trade.

The United States stands forth as a splendid example to Canada, both in what they have accomplished in their iron industries in the last half century, and in their methods of doing it, viz., by fostering and protecting them all along the line. What they have done, we in Canada can do, given the same conditions.

C. Bermingham, managing director The Canadian Locomotive Co., Kingston, Ont.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—I have carefully read your article re "The Need of the Iron Industry" and regret that I cannot write you a letter of approval, for although I agree with you up to a certain point, and would like to see the Government continue granting bonuses until the iron and steel industry is firmly established in Canada, yet I do not think the business of manufacturing iron and steel should be built up at the expense of the large number of manufacturers already engaged in businesses of which iron and steel is the raw material.

For instance, I cannot agree with you that the duty should be increased on steel billets—at least, not until the Canadian makers are in a shape to take care of the Canadian demand. In our business here we buy a good many billets, and at the present time the Canadian makers simply decline to quote any price at all, claiming that their entire output is taken up in the manufacture of steel rails.

A year or two ago we bought billets from the Dominion Iron & Steel Co. at a price of \$24.50 per gross ton, delivered in Kingston, which was about the price at which they could be imported from the United States at that time. To-day similar billets cannot be bought, for reasonably prompt delivery, in Pittsburg, at less than about \$44.00 to \$45.00 per ton there, and with freight and duty added, it means, say,—\$50.00 to \$51.00 per ton, delivered here. We are prepared to place orders with Canadian manufacturers at this price, but they will not accept them. Don't you think it is absolutely absurd to advocate an increase of duties on this item under such conditions? The result would be that we would have to pay more for the material we use without doing any good to the manufacturer, as they appear not to wish for the business. The illustration as to billets can be amplified in the matter of steel boiler plates and other similar material.

Yesterday we wired the Dominion Iron & Steel Co. asking for a price on three hundred tons of pig iron. To-day we are in receipt of a telegram saying they are not in position to quote on pig iron at present. Now, why should the duty on pig iron be increased and ourselves, and every other user thereof, made to suffer, when the Canadian makers are not in shape to supply the demand, especially at such profitable prices as are ruling at the present time?

Therefore, I hold that until the Canadian manufacturer of steel and iron gets into such shape that he can meet the Canadian demand, the businesses using steel and iron as raw material should not be handicapped for his benefit.

Permit me to congratulate you on the able manner in which you have stated your case in the article in question, and regret I cannot agree with you.

G. R. Duncan, superintendent The Montreal Pipe Foundry Co., Limited, manufacturers of cast iron water and gas pipes, Three Rivers, Que.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—In the issue of January 5, THE CANADIAN MANUFACTURER has contributed to current literature a very able article under the heading of "The Need of the Iron Industry," which appeals to us very strongly, and we trust will receive the hearty endorsement of all Canadians.

Faith in Canada as a manufacturing country is being shown everywhere, and if the necessary aid be given to the iron and steel and other national industries, a splendid development will follow that will be of benefit to every class of Canadians.

While the pig iron producer undoubtedly needs assistance in the important enterprise he has in hand, the consumer of his product will also require aid.

The pipe foundry is a heavy consumer of pig iron. The aggregate capacity of the iron pipe foundries in Canada at present is about 25,000 tons per annum, which, to the pig iron producer, means a good market.

The present output of the pipe foundry, is however, not nearly as large as it ought to be, on account of the fact that our present tariff admits the importation of the foreign made product to an alarming extent. The value of cast iron pipes imported into Canada during the last six years, according to Government returns, and no doubt based on invoice prices at the various points of production in the United States and Great Britain, shows as follows:

	From United States.	From Great Britain.
1900.....	\$59,977	\$1,882
1901.....	49,302	921
1902.....	35,167	9,524
1903.....	73,062	39,647
1904.....	79,406	137,233
1905.....	185,946	207,493

The reason for this serious displacement of the product of Canadian labor in the home market is undoubtedly our present low customs tariff, which, on cast iron pipes, is \$8.00 a ton, but with the British preference deducted leaves a net duty of only \$5.33 per ton. The duty in 1897 was \$10.00 per ton, but not less than 35%, so that while wages and operating expenses in Canada have been constantly increasing, the tariff protection to Canadian labor has been diminishing.

The Canadian pipe founder pays higher wages and more freight, and enjoys an open market during only eight months in the year; this, on account of the severity of our winters; while the British founder pays lower wages, smaller freights and has an advantage in climatic conditions in his own market, whilst enjoying an additional market all over the world, so that he is enabled to operate and ship at all seasons of the year.

It is hoped that the Dominion Government will give thoughtful consideration to the facts concerning this important enterprise, and that they will re-adjust the duty on pipes to the advantage of this industry, and thereby help the manufacturers of pig iron and all other industries as well.

If the proper tariff is arranged it is certain that within two years the output of Canadian pipe foundries will have increased by from 25 to 50 per cent. Under existing conditions this would be impossible, as capitalists will not make the necessary investments required for development.

We congratulate you cordially on the strength and justice of your article.

W. G. Smart, manager The Smart-Turner Machine Co., manufacturers of steam and power pumps, travelling cranes, shafting, pulleys, etc., Hamilton, Ont.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—I have taken a great deal of pleasure in reading your article on "The Need of the Iron Industry," as I have great faith in its future. It would seem only fair that if the duty on pig iron be increased, there should be a corresponding increase of duty on goods manufactured wholly or in part of iron or steel. On the other hand, should the government see fit to increase the bounty, they would protect the iron industry, but the protection would be shared by every individual in the country, who at the same time, either directly or indirectly, benefiting by it,—whereas, if it is protected by tariff, it would be borne entirely by the consumer. If the industry is properly protected, there is no question it would shortly develop to such an extent that we could compete with all comers, without the assistance of tariff or bounty. It would certainly seem that with our unlimited supply of iron ore, we should some day have not only the whole of our own, but a portion of the foreign market for our iron industry.

W. C. Breckenridge, president and manager The Norton Manufacturing Co., manufacturers of tin cans for packers use, etc., Hamilton, Ont.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—Replying to your request for an expression of views concerning your arguments for a higher rate of duty upon the products of the iron industry, I am unable to confess any serious dissatisfaction with the Tariff Act already in force. The circumstances that, to use your own figures, there are already furnaces producing some 1,675 tons of iron a day, and furnaces of an additional capacity of 500 tons a day in preparation, seems to indicate that furnacemen are already enjoying the encouragement of the Government in no inconsiderable degree. Neither the trade returns, nor current discussions of economic conditions point to any noteworthy depression as a consequence of the lack of high duties upon billets, structural steel, plates, sheets and tubes. The evidence so far presented appears insufficient for the conclusion that the country would be still more prosperous were these materials obtainable only at higher costs.

In the case of the industry which I know best, I am convinced that a higher duty upon black plates, or any duty whatever upon tinsplate, would be not only inimical to the manufacture of cans generally, but also productive of loss to many other interests—as well as to the users of these special packages, as the consumers of what, when brought to the market, such packages contain. The manufacturer, to be sure, would seek to throw the higher cost of his raw material upon the users of the package—the canners, biscuit and paint manufacturers, baking powder and spice men, and the like. But to come out whole the tin can maker would have to charge a percentage of advance upon his goods larger than the rate of duty, for the simple reason that stock would cost more to carry, and that, particularly in making round packages out of square sheets, the waste, which is sold upon international markets, would not fetch the old price proportion of the first cost of the sheets. It would be most reasonable to expect, moreover, that, as the package passed to him who fills it, and thence to the wholesaler and retailer, something more than the mere rate of duty would be added, first for interest upon stock, then for profit upon duty, for such charges are seldom shifted without undergoing a substantial enhancement. By the time, for example, that food packed in tinsplate reached the consumer, the burden would have grown to a weight far heavier than the Government, in my opinion, ought to force the consumer to bear. A most conservative estimate submitted to the Tariff Commission by one of the leading canners of the country puts the probable enhancement of canned goods prices consequent upon a duty

of but 1.1 cent. per pound of tinplate at no less than 10 cents a dozen packages. For the fruit and vegetables put up in Canada this alone would add over \$300,000 to the country's grocery bill each year. The rate of duty you propose—2.2 cents per pound—would make the loss in this single item double that sum, or over \$600,000 per year, with spices, baking powder, biscuit, lard, paint and other tins yet to be taken into account. And the can making establishments will cut something less than one third of all the tinplates imported. The total expense of fostering a tinplate industry must necessarily go far beyond the million and a half which you estimate, and it must be felt as a far more serious burden than the 25 cents per head of which you speak, since for every four or five members of the community as the census counts them, there is but one who wins the bread. It seems most difficult therefore, either for the view of the manufacturer or from that of a consumer to join you in advocacy of higher duties upon iron or of any duty upon tinplate.

J. O. Thorne, general manager The Metallic Roofing Co. of Canada, manufacturers of architectural sheet metal, building materials, Toronto, Ont.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—While I think it is very desirable that reasonable protection should be given to the iron industry, I am not at all in favor of high duties, nor do I consider that they are necessary to the existence and gradual extension of well managed plants. In my opinion the time has not yet arrived for us to manufacture in Canada sheets and tinplates without enormously increasing the cost to the consumers, and more or less injuring a number of existing industries, for the purpose of building up one or two new ones that do not exist to-day.

Many of the very radical changes that are being advocated in the Customs Tariff in connection with the above and other items are not in the general interest; but no doubt the Tariff Commission, who are thoroughly investigating the matter, will be able to arrive at a satisfactory conclusion in the interests of the country generally.

James Davidson, president The Thomas Davidson Manufacturing Co., manufacturers tin and enamelled ware, etc., Montreal.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—I have read with interest the editorial in your paper "The Need of the Iron Industry." My views on this are that the baser forms of iron and steel manufacture should be encouraged either by a duty or bounty, but that the finer products should be handled with considerable care as affecting the raw material of too many manufacturers. It will be some time before we can possibly use up all the products of the furnaces, even in the cruder manufactured articles, such as rails, channels, beams, and rods, and there is a particular necessity for caution at present time, owing to schemes being promoted for the manufacture of more finished lines by parties knowing nothing about the conditions, and whose principal object is to get stock subscribed.

H. O. Kerr, The Kerr Engine Co., manufacturers of pumping machinery, hydrants, valves, etc., Walkerville, Ont.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—With reference to your editorial, "The Need of the Iron Industry," we are strongly in favor of fostering any industry which has promising prospects, and the iron

industry in this country is without question, one which has as great, if not greater promise than any other. When we speak of the "Iron Industry," we do not, however, mean particularly the manufacture of pig iron, billets, and iron and steel structurals, but refer to the entire iron and steel industry. There is no use whatever of protecting and fostering the manufacture of the raw materials unless the iron and steel goods manufactured from these materials are also sufficiently protected to insure the home consumption of them.

Mr. C. F. Wheaton, manager of the Dodge Manufacturing Co., very concisely and properly expresses our views of the present tariff with respect to this industry. The duties imposed on the manufactured goods are too low, considering the protection afforded the raw material we use in our foundries and machine shops.

To develop any industry, the trade must first be established by means of customers. Without customers there can be no trade. Protect the user of raw material, and secure him the business of Canada, and he must necessarily buy large quantities of such material, which the Government should see purchased in Canada, by applying tariff sufficient to keep out foreign iron.

If the iron industry is to be encouraged and developed, let it not be a one sided development. Make it thorough, strong, and healthy. A man may be placed at a table upon which are all the delicacies of the season, but if his stomach cannot assimilate the food, the hospitality is wasted. You may protect the pig iron and the structural iron and the steel industry as much as you like, but if you have no powers of consumption, your effort will be a failure.

M. Kennedy, president The William Kennedy & Sons, iron and steel founders, Owen Sound, Ont.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—Replying to your inquiries re our views on the article entitled "The Needs of the Iron Industry," we cannot agree with all the arguments advanced therein. While we admit and advocate Government encouragement to the "Iron Industry" yet we think there is such a thing as over doing it.

Sufficient Government encouragement should be given and given long enough to enable those engaged in it to have a reasonable chance to place it on good footing. Slaughtering by outsiders should be prevented. But consumers of their products should not be compelled to pay tribute until it makes millionaires of those engaged in the business. It appears almost impossible to start such undertakings as are necessary for the production of iron and steel in the first stages of manufacture from the ore without making serious mistakes and having to overcome local conditions and difficulties, but as soon as a reasonable time has elapsed in which these mistakes might have been corrected, and the local difficulties overcome, and with good management put on a paying basis, Government encouragement (by whatever name it is called) which compels consumers to pay too high prices for the output as compared with the home prices of foreign articles of like character, and enables home producers to demand prices which yield an undue profit, then a considerable amount of Government encouragement should be withdrawn. Provision should be made to help new beginners for a time just the same as those who started earlier.

So far as Canada is concerned we think that producers of pig iron, steel ingots and billets are liberally treated by the Government, and any increase in that liberality would not be in the best interests of the whole country.

C. H. Waterous, manager The Waterous Engine Works Co., manufacturers of engines, boilers, fire apparatus, etc., Brantford, Ont.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—I have read the article in THE CANADIAN MANUFACTURER entitled "The Need of the Iron Industry." I think there is no question but what it is desirable to have the iron industry of Canada developed. The question is, the best way to secure this development. The application of a high rate of duty would make it necessary to increase the duty correspondingly on everything that iron enters into the manufacture of. As it is at present, manufacturers of iron have but little protection, when the duty on their raw material is taken into consideration, and when the very heavy freight rates that are paid in this country are also considered.

As you are aware boiler plate is not made in Canada, neither are boiler tubes. I think before these articles were made in the United States, the population was more than double what the population of Canada is at the present time. It is difficult to get in Canada now even iron bars of the sizes that are required, a great deal of which must of necessity be imported. This will be the case probably, for a very long time to come with bars, plates, tubes and angles, so that a rate of duty that would meet the wishes of the manufacturers of iron might impose so heavy a duty upon the raw material of users of pig, bars, plate, etc., as to materially reduce this use of the product.

While in your article you speak of the necessity of increased protection on pig iron, bars, plates, etc., you do not suggest protection for the manufacturers of engines, boilers and machinery, that would make it possible for them to continue their business. But I have no doubt you have considered this phase of the question.

C. J. Oliver, manager The R. McDougall Co., manufacturers of iron working machine tools, general castings, etc., Galt, Ont.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—We note your editorial re "The Necessity of the Iron Industry." Our understanding of the matter is that the object of the tariff is to promote the manufacture of pig iron, this being used by other manufacturers as their raw material. We think the tariff duty should be as high as would be necessary to warrant sufficient iron being produced in Canada to meet the requirements of the foundry men. It looks a little one sided however, from our point of view, to be compelled to go to the United States for pig iron of quality which is being made in Canada and converted into steel, and we think the manufacturers of steel should be on the same basis as manufacturers of machinery, as the same material is the foundation of both industries.

Phelps Johnson, manager Dominion Bridge Co., Montreal.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—We are of the opinion that the makers of pig iron and steel have in the past enjoyed a very reasonable degree of protection, and think the interests of the country, as well as of the army of manufacturers using iron and steel as raw materials, will be best served if no radical changes in the duties on iron and steel are made, but the present or slightly increased bonuses be continued for the manufacture of iron and steel in Canada. There are doubtless small changes in the iron and steel schedule which could be made to advantage; but we believe the metal tariff is on the whole quite well balanced; that the manufacturing

interests concerned are prosperous, and we hope changes will not be made in the duties on basic materials which will call for a revision of the duty and an increase all down the line of metal manufactures.

C. J. Osman, manager Albert Manufacturing Co., manufacturers of hard wall plaster, etc., Hillsborough, N.B.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—We have read with interest your editorial in THE CANADIAN MANUFACTURER re "The Need of the Iron Industry," and are very much impressed by the views there expressed. We have little knowledge of this particular branch of industry, but no thinking man can fail to realize the very great importance of at least supplying our home market with iron and steel manufactured in the Dominion; and if we base this opinion upon our experience in connection with our manufacturing business here, and knowledge of the value it is to this locality, we feel quite justified in the conclusion that the effort to make Canada a manufacturing country would fall far short of full realization if the manufacture of iron and steel was not included and accomplished; therefore we endorse most heartily your efforts to bring this result about. As manufacturers and tax payers we are quite willing to contribute our share towards accomplishing this, by paying a little more for home produced iron and steel than for the imported article, if that is a necessary penalty.

John Hewton, manager Kingston Hosiery Co., manufacturers of knitted goods, etc., Kingston, Ont.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—I have read with interest your very able article referring to "The Need of the Iron and Steel Industry" and must certainly agree with you that the development of this industry should have the careful and attentive consideration of the Government. The development of our mines, and in fact of all our natural resources, are what we require to build up our Dominion, and the Government that does this will certainly deserve the approval of all loyal Canadians. With the decrease of our timber and the increased demand for steel in building operations, I consider there is a great future for this industry, provided it gets the assistance it requires to put it on a sound basis.

Jno. W. Cowan, president The Cowan Co., Limited, manufacturers of cocoa, chocolate, etc., Toronto.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—I have read the article "The Need of the Iron Industry" very carefully and confess that I can only give my opinion on general principles.

Theoretically I am not favorable to bounties, but there are exceptional cases like the one under review, where they may be both necessary and proper. The fact that both political parties coincided in that view seems to establish its necessity.

I believe that there is hardly any branch of manufacturing carried on in Canada that is more important than the iron and steel industry, and I think we all, as Canadians, ought to do our utmost to establish it on a paying and prosperous foundation, and any increase in the duties or bounties, should be willingly agreed to by all other interests, manufacturing, commercial and agricultural.

Your article is very exhaustive and to me quite convincing of the necessity of what you seek to establish.

William Chaplain, manager the Welland Vale Manufacturing Co., manufacturers of axes, edge tools, saws, etc., St. Catherines, Ont.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—I think the iron industry should be fostered by bonus rather than by duty until it is more developed. An increased duty, in my estimation, would mean an increased cost for iron, which forms the basis of so many industries, and would raise a tremendous howl all over the country, especially amongst the farmers, whose blacksmiths' bills would be considerably increased and the duty would get the blame for the whole of it.

George Burch, manager the Whitman & Barries Manufacturing Co., manufacturers of machine knives, farm implements, etc., St. Catharines, Ont.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—We are not large users of iron, our work being in steel of various kinds and grades, and therefore we are not in position to give an intelligent opinion on the subject, but we think a higher tariff for the iron industry of Canada will build up the industry more quickly and thoroughly than by any other means.

J. C. Notman, treasurer the McKinnon Dash & Metal Works Co., manufacturers of carriage hardware, malleable castings, etc., St. Catharines, Ont.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—We have read with interest your able article on "The Need of the Iron Industry" and would state that we are users only of Bessemer pig. At present there is not sufficient Bessemer iron produced in Canada to meet the requirements, and a large tonnage is imported from the United States each year.

We believe increased protection should be granted this industry until the production is sufficient to supply the needs of the country. In justice to the users of such iron however, an adequate protection must be granted on the finished products as well.

Carl Riordon, president the Riordon Paper Mills, Merritton, Ont.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—I have your letter asking my views on "The Needs of the Iron Industry" in Canada as treated in a recent editorial in THE CANADIAN MANUFACTURER.

While I have not any special knowledge of this industry, it seems to me that your position is correct, and I believe that until Canada has reached the point where her home market will provide for the greater portion of her output, her industries will need protecting, even in cases where natural conditions would appear to give an advantage.

D. R. Ker, manager the Brackman-Ker Milling Co., manufacturers of cereal products, etc., Victoria, B.C.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—As to the needs of the iron industry, I can say, speaking from the far West, that the greatest opportunity offers in British Columbia for the development of the finest ore deposits which are in close proximity to limestone and coal fronting on protected harbors. I am, therefore, strongly in favor of the Dominion Government giving the necessary encouragement to develop the iron industry.

A. E. Cross, manager Calgary Brewing & Malting Co., Calgary, Alberta.

J. J. Cassidey, Esq., Editor THE CANADIAN MANUFACTURER:

Dear Sir:—I consider that the Government should give every support for establishing the iron industry of Canada on a good working basis, but have proper regard for preventing any undue monopoly, to the detriment of the general public.

THE OLD GUARD.

Industrial Canada is, as it announces, the official organ of the Canadian Manufacturers' Association. It is maintained by the association which pays for a large staff to keep it in operation. In its January issue it falls into a reminiscent mood. Speaking of the growth in membership of the association in the past six years, it says:

In October, 1899, the Canadian Manufacturers' Association was little more than a name. As an organization it was almost entirely local, centering chiefly in Toronto and a few surrounding towns. Beyond the borders of the province of Ontario it was practically unknown. Its members numbered only 132 all told. To-day it has a membership of 1,975. From a local, or at most a provincial organization it has become national, representing every class of industry in the country, from the Atlantic to the Pacific, and has extended the sphere of its operations 1,000 miles to the east and 3,000 miles to the west.

It cannot be imagined why Industrial Canada should indulge in such a wild flight of fancy. If its statements were made in ignorance there might be some mitigation of its offence against the association and against the large number of the "Old Guard," who directed its operations when some of the managers of Industrial Canada were sucklings, but whoever penned the untruths had full opportunity to know better. There are scores of members of the Association at this time who know better—gentlemen whose heads the frosts of time have whitened, but are yet active in the affairs of life. At a critical time in the life of Canada, when the most important fiscal and political issue pending was the adoption of a policy of tariff protection to manufacturing industries, many of the men who are now members of the Association, gave their time and most earnest endeavors to accomplish the objects they had in view. Some of these "Old Guard," many of whom are yet active members of the Association include George E. Drummond, A. E. Kemp, D. W. Karn, Bennett Rosamond, John Bertram, Edward Gurney, R. W. Elliot, W. J. Crossen, G. D. Forbes, Adam Warnock, John Carling, James Goldie, R. O. McCulloch, T. H. Smallman, John McClary, Henry Stroud, Wm. Stone, Graham Fraser, William Bell, George Pattinson, Herman Heintzman, J. O. Thorn, Robert Gardner, G. W. Sadler, D. W. Robb, David Morrice, James Watson, Thomas Cowan, W. H. Storey, William Christie, A. T. Paterson, Wm. Chaplin, John Cowan, George Burch, C. A. Birge and Chillion Jones. Undoubtedly no man in Canada did more for the association than Frederic Nichols. Many years of his most active and intelligent existence was, as secretary, and chairman of the executive and the tariff committees, devoted to the welfare of the

association. Some of the "Old Guard" here named, are enjoying their reward in a fairer state of existence, but the impress of the work done by these men in behalf of the manufacturing industries of Canada are in evidence to-day.

From the inception of the Association thirty five or more years ago until 1890, its declared objects were included in but two brief paragraphs as follows:

1. To secure by all legitimate means the aid of both public opinion and governmental policy in favor of home industries, and the promotion of Canadian manufacturing enterprises.

2. To enable those engaged in all branches of Canadian manufacturing enterprises to act in concert as a united body whenever action in behalf of any particular industry or of the whole body becomes necessary.

Only this and nothing more. It should be remembered that the manufacturing industries of Canada thirty-five years ago were in their infancy, and it was not until the present decade that, in common with all other material interests, the country began to experience conditions of prosperity and expansion which have placed it in the forefront of nations. Industrial Canada ridicules and belittles the days when the "Old Guard" did so much in establishing the association. If the membership was small it was not because manufacturers were cold, careless and indifferent; and those who could read and comprehend in those days could but observe that the association wielded an influence with the government quite observable until this day. It would require more space than we can at this time assign to even enumerate the objects to which the association now gives attention, many of them entirely foreign to the two things for the promotion of which the association was formed. A study of the roster of membership of the association shows that there are many more members than there are manufacturing concerns represented, and that there are many concerns represented which are engaged in no manufacturing industry.

If Industrial Canada had been possessed of a burning desire to be fair and truthful when it was noting the conditions of the association during the past six years it would have cast its retrospective glance over the immediately preceding decade from 1890 to 1899; and with the record before it would have learned that the association which it says was almost entirely local, centering chiefly in Toronto and a few surrounding towns, counted in its membership during the decade 357 different Canadian manufacturing concerns, many of which retain their membership until now. It is true that the offices of the association were in Toronto as they are yet, but the record shows that the Ontario contingent included nearly every important industrial town in the province, the city of Hamilton being well to the front with nearly thirty members. It tells us, too, that beyond the borders of Ontario the association was practically unknown; but the absolute incorrectness of this is shown in the recorded fact that the provinces of Quebec, Nova Scotia, Manitoba and British Columbia were all represented. There were 32 members credited to Montreal, almost as

many as Toronto with 41. In the province of Quebec, outside of Montreal, there were members in Sherbrooke, Levis, St. Hyacinthe, Hull, Danville, Lachute, Plessisville, Grand Mere, Upper Bedford, Old Lake Road and Chambly Canton. In Nova Scotia there were members in Londonderry, New Glasgow and Amherst; there were members in Winnipeg, Manitoba, and in Victoria and Vancouver, British Columbia. And this besmircher of its own nest has the audacity to say that in 1899 the Canadian Manufacturers' Association was unknown outside of Toronto and a few surrounding towns. In the decade, 1890-1899, the sphere of operations of the association extended from the easternmost limits of Nova Scotia to Vancouver and Victoria where the Pacific ocean bars further westerly progress.

The Canadian Manufacturers' Association is not benefitted by the belittlement of its noble and worthy record by such untruthful assertions in Industrial Canada.

EDITORIAL NOTES.

The International Exhibition to be held at Christchurch, Canterbury, New Zealand, beginning in November next and continuing to April of next year should command the attention of all manufacturers who desire to extend their trade to that country. The Department of Agriculture announces that the Canadian government will erect a special building to be devoted to the accommodation of exhibits illustrating the manufactured and other products of Canada. The Department of Agriculture offers to pay transportation charges one way on all accepted exhibits, and space, maintenance and installation will also be provided for free of charge. Applications for space and correspondence relative to the exhibition should be addressed to Mr. Wm. A. Burns, Department of Agriculture at Ottawa.

Census Commissioner Blue is making arrangements to have a census taken through the mails of the manufactures of Canada. When this is done he will be in a position to bring returns up to date, and to compare the latest figures with those of 1901, showing what developments have been made since the last census in every branch of industry. The statistics of manufactures for the present year will relate to the character, location, date of establishment, and owner or each manufactory; value of land, buildings and plant, and working capital; employees and staffs of various kinds and their salaries, and the wages paid to male and female operatives, and to the class of products and their value.

The total value of Canadian goods shipped into the Yukon Territory for the fiscal year ending June 30, 1905, was \$3,224,217. Of foreign goods the value was \$1,451,000, so that the balance of trade was in favor of Canada to the extent of \$1,772,817. For the previous fiscal year the balance in our favor was \$2,643,622. The Canadian tonnage in the fiscal year ending June 30, 1904, was 21,866, whereas last year it amounted to 15,272. There was a proportionate falling off in foreign tonnage, which in 1904 was 12,602, as against 10,648.

MACHINERY AND ENGINEERING.

CLARK-DEMILL CO. DOOR AND BLIND CLAMP.

The door and blind clamp shown in the illustration is something new in the line of machines. It has been designed and is manufactured by Clark-Demill Co., Limited, Hespeler, Ont., successors to Clark & Demill, Galt, Ont.

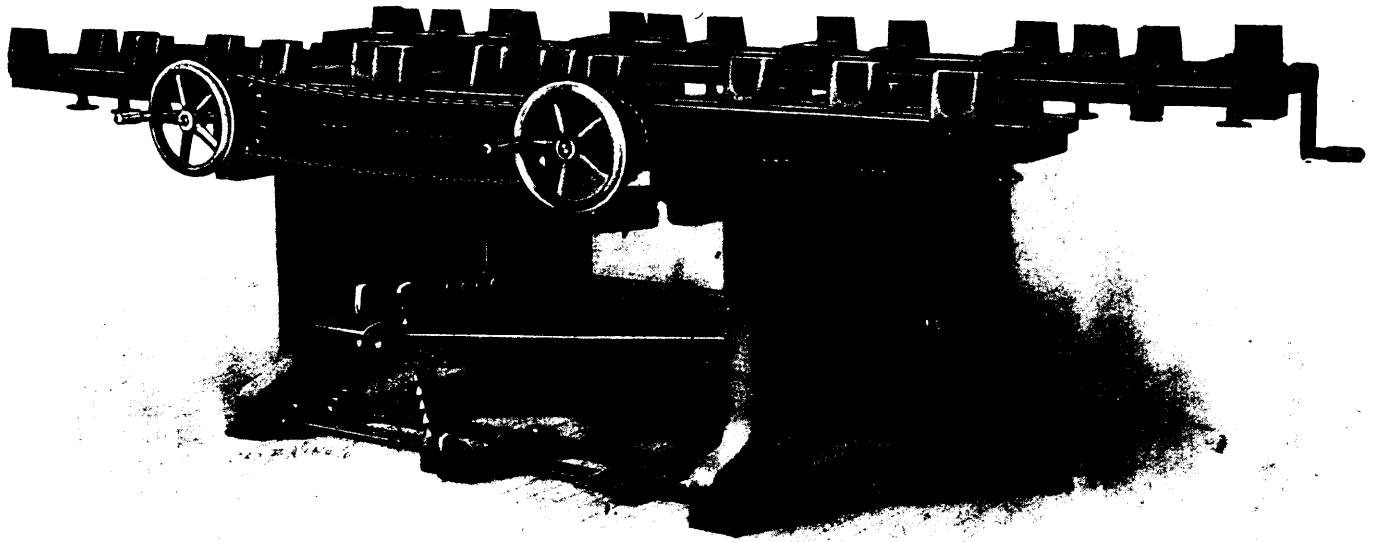
There are several new and important features on this machine which go to make it "a little better than the best." The screws for moving the sliding rail across the bed towards the stationary rail are connected by sprocket chain. These screws may be moved both together by either hand wheel as desired, or, by a single simple operation, the screws may be disconnected and moved independent of each other.

APPLICATION OF ELECTRICITY TO MINING.

It would be difficult, within limits which would not be tiresome, to more than mention the electrical systems, methods, processes, machines and appliances that have been proposed for use in connection with mining industries. To sift out those which have actually been tried, and again to eliminate all those that have not proven successful, and accredit merit to those deserving it would be perhaps beyond the province of even a broad treatment of the subject of this bulletin. Yet, while the possibilities for the application of electricity to mining appear boundless, the number of duties at present generally performed by this agent in purely mining operations are comparatively

these machines, the electric mine locomotive has been extensively adopted for mine haulage. With the increased production of coal and ore to meet the demands of great industrial activity it has been necessary to provide for the rapid haulage of the mined material from the working faces to the shaft or tippie. For this duty the electric mine locomotive has come to be universally recognized as the most economical, convenient and reliable agent yet devised.

The presence of electric circuits in mines has led to the application of electric motors to driving machinery which was before driven by other agents. Hoists, pumps, fans, and car loaders are among the machines to which electric motors are now commonly applied. The electric percussion drill has



NO. 213—EXTRA HEAVY SINGLE MOTION DOOR AND BLIND CLAMP.

Another important feature is in the application of the pressure to the material. By an ingenious arrangement of the levers the greatest pressure is applied to the job, when the joints are nearly closed, this being the time at which the resistance is the greatest.

Just at this point the cross rod, passing through the horizontal bar, raises slightly above the centre line, thereby holding the clamp securely closed while the door is being wedged.

When the wedging has been completed the treadle shown near the right hand, front side of the machine may be touched by the foot of the operator, releasing the back pressure weights, causing the rail to open.

A sash attachment is supplied with this machine when required, clamping the sash perfectly square in one operation.

These are only a few of the points of excellence of this machine. It is built throughout to withstand the greatest strains and most severe tests. It will stand up to its work when others fail.

These machines have already been placed in several of the most up-to-date sash and door factories in the country.

few. But in these comparatively few duties electricity is to-day performing the greater part, and it will be but a short time until other agents will be practically altogether displaced or reduced to serving merely auxiliary appliances. The present rate of adoption of electricity in mining operations indicates a rapidly growing appreciation of its value, and it is an unquestionable proof of its superiority over those agents previously employed.

Bulletin No. 11, issued by the Jeffrey Mfg. Co., Columbus, Ohio, is devoted to this subject, prepared by F. L. Sessions, and copiously illustrated with representations showing many of the applications of electrical machinery to mining operations.

Regarding this application Mr. Sessions says:

In no other class of mining has electricity been so widely adopted as in coal mining. In fact the electrically driven coal cutter and electric auger drill are practically the only successful electrically operated machines now in general use in the actual winning of materials from mother earth. Almost simultaneously with the development of

long been the dream of the inventor, but it has thus far apparently baffled all attempts to successfully master it. Quite recently the electric motor has been applied to drive percussion drills which depend for their blows upon the sudden expansion of springs. Strange to say the latest form of spring proposed and from the use of which important advances in the application of electricity to rock drills may be expected in the immediate future, is that old time opponent of electrically driven mine machinery, compressed air. Here, at last, two warring factions of those natural forces man has been able to enlist in his battles for industrial supremacy may be joined for performing a duty more efficiently than either has been able, single handed, to do it.

The Westinghouse Electric & Mfg. Co. have received an order from the United Railways & Electric Co., Baltimore, Md., for 100 No. 101-B four motor equipments complete with all details. This is in addition to a recent order for 200 motors of the same type.

CAPTAINS OF INDUSTRY.

The following items of information, which are classified under the title "Captains of Industry," relate to matters that are of special interest to every advertiser in these pages, and to every concern in Canada interested in any manufacturing industry whatever, this interest extending to supply houses also.

The Dominion Government have plans for a 1,000 foot wharf to be built at Peterborough, Ont.

Messrs. S. Price & Sons, Toronto, will erect a dairy building 310x70 feet, at a cost of about \$70,000.

The congregation of the North Parkdale Methodist Church, Toronto, will erect a new church building at a cost of about \$50,000. The school room, it is expected, will be completed this season, and will cost about \$15,000.

The Canadian Art Stone Co., Toronto, have been incorporated with a capital of \$50,000, to manufacture artificial stone, etc. The provisional directors include J. E. Murphy, Meaford, Ont., C. H. Badgley and W. H. Irving, Toronto.

The Lake Shore Oil & Gas Co., Brantford, Ont., have been incorporated with a capital of \$1,000,000, to carry on the business of a light, heat and power company. The provisional directors include F. M. Lowry, Pittsburg, Pa., Joseph Ruddy and H. S. Hewitt, Brantford.

The Smith's Falls Foundry & Malleable Co., Smith's Falls, Ont., have been incorporated with a capital of \$100,000, to manufacture stoves, furnaces, gasoline engines, etc. The provisional directors include Adam Foster, Alexander Stephens and A. G. Farrell, Smith's Falls, Ont.

Messrs. P. McIntosh & Son, Limited, Toronto, have been incorporated with a capital of \$300,000, to manufacture cereals, etc. The provisional directors include R. K. McIntosh, William Dobie and W. H. Lamont, Toronto.

The King Cobalt Mining Co., Toronto, have been incorporated with a capital of \$300,000, to carry on a mining, milling and reduction business. The provisional directors include Alexander MacGregor, H. W. Page and J. P. MacGregor, Toronto.

The Anderson Co., Limited, St. Thomas, Ont., have been incorporated with a capital of \$100,000, to manufacture carpets, etc. The provisional directors include R. M. Anderson, E. G. Cooper, St. Thomas, and John Northway, Toronto.

The Wm. Rogers Mfg. Co., a United States concern, have been granted a license to do business in Canada, to manufacture spoons, knives, forks, etc., with a capital of \$25,000. G. W. Clarke, Niagara Falls, Ont., has been appointed their attorney.

The Finch Electric Light & Lumber Mfg. Co., Finch, Ont., have been incorporated with a capital of \$50,000, to manufacture sash and doors, show cases, etc., and to install an electric light plant to produce electric power. The provisional directors include M. A. Smirl, Jacob McQuaig and G. L. McLean, Finch, Ont.

The Jessie Fraser Copper Mining Co., Niagara Falls, Ont., have been incorporated with a capital of \$250,000, to carry on a mining, milling and reduction business. The provisional directors include E. E. Fraser,

W. H. Ward, Niagara Falls, Ont., and J. T. Lindsay, North Bay, Ont.

The Brantford Roofing Co., Brantford, Ont., have been incorporated with a capital of \$100,000, to manufacture roofing materials, building papers, etc. The provisional directors include C. L. Millhouse, South Bend, Ind.; W. D. Schultz and G. C. Shultz, Brantford, Ont.

The J. H. Milnes Coal Co., Toronto, have been incorporated with a capital of \$50,000, to carry on a business of dealers in coal, wood, etc. The provisional directors include J. H. Milnes, J. Herbert Milnes and J. P. Milnes, Toronto.

The Indestructible Brick, Limited, Toronto, have been incorporated with a capital of \$100,000, to manufacture brick, stone, cement, etc. The provisional directors include G. W. Townsend, H. L. Douglas and Charles Wilkinson, Toronto.

The Ontario Distributing Co., Niagara Falls, Ont., have been incorporated with a capital of \$100,000, to carry on the business of a light, heat and power company. The provisional directors include J. H. Symmes, G. G. Durham and F. C. McBurney, Niagara Falls, Ont.

Messrs. Gilbert, Dunn & Woodland, Limited Toronto, have been incorporated with a capital of \$40,000, to manufacture stationery, etc. The provisional directors include A. T. Gilbert, S. D. Durham and H. A. Munro, Toronto.

The Crown Mining Co., Leamington, Ont., have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include F. S. Moss, J. H. Conover, Leamington, Ont., and W. J. Clearihue, Detroit, Mich.

The Capital Vinegar Works, Toronto, have been incorporated with a capital of \$40,000, to manufacture vinegar, pickles, jams, etc. The provisional directors include Andrew Dods, Gideon Grant and A. E. Lyon, Toronto.

The Pratt & Whitney Co. of Canada, Dundas, Ont., have been incorporated with a capital of \$100,000, to manufacture iron and steel machinery, and tools, etc. The incorporators include R. C. McKinney, New York City, Henry Bertram and Alexander Bertram, Dundas, Ont.

The Quebec & Ontario Lumber Co., Ottawa, have been incorporated with a capital of \$20,000, to manufacture lumber, timber, etc. The charter members include H. W. Gays, H. K. Gays and W. H. Curle, Ottawa.

The Grand Trunk Railway Co. will erect seven wharves and a million bushel elevator at Midland, Ont.

The Canadian Pacific Railway Co. will erect elevators at Victoria Harbor, Ont., with storage capacity of over 3,000,000 bushels.

The Wolverine Cedar & Lumber Co., who have timber in the Georgian Bay district, will cut 25,000,000 feet of lumber this season.

The Standard Wire Fence Co., Woodstock, Ont., report satisfactory progress at their factory, already having one loom manufacturing fence, while two others are under construction. The company manufacture a fence identical to that made by the Adrian Wire Fence Co., Adrian, Mich., under the American patent. There is reported a good demand for this kind of fence in Ontario, and the company have under way plans for a new factory.

E. B. Foss, of Bay City, Mich., has purchased timber berth No. 169, in the Georgian Bay district, from Gilchrist, of Alpena, for \$450,000.

The McDougall Auditing Co., Ottawa, have been incorporated with a capital of \$10,000, to carry on a business of public accountants and auditors. The charter members include J. L. McDougall, jr., Samuel McDougall and F. R. Latchford, Ottawa.

It is stated that Messrs. Mackenzie & Mann, Toronto, have purchased a \$10,000 option on an iron mine at Hutton, Ont., and that a large smelter will be erected in Toronto for the treatment of the ore. The location of the smelter is said to be at the mouth of the Don River, and will cost about \$5,000,000.

The Williams Shoe Co., Galt, Ont., manufacturers of shoes, have closed their factory in that place and will move their machinery to Brampton, Ont.

Messrs. W. H. Cone and F. E. Brown, Galt, Ont., owners of the American rights to manufacture the Cone gas producer, have sold a half interest in the American rights to M. A. Corliiss, Detroit, Mich., for \$10,000.

The Western Counties Power Co., Brantford, Ont., have purchased the plant of the Brantford Electric & Operating Co., that city.

The cheese factory of W. A. Derbyshire, Esq., Crosby, Ont., was destroyed by fire January 30. Loss about \$1,500.

The woolen mills of W. Clark, Esq., West Flamboro, Ont., were destroyed by fire January 31.

It is stated that the Penman Mfg. Co., Paris, Ont., are contemplating starting a branch factory in Brantford, Ont., for the manufacture of a line of woollens.

The station and freight sheds of the Grand Trunk Railway Co. at New Hamburg, Ont., were destroyed by fire February 3. Loss about \$5,000.

The Automobile & Garage Co., Hamilton, Ont., have been incorporated with a capital of \$40,000. They will erect a building 120x45 feet to be used as a garage.

The churn factory of A. M. Bridge, Westbrooke, Ont., was destroyed by fire February 5. Loss about \$1,000.

The new smelter at Copper Cliff, Ont., erected for the treatment of cobalt ores from the mines in the Sudbury district of Ontario, has been successfully installed. The smelter has a capacity of 10 tons daily and is being operated as a custom smelter for the treatment of all precious metal bearing ores. The cost of erection was approximately \$100,000.

The sub-station of the Huronian Power Co. at Copper Cliff, Ont., is nearing completion and power will be transmitted to Copper Cliff immediately. About \$250,000

has been expended on the power house and equipment.

The Canadian Copper Co. is surveying a right of way from Copper Cliff, Ont., to Creighton to convey power to the property there. The operation of the entire plant by electricity is proposed and plans are now being prepared with this end in view.

The Ontario Government are considering the advisability of installing an electric light plant in the Parliament Buildings, Toronto.

It is reported that the Acme Oil Co., Detroit, Mich., have discovered oil at a depth of 1,450 feet on the Kerr farm, Tilbury East, Ont., and that the well pumps 40 barrels per day.

The premises of the Toronto Carpet Co., Toronto, were damaged by fire February 6. Loss about \$4,000.

A new Press Building will be erected on the grounds of the Canadian National Exhibition, Toronto, at a cost of about \$15,000.

The shops and laundry building of the Rockwood Asylum, near Kingston, Ont., were damaged by fire February 9, to the extent of about \$10,000.

The Dominion Bank, Toronto, have purchased property at the southeast corner of Queen St. and Broadview Avenue, that city, and will erect a handsome modern banking office.

The Ontario licenses granted to the Welding Compound Co., and the Detroit & Dominion Oil Co., both United States concerns, have been revoked. The Harvey Van Norman Co., the Sydenham Mica & Mining Co., and the Caledonia Natural Gas Co., have surrendered their charters.

Tenders will be invited for the new barracks for the permanent corps at Toronto. The administration building will be 189x44 feet, the men's quarters on either side of administration building each 268x44 feet. A spacious drill hall and recreation hall will also be erected. The total cost will be about \$350,000.

The Section Acetylene Machine Co., Belleville, Ont., have been incorporated with a capital of \$15,000, to manufacture acetylene machines, etc. The provisional directors include J. S. Jenkin and W. B. Riggs, Belleville.

The Anthes Furniture Co., Berlin, Ont., have been incorporated with a capital of \$100,000, to manufacture furniture, etc. The provisional directors include J. I. F. Anthes, J. C. Breithaupt, A. L. Breithaupt and H. J. Sims, Berlin.

The C. W. Bongard Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture electrical supplies, etc. The provisional directors include C. W. Bongard, F. B. Johnston and S. Johnston, Toronto.

The Capital Scale Brass & Iron Foundry Co., Ottawa, have been incorporated with a capital of \$40,000, to manufacture scales, weighing machines and devices, etc. The provisional directors include R. B. Gorman, L. J. Kehoe and E. P. McGrath, Ottawa.

The Anthony Wire Fence Co. of Canada, Windsor, Ont., have been incorporated with a capital of \$100,000, to manufacture wire fence and fence material, machinery, etc.

The provisional directors include D. P. Anthony, C. B. Anthony, Tecumseh, Mich., and J. W. Nixon, Holloway, Mich.

Will H. Newsome, Limited, Toronto, have been incorporated with a capital of \$40,000, to manufacture stationery, etc. The provisional directors include W. H. Newsome, H. A. Munro and D. C. Simpson, Toronto.

The Great Western Power & Mfg. Co., Peterborough, Ont., have been incorporated with a capital of \$200,000, to manufacture machinery, etc. The provisional directors include J. D. Flavelle, Lindsay, Ont.; C. B. McAllister, and G. M. Roger, Peterborough.

The Consumers Coal Co., Toronto, have been incorporated with a capital of \$100,000, to carry on the business of a fuel company. The provisional directors include J. H. Hammill, G. Nash and C. B. Edler, Toronto.

The Toronto Railway Co. have begun to build a number of street cars for Winnipeg, Man., and will also increase the rolling stock for the Toronto service.

According to the Metallic Roofing Co., Toronto, it requires but slight efforts to prove to anybody that wooden shingles are things of the past and dealers who take the trouble to push the sale of metallic shingles are assured of a good trade, as they are fire proof, rust proof, storm proof and have a wonderful capacity for wear.

So much money is pouring into the coffers of the Toronto Railway Co. that Mr. William Mackenzie, the president, was able at the annual meeting last week to announce that, beginning April 1, the dividend will be at the rate of six per cent. per annum, instead of five per cent. The City of Toronto received from the Toronto Railway Co. during 1905 the sum of \$405,638.89, made up as follows:—Percentage on earnings, \$294,796.72; mileage rentals, \$79,996.94, and for taxes, \$30,935.23. The gross earnings of the company for last year amounted to \$2,747,324.58, against \$2,444,534.24, an increase of \$302,790.34, or 12.6 per cent. The operating expenses reached \$1,560,437.42, against \$1,424,174.54 in 1904. The percentage of expenses to revenue last year was 56.8, against 58.2 in 1904.

The Atikokan Iron Co., of Port Arthur Ont., have made a contract with the Canadian Rand Drill Co., Sherbrooke, Que., for a full installation of mining machinery for the iron mine property they are developing 150 miles west of Port Arthur. There is as yet no railroad into the mine, but the Canadian Northern passes only a few miles distant and will be built in the coming spring. The machinery is to be taken in before the road gets there, at least as much of it as will be needed at once. There is to be a large jaw crusher, capacity 1,000 tons per 20 hours, with power, a Rand compressor and an outfit, at the start, of ten drills. The mine will be opened by tunneling and no hoisting machinery will be needed at present.

Mr. W. H. Biggar is applying to Parliament for the incorporation of the Toronto Union Station Co. Toronto, to take over the union station property and to build a new one.

The machine, carpenter, paint, plow and blacksmith shops of the Frost & Wood Co. Smith's Falls, Ont., were destroyed by fire February 8.

The mills of the Sarnia Cereal Co., Sarnia, Ont., were destroyed by fire February 6. Loss about \$3,000.

Messrs. Gillies Bros., Ottawa, have sold to the Empire Lumber Co., Toronto, four square miles of pine area on the extreme north of their present holding. This is the district in which prospectors say the mineral deposits are as rich as at Cobalt. The Empire Lumber Co. paid in the vicinity of \$100,000 for the four miles, and it is said to be their intention to get the pine off as speedily as possible.

Messrs. George Schlee, D. B. Detwiler and M. B. Shantz, Berlin, Ont., are interested in a button factory to be established in that place which will have a capacity of about 600 gross of buttons per day.

The factory of the Canada Glue Co., Brantford, Ont., is about completed and will soon be running full time.

The Caledonia Skating & Curling Club, Toronto, will expend \$100,000 upon the construction of a hockey palace. Accommodation will be afforded for 7,000 spectators, and an ice area 250 x 90 feet will be provided. An artificial ice plant, at a cost of \$25,000, will be one of the accessories to the new building. For horse show purposes, stabling facilities will be provided in the basement.

The Grand Trunk Railway Co. will erect a large hotel in London, Ont., in connection with the new Grand Trunk Railway station.

The laundry and buildings of the Muskoka Free Hospital for Consumptives, Gravenhurst, Ont., were destroyed by fire last week. Loss about \$6,000.

Toronto's revenue from the Toronto Railway Co. continues to grow, the city's share for January, 1906, being nearly two and a half times as much as in January, 1901, five years ago. The figures for January of the years mentioned are as follows:

	Receipts.	Percentage.
1906.....	\$239,552 87	\$23,626 37
1905.....	200,517 87	17,402 73
1904.....	177,496 65	14,199 73
1903.....	161,201 00	12,289 08
1902.....	137,770 00	11,021 60
1901.....	122,132 50	9,770 60

It was announced at the recent annual meeting of the Farrar Transportation Co., Collingwood, Ont., that the company had decided to build a 9,000-ton ore-carrying steamer to go into commission in the spring of 1907 and that the contract was to be given to the Collingwood Ship Building Co., Collingwood.

There was paid out on bounties \$2,580,032 for the calendar year ending with December. Of this amount \$1,900,206 was paid on iron and steel; \$334,224 on lead; \$332,900 on crude petroleum; and \$13,000 on Manila fibre.

The car barns, a number of cars and a snowplow of the International Railway Co., Niagara Falls, Ont., were destroyed by fire February 12. Loss about \$125,000.

A company is being formed in which Mr. W. G. Tretheway, Hamilton, Ont., is interested, for the purpose of treating Cobalt ore at Hamilton. Mr. Tretheway states that the company will probably handle about \$2,000,000 worth of ore annually. The handling of low grade ore at Hamilton will depend on the railway rates. If these can-

not be arranged satisfactorily the ore will be treated at a reduction works at Cobalt.

It is said that negotiations are in progress between the Atikokan Iron Co., of Port Arthur, Ont., and the Dominion Steel Co. for the shipment of Ontario ores to the steel company's works in Nova Scotia. This company last year received a large amount of ore from the American side of the lakes, and would find it much more profitable if they could get ore mined in Canada. The same is true of the Lake Superior Corporation, with their works at Sault Ste. Marie, Ont.

The Toronto Railway Co. are negotiating for from 5,000 to 6,000 tons of steel rails for city routes, as it has been decided to relay with a heavier rail the Belt Line, King and Queen Streets and parts of Front and Yonge Streets. There will probably be 1,000 tons of T rails required for the extensions. Altogether the company will spend almost \$350,000 on these new rails and joints. The ordinary rails to replace those already down are to weigh about 90 pounds per yard. These rails may be ordered from the Steel Trust Works at Loraine, Ohio.

The Detroit, Belle Isle & Windsor Ferry Co. have placed an order in the United States for a new ferry steamer. She will be built of steel, fitted with six water-tight compartments, her principal dimensions being:—Length over all, 180 feet; breadth, 45 feet; over guards, 57 feet; depth of hull, 18 feet; draught, 12 feet. She will be fitted with triple expansion engines supplied with steam by two Scotch boilers carrying 180 pounds of steam. She will make 16 miles an hour and carry 2,700 passengers.

D. O'Connor, Temagami, Ont., is having a new steamer built at Sorel, Que., for the trade on Lake Temagami. The new steamer is to be shipped in sections to Temagami early in the season, and put together on the lake in time for the tourist trade.

Several representatives of a Buffalo firm have been in consultation with the Toronto Assessment Commissioner regarding the leasing of three acres of land in the city for a term of 21 years. The company manufacture lubricating oils, and the Canadian company will be capitalized at \$50,000. The buildings, which will cost \$20,000, will be erected this spring, and 25 men will be employed at the outset.

The Atikokan Iron Co., Port Arthur, Ont., have completed the foundations for their blast furnace, stoves, boilers, coking ovens, roasting plant, engine house and trackage approaching the works. Contracts have been let for the superstructure with the idea of being ready to blow in by August 1 next. The mines of the company on the Atikokan Range are equipped, a branch line from the Canadian Northern is under construction, and the company expect to be able to handle from 600 to 700 tons of ore per day by May 1.

A Globe special from Ottawa says:—For the present the erection of the proposed new departmental block, which it has been estimated would cost by the time it was built and furnished fully two and a half million dollars, has been deferred. Other expenditures of a similar character are being held over. The reasons for this are obvious. The Public Works Department has to provide immediately for outlays in transportation,

so as to move cheaply and speedily the grain products of the North-West to the seaboard. This means improvements at the lake ports and also at the ocean terminals. The Government have yet to decide whether they will build the Ottawa and Georgian Bay Canal or not. If they determine to undertake the work it means an expenditure of from eighty to one hundred millions of dollars, spread over a period of years. A great engineering problem is involved in providing sufficient water at what may be called the "crain" or "summit" of the route of the canal, to ensure a steady and continuous supply for 21-foot navigation. This is one of the questions to which the government engineers are addressing themselves. Not only is there some likelihood of provision having to be made for large outlays on the Georgian Bay Canal, but the construction of the National Transcontinental Railway will make large demands upon the country's financial resources. Under the circumstances the government are calling a halt in order to review the situation, and see where they stand. In view of the possible large drain upon the exchequer soon to be felt it is likely that only the more pressing public works will be undertaken immediately.

Messrs. Henry Morgan & Co., Montreal, who conduct a large departmental store, have purchased building recently occupied by Messrs. S. Davis & Sons, which was damaged by fire a short time ago. The building will be fitted up for a factory for the Morgan company.

The Canadian Rand Drill Co., Sherbrooke, Que., will build extensive additions to their works, including the erection of a new foundry.

The ratepayers of Maisonneuve, Que., will vote on a by-law to grant a bonus of \$10,000, to Messrs. Brunet & Couson, to establish a shoe factory there.

Messrs. Darling Bros., Limited, Montreal, have been incorporated with a capital of \$250,000, to acquire the business of Darling Bros. and to manufacture iron and steel machinery, etc. The incorporators include A. J. Darling, George Darling and Edward Darling, Montreal.

The Canadian White Co., Limited, Montreal, have been advised by their New York correspondents, Messrs. J. G. White & Co., Incorporated, that the latter's tender for the building of 300 miles of steam railroad in the Philippines has been informally accepted by the United States Government. Messrs. J. G. White & Co. have further contracts with the Government for the building of harbor work at Cebu and Iloilo, and the naval station near Manila. They have also recently built and equipped complete the railway system of the city of Manila. All the above contracts amount to about sixteen million dollars.

The Canadian Pacific Railway Co. have placed an order with the Dominion Car Co. for 200 steel coal cars, to cost over \$1,500,000. The cars will have a carrying capacity of 110,000 pounds each, and will be used in the coal service on the Port Burwell-Ashtabula route.

The Montreal Street Railway Co., Montreal, have completed negotiations for the purchase of a large tract of land adjoining their sheds at Hochelaga, Que. A large power house will be constructed at once.

The company will increase their mileage from 129 miles to 300 miles, an increase of 171 miles. Figuring this at the rate of \$70,000 per mile, including the complete equipment of the road, tracks, power houses, cars, real estate, feeder cables, wires, etc., the amount of money the company will spend within the next five years in carrying out their plans would total about \$15,500,000.

The Canadian Pacific Railway Co. have decided to make Quebec City for the present the terminus of the new steamers of the Atlantic fleet, as the company feel that the danger and the rush involved in bringing the Empress of Britain and the Empress of Ireland up to Montreal would be so great that they do not feel justified in assuming the responsibility.

Messrs. J. W. Shaw & Co., Montreal, have purchased the piano factory of Messrs. Ducharme & Co., that city, where they will carry on their manufacturing business.

Messrs. R. E. T. Pringle & Co., Montreal, manufacturers of electrical supplies, will erect a large factory at a cost of about \$30,000.

The shoe factory of Messrs. J. B. Drolet & Co. and Benjamin Crepeau, Quebec, Que., was destroyed by fire February 7. Loss about \$25,000.

The Canadian Pacific Railway Co. have closed a contract with the Dominion Steel Car Co., Montreal, a recently organized company, for the construction of 500 steel drop bottom gondolas, to be used, on the Crow's Nest section. The cars will be the first to be made of steel in Canada. They represent an expenditure of about \$150,000.

The corporate name of the Laurie Engine Co., Montreal, has been changed to that of the Laurie Engine & Machine Co.

The capital stock of the Dominion Transport Co., Montreal, has been increased from the sum of \$500,000 to the sum of \$2,000,000.

The Canada Dairy Utensil Co., Cowansville, Que., have been incorporated with a capital of \$10,000, to manufacture centrifugal butter making machinery, etc. The charter members include F. L. Spoor, Farnham, Que.; E. J. Ruiter, Cowansville, Que., and J. D. Plante, Montreal.

Messrs. A. Prudhomme & Fils, Montreal, have been incorporated with a capital of \$145,000, to manufacture electric motors, dynamos, etc., and to acquire the business now carried on by A. Prudhomme & Fils, and Canadian Hardware Co. The charter members include A. Prudhomme, H. Godin and S. Beaudin, Montreal.

Among recent sales by Allis-Chalmers-Bullock, Limited, Montreal, were 30 of the latest type improved coal cutters to the Dominion Coal Co., Glace Bay, N.S.; two compound steam driven air compressors to the Acadia Coal Co., Stellarton, N.S., and a 425 k.w. alternating current generator for the corporation of Parry Sound.

The Grand Falls, N.B., Power Co. have filed their plans, and the provincial engineer reported in favor of them. After notice, as required by the act, has been given the boom company, if there are no objections made, the plans will be approved. The projects of the company include development of the great water power at Grand Falls for

a number of industrial purposes, and will involve a very large expenditure.

E. A. Morgan, Esq., Fredericton, N.B., is among those who are interested in erecting a carriage factory there.

The Mowry Safety Nut Co., St. John, N.B., have secured a location bordering on Courtney Bay, near that city, where they will erect extensive works. They propose to spend \$50,000 in improvements on the land within two years, and \$150,000 within five years, and after two years to pay out at least \$50,000 per year in wages, and employ not less than 75 hands.

The mill of Messrs. C. B. Dargie & Son, Leguille, N.S., furniture manufacturers, was destroyed by fire February 2.

Speaking of some of the industries of Sydney, N.S., the Maritime Merchant says:—The Dominion Coal Co. operate nine collieries, one of which has the largest coal shaft in the world. These mines are distant from Sydney 9 to 15 miles, but Sydney is the chief shipping point. The company have over 8,000 employes on their pay roll. The quantity of coal in the areas included in this company's lease is estimated to be 2,115,891,310 tons. The output of the Dominion Tar & Chemical Co. last year was 20,000 tons. The output of the Sydney Cement Co. was over 3,000,000 tons. The Nova Scotia Steel & Coal Co. have 2,600 employes on their pay roll, and the output of their collieries in 1905 shipped from North Sydney exceeded half a million tons.

The Amherst Foundry Co., Amherst, N.S., are now manufacturing a full line of enamelware, having two furnaces employed on this class of work. Within the last two months the western representative, Mr. O. Vickery, has disposed of over six carloads of the Amherst enamelware from his Toronto office.

The Robb Engineering Co., Amherst, N.S., have received an order, through Mr. Martin J. Heller, of San Francisco, for a 150 h.p. tandem compound engine for the Nipissing Mining Co., Cobalt, Ont.

A. R. Bayne, of New York, representing a syndicate of Americans, has secured the large barytes deposits at Five Islands, N.S. These lands embrace the old Gerrish and Peters grants, comprising an area of about 10 miles square. Operations for the development of the property will commence at once. The product is used in filling paper, conveying dyes, loading silk, and extensively to adulterate confectionery, flour, and sugar. This is one of the largest known deposits in the world, being almost chemically pure.

The Inter-West Peat Products Co., Winnipeg, Man., have been incorporated with a capital of \$250,000, to manufacture peat, etc. The incorporators include H. W. Gerhardt, H. J. Macdonald, and A. E. Ham, Winnipeg, Man.

London Fence, Limited, Portage la Prairie, Man., have been incorporated with a capital of \$250,000, to manufacture wire, iron or wire fencing and gates, etc. The incorporators include J. S. Willmott, Portage la Prairie, Man.; H. G. Gray and A. E. Blashill, London, Ont., and A. E. Hinds, Winnipeg, Man.

The Canadian Key Registry Co., Winnipeg, Man., have been incorporated with a capital of \$1,000, to manufacture key rings,

etc. The incorporators include F. J. C. Cox, R. A. Taunton and S. H. Matheson, Winnipeg, Man.

The Carman Milling Co., Carman, Man., have been incorporated with a capital of \$40,000, to carry on a flour milling business, etc. The incorporators include A. H. Snellgrove, Carman, Man.; Thomas Lawson, Greysville, Man., and Edward Jobin, St. Claude, Man.

The planing mills of Fusee & McPeeter, Neepawa, Man., were destroyed by fire January 30. Loss about \$20,000.

The Brandon Brewing Co., Brandon, Man., will erect a new building together with bottling works and office, at a cost of about \$75,000, to replace the plant recently destroyed by fire.

The new freight sheds of the Canadian Pacific Railway Co., Winnipeg, Man., used as a bonded warehouse were destroyed by fire January 31. Loss about \$100,000.

The school building at Emerson, Man., was destroyed by fire February 8. Loss about \$15,000.

That not only Winnipeg, Man., but the whole of Western Canada will show general prosperity during the coming season is exemplified by the Western Builders' Gazette. In the current issue a complete list of over \$15,000,000 worth of contemplated buildings is recorded in Winnipeg alone. Besides this there are \$10,000,000 worth of contracts open throughout the three provinces, as well as \$7,500,000 in railroad contracts, making a grand total of \$32,500,000 to be expended in construction work at present assured.

Messrs. McInnes & Lyon, Edmonton, Alta., will erect a planing mill to cost about \$3,500.

The new wing of St. Patrick's orphanage, Prince Albert, Sask., was destroyed by fire February 7. Loss about \$3,000.

The Hall Elevator & Grain Co., Vancouver, B.C., are contemplating establishing a flour mill at that place, with a capacity of 500 barrels per day.

Mr. George Easterbrooke will erect a large flour mill at Vancouver, B.C.

A call has been made for tenders for the construction of two sections and a bridge for the Transcontinental Railway. There are three tenders asked for. One is for a section of the road from Winnipeg to the junction of the Grand Trunk Pacific branch, a distance of 245 miles. The other is for a stretch from Quebec to a point near La Tuque, a distance of 150 miles. In addition to this tenders are asked for a steel bridge at Cape Rouge. Tenders will require to be in Ottawa by March 12, when the time for receiving them will be closed. The call for tenders gives notice that he work will have to be done under a fair wages agreement. That is to say, that the current wages in the district, or fair and reasonable wages must be paid. Where any disagreement on any point arises the commissioners must decide. Another provision is that supplies and material for the work must be purchased in Canada as far as it is possible to do so. The work must be completed by the first of September, 1907.

ELECTRICITY.

Electrical machinery and appliances of all kinds, electrical power plants and other progress in the electrical industries will be noted here.

The Canadian Pacific Railway Co. are considering the advisability of substituting electricity for steam as a motive power, and before undertaking the necessary initial experiments are making inquiries in reliable quarters and obtaining data as to the probable cost. It has been advised by manufacturers of electrical plants to go slow, because so rapid is the development in electrical science that apparatus which to-day may be modern and up-to-date becomes obsolete to-morrow. If the Canadian Pacific Railway decide to experiment in the operation of trains drawn by electric motors the section between Montreal and Quebec will be first equipped and the tests will begin some time within the next six months. Should electric motor cars prove successful the system of electrification will gradually be extended to other Canadian Pacific Railway lines. Shawinigan Falls will furnish electrical energy for the preliminary tests, and in the event of these trials proving a success Niagara Falls will undoubtedly be drawn upon for power with which to operate some of the Ontario lines.

A terminal station to accommodate all electric lines in Hamilton, Ont., will be erected. It is proposed to take the property of the Cataract Power Co., at the corner of King and Catharine streets, Hamilton, and erect thereon an up-to-date station, to be used by the Hamilton, Grimsby & Beamsville Electric Railway, the Radial Electric Railway, the Hamilton & Dundas Railway and other electric railways that may come to the city. The idea is to converge all the electric railway business at one point in the city. Sufficient property at James and Gore streets for the purpose could not be obtained, because of outrageous prices asked for the property in close proximity to the radial railway station, but the company think the site mentioned will be very convenient for the proposed station. The city will be asked for permission to lay tracks on certain streets to connect the various railways in question with the terminal station.

Hon. Adam Beck of the Ontario Government delivered an address in Toronto last week in which he dealt in an interesting manner with the electric power question as it affects the Province of Ontario. This is a matter to which Mr. Beck in his capacity as Chairman of the Hydro Power Commission, a member of the Municipal Power Commission, and the member of the Government specially charged with looking after that branch of the Administration's policy, has devoted a great amount of time and attention. Mr. Beck emphasized the point that the policy of the Government was in the direction of securing to the consumer cheap rates for electrical power and light developed from the immense water power resources of the province. The increasing of rentals to companies having concessions to develop those powers, while it would increase the revenues of the government would be of no advantage to the consumer—the public at large. He dwelt upon Ontario's commanding advantages in respect to water powers

as compared to other provinces. The report of the Hydro-Power Commission which would be presented during the coming session of the Legislature, would be such, he hopefully predicted, as would enable the government to deal with the question in an intelligent manner, and to the greatest advantage of the public interests. During the course of his remarks Mr. Beck referred to reports that contracts had been made in Toronto for the supply of Niagara Falls power at \$35 per horse-power per year. On this basis the consumer would not be any better off than by purchasing steam-developed power. He was inclined to agree with a statement made by a Torontonian recently that power could be purchased at Niagara Falls at \$12 per horse-power, and delivered here at \$17 per horse-power. The difference between that rate and the aggregate now paid by Toronto consumers for steam-developed power would be about \$500,000 a year in favor of the former.

Mr. J. W. Evans, a mining engineer of Deseronto, Ont., has sent to Mr. T. W. Gibson, of the Ontario Bureau of Mines, several samples of steel smelted directly by the electric furnace process. The ores were taken from two mines in Hastings County, both of a kind extremely hard to treat in the ordinary furnace. The Horton mine, from which some of the ore smelted was taken, has considerable titanium in it, and the contents of the Coe Hill mine, from which the other ore was obtained, run high in sulphur. The steel was produced by electricity in about 15 minutes, the pig iron stage being avoided. If the process is successful on a large scale it is certain to be most important for it will impart value to ores that had come to be regarded as hopeless.

Senator L'Hommedieu has introduced a bill in the New York State Legislature to revoke the charters of four companies that have been granted rights to divert water from the Niagara River on the American side, and all indications are that these bills will be passed. The companies affected are the Niagara Power & Drainage Co., the Lewiston Water Supply Co., the Lockport Water Supply Co., and the Lewiston Water Works Co. With these companies out of the way, there will still be four surviving charters in the state, as follows:—The Niagara Fall Power Co., the Niagara Falls Hydraulic Power & Mfg. Co., the Niagara County Irrigation & Water Supply Co., which has not yet broken ground, and the Niagara, Lockport and Ontario Power Co., which has not yet started a power development. On the Canadian side of the river three companies are now at work, and their franchises permit of a total development of over 400,000 h.p., while other charters are alive, but not for a development close to the falls. The Commissioners of Victoria Park, however, are prepared to grant new rights.

The Westinghouse Machine Co. have opened a Philadelphia, Pa., sales office in Room 1003 North American Building. The establishment of this office was necessitated by their rapidly expanding business in that territory, particularly in gas engines and Westinghouse-Parsons steam turbines, and is in line with the progressive policy of the company to establish headquarters in all large industrial cities.

FUEL.

For names of fuel dealers see "Coal and Coke" in Classified Index.

The fuel supply question is a most important one to Canadian manufacturers. The information published in this department will keep the readers posted on sources of production.

The total quantity of coal imported into Toronto by rail and water in 1905 according to returns from the Customs Department at Ottawa was as follows:—Hard coal, 553,287 tons; soft coal, 709,531 tons; in all 1,262,818 tons, an increase of 2,359 tons over 1904.

Two million tons of coal and 500,000 tons of coke per annum is the advertised present capacity of the coal mines and coke ovens at Coal Creek, Michel and Carbonado, B.C., the three collieries of the Crow's Nest Pass Coal Co.

It is reported that the output of the mines of the International Coal & Coke Co., at Coleman, B.C., is about 1,000 tons of coal daily. A complete Rand air haulage system has been installed by the Canadian Rand Drill Co.

The Burton-Beidler & Phillips Co., Cleveland, Ohio, have sent us a handsome little brochure entitled "The Coal Fields of Ohio," in which they have aimed to give a brief summary of the principal mining districts of that State. It includes a short description of Ohio coals, prepared by F. E. Greene, M.E., and there is a map of the State in which is shown the different coal districts and also the different coal properties of the Burton-Beidler & Phillips Co., who control the entire output of the Black Oak, Kennon, West Pittsburg, New Crescent, Brilliant and Blanche mines, the combined capacity of which is over one million tons of coal a year.

The Nova Scotia Steel & Coal Co. are now producers of coke, iron and steel as well as of coal, and all four departments show largely increased outputs for 1905. The coal output from Sydney Mines in 1905 was the largest on record, the figures being approximately 560,000 tons or about 100,000 tons in excess of 1904. The shipments in 1905 will total 535,000 tons as compared with 439,310 tons in 1904 and 400,618 in 1903. Local prophets at the Sydneys venture to predict that 1906 will see a production of upwards of three quarters of a million tons of coal at Sydney Mines. The output of coke for 1905 amounted to 120,000 tons, of pig iron 58,000 tons and steel 22,000 tons. The comparative smallness of the steel output is due to the fact that the furnace only commenced in July. A substantial increase is looked for during the current year.—Industrial Advocate.

The Dominion Coal Co. raised 3,164,656 tons from its various Nova Scotia collieries during 1905. No. 2 colliery produced up to 4,000 tons on single shift. No. 3 colliery was generally renovated, the bankhead raised, new engine installed, and the mine put in the best possible condition. At the Hub new compressors have been added, and the bankhead is to be extended by a 25 foot addition. A new bankhead, new carpenter and machine shop will be built at Reserve. Boreholes are being put down at the various

collieries, and through these electric wires will pass from the big plant being installed at No. 2 colliery. The power house will be 120x60 ft., and very powerful electric wires will be used to give, it is said, about 6,000 volts. Lines are now being constructed to all the collieries. A new foundry is being built with a capacity of 10 tons per day. Two-thirds of the total output of coal by the Dominion Coal Co. is mined within the limits of Glace Bay. The company's local market is expanding, particularly the quantity sold to the Dominion Steel Co. Extensive plants have been erected at St. John and Halifax to facilitate the handling of coal at these points. Next season the company will be in the best position it ever was to secure big outputs. No. 6, which now scarcely figures, will before another year produce nearly 1,000 tons per day. All the older collieries will hold their own, and perhaps do a little better.

UNITED STATES COAL OUTPUT.

The Black Diamond shows that the coal production of the United States for the year 1905 was 367,474,393 tons, as compared with 352,310,427 tons in 1904, an increase of 15,163,966 tons. The probable tonnage capacity of the United States at this time is very close to 400,000,000 tons of coal, but, owing to the prolonged car shortage during October and November of last year, the output was materially reduced. Many of the older producing states show a slight decrease, due to the interruption by the car shortage referred to. The table of statistics showing the production in 1904, compiled by the United States Government, as compared with 1905, is as follows, in short tons:

	1904.	1905.
Total.....	279,153,718	290,562,538
Anthracite.....	73,156,709	77,911,855
Total.....	352,310,427	367,474,393

According to this table, anthracite production shows an increase of practically 4,500,000 tons, having been the heaviest in the history of the industry, exceeding 1903, when the production was 74,607,068 tons, by 3,304,787 tons.

The Stowe-Fuller Co., Cleveland, Ohio manufacturers of fire brick, tile and cements, have materially enlarged their plants and have established an office in Pittsburg for the sale of their products, in charge of W. N. McKnight and John Reid, Jr.

In the office building of the H. K. Porter Co., at Pittsburg, Pa., an apparatus has been installed in connection with the heating and ventilating system whereby the air is washed and all dust and soot removed before it is put in circulation. This device, installed by the B. F. Sturtevant Co., of Boston, Mass., consists of a metal supporting frame filled with coke over which water trickles. All air entering the building is drawn through this filter by means of a fan and delivered under pressure to the various rooms. It is stated that during the past summer the fan has been operated continuously with the windows closed, the air has been thoroughly cleansed, its temperature lowered, the health of the office force improved and their daily output increased.

PUBLICATIONS.

The publishers of The Canadian Manufacturer solicit in advance, if possible, catalogues, circulars, and other industrial publications issued by manufacturers. We wish to review such literature, and bring the principal points to the attention of our readers.

The Chronicle Publishing Co., Halifax, N.S., have published an interesting pamphlet entitled "The Decline of Iron Mining in Nova Scotia," being a reproduction of an article which recently appeared in the Morning Chronicle upon that subject. The contention of the writer is that further iron and steel legislation should be deferred by the Federal Government until it is decided how best to re-establish the Nova Scotia iron mining industry. It is opposed to further iron legislation unless it adequately encourages iron mining in Canada.

The Massachusetts Bureau of Labor Statistics recently sent a circular letter to each of the 321 towns in that state, containing inquiries relative to land, water power, tax rebate, raw materials, natural products, available help, railroad facilities, kind of business best suited to the town, electric railways, etc. Returns were received from 231 towns and they are presented in a condensed form in a bulletin now before us. The replies to the circular relate particularly to the amount of land available for manufacturing purposes, the amount of water power not yet utilized, and the facilities for railroad transportation. There is still much water power unutilized, and the report shows that the desire for new manufacturing industries is as great as ever.

The Montrose Paper Co., Thorold, Ont., have sent us a sample book of the cover papers made by them. They inform us that they are in receipt of so many inquiries for cover papers that they find it expedient to carry a regular line in stock, which includes a variety of colors made to suit every taste.

We are informed by the publishers that the 1906 edition of Hendrick's Commercial Register of the United States for buyers and sellers will be ready for distribution about March 1. This, the 15th edition, will be very much improved over previous issues. The spaces between the headings will be condensed, notwithstanding which there will be more than a hundred additional pages of information. S. E. Hendricks Co., publishers, 76 Elm Street, New York.

The Fosdick Machine Tool Co., Cincinnati, Ohio, have sent us their illustrated catalogue, descriptive of the different machines manufactured by them.

The Canadian Westinghouse Co., Hamilton, Ont., have sent us a booklet illustrating the electrical apparatus manufactured by them.

The Halifax, N.S., Weekly Chronicle is not like so many weekly editions of daily newspapers, one whose pages are thrown together without regard to proper make-up or careful selection. It is a newspaper compiled especially for weekly readers, with due attention to all departments—the City, the Province, the Dominion and the World—covering the ground as thoroughly in one issue as is possible for a weekly publication to accomplish.

The Canadian General Electric Co., Toronto, have issued section five of their supply catalogue, giving prices, etc., of their incandescent supplies, and a circular showing prices of miscellaneous material.

The Bourne-Fuller Co., Cleveland, Ohio, have issued a booklet on Scott's crucible steels. It gives the different brands of steel made together with prices, and includes a number of tables of weights of various shapes.

PERSONALS.

We are in receipt of a circular from the Japan Information Bureau, 164 Yamashita-Cho, Yokohama, Japan, announcing that it is prepared to undertake, among other things, the following business:—The supplying of information regarding commercial, industrial, shipping, mining, engineering, agricultural, forestry, fishery, railway, insurance, banking, educational, and any other Japanese subjects or affairs. The supplying of market or statistical reports of any trade or business or to act as regular business correspondent. The translation into Japanese of business circulars, documents, catalogues or any other literature and the distribution of same amongst the parties interested in Japan. The translation into English of any Japanese statistics, reports, official regulations, etc. The distribution in Japan of samples and catalogues of any merchandise and the getting of orders for same on commission. Buying and selling of any articles in Japan on commission. The collection of claims and arbitration of business disputes. The registration in Japan of patents, trade marks, designs, copyrights, etc. The recommendation of agents or representatives for firms and manufacturers and their supervision. To act as advertising agent in Japan. To make enquiries and report on the credit and business standing of any people in Japan. To establish connections between people abroad and in Japan for commercial and other purposes. To furnish reports on the prospects of any trade opening and offer advice as to the best methods of marketing merchandise. It is intended by the management to make the Bureau a thoroughly reliable international organ of information for the benefit of merchants and manufacturers.

It is officially announced that Mr. James A. Milne, who has for a number of years been comptroller of the Allis-Chalmers Co., Milwaukee, has accepted the position of general manager of Allis-Chalmers-Bullock, Limited, Montreal, to become effective on or before May 1, 1906. Mr. Milne is a native of Canada, having been born in Waterdown, Ont., in 1872. After completing a public school and collegiate course he began his business career at Toronto in 1888. During the ensuing four years he was with Robert Simpson and Wyld, Grasset & Darling of that place; but in 1892 he moved to Chicago entering the employ of Carson, Pirie, Scott & Co. Subsequently he worked for Reid-Murdoch & Co., and the Chicago Packing & Provision Co., for the latter as chief accountant. He then became associated with Jones, Caesar & Co., chartered accountants of Chicago and New York and it was this connection which brought him into touch with

the Allis-Chalmers Co. In August, 1901, he entered their employ as chief cost clerk, and one month later was appointed acting controller, being formally elected to that position at the meeting of the directors in May, 1902. Since the early part of last autumn Mr. Milne has been one of the directors of Allis-Chalmers-Bullock, Limited, and the fact that he still retains his Canadian citizenship, and is deeply attached to his early associations, has been an important factor in influencing him to heed a recall to the Dominion. The Allis-Chalmers-Bullock, Limited, Montreal, is an allied interest of the Allis-Chalmers Co., and owns a large manufacturing plant at Montreal, the direct management of which will now be assumed by Mr. Milne. The Canadian company is conducted as an entirely separate organization, but in addition to their own production, sells the products of Allis-Chalmers Co. in the Dominion of Canada.

Mr. F. H. Clergue, of the Consolidated Lake Superior Co., was in Toronto last week, and in an interview stated that the company was now earning in net profits more than double the amount of \$500,000 which is needed to pay the interest on the \$10,000,000 of bonds which were issued when the company was reorganized. This showing has been so encouraging that on May 1 (when the term of the Government's guarantee of the \$2,000,000 loan raised to help reorganize the company elapses) the government will be relieved by the company of its guarantee. Speaking of the company's business Mr. Clergue said that January had been the banner month for rail-making. About 14,000 tons of rails had been made, all of which were for the Canadian Pacific Railway. The company have contracts for over 100,000 tons of steel rails for future delivery. These are with the Canadian Pacific Railway, Michigan Central, Canadian Northern, and a number of smaller railway companies. Last year orders were filled with the Intercolonial Railway for 50,000 tons, and with the Canadian Pacific Railway for 80,000 tons. Since starting up in September, 1904, the company have delivered over \$5,000,000 worth of rails to Canadian roads.

The election of officers at the annual meeting of the Toronto Board of Trade held February 9 resulted as follows:—President, Peleg Howland; first vice-president, R. C. Steele; second vice-president, R. J. Christie; treasurer, J. W. Woods; Secretary, F. G. Morley; harbor commission, J. H. G. Hagarty and J. T. Mathews; council, James D. Allan, Hugh N. Baird, C. W. Baird, W. F. Cockshutt, M.P., John F. Ellis, W. J. Gage, S. W. Hay, J. D. Ivey, Thomas Kinnear, Joseph Oliver, A. T. Reid, A. F. Rodger, James Ryrie, J. P. Watson and C. W. Woodland; board of arbitration, A. Cavanagh, W. L. Edmonds, John Firstbrook, Thos. L. Flynn, J. N. Hay, F. C. Jarvis, W. D. Matthews, Marshall McGregor, J. C. McKeggie, D. Plewes, W. M. Stark, and D. O. Wood; representatives on Industrial Exhibition, S. E. Briggs, Marshall H. Brown, Geo. H. Gooderham, A. Burdette Lee, Noel Marshall.

Mr. J. C. Murray, of Halifax, is filling the position of chemist at the Londonderry Iron Co.'s works, Londonderry, N.S.

Samuel Cunliffe-Lister, Lord Masham, died in London, February 2 aged 81 years. He was one of the most remarkable men of

his generation. By his inventiveness he created at least three new industries—wool combing by machinery, the manufacture of velvet by power loom and the weaving of plush. He was also the inventor of the compressed air brake for railways. In working out his ideas for the machinery he invented he spent \$3,000,000 and twice was nearly ruined by the enormous drain upon his resources. In the end he reaped a colossal fortune.

Mr. Norman W. Parlee, has been appointed engineer at the Wabana mines of the Nova Scotia Steel & Coal Co. He lately prospected the townsite of Cobalt, Ont., for the Temiskaming and Northern Ontario Railway Commission.

The St. John, N.B., Iron and Hardware Association has elected John Keffe, president; W. S. Fisher, vice-president; J. J. Barry, secretary-treasurer; W. H. Thorne, T. McAvity, M. E. Agar, directors; J. Keffe, W. S. Fisher, W. H. Thorne, T. McAvity, M. E. Agar and J. J. Barry, executive.

The annual meeting of the Canadian Mining Institute will be held at the City of Quebec on Wednesday, Thursday and Friday, March 7, 8 and 9. It is expected that at least one hundred delegates from all parts of the Dominion will be present.

Mr. J. G. Burrows, of New York, was in Toronto last week in the interest of a syndicate of American and British carpet manufacturers who find large sale for their products in Canada, and who because of the high duties imposed upon such textiles, contemplate establishing works in Toronto or some other convenient locality.

The twentieth annual convention of the Canadian Society of Civil Engineers opened at Toronto, January 30, with City Engineer C. H. Rust, of Toronto, vice-president, in the chair. A total membership of 1,389 was reported, the increase during the past year being 128. The principal business was the reception of the report of the committee on standards, which recommended that it was not desirable for the society to take any action lending official approval to any particular design or method of manufacture. It was, however, of opinion that the standardizing of methods of testing might be undertaken by the society, with the hope of obtaining uniform standards in England, the United States and Canada and that with this end in view the council should appoint a representative committee. The following officers were elected:—President, H. D. Lumsden, Ottawa; vice-presidents, M. J. Butler, Ottawa; C. B. Smith, Toronto; W. M. Wallbank, Montreal; councillors, W. F. Tye, Phelps Johnson, H. Holgate, John Kennedy, R. A. Ross, S. A. Herdt, R. J. Durley, J. E. Hardman, J. B. Porter and J. G. G. Kerry, Montreal; E. Mohun, Vancouver, B.C.; J. S. Dennis, Calgary, Alta.; E. A. Hoare, Quebec; C. Fergie, Sydney, N.S.; R. McCall, Halifax, N.S.; G. H. Webster and W. H. MacLeod, Winnipeg, Man.; Duncan Macpherson, Ottawa; and John Gallranth, Toronto. The proceedings closed with a banquet at which Hon. H. R. Emmerson, Minister of Railways and Canals was the principal speaker.

At the recent annual meeting of the Atikokan Iron Co. at Port Arthur, Ont., directors were elected as follows:—William

Mackenzie, president of the Canadian Northern Railway; D. D. Mann and Z. A. Lash, vice-president and counsel respectively of the same road; Hugh Sutherland, Winnipeg, Man.; A. Stafford White, Chicago, Ill.; J. W. deC. O'Grady, general manager Northern Bank of Winnipeg; R. M. Hunter, Duluth, Minn., and J. C. Hunter of Port Arthur. Of these Wm. Mackenzie was chosen president; J. C. Hunter, vice-president and general manager; Hugh Sutherland, secretary and R. M. Hunter, treasurer. Messrs. Sutherland, Lash and J. C. Hunter make up the executive board.

Messrs. F. H. Hopkins & Co., Montreal have largely increased their office accommodation in the Imperial Bank Building, that city.

H. H. Baxter, for the last three years engaged in organizing and managing the publicity department of the Westinghouse Electric & Mfg. Co., has established an advertising agency catering particularly to the mechanical field. The new agency, is located in the Park Building, Pittsburg, Pa.

Mr. E. B. Eddy died at his residence in Hull, Que., February 10. Mr. Eddy was one of the largest manufacturers in Canada, being interested in the paper, pulp and lumbering industries.

The storage and shipping rooms of the plant of Messrs. F. E. Meyers & Bro., Ashland, Ohio., were destroyed by fire recently. The factory, power, office and material shops were saved and are running full capacity.

TO THE VARNISH BUYER

the most serious considerations are quality, reliability and uniformity, and these qualifications are of special importance to the dealer who is trying to build up a permanent varnish trade.

Berry Brothers' label or brand may be safely relied upon as ensuring the above conditions.

Our Varnishes are the safest goods to handle and the surest and most reliable goods to use.

BERRY BROTHERS, Limited

VARNISH MANUFACTURERS

WALKERVILLE, ONT.

Write for our 100 page illustrated catalogue. Every dealer should have a copy for reference.

BUILDING IN TORONTO.

The Toronto City Architect's Department has issued the following classified list of buildings erected in 1905, with their value:


Buildings.	Permits.	Value.
Brick dwellings.....	1,675	\$4,602,800
Brick dwellings, alterations and additions.....	96	121,960
Roughcast dwellings.....	427	390,155
Roughcast dwellings, alterations and additions.....	238	63,013
Brick veneer dwellings.....	84	141,400
Roughcast dwellings, brick fronts.....	448	619,761
Stables.....	103	140,655
Stables, alterations and additions.....	7	4,150
Sheds.....	48	20,170
Sheds, alterations and additions.....	1	250
Warehouses.....	16	512,100
Warehouses, alterations and additions.....	9	31,975
Stores and offices.....	127	430,255
Stores and offices, alterations and additions.....	105	147,734
Factories.....	50	767,900
Factories, alterations and additions.....	15	28,820
Workshops.....	27	130,185
Workshops, alterations and additions.....	3	1,275
Banks.....	10	876,000
Banks, alterations and additions.....	7	47,000
Concrete dwellings.....	19	36,000
Churches.....	6	307,000

Buildings.	Permits.	Values.
Churches, alterations and additions.....	4	\$8,325
Storehouses.....	18	49,735
Storehouses, alterations and additions.....	1	240
Frame dwellings.....	36	48,635
Verandas.....	103	14,057
Laundries.....	4	32,200
Laundries, alterations and additions.....	1	50
Hotels.....	1	4,500
Hotels, alterations and additions.....	12	43,315
Stone dwellings.....	2	11,000
Boiler houses.....	2	4,000
Boiler houses, alterations and additions.....	2	1,300
Post Office.....	1	90,000
Greenhouse.....	1	100
Hospitals, alterations and additions.....	1	10,000
Breweries, alterations and additions.....	2	6,800
Club houses.....	3	30,400
Convocation Hall.....	1	160,000
Dance hall, alterations and additions.....	1	2,900
Power house and reservoir.....	1	7,500
Power house, alterations and additions.....	1	11,000
Rinks and waiting rooms.....	3	6,500
Foundries.....	3	85,000
Foundries, alterations and additions.....	3	9,000
Schools.....	1	80,000
Schools, alterations and additions.....	2	23,200

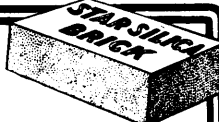
Buildings.	Permits.	Values.
Kilns.....	2	\$3,000
Mission.....	1	800
Sunday Schools.....	3	40,150
Sunday Schools, alterations and additions.....	1	20,000
Chimnies.....	2	3,200
Fire hall.....	1	20,000
Lavatory.....	1	250
Tank tower.....	1	1,000
Grain elevators.....	2	19,000
Fire escapes.....	2	700
Boathouses.....	3	3,200
Retort, governor and purifying houses (gas).....	3	125,000
Garage.....	1	1,000
Gateman's tower.....	1	300
Total.....	3,753	\$10,347,915

PORT ARTHUR, ONT.

A preliminary agreement has been entered into between the town of Port Arthur and Messrs. Hedges and Burleigh, of Boston, Mass., for the establishment in the town of works for the manufacture of tubes, and also works for the manufacture of wire nails. The agreement is of the same character as that into which the town entered with the Atikokan Iron Co. The town will furnish a site of 100 acres, take \$100,000 of the company's bonds at par; have three representatives on the Board of Directors; and appoint the company's treasurer. On their part the promoters contract to erect boiler, tube and pipe mills costing \$750,000; to begin work on the mills three months after the agreement is ratified by the ratepayers; to make the




CORNERS *in* QUALITY




We have "cornered" the brick market—so far as **quality** is concerned. It's an interesting story, but we have only space to outline it here:

The first chapter begins at the clay mines. It shows how particular we are about **good raw material**. The grading is very thorough. At every step—inspection—selection—rejection! until our experts have the cream of the clay beds picked out.

The last chapter is a long way from the first, for it takes longer to wear out **Harbison-Walker Refractories** than any other fire-brick made.



This is a true story. You can see the proofs, any time, in this office—letters from users of refractories who have set down in black and white facts and figures which are the most valuable records of experience ever collected in the history of fire brick manufacturing.



1,100,000 Daily Capacity. 7,000 Regular Customers.

No order too small for our best attention; none too large for our capacity.


We have expert knowledge for your brick troubles.


Always state for what purpose brick are to be used.

Send for Catalogue "K"

Harbison-Walker Refractories Co.

PITTSBURG, PA.





works of 1,000-tons monthly capacity; and to employ 250 men. The plant is to be operated by electricity, requiring from 1,500 to 2,000 h.p.

Great works for the development of electric power at the Kakebeka Falls on the Kaministiquia are being constructed by a power company who expect to dispose of their entire current in Port Arthur and Fort William. William Mackenzie, of the Mackenzie & Mann Co., chief proprietor of the Canadian Northern Railway Co., and party to the agreement concerning the Atikokan Iron Co., was in Port Arthur when the Boston men were there. He expressed the hope that Port Arthur would get such an industry as at present all the tubes required in Canada came from the United States. Mr. Hedges stated that the tube and wire plant would take up the output of the works of the Atikokan Iron Co., evidently meaning that he understood this company would add steel furnaces and rolling mills to their blast furnaces and supply the material for tubes and wire. The tube works, Mr. Hedges said, would be a facsimile of one of the finest plants in the United States.

The concrete foundations of the Atikokan

Iron Co.'s blast furnaces have been completed, and the contract for the steel structural work and the machinery has been let. The Canada Foundry Co. have secured \$200,000 of the equipment and construction work; the Canada Bridge Co., \$100,000; the Calendon Iron Works, Montreal, \$20,000. The rest of the contracts were for machinery not made in Canada, and went to United States manufacturers. It is expected that a furnace will be ready to go in blast in August. At the Atikokan mine, whence the ore is to come, the equipment is complete, and the shipping of ore is to commence early in the spring.

The Westinghouse Machine Co., East Pittsburg, Pa., have recently sold 6,130 h.p. of their various types of steam engines, the largest order being from the Illinois Steel Co., Chicago, Ill., for one 38 and 76x54 vertical cross compound Corliss engine of 3,000 h.p. capacity. Of the other types of engines manufactured by this company were sold 1,720 h.p. of standard, 1,150 h.p. of compound, and 260 h.p. of junior. These orders were received from the International Steam Pump Co., Colorado Fuel & Iron Co., St.

Louis & San Francisco Railway Co., Sonneborn Realty Co., Pullman Car Works, American Pipe Mfg. Co., Parks Gold Mine, Burgess Electric Co., Wm. E. Peck & Co., Chicago, Milwaukee & St. Paul Railway, and Hotel Walton, Philadelphia, Pa.

THE SOUTHERN CALIFORNIA NEW TRAIN.—BEST ROUTE.

The Los Angeles Limited, electric lighted, new from the Pullman shops, with all latest innovations for travel comfort, leaves Chicago 10.05 p.m. daily, arrives Los Angeles 4.45 p.m. third day via Chicago, Union Pacific & North-Western Line and The Salt Lake Route. Pullman drawing room and tourist sleeping cars, composite observation car, dining cars, a la carte service. For rates, sleeping car reservations and full particulars, apply to your nearest agent or address, B. H. Bennett, 2 East King St., Toronto.

Uniformity and reliability are recognized marks of a McCullough-Dalzell Crucible. It pays to get the best. Write for prices.

MCCULLOUGH-DALZELL CRUCIBLE CO., Pittsburgh, Pa.

WATCH FOR THE
ANNOUNCEMENT OF

The Power & Gas Machine Company

LIMITED

GALT - - ONTARIO

DOMINION IRON & STEEL CO.

During 1905 the total production of the Dominion Iron & Steel Co. was of pig iron 162,000 tons, of the open hearth steel furnaces 173,500 tons, and of the rolling mills 47,000 tons. Of 80-pound steel rails 44,000 tons were turned out. The production of coke amounted to 243,150 tons. Over a half million tons of coal was used by the company in their different operations as well as 380,184 tons of iron ore, 267,237 tons of limestone and dolomite, and 13,711 tons of gravel and sand. During the height of the season 4,000 men were employed by the company and the pay roll exceeded \$2,000,000. Perhaps the most important announcement that the company have to make is that they have advanced from being a mere purveyor of raw material to the position of a producer of finished material.

The bulk of the raw materials used by the company was procured from their own properties. In 1905 these properties produced 380,254 tons of iron ore; 267,237 tons of limestone and dolomite and 13,711 tons of gravel and sand. To supply fuel for the works at Sydney Mines, the quarries and steamers employed to transport the ore, etc., the mines of the sister organization, the Dominion Coal Co. furnished about 575,000 tons of coal.

From the United States, Spain and foreign countries the following supplies were drawn:—19,403 tons of special iron ore; 1,257 tons of manganese ore; 2,531 tons pyrites ore; 1,850 tons spiegel, ferromanganese, etc.; 3,450 tons fluorspar; 461 tons calcined magnesite.

In addition to the above, which are all used strictly for manufacturing purposes, large quantities of other material were used for the repair of ovens, furnaces, converters and other parts of the plant, these consisted principally of fire brick, fire clay, steel plates and angles, special castings for wire rods, etc. It is not possible to give a graphic statement of the total of this class of material but it amounted to many thousands of tons and furnished cargos for many ocean going steamers and hundreds of cars of the Intercolonial and Grand Trunk Railways.

The coke ovens were in continuous operation during the first 11 months of the year. In December 50 additional ovens were completed and put in use and another battery of 50 ovens is being added.

During the greater part of the year two blast furnaces were in operation and about the middle of November a third was blown in. It is intended to work three throughout 1906 and the fourth will be held in reserve. On December 23 No. 4 furnace completed two years of continuous operation and was still doing good work. This is a record for one furnace lining at Sydney and is an indication of increased economy in the matter of furnace lining renewals. Of the total production of 162,000 tons of pig iron, 131,000 tons were used in making steel.

At the beginning of the year six open hearth furnaces were in operation. This number was gradually increased until the whole ten were in use in September and the remaining months. The tonnage of steel ingots increased from 10,000 in January to double that quantity in December and of

the total production of 163,500 tons of steel during the year none of it was sold in the ingot form but was used in the company's mills. A limited tonnage is manufactured into blooms and billets for sale to other rolling mills and forge works but the greater part of the steel manufactured at Sydney is put through the billet and rod mill and the rail mill and is marketed in the form of wire rods and steel rails. The wire rod mill was in operation for some months in 1904 and the material then turned out was distributed to wire-drawing establishments throughout the Dominion. As the result of the test then given, Dominion rods have practically captured the Canadian market and importations have been reduced to a minimum. The output for 1905 was 47,100 tons.

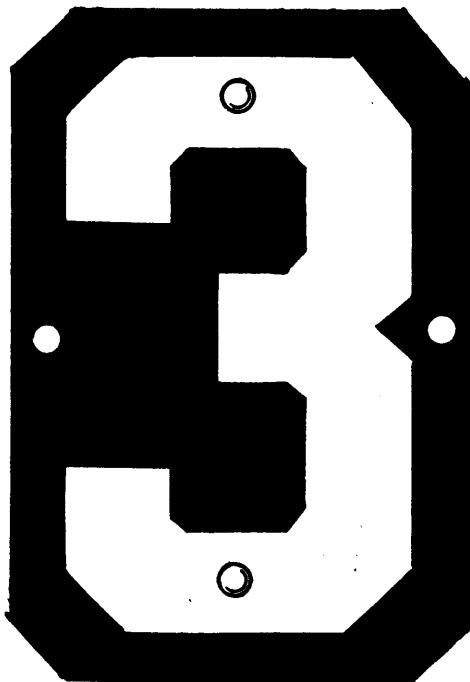
Steel rails were first made in Sydney in June and the monthly production gradually increased until the end of the year, December having nearly 10,000 tons to its credit. This, however, is not the measure of the mills capacity, over 600 tons have been rolled in one day and on several occasions it was proved that it would possibly reach the 1,000 mark. Practically the entire output of 44,000 tons of 80-pound rails produced up to December 31, have been delivered against contracts. The quality has been uniformly good and no difficulty is anticipated in disposing of all that can be turned out. Shipments have been made under rigid inspection to the Grand Trunk, Temiscaming and the Intercolonial Railways. Contracts in hand will absorb the output of the mill for some months.

During the winter months when mines,

The N. L. Piper Railway Supply Co., Limited

314 Front St. West, TORONTO

EMBOSSSED ALUMINUM NUMBERS

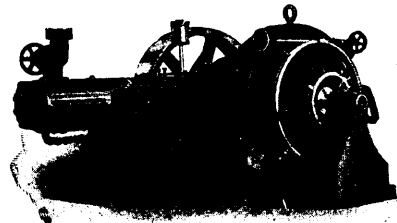


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quarries and ships were idle, or nearly idle, says Industrial Advocate, the number of men employed averaged about 2,000 but in the best part of the year the number of employes of all classes was as high as 4,000. During the last half of the year the average monthly payroll was about 50 per cent. greater than during the first six months.

MORE BLAST FURNACES.

That extensions of plant are in contemplation by the Lake Superior Corporation, to employ an additional 500 men, was the news brought back from Sault Ste. Marie last week by President C. D. Warren. This is to be accompanied by further construction work on the Algoma Central & Manitoulin & North Shore Railways. The splendid activity of the works during the past few weeks has emboldened the company to reach farther out, for the work at the rail mill has increased enormously.

"We are getting out plans now for the immediate construction of two new open hearth furnaces which will increase the capacity of the steel plant 25 per cent." said Mr. Warren. "These we hope to have completed and in operation by the 1st of August. At present we have two blast furnaces and a steel converter. To construct these new furnaces will require an expenditure of at least \$250,000.

"In addition to that, we are contemplating building at once coke ovens, provided the government will rebate the duty on coal for that purpose, which we have asked them to do. Otherwise we would have to put the coke ovens on the American side, and that would be a very serious mistake, as far as Western Ontario is concerned. We would start in with at least 50 ovens and add to that continuously, as we consume at least 600 tons of coke per day. We now get it from Virginia and Pennsylvania, but we are much more conveniently situated to receive coal by water from Pennsylvania. For us to make our own coke would mean quite a large saving. I think when these contemplated improvements and additions are completed we will require at least 500 more men; we are employing about 4,000 now, including those in the woods."

Mr. Warren said that both the blast furnaces are now running above capacity, and the output of the steel rail mill has been for several days over 600 tons daily. During January the output of rails exceeded any previous record very largely, the net output being 15,127 tons. Usually it runs about 12,000 tons per month. That record, considering weather conditions, Mr. Warren thought, was remarkable. The wood pulp mill is running full capacity, and the saw-mill has started up again. The output of

the rail mill night and day until next October has been sold already. More construction work on the Algoma Central Railway northward towards the Canadian Pacific will be done this year and a committee has been appointed to consider further work on the Manitoulin & North Shore line.

MOOSE JAW, SASK.

Moose Jaw has the distinction of being the first city in Saskatchewan to complete her public works, and the first city in that province to own and operate her own electric light plant. The city has six miles of water mains and five and a half miles of sanitary sewers, with 51 hydrants and three street sprinkling cranes.

The power house cost \$15,000, and it provides boiler room, 36x30; pump room 40x26, and a generator room, 40x36. The brick smoke stack is 80 feet high, and is the first brick stack erected west of Winnipeg. The power is furnished by a 125 h.p. boiler, but another boiler of the same make is being added, with 200 h.p. capacity. Their duplex high duty pump, with a capacity of 1,000,000 gallons per day is considered sufficient. The water is supplied from a well which has a capacity of 120,000 gallons at one pumping, and fills the reservoir in four hours. The well has a 400-foot gallery, and it is thought that if this gallery were extended the supply of water could be doubled.

The city has adopted the meter system, and the water rate will be 15 cents per hundred cubic feet, in addition to the fixed rate of \$6.00 per annum. This makes the water cost the Moose Jaw people about one cent per barrel of 10 gallons, a lessening in the cost to the consumer of 24 cents, as the price hitherto had been 25 cents per barrel.

Their electric light plant consists of one 150 h.p. engine and one 100 k.w. generator of 2,000 lamps capacity, but the city is raising debentures to duplicate this plant, at a cost of \$30,800. The price for light is 16 cents per k.w. hour, or 14 cents for one 16 c.p. light for 24 hours. The operating account of the lighting plant for the past year was \$5,921.05, while the receipts, taking into consideration the amounts that would have been paid to a company for street lighting and the city hall lighting, were \$6,328.94, which is a very commendable record.—Western Municipal News.

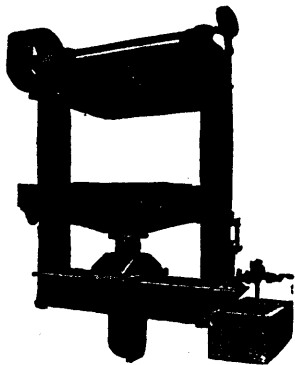
The Westinghouse Machine Co., East Pittsburg, Pa., have sold during the past few weeks 1,247 h.p. of their vertical gas engines.

The Jeffrey Mfg. Co., Columbus, Ohio, have recently established a New England branch, with offices in the Oliver Building, at 141 Milk Street, Boston, Mass. H. C. Freeman, for many years with the home office at Columbus, is the engineer in charge. Catalogues, prices and specifications covering the "Jeffrey" complete line, can be had by addressing this office.

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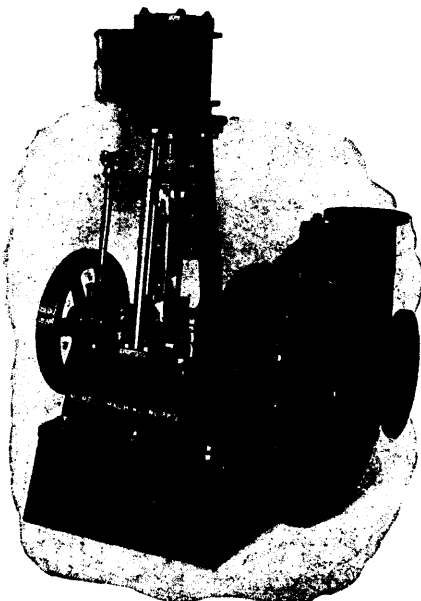
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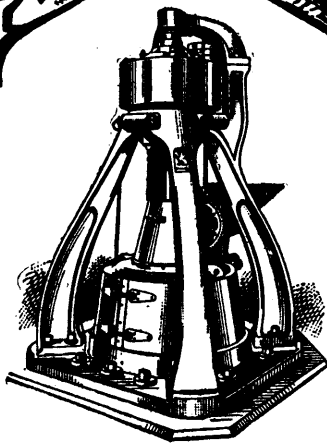
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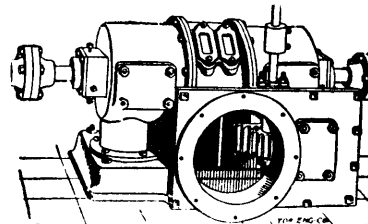
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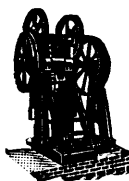
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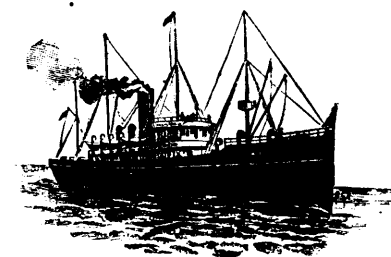
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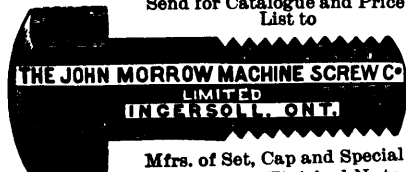
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Boiler Inspection

Boiler Inspection & Insurance Co., Toronto.
Canadian Casualty & Boiler Insurance Co., Toronto.

BOILERS (See Engines and Boilers)

Bolts and Nuts

London Rolling Mills, London, Ont.
Morrow John Machine Screw Co., Ingersoll Ont.

Brass Founders

Hamilton Brass Mfg. Co., Hamilton, Ont.

Building and Paving Brick

Dunbar Fire Brick Co., Pittsburgh, Pa.
Hamilton Facing Mill Co., Hamilton, Ont.
Harbison-Walker Refractories Co., Pittsburgh, Pa.
Pennsylvania Fire Brick Co., Lock Haven, Pa.
Queen's Run Fire Brick Co., Lock Haven, Pa.
Reese-Hammond Fire Brick Co., Bolivar, Pa.
Stowe-Fuller Co., Cleveland, Ohio.

Building Iron and Steel

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Expanded Metal & Fireproofing Co., Toronto.

Builders' Materials

Albert Mfg. Co., Hillsboro, Ont.
Canada Foundry Co., Toronto.
Conduits Company, Limited, Toronto.
Expanded Metal & Fireproofing Co., Toronto.
Gartshore, John J., Toronto.
Hopkins, F. H. & Co., Montreal.
Sheldon & Sheldon, Galt, Ont.

Cables

Dominion Wire Rope Co., Montreal.
Greening, B. Wire Co., Hamilton, Ont.
Phillips, Eugene F. Electrical Works, Montreal

Canada Plates

Leslie, A. C. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Canoes

Peterborough Canoe Co., Peterborough, Ont

Caps

McCullough-Dalsell Crucible Co., Pittsburg, Pa.

Card Clothing

McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.

Cast Iron Pipe

Canada Foundry Co., Toronto.
Montreal Pipe Foundry Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.

Castings (Grey Iron, Malleable Iron and Brass)

International Harvester Co., Hamilton, Ont.
Jenckes Machine Co., Sherbrooke, Que.
Kerr Engine Co., Walkerville, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

Cement Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Bradley Pulverizer Co., Boston, Mass.
McDougall, John, Caledonian Iron Works Co., Montreal.

Centrifugal Pumping Machinery

Morris Machine Works, Baldwinsville, N.Y.

Chain Making Machinery (Welded Coil Chain)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Channels

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Leslie, A. C. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Charcoal Pig Iron

Canada Iron Furnace Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.

Chemicals

Canada Chemical Co., London, Ont.
Nichols Chemical Co. of Canada, Montreal

Chemists

Archbold, Dr. Geo., Prescott, Ont.
Heys, Thomas & Son, Toronto.

Clay Working Machinery

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Coal, Coke and Charcoal.

Bourne-Fuller Co., Cleveland, Ohio.
Hamilton Facing Mill Co., Hamilton, Ont.
Milnes, James H. & Co., Toronto.
Wick, H. K. & Co., Buffalo, N.Y.
Wilson, H. T. Coal Co., Detroit, Mich.

Coal Cutting Machines

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
Jeffrey Mfg. Co., Columbus, Ohio.

Coal Tipples

Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.

Coil Chains

Greening, B. Wire Co., Hamilton, Ont.
Leslie, A. C. & Co., Montreal.

Coke Oven Brick

Dunbar Fire Brick Co., Pittsburgh, Pa.
Stowe-Fuller Co., Cleveland, Ohio.

Collection Agency

Petrie, H. D., Hamilton, Ont.

Concrete Mixers

Hopkins, F. H. & Co., Montreal.

Conduits (Interior)

Conduits Company, Limited, Toronto.

Contractors' Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Gartshore, John J., Toronto.
Hopkins, F. H. & Co., Montreal.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.

Contractors' Plants

Allis-Chalmers-Bullock, Limited, Montreal.
Hopkins, F. H. & Co., Montreal.
Jenckes Machine Co., Sherbrooke, Que.
Petrie, H. W., Toronto.
Von der Osten, E. & Co., Toronto.
Williams A. R. Machinery Co., Toronto.

Conveying Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Jeffrey Mfg. Co., Columbus, Ohio.
Link-Belt Engineering Co., Philadelphia, Pa.
McDougall, John, Caledonian Iron Works Co., Montreal.
Perrin, William R. & Co., Limited, Toronto.

Copper Materials

Greening, B. Wire Co., Hamilton, Ont.
Phillips, Eugene F. Electrical Works, Montreal.
Syracuse Smelting Works, Montreal.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER

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(CONTINUED).

Cotton Banding and Rope

McLaren, J. C. Belting Co., Montreal.

Covers

McCullough-Dalsell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Crayons

Lowell Crayon Co., Lowell, Mass.
McLaren, J. C. Belting Co., Montreal.

Crucibles

Dixon, Joseph, Crucible Co., Jersey City, N.J.
Hamilton Facing Mill Co., Hamilton, Ont.
McCullough-Dalsell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.
Syracuse Smelting Works, Montreal.

Crucible Caps

Hamilton Facing Mill Co., Hamilton, Ont.
McCullough-Dalsell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Crucible Covers

McCullough-Dalsell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Cutter Grinding Machines

Becker-Brainard Milling Machine Co., Hyde Park, Mass.

Deep Well Engines

American Steam Pump Co., Battle Creek, Mich.

Detective Agency

Dewar Detective Agency, St. Louis, Mo.

Dies (Socket, Sewer Pipe and Tile)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Directories

Kelly's Directories, Limited, Toronto

Draw Benches (Wire)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Dredges

Allis-Chalmers-Bullock, Limited, Montreal.

Drills

Allis-Chalmers-Bullock, Limited, Montreal.
Barnes, B. F. Co., Rookford, Ill.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Petrie, H. W., Toronto.

Drills (Pneumatic and Rock)

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
Jeffrey Mfg. Co., Columbus, Ohio.

Drop Forgings

Globe Machine & Stamping Co., Cleveland, Ohio.

Drop Forging Dies

Globe Machine & Stamping Co., Cleveland, Ohio.

Dry Kiln Apparatus

Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Dust and Shavings Separators

Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Dye Stuffs and Chemicals

Benson, W. T. & Co., Montreal.
Brunner, Mond & Co., Northwich, England.
Canada Chemical Mfg. Co., London, Ont.
Cassella Color Co., New York City.
Geigy Aniline & Extract Co., New York City.
McArthur, Corneille & Co., Montreal.
Nichols Chemical Co. of Canada, Montreal.
Winn & Holland, Montreal.

DYNAMOS (See Motors and Dynamos)

Electric Meters and Transformers

Allis-Chalmers-Bullock, Limited, Montreal.
Packard Electric Co., St. Catharines, Ont.

Electric Mine Locomotives

Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.

Electrical Repairs

Keystone Engineering Co., Toronto.

Electrical Supplies

Allis-Chalmers-Bullock, Limited, Montreal.
Bristol Co., Waterbury, Conn.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

Forman, John, Montreal.
Jones & Moore Electric Co., Toronto.
Keystone Engineering Co., Toronto.
Packard Electric Co., St. Catharines, Ont.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.

Elevators and Conveyors

Allis-Chalmers-Bullock, Limited, Montreal.
Darling Bros., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
Link-Belt Engineering Co., Philadelphia, Pa.

Elevator Insurance

Canadian Casualty & Boiler Insurance Co., Toronto.

Emery and Emery Wheels

Forman, John, Montreal.
Hamilton Facing Mill Co., Hamilton, Ont.
Petrie, H. W., Toronto.

Engineers (Chemical)

Heys, Thomas & Son, Toronto.
Hunt Robert W. & Co., Chicago, Ill.

Engineers (Civil)

Parke, R. J., Toronto.
Vogel, C. H., Ottawa.

Engineers (Consulting)

Aitken, K. L., Toronto.
Canadian White Co., Montreal.
Electrical Construction Co., London, Ont.
Fensom, C. J., Toronto.
Hunt, Robert W. & Co., Chicago, Ill.
Keystone Engineering Co., Toronto, Ont.
Marion & Marion, Montreal.
Parke, R. J., Toronto.
Perrin, William R. & Co., Limited, Toronto
Vogel C. H., Ottawa.
Von der Osten, E. & Co., Toronto.

Engineers (Contracting)

Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Canadian White Co., Montreal.
Darling Bros., Montreal.
Electrical Construction Co., London, Ont.
Fensom, C. J., Toronto.
Keystone Engineering Co., Toronto.
McDougall, John, Caledonian Iron Works Co., Montreal.
Robb Engineering Co., Amherst, N.S.

Engineers (Electrical)

Aitken, K. L., Toronto.
Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Ltd., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Canadian White Co., Montreal.
Crocker-Wheeler Co., St. Catharines, Ont.
Electrical Construction Co., London, Ont.
Fensom, C. J., Toronto.
Jones & Moore Electric Co., Toronto.
Keystone Engineering Co., Toronto.
Marion & Marion, Montreal.
Toronto & Hamilton Electric Co., Hamilton Ont.
United Electric Co., Toronto.

Engineers (Mechanical)

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
Electrical Construction Co., London, Ont.
Fensom, C. J., Toronto.
Gearing, H., Toronto.
McDougall, John, Caledonian Iron Works Co., Montreal.
Hunt, Robert W. & Co., Chicago, Ill.
Kerr Engine Co., Walkerville, Ont.
Marion & Marion, Montreal.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.

Engineers (Mill and Hydraulic)

Fensom, C. J., Toronto.
Hawksworth, Alfred, & Sons Co., Montreal.
Vogel, C. H., Ottawa.

Engineers (Mining)

Heys, Thomas & Son, Toronto.
Mills, S. D., Toronto.

Engineers (Municipal)

Von der Osten, E. & Co., Toronto

Engineers and Contractors

Canadian White Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.

Engines and Boilers

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Corbett, R. B., Brooklyn, N.Y.

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SADBLER & HAWORTH

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LEATHER
LEATHER
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J. TURNBULL, General Manager.

HEAD OFFICE, - HAMILTON, ONT.

Capital.	Reserve.	Total Assets.
\$2,000,000	\$1,700,000	\$22,000,000

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Ottawa, Ont.	Quebec, Que.
St. John, N.B.	Toronto, Ont.
Vancouver, B.C.	Winnipeg, Man.

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Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hopkins, F. H. & Co., Montreal.
Jenckes Machine Co., Sherbrooke, Que.
Morris Machine Works, Baldwinsville, N.Y.
McDougall, John, Caledonian Iron Works Co., Mont-
real.
Petrie, H. W., Toronto.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.
Williams, A. R. Machinery Co., Toronto.

Engravers
Canadian Manufacturer, Toronto.
Jones, J. L. Engraving Co., Toronto.

Exhaust Fans
Hamilton Facing Mill Co., Hamilton, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Exhaust Heads
Darling Bros., Montreal.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Hyde Park Mass.

Exhausters
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Hyde Park, Mass.

Explorer and Geologist
Evans, Horace F., Ashcroft, B.C.

Factory Sites
(See Factory Locations, page 31.)
Central Ontario Power Co., Peterboro Ont.
Hutcheson, S. M., Paisley, Ont.

Feed Water Heaters
Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Mont-
real.
Robb Engineering Co., Amherst, N.S.

Files
Spence, R. & Co., Hamilton, Ont.

Fillet (Pattern)
Hamilton Facing Mill Co., Hamilton, Ont.
McLaren, J. C. Belting Co., Montreal.
Sadler & Haworth, Montreal and Toronto.

Filters (Oil)
Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Mont-
real.
Perrin, William R. & Co., Limited, Toronto.

Filters and Filtering Systems (Water)
Babcock & Wilcox, Limited, Montreal.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Mont-
real.

Financial
Bradstreet's, New York City.
Dun, R. G. & Co., Toronto.
Neff & Postlethwaite, Toronto.
Petrie, H. D. Hamilton, Ont.

Fire Brick and Clay
Dunbar Fire Brick Co., Pittsburgh, Pa.
Elk Fire Brick Co., St. Mary's, Pa.
Hamilton Facing Mill Co., Hamilton, Ont.
Harbison-Walker Refractories Co., Pittsburgh, Pa.
Pennsylvania Fire Brick Co., Lock Haven, Pa.
Queen's Run Fire Brick Co., Lock Haven, Pa.
Reese-Hammond Fire Brick Co., Boliver, Pa.
Stowe-Fuller Co., Cleveland, Ohio.

Fire Escapes
Darling Bros., Montreal.

Fire Insurance
Inter-Insurers of America, New York City.

Flour Mill Machinery
Allis-Chambers-Bullock, Limited, Montreal.
Goldie & McCulloch Co., Galt, Ont.

Forges and Blowers
Canada Foundry Co., Toronto.
Hamilton Facing Mill Co., Hamilton, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Founders
Canada Foundry Co., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Mont-
real.
Robb Engineering Co., Amherst, N.S.

Foundry Facings and Supplies
Hamilton Facing Mill Co., Hamilton, Ont.

Fuel Economizers
Babcock & Wilcox, Limited, Montreal.
Sturtevant, B. F. Co., Hyde Park, Mass.

Furniture (Lodge, Opera, and School)
Canadian Office & School Furniture Co., Preston, Ont.

Galvanizing

Ontario Wind Engine & Pump Co., Toronto.

Galvanizing and Tinning Machinery and Furnaces (Wire)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio

Gas and Gasoline Engines

Morrison, T. A. & Co., Montreal.

Gauges (Recording Pressure)

Bristol Co., Waterbury, Conn.

Gauges (Steam)

Penberthy Injector Co., Windsor, Ont.

Petrie, H. W., Toronto.

Williams, A. R. Machinery Co., Toronto

Gauges (Water)

Babcock & Wilcox, Limited, Montreal

Penberthy Injector Co., Windsor, Ont.

Generating Sets

Sturtevant, B. F. Co., Hyde Park, Mass

Generators

Allis-Chalmers-Bullock, Limited, Montreal.

Canadian General Electric Co., Toronto.

Canadian Westinghouse Co., Ltd., Hamilton Ont.

Electrical Construction Co., London, Ont.

Forman, John, Montreal.

Jeffrey Mfg. Co., Columbus, Ohio.

Jones & Moore Electric Co., Toronto.

Phillips, Eugene F., Electrical Works, Montreal.

Toronto & Hamilton Electric Co., Hamilton, On'

Gloves, Mittens and Moccasins

Storey, W. H. & Son, Acton, Ont.

Glue Heaters

Advance Machinery Co., Toledo, Ohio.

Glue Room Equipment

Advance Machinery Co., Toledo, Ohio.

Government Notices

Factory Inspectors.

Minister of Agriculture.

Graphite

Dixon, Jos. Crucible Co., Jersey City, N.J.

Hamilton Facing Mill Co., Hamilton, Ont.

McCullough-Daisel Crucible Co., Pittsburg, Pa

Pittsburg Crucible Works, Pittsburg, Pa

Grease Cups

Penberthy Injector Co., Windsor, Ont.

Hardware

Butterfield & Co., Rock Island, Que.

Gartshore, John J., Toronto.

Globe Machine & Stamping Co., Cleveland, Ohio.

Hopkins, F. H. & Co., Montreal.

Morrow, John, Machine Screw Co., Ingersoll, Ont.

Heating and Ventilating Apparatus

Darling Bros., Montreal.

Sheldon & Sheldon, Galt, Ont.

Sturtevant, B. F. Co., Boston, Mass.

Hoisting Engines

Allis-Chambers-Bullock, Limited, Montreal

Jenckes Machine Co., Sherbrooke, Que.

Hoists (Chain and Pneumatic)

Allis-Chalmers-Bullock, Limited, Montreal.

Canadian Rand Drill Co., Sherbrooke, Que.

Hopkins, F. H. & Co., Montreal.

Hose (Fire and Pneumatic)

Gutta Percha & Rubber Mfg. Co., Toronto.

McLaren, J. C. Belting Co., Montreal and Toronto.

Reddaway, F. & Co., Montreal.

Sadler & Haworth, Montreal and Toronto.

Hotel

Gallatin Hotel, New York City.

Hydrants

Kerr Engine Co., Walkerville, Ont.

Jenckes Machine Co., Sherbrooke, Que.

McDougall, John, Caledonian Iron Works Co., Mont-
real.

Hydraulic Accumulators

Jenckes Machine Co., Sherbrooke, Que.

McDougall, John, Caledonian Iron Works Co., Mont-
real.

Hydraulic Leather

McLaren, J. C., Belting Co., Montreal.

Sadler & Haworth, Montreal and Toronto

Hydraulic Machinery

Canada Foundry Co., Toronto.

Darling Bros., Montreal.

Hamilton, Wm. Mfg. Co., Peterborough, Ont.

Jenckes Machine Co., Sherbrooke, Que.

McDougall, John, Caledonian Iron Works Co., Mont-
real.

Perrin, William R. & Co., Limited, Toronto.

Petrie, H. W., Toronto

Wilson, J. C. & Co., Glenora, Ont.

Industrial Plants

Von der Osten, E. & Co., Toronto.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

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Insulated Wires and Cables

Phillips, Eugene F., Electrical Works, Montreal.

Insurance

Inter-Insurers of America, New York City.

Iron and Steel Specialties

Armstrong Mfg. Co., Bridgeport, Conn.
Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Leslie, A. C. & Co., Montreal.
London Rolling Mill Co., London, Ont.
Lysaght, John, Limited, Bristol, England and Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Petrie, H. W., Toronto.
Union Drawn Steel Co., Hamilton, Ont.

Injectors

Canada Foundry Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Williams, A. R. Machinery Co., Toronto.

Iron and Steel Inspection

Hunt, R. W. & Co., Chicago, Ill.

Lamps—Electric

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Forman, John, Montreal.
Packard Electric Co., St. Catharines, Ont.

Lathes

Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Lathes (Wood-working)

Goldie & McCulloch Co., Galt, Ont.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Loom Reeds

McLaren, J. C., Belting Co., Montreal.

Lubricators

Hamilton Facing Mill Co., Hamilton, Ont.

Machinists

Goldie & McCulloch Co., Galt, Ont.
Robb Engineering Co., Amherst, N.S.

Machinists' Supplies

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Goldie & McCulloch Co., Galt, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
Petrie, H. W., Toronto.

Machine Tools

Becker-Brainard Milling Machine Co., Hyde Park, Mass.
Darling Bros., Montreal.
Petrie, H. W., Toronto.

Malleable Castings

International Harvester Co., Hamilton, Ont.
Smith's Falls Malleable Castings Co., Smith's Falls, Ont.

Marine and Stationary Engines and Boilers

Allis-Chalmers-Bullock, Limited, Montreal.
Jenckes Machine Co., Sherbrooke, Que.

Mechanical Draft

Babcock & Wilcox, Limited, Montreal.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Metal Stamping

Globe Machine & Stamping Co., Cleveland, Ohio.

Metallurgists

Mills, S. D., Toronto.

Mill Machinery and Supplies

Allis-Chalmers-Bullock, Limited, Montreal.
Armstrong Mfg. Co., Bridgeport, Conn.
Becker-Brainard Milling Machine Co., Hyde Park, Mass.
Darling Bros., Montreal.
Gartshore, John J., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Hamilton, Wm., Mfg. Co., Peterborough, Ont.
Hawksworth, Alfred & Sons Co., Montreal.
Hay, Peter Knife Co., Galt, Ont.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal.
Petrie, H. W., Toronto.
Robb Engineering Co., Amherst, N.S.
Spence, R. & Co., Hamilton, Ont.
Wilson, J. C. & Co., Glenora, Ont.

Milling Cutters and Machines

Becker-Brainard Milling Machine Co., Hyde Park, Mass.

Miners' Lamps

Allis-Chalmers-Bullock, Limited, Montreal.

Mining Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
Gartshore, John J., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
Link-Belt Engineering Co., Philadelphia, Pa.
McDougall, John, Caledonian Iron Works Co., Montreal.
Perrin, William R. & Co., Limited, Toronto.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Motors and Dynamos

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Keystone Engineering Co., Toronto.
Petrie, H. W., Toronto.
Sturtevant, B. F. Co., Hyde Park, Mass.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.

Moulding Sand

Hamilton Facing Mills Co., Hamilton, Ont.

Moulders Supplies.

Hamilton Facing Mill Co., Hamilton, Ont.

Nickel

Canadian Copper Co., New York, N.Y.
Orford Copper Co., New York, N.Y.

Novelty Manufacturers

Worth & Martin, Toronto.

Nozzles

McCullough-Dalzell Crucible Co., Pittsburg, Pa.
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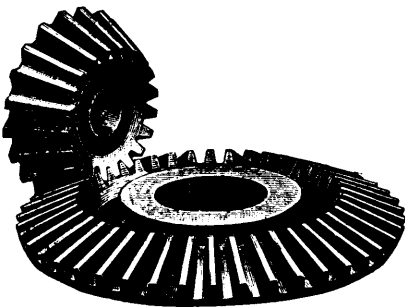
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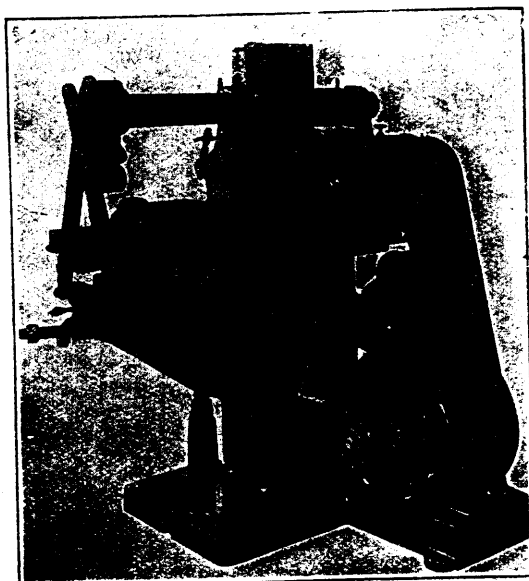
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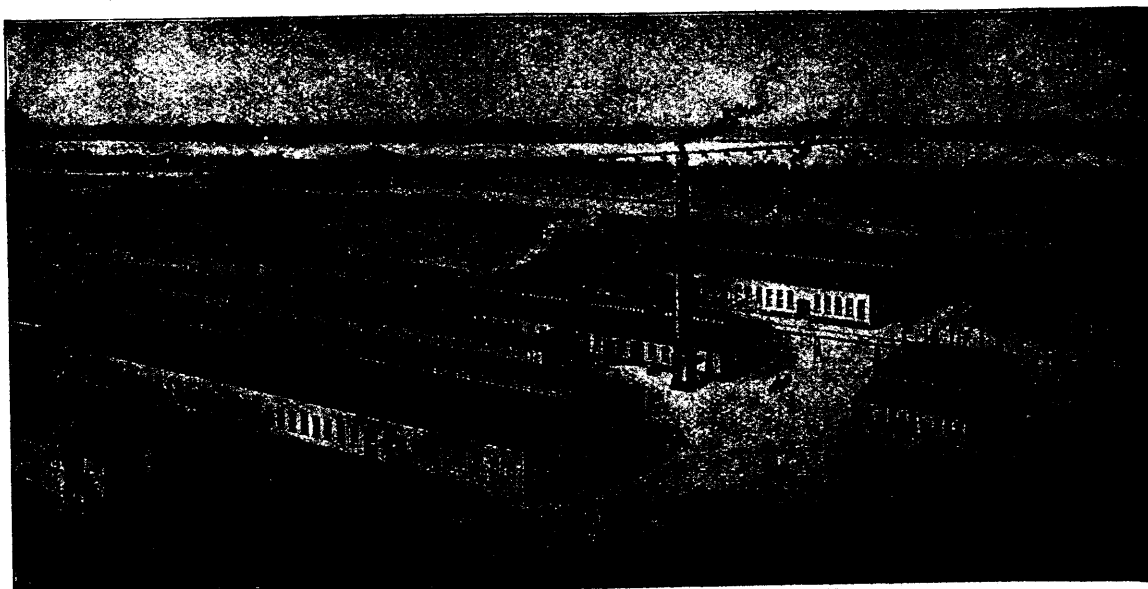
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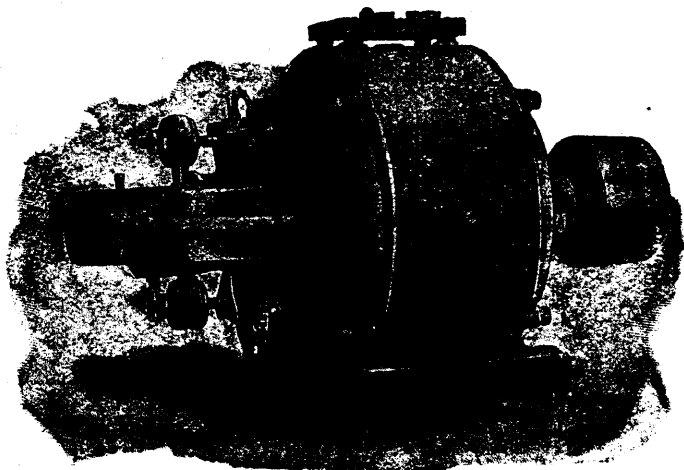
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