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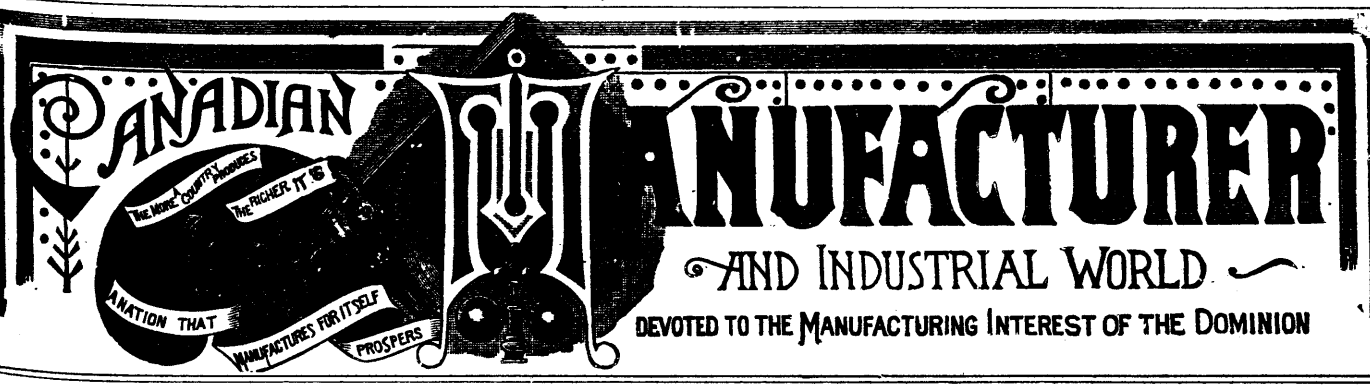
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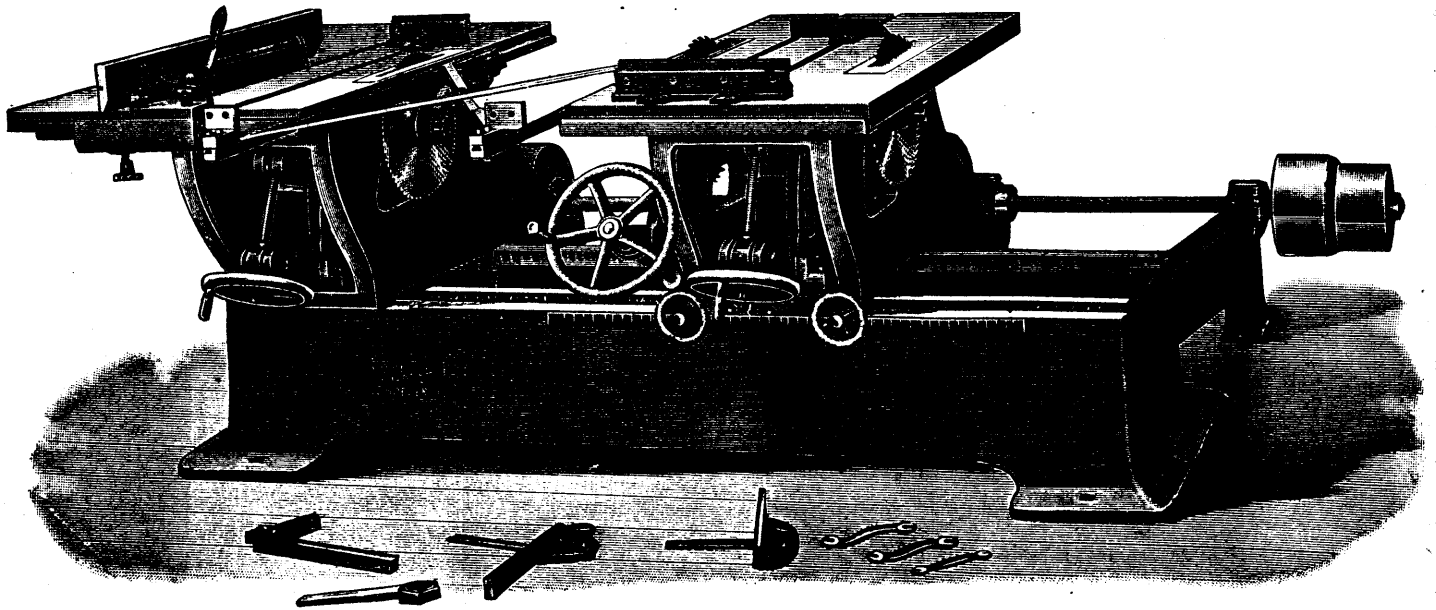
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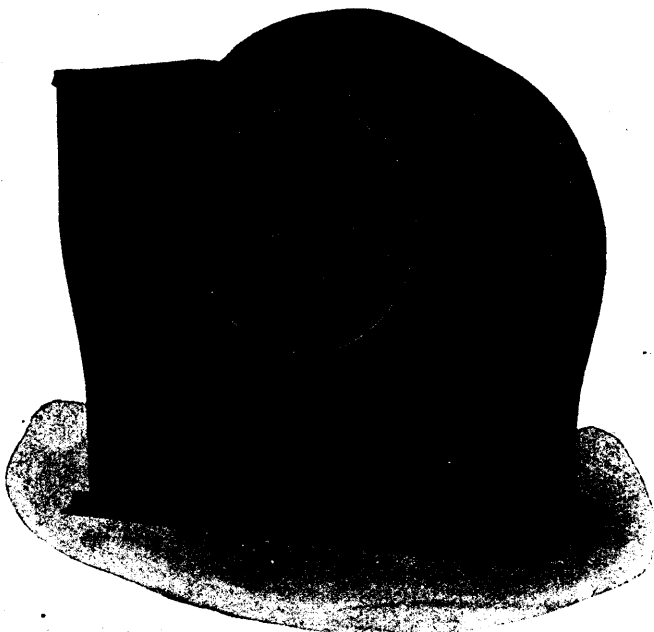
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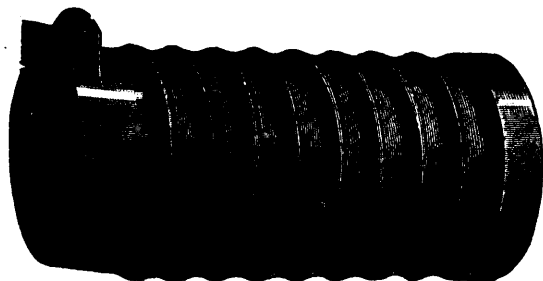
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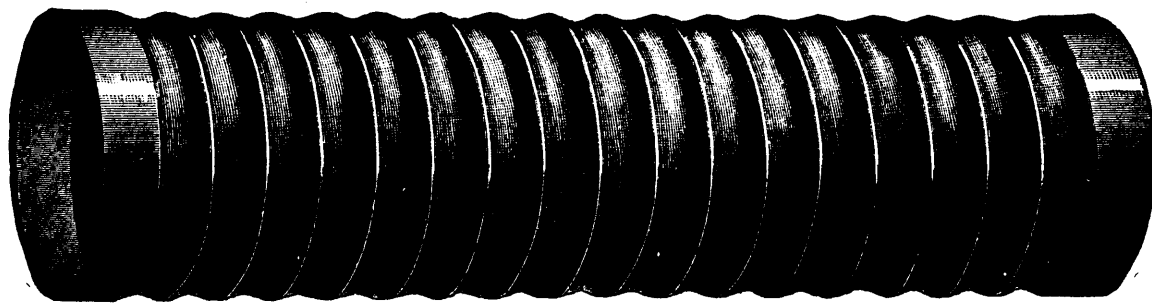


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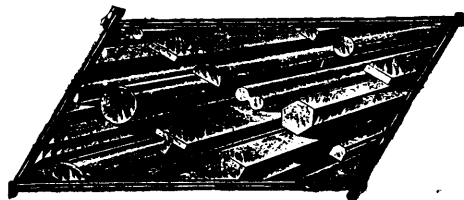
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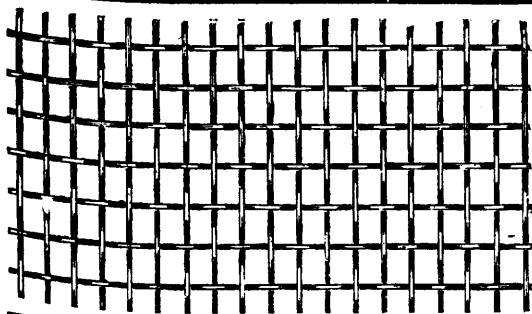
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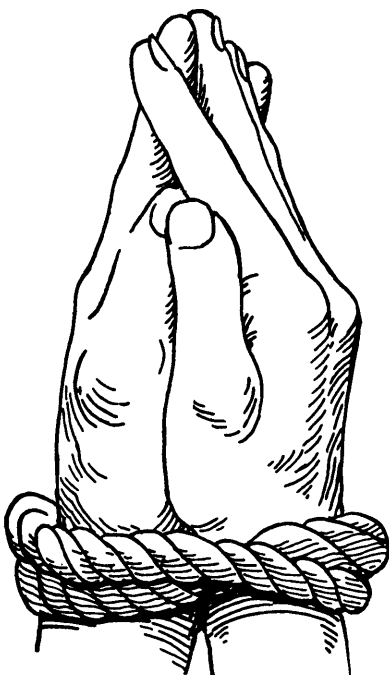
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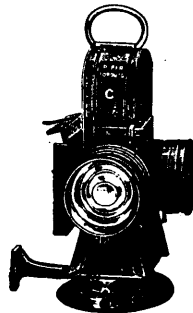
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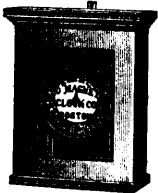


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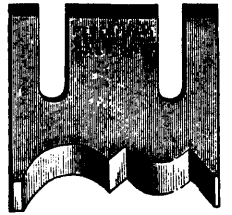
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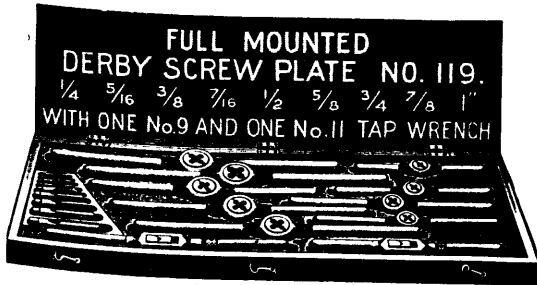
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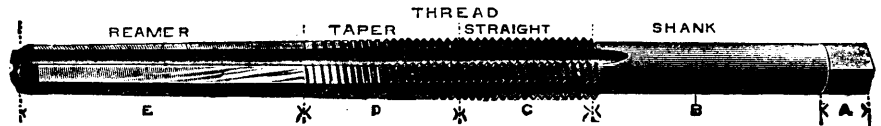
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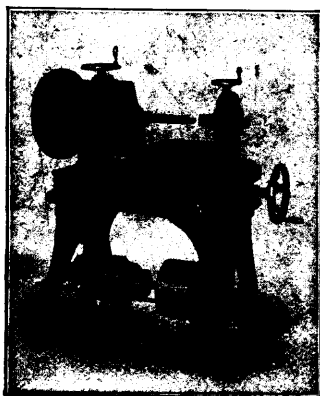
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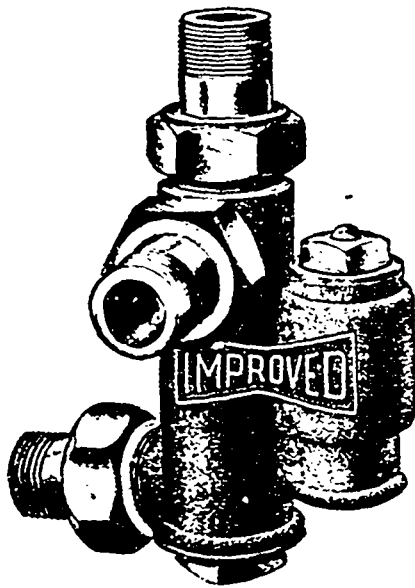
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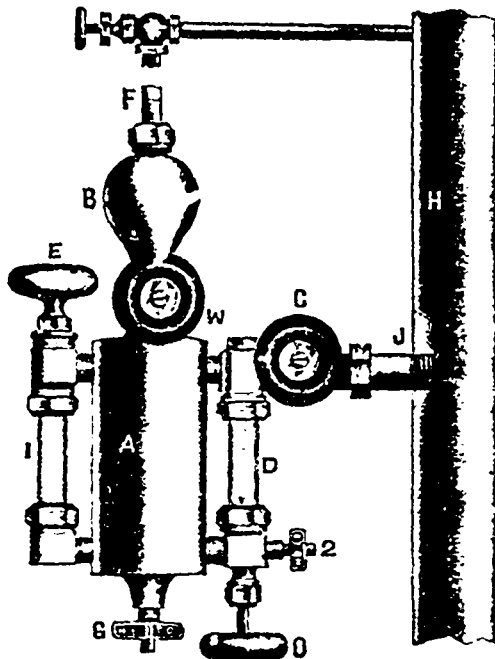
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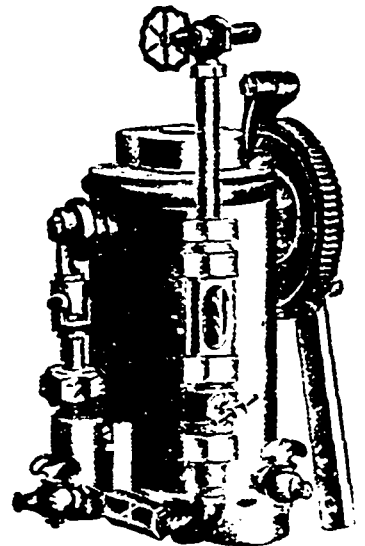
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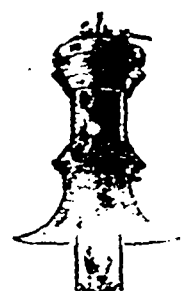
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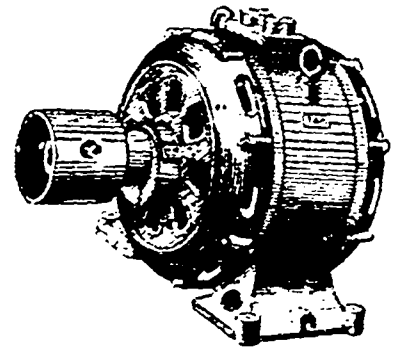
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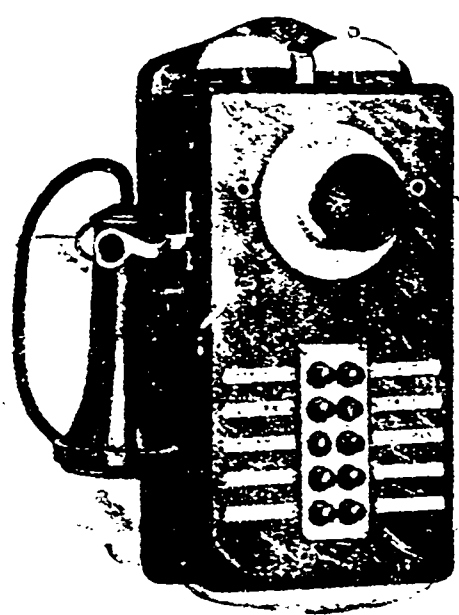
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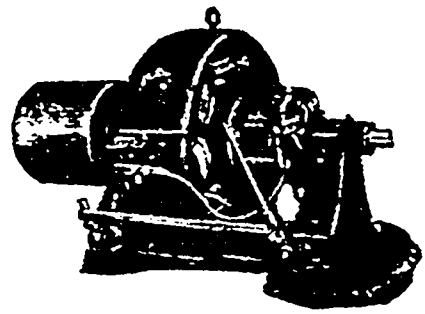
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Manufacturing Plant Number.	Total Horse-Power.	Horse-Power to drive Shafting.	Per Cent. to Drive Shafting.	Manufacturing Plant Number.	Total Horse-Power.	Horse-Power to Drive Shafting.	Per Cent. to Drive Shafting.
1.....	400	157	39.2	7.....	40.4	20.7	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
6.....	168	91	54.2	12.....	241	114	47.3
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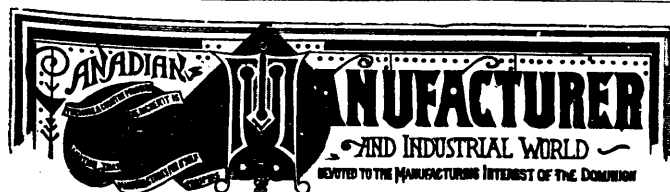
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ESTABLISHED IN 1890.

PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

The Canadian Manufacturer Publishing Co., Limited.

McKinnon Building, Cor. Melinda and Jordan Sts., Toronto.

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Canada and United States \$1.50 per year. All other Countries in Postal Union ten shillings sterling, including postage.

J. J. CASSIDEY, Editor and Manager

Classified IndexPage 37

Index to AdvertisersPage 45

THE NEED OF THE IRON INDUSTRY—
A SYMPOSIUM.

In THE CANADIAN MANUFACTURER of January 5 was an editorial entitled, "The Need of the Iron Industry," the spirit of which was indicated by the caption. Believing that the importance of the subject would appeal strongly to every Canadian manufacturer who desires to see built up the premier industry of the country, a number of them were appealed to to express their views in the matter; and we are here giving synopses of some of their replies; and we shall continue our symposium through several succeeding numbers of this journal.

The iron and steel industry of Canada in all its various branches cannot profitably exist unless the basic forms are securely established, and it is evident that this can only be by such encouragement as the Dominion Government may, as heretofore, extend to them.

Following are the expressions of some of the Captains of Canadian Industry:

C. C. Ballantyne, President the Canadian Manufacturers' Association, manager the Sherwin-Williams Co., Montreal, manufacturers of paints and varnishes.

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

Dear Sir:—I have noted with much interest and satisfaction your very able editorial, entitled, "The Need of the Iron Industry."

It is evident that the iron and steel industry in all its various branches cannot profitably exist unless the basic forms are securely established. I believe that the Dominion Government are fully alive to the great need of protecting and encouraging to the fullest extent the developments of the iron and steel industry in Canada. The future possibilities in Canada for developing this industry are great, and I feel sure that all Canadians, irrespective of politics, will welcome all the encouragement that our government can give in assisting the further advancement and building up of one of our greatest industries.

I heartily congratulate you on your very strong practical Canadian editorial, which will give all your readers a better understanding of the needs of this very important industry.

Another Tariff Edition.

As soon as the proposed revision of the tariff has been made and adopted by the Dominion Parliament, thus becoming the law of the land, a full and absolutely correct reproduction of it copied from the official document, will be published in the Canadian Manufacturer. It is impossible at this time to say just when that event will occur, probably during the present year. In the same special edition will be published in full, as heretofore, the tariff of the United States, both under the one cover, a convenience which will be fully recognized by our readers.

Edward Gurney, Past President the Canadian Manufacturers' Association, president the Gurney Foundry Co., Toronto, manufacturers of heating and cooking goods.

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

Dear Sir:—I have read your article with great interest, and am astonished at the statement you make that the receipts growing out of the revenue derived from iron manufacture have been equal to the expenditures made by the government in the way of bounty, etc. I do not think that I can add anything to the strength of your very cogent reasoning on this subject, but I can say that I have been astonished by two facts which I have observed in this connection. One is the liberality of the users of iron, who are almost universally willing to concede that the pig iron which they use is a manufactured article, and therefore should be encouraged by a protective tariff. The ordinary experience of men in business is that where a man's pocket is directly touched by a duty he is almost universally opposed to it, but in the large contracts which I have had with manufacturers of iron, the number of exceptions to the rule which I have stated, has been exceedingly small. On the other hand, I have been equally astonished at the general attitude of the government to this pig iron proposition, which is recognized to be the one thing more than any other which stands at the base of manufacturing industries of any country.

We are all able to see what has been accomplished in the United States, which country, within my lifetime, imported nearly all the iron that it used from Great Britain, while now its product is nearly 300 per cent. greater than that of the British Islands, the relative production being, as I remember, 7 million tons in one instance, and 21 million tons in the other. There is some satisfaction to be found in the fact that the government is looking into the matter, but I do not believe that we shall ever have anything really effective until we have a great protectionist party divorced largely, if not entirely, from the little questions which have separated the two parties now existing in Canada. We have learned many things from the people of the United States, and are the better for it, but this one thing we have yet to learn, and that is, that it is better to produce goods within our own borders than to import

them, even though the imported goods for a time may be less expensive.

F. G. Butterfield, manager Butterfield & Co., manufacturers of stocks and dies, die plates, screw plates, etc., Rock Island, Que.

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

Dear Sir:—We have read your article in THE CANADIAN MANUFACTURER, entitled "The Need of the Iron Industry;" and while we would not care to go into a discussion of the matter, we will frankly say, that we believe in a high tariff for the Iron Industry of Canada, believing that it will build up this industry more quickly and more thoroughly than any system of bounties or subsidies.

Bennett Rosamond, past president THE CANADIAN MANUFACTURERS' ASSOCIATION, president the Rosamond Woolen Co., Almonte, Ont.

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

Dear Sir:—I regret to say that I know but little of the iron industry and therefore am not competent to give an intelligent opinion on the subject. There is always this to be said, however, that a successful and flourishing iron industry would be of very great advantage to Canada and worth considerable sacrifice to secure.

C. F. Wheaton, manager Dodge Manufacturing Co., engineers, founders and machinists, manufacturers of power transmission machinery, etc., Toronto.

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

Dear Sir:—In answer to your letter calling attention to your editorial on, "The Need of the Iron Industry," would say that conditional upon his finished product having a reasonable measure of protection, over the protection afforded the raw material, whatever this latter may be, we are in favor of an adequate protection for all industries. We must not be misunderstood on this question, however, since in our opinion the tariff as it stands to-day is inconsistent, inasmuch as the raw material of the foundry and the machine shop is protected to a greater extent than is the finished product. Consequently the manufacturer is handicapped, and as a matter of fact cannot stand up against the conditions which actually exist, and must have either cheaper raw material or more protection for his finished product.

WHERE THE SHOE PINCHES.

At the session of the Tariff Commission held in the city of Quebec, the local manufacturers of shoes were numerous and loud in their demands for a material increase of duty "to keep out American shoes and also to eliminate American shoe advertisements from American magazines circulating in Canada." This attack on American magazines' advertising was alluded to in the address of welcome by Mr. George E. Amyot, president of the Quebec city section of the Canadian Manufacturers' Association. He said American manufacturers were permitted to advertise their goods from one end of the Dominion to the other in American magazines circulating in Canada, while when Canadian manufacturers

attempted to sell in the United States they were met by the Dingley tariff.

The manufacturers of shoes and of other articles, not only in Quebec, but in other parts of Canada, are making strong attacks on the admission of American magazines chiefly because of the advertisements they publish which, undoubtedly, influence a great deal of purchasing in the United States that would otherwise be done in Canada.

The volume of American magazine literature constantly being brought into Canada and scattered broadcast throughout the country cannot well be computed. The stuff, most of it, is sold in the stores and news stands at a price less than the value of the white paper upon which it is printed, a great deal of it being of pernicious character. Fortunately all American magazines are not of that character; but without exception they all carry American advertisements, some of which are more or less objectionable. The quality of the literature contained in most of these magazines being very inferior, they would no doubt soon cease to exist if it were not that they derive their revenue from their advertisements; and it is a pity, a great pity, that Canadian readers purchase them. As a general thing the advertisements are excellently well presented, the taste displayed in them being usually superior to the literary illustrations. Under existing circumstances we may well enquire, "What is to be done about it?" How is discrimination to be made between the good and the undesirable? We do not desire to exclude all American magazine literature. Some of it should be encouraged. But in encouraging the reading of magazine literature why not pay special attention to such as is published in Canada? There are some magazines published in Canada of much literary excellence, but is the publication of them properly and sufficiently encouraged? It does not seem possible for Canadian publishers to put their magazines on sale on the book stands at a less price than twenty-five cents, while competitive American magazines are sold at ten cents. Why? The reason why is that American magazines are made up largely of well paid for advertisements, and Canadian magazines are not thus favored. It is noticeable that the advertising patrons of American magazines are, mostly, American manufacturers who are believers in the virtue of printer's ink. They have goods for sale and they let consumers know the fact by advertising them. Do Canadian manufacturers adopt a similar method? It is a demonstrable fact that there are many American magazines that are circulated in Canada, any one of which presents more advertisements that can be seen in every magazine published in Canada. To what extent do Canadian shoe manufacturers advertise their goods in Canadian magazines? If Canadian magazines enjoyed such patronage as their American contemporaries, Mr. Amyot and other Canadian manufacturers would be consistent, which they evidently are not.

There are two things that might be done to lessen the evil Mr. Amyot and other Canadian manufacturers complain of. They should, in imitation of their American competitors, advertise most generously in Canadian

publications, so that their goods would be known from one end of the Dominion to the other; and in this way create a sentiment throughout the country in favor of Canadian publications in preference to Yankee trash.

CANADIAN STEEL RAILS.

In the December 15 issue of this journal was an article entitled, "Canadian Rails," which made reference to the output of the only two mills manufacturing steel rails in Canada, the facts regarding them having been gathered from an editorial in the Toronto Globe. Some of the facts regarding present and prospective railway mileage in Canada were approximately correct, but many of the conclusions of The Globe, based upon other stated facts, which were wrong and misleading, were calculated to do great injustice to Canada's premier industry, and therefore call for correction. The Globe estimated that it would require 125 tons of rails weighing 80 pounds to the lineal yard to lay each mile of track, and therefore as near as could then be foreseen it would require 500,000 tons of rails to lay the Grand Trunk Pacific Railway from Moncton to the Pacific coast, a distance of about 4,000 miles. In view of these facts The Globe found it interesting to calculate whether or not the two steel rail mills in Canada could furnish the requirement. Since the Dominion Iron & Steel Co. began to make rails last summer their total output has been taken by the Grand Trunk Railway, and has amounted so far to only a little more than 20,000 tons. Just now the mill is working satisfactorily, says The Globe, and is turning out 300 to 350 tons a day. The contract with the Grand Trunk Railway for 1905 was to supply 25,000 tons, of which at the time of The Globe's writing, there were yet 4,000 tons to deliver. A large amount of these rails has been used in connection with the double track of the main line west of London, and the Grand Trunk officials have been so well pleased with them that they have placed another order for 25,000 tons to be delivered in the coming months of March, April, May, June and July. These rails are of the heavy type; and the ones that have been supplied so far had, before leaving the mill, to undergo a more severe test, according to the statement of a Grand Trunk official, than any other rails that have ever been used anywhere in that entire system.

The Globe tells us, too, that the rail production of the mills at Sault Ste. Marie is likewise gratifying; that deliveries to the International Railway have met approval, and that as the capacity of the mill there is about the same as that of the Dominion Iron & Steel Co., at Sydney, N.S.—about 300 tons a day, an estimate might be formed of how long it would take the two mills to supply all the rails needed for the new national trans-continental railway. It says that a conservative estimate would be 500 tons a day, and at that rate it would take the two mills three years and four months of steady going, counting 300 working days to the year. That means, it says, that it would take them a thousand days to make enough rails to lay the road from Moncton to the Pacific coast, even were they to make rails for no other purpose. It points out that allowance must be made

for renewals—that the Canadian Pacific Railway use on an average about 40,000 tons of rails for renewals every year, and that the Grand Trunk Railway about 25,000 tons—that 100,000 tons of rails for renewals every year on all the railroads of Canada would be a fair estimate. If these two mills can turn out only 150,000 of rails a year, argues The Globe, that would leave them only 50,000 tons for new roads, and at that rate it would take ten years to supply enough extra rails to complete the Grand Trunk Pacific.

The Globe also makes the assertion that the price that Canadian railways are paying for Canadian made rails is as high as the duty and the bonus will allow; that is, slightly under the price of foreign rails of similar standard, plus the duty, the bonus and the freight; and in a most worthy outburst of candor it says that no fault "so far" has been found with the quality.

The Globe's article was skillfully written and exceedingly well calculated to deceive. It is an ardent advocate of railway extension in Canada, particularly of the Grand Trunk Pacific Railway from Moncton to the Pacific coast, and all the branches and extensions incident thereto. It is a Government measure, and it is the determination of the Dominion Government to see it through. The construction of railways in Canada implies the manufacture of steel rails; and with a patriotism not shared in by The Globe, it is the desire of the Government that hereafter all the railways to be built in Canada shall be equipped with steel rails made in Canada, and with that end in view it promotes by various methods the development of Canadian iron mines, the manufacture of pig iron, and the conversion of Canadian pig iron into Canadian steel rails and other structural forms of iron and steel. These encouraging methods include bounties upon home production and tariff duties upon imports. The Globe has always opposed tariff duties if for other than revenue purposes; and the evident intention of The Globe's skillfully worded article was to convince its readers that even under the auspices of adequate tariff protection the Canadian steel rail industry as now in operation is absolutely incapable of meeting the demands of Canadian railways, existing, in course of construction and in contemplation. Admitting the fact that the contract of the Dominion Iron & Steel Co., with the Grand Trunk Railway Co. called for the delivery of only 25,000 tons of rails in 1905, of which more than a month ago there were 4,000 tons yet to be delivered, it is to be explained that the requirement of the Grand Trunk in 1905 was only 25,000 tons, as the road could not possibly lay more if it had them; but the evident intention of The Globe was to convey the impression that the delivery of 25,000 tons in 1905 was the measure of the capacity of the mill, and that another order for 25,000 tons for delivery in March, April, May, June and July of this year, was the measure of capacity for more than a half year delivery.

The Globe's "conservative" estimate is that it would take the two Canadian rail mills three years and four months' steady going to make enough rails to lay the Grand Trunk Pacific road from Moncton to the Pacific

coast, even if they made rails for no other purpose. It says that at present 100,000 tons of rails per year are required for renewals; that home production only averages 150,000 tons per year, leaving only 50,000 tons per year for new road, and that it would take ten years to supply enough extra rails to complete our great transcontinental road. The ridiculousness of the suggestion is only exceeded by the injustice of it. We have before us a letter from Mr. L. P. Jones, general manager of the Dominion Iron & Steel Co., in which he informs us that the capacity of that rail mill is 1,000 gross tons per day. This is not an estimate of capacity, as the mill has been frequently tested to that output. The mill is at this time producing from 500 to 550 tons per day. The reason the mill is not run to its full capacity is that the company see no prospect of being able to sell the larger quantity. Regarding the requirements of the Grand Trunk Pacific, Mr. Jones says that that road could not possibly lay all the rails that would be required in its construction in less than five years; and that he is confident that Canadian mills can not only supply rails for all roads that are being built, but also all rails for renewals.

Mr. George E. Drummond, of Messrs. Drummond, McCall & Co., who are the general sales agents for the Sault Ste. Marie rail mill, whose word is always accepted in relation to the iron and steel industries of Canada, writes us that The Globe's assertion that the capacity of the Sault Ste. Marie mill as calculated at only 300 tons a day is incorrect—that for some time past the average output has not been less than 500 tons per day; that on a very recent occasion the output of one day was 640 tons; another day 555 tons, and so on. The capacity of the mill, Mr. Drummond says, will, before long, be fully 1,000 tons per day, the event depending upon the completion of blast furnaces now in process of erection for the supply of pig iron. Mr. Drummond assures us that we will be safe in saying that the Canadian makers of steel rails are prepared to supply all the current demands of the home market.

The Globe says that Canadian railways pay for Canadian rails as high as the duty and the bonus will allow. Mr. Jones informs us that at this time the price of foreign rails has advanced, therefore Canadian makers do not take full advantage of the duty—that at this time Canadian buyers are getting a superior quality of rails, made in Canada, at prices considerably less than they can purchase imported rails for.

THE NEW ZEALAND EXHIBITION.

Sir Joseph Ward, Minister for Industries and Commerce, New Zealand, has officially announced the appointment of Sir Sanford Fleming, of Ottawa, as Honorary Commissioner in Canada of the International Exhibition to be held at Christchurch, New Zealand. He also announces the appointment of Mr. R. J. Younge, Toronto, to be commissioner for the exhibition in Canada.

The exhibition will begin in November, 1906 and end in April, 1907.

New Zealand offers a splendid outlet for the manufactures of other countries. The imports of the colony for

the past year, two-thirds of which were manufactured articles, amounted to about \$65,000,000. The population of the colony is placed at 850,000. Manufacturers are urged to appoint representatives and to send such exhibits as will show the nature and finish of their work, and which are suitable for so progressive a colony.

Special arrangements will be made with the steamship companies trading to New Zealand, whereby exhibitors will obtain special rates of freight on exhibits, and complete arrangements will be made for their reception and installation on such lines as will protect exhibitors from excessive charges. All exhibits are required to be in the buildings by October 28, 1906. Applications for space may be sent to the Hon. W. Pember Reeves, high commissioner, Westminster Chambers, Victoria Street, London, E.C., or to the secretary of the exhibition at Christchurch, New Zealand. The ordinary charge for space will be at the rate of two shillings per square foot, the minimum charge being one pound one shilling. All packages intended for the exhibition should be marked "New Zealand International Exposition," together with the name of the exhibitor and the number of his allotted stand.

AUSTRALIA'S TRADE.

Our manufacturers have often been criticized for neglecting or refusing to make goods to suit the notions of customers in other lands. It may interest them to learn that a commissioner sent by the British Board of Trade to examine into the causes of England's loss of the foremost position in trade with Australia found that the diversion or displacement of trade from the United Kingdom was due to the same want of readiness on the part of British manufacturers "to introduce modifications in regard to the goods supplied, in accord with the wishes of the people of Australia."

To avoid undue influence of transient and unusual conditions in the trade, the commissioner took the figures covering twenty years previous to 1891 to show the changes. In those twenty years imports from Great Britain increased a little more than 61 per cent.; those from British possessions grew about 7 per cent.; while imports from other countries increased almost 114 per cent.

In the year 1871 Great Britain held 70.1 per cent. of Australia's import trade; in 1904 she had 60.7 per cent. British possessions had 11.5 per cent. of that trade in 1891 and 13.2 per cent. in 1904. Foreign countries furnished 18.4 per cent. of Australia's imports in 1891 and 27.1 per cent. in 1904.

In 1904 her imports were valued at \$180,161,934, and her exports at \$279,771,264. Of her imports from foreign countries the United States furnished 45.8 per cent., and took only a little more than 15 per cent. of her exports. In that year Australia took American timber valued at \$2,981,350, oils valued at \$2,627,145, and agricultural implements of the value of \$2,355.50, these being the larger items of her imports. She sent \$5,803,000 worth of gold and \$3,619,995 worth of wool as the chief items of her contributions to the United States.

SECRETARY TAFT'S REPORT.

Secretary Taft, in his annual report to the United States Congress, gives a resume of the work of the International Waterways Commission up to date. In the course of this he observes that the commission was met at the outset by a difference of opinion as to the scope of the investigations to be undertaken, the Canadian Government being under the impression that a much wider range of subjects and of territory was to be included than appears to have been included by Congress. It was their understanding that the subject matter of the commission covered all waters adjacent to the boundaries of the two countries, involving an investigation extending to the Pacific coast, and possibly embracing the Alaskan boundary as well. On the other hand, the scope of the investigations to be undertaken was defined by the Department of State to cover only the waters of the lakes and rivers whose natural outlet is by the River St. Lawrence to the Atlantic Ocean, omitting the lower St. Lawrence itself, as well as all other waters not discharging naturally through it. The government finally agreed to allow the commission to proceed within the limits prescribed by this government, with the understanding that Congress should be asked to create a commission to work with one from Canada to examine fully into the questions in controversy between the business interests of Maine and New Brunswick with regard to the St. John River.

He does not state correctly in the foregoing paragraph the understanding that was entered into by Canada. This country did not ask for the creation of a commission to deal with controversies between Maine and New Brunswick. What was desired was that the existing commission should take up the matters at issue. This is clear from the following paragraph taken from the order-in-Council passed by the Canadian Government when their attention was officially drawn to the limitations imposed upon the United States section of the Waterways Commission:—"The Minister, therefore, recommends that the necessary representations be made in order that the investigation to be carried on by the said commission, and the report to be based thereon, shall extend to all the waters adjacent to the boundary line between Canada and the United States, and, therefore, include such portions of the St. John River as will come within the limit assigned by the act of Congress to the work of the commission."

Secretary Taft's report goes on to say that the commission has been hampered in its work by the want of a clear understanding as to its permanency and as to the eventual scope of its duties. For example, in making regulations for the use of the surplus waters at Sault Ste. Marie for power purposes it seems necessary to provide for a joint continuous supervision. The enforcement of rules to be established hereafter at other places or upon other subjects will probably likewise require joint executive action. It is not clear from the language of the law creating the commission that Congress intended to provide for a permanent international board. It is desirable that the status of the present commission as a permanent executive board be defined or a new board created.

Among the questions brought to the notice of the commission are the following:

The use and equitable division of the waters at Sault Ste. Marie and Niagara for power purposes, and the protection of Niagara Falls as a scenic spectacle.

The alleged differences in the marine regulations of the two countries with respect to signal lights and the advisability of adopting uniform signals for both countries.

The advisability of building controlling works at the outlet of Lake Erie, including the effect upon the levels of the lakes and upon their shores and upon the River St. Lawrence.

The diversion southward by the Minnesota Canal & Power Co. of Duluth of certain waters in the State of Minnesota that now flow north into the Rainy River and the Lake-of-the-Woods.

The effect of the Chicago Drainage Canal upon the levels of Lakes Michigan, Huron, Erie, and Ontario, and upon the River St. Lawrence.

Delimiting the international boundary on the international waterways, and delineating the same on modern charts.

The suppression or abatement of illegal fishing on the great lakes.

The location and construction of common channels.

Regulations to govern navigation in narrow channels.

Protection of shores from damage due to deepening of channels and increased speed.

Some of these questions clearly come under the jurisdiction of the commission as constituted, while some clearly do not, and about others there is room for doubt. The Canadian members of the commission are ready and anxious to consider all of these questions and to extend the jurisdiction of the commission to all international waters between the Atlantic and Pacific Oceans. It is desirable that the wishes of Congress in this matter be more clearly defined.

THE NEW BRITISH TRADE MARK LAW.

Exporters to Great Britain will do well to study closely the new trade marks act which goes into effect April 1, 1906. One of the most interesting sections of the act is that which gives the following definition of a trade mark:

"It shall mean a mark used or proposed to be used upon or in connection with goods for the purpose of indicating that they are the goods of the proprietor of such trade mark by virtue of manufacture, selection, certification, dealing with, or offering for sale."

Hitherto it was necessary to use a trade mark on the goods or on the bottle containing them. Under the new law it may be used in connection with goods—that is, by show-cards, posters, circulars, or by advertisements. Such pictorial embellishments are largely employed to attract public attention and indicate various goods. The registered proprietor may be anyone practically who handles the goods. Hitherto trade marks have been held exclusively by manufacturers and merchants. Now

the buyer who selects and the expert who certifies the goods may each register his brand.

The comptroller-general of patents, designs and trade marks is appointed the registrar of trade marks, and in any proceedings before him has power, with the consent of the parties, to require the attendance of witnesses, take evidence on oath, award costs, and be in the same position in all respects as an official referee of the Supreme Court.

What is a registrable trade mark has always been a vexed question in England and a fruitful source of litigation. Section 9 enlarges the scope of registration as follows:

WHAT THE TRADE MARK MUST SHOW.

"A registrable trade mark must contain or consist of at least one of the following essential particulars:

"(1) The name of a company, individual or firm represented in a special or particular manner; (2) the signature of the applicant for registration or some predecessor in his business; (3) an invented word or invented words; (4) a word or words having no direct reference to the character or quality of the goods, and not being according to its ordinary signification a geographical name or a surname; (5) any other distinctive mark, but a name, signature, or word or words other than such as fall within the descriptions in the above paragraphs (1) (2) (3) and (4) shall not, except by order of the board of trade or the court be deemed a distinctive mark; provided always that any special or distinctive word or words, letter, numeral, or combination of letters or numerals used as a trade mark by the applicant or his predecessors in business before the 13th day of August, 1875, which has continued to be used (either in its original form or with the additions or alterations not substantially affecting the identity of the same) down to the date of the application for registration, shall be registrable as a trade mark under this act. For the purposes of this section 'distinctive' shall mean adapted to distinguish the goods of the proprietor of the trade mark from those of other persons. In determining whether a trade mark is so adapted the tribunal may, in the case of a trade mark in actual use, take into consideration the extent to which such user has rendered such trade mark in fact distinctive for the goods with respect to which it is registered or proposed to be registered."

IMPROVEMENT IN PRESENT ACT.

A company will now for the first time be allowed to register its name if represented in a special or particular manner. This is an improvement on "particular and distinctive manner" in the present act. The registration of the signature of the applicant's predecessor is also a useful innovation, as it enables a joint-stock company to register its founder's signature as a new mark. Words having indirect reference to the character or quality of the goods will now be registered. This would appear to cover "Electric" velveteen, "Tower" tea, "Beatrice" shoes, and similar names which have been held not to be fancy words. Geographical names and surnames also, which have been excluded under the present law, will

now be registrable, if their ordinary signification is not a geographical name or a surname. Hitherto many good trade marks have been refused registration because they were found among the names in the gazettes and directories which include "Abbey," "Brook," "Palmer," "Silver," and "Golden" among thousands of common names.

Any other distinctive mark can be registered. This is very broad, as under Section 3, a mark includes a device, brand, heading, label, ticket, name, signature, word, letter, numeral, or any combination thereof.

The registration of associated trade marks is another important and useful provision. It enables an applicant to register the essential features of a label as separate trade marks, and the user of the whole label shall be deemed to be a user of such separate trade marks.

A new feature is contained in Section 41, which enacts that registration shall after seven years be taken to be valid in all respects, unless obtained by fraud or calculated to deceive, or contrary to law and morality.

EDITORIAL NOTES.

The success of the Germans in commerce and in manufactures, says a French paper, is due to the fact that the German papers daily, weekly, and monthly furnish the commercial and industrial classes with exact and timely information about trade and industrial movements in all parts of the world. French daily papers, it complains, ignore such subjects, giving space to political polemics, records of crimes, etc. Much of the space given now to divers uninteresting things might be more profitably employed in giving daily readers the records of the world's movements in trade and in industrial development. To remedy an existing evil, Charles H. Stephan, a distinguished French writer on economic and commercial subjects, has proposed a cooperative press movement by which the facts about French products will be better exploited and brought before the outside world. His plan is to have the leading papers of Paris and the large cities devote a half of the front page to foreign trade and industrial movements. If this is done it is sure to be followed by the papers of the small towns till it becomes the recognized way of recording such significant facts. Other publications—technical, industrial, commercial, etc.—are sure to follow. The value of such a service no man may measure. It will give to the merchants and manufacturers of France, gratis, information that would cost considerable money if they had to go out to get it, or to send agents after it. Many leading members of the French Government are lending encouragement to this movement, for they hope to see in its success the still greater success of France.

It is a special feature of THE CANADIAN MANUFACTURER, and has been for many years, to publish just such matter. It is a regular recorder of all such events occurring in Canada as the organization, incorporation and going into activity of all kinds of industrial concerns, the enlargement of old concerns, the institution of new machinery, the supplying of products of home production for home consumption and for export, etc.

It is understood that arrangements are being made to establish a line of car ferry steamers to ply between Port Hope, Ont., and Charlotte, Port of Rochester,

N.Y., of which the Grand Trunk Railway Co. will have control. It is said that a company has been formed with a capital of \$500,000, and that one ferry steamer will be placed on the route during the coming summer with capacity to transport twenty-five loaded freight cars, which will make one round trip per day, the service to be increased by additional steamers later on. With this route in operation much Canadian merchandise will be diverted from their ordinary routes and sent to the ports of New York and Boston. The distance this way would be much less to the ocean liners than to Portland, St. John, or Halifax. With the building of the Grand Trunk Pacific this ferry service will be the connecting link between Boston, New York, Philadelphia and Baltimore and the Pacific Coast over a new line.

We are told that, with a view to agitating for remedial tariff legislation, the Illinois Manufacturers' Association, a free trade organization, will consider the causes which are prompting large manufacturing companies in this country to establish plants in Canada, 132 leading companies having done so. These free traders need not search very deeply to find the leading cause. Canada has concluded to protect its manufacturing industries, as the United States has done. Capital is therefore attracted to Canada, which could not have happened if it had adhered to a policy of partial free trade. Our protective policy long ago attracted European capital to our own country. The capital that now goes to Canada from the United States helps to develop Canadian resources and employ the Canadian people. Canada is therefore enriched and this country is not injured in the least. On the contrary we are helped by the prosperity of Canada. The richer and more populous it becomes the better customer of ours it will be. We will sell it raw materials that it does not and can not produce and manufactures also, and its people will have all the more money to spend in the United States for a thousand luxuries and necessaries. Only a free trader could imagine that it would be better for us to have a poor neighbor on our northern frontier than a rich one. Canada is wise in building up its industries and rejecting the reciprocity of our free traders.—The Bulletin.

The revenue of the Ontario Government for 1905 was over \$6,000,000. The complete returns from all departments have not yet been compiled and it may be found that the total will equal the receipts of 1904, which were \$6,128,358. There has been an increase of revenue in nearly every department, in addition to the \$100,000 receipts from the Temiskaming & Northern Ontario Railway, a source of revenue which the former Administration did not have. During the year 1904, the sum of \$1,664,000 was received as bonuses on timber sales; last year the amount received on that account was only \$520,000. But the ordinary revenue from Crown lands last year was \$548,000 more than in the previous year.

During the year 1903 not one American ship entered or cleared from a single port in Germany, Russia, Sweden, Norway, Denmark, Austria-Hungary, Greece, or the Netherlands. The United States has the largest navigable coast line on earth. It has the largest export trade on earth and relatively the smallest merchant marine. In 1904 that country paid in freights to ocean-going

ships \$200,000,000. United States ships carried only 7 per cent. of this, the balance going to foreigners, or \$186,000,000 in gold going out of the country in one year for that item alone. In 1821 United States ships carried 88 per cent. of their own foreign commerce. In 1903 they carried 7 per cent. And yet during that period the total volume of American commerce increased twenty fold.

The bounty which the Dominion Government has been paying upon the pig lead produced of Canadian mines has been wiped out, owing to the high price now being paid for pig lead in the British market. When the bounty was granted the Act of Parliament provided that when the price of pig lead in London was £12 10s, the bounty should be 75 cents per hundred pounds. Any advance, however, in the open market was to mean a reduction in the country. Of late the bounty has been very small, and now it has disappeared altogether.

The Supreme Court of Canada will probably be called upon to say whether the Niagara is a navigable river or not. The question will have to be settled before the Dominion Government can enter into joint arrangement with the United States authorities for the protection of Niagara Falls. The Niagara river is clearly navigable from its mouth to Queenston, and steamers in summer months regularly run to and from that place. From a point about a mile and a half above the falls navigation is regularly carried on. On account, however, of the interruption caused by the falls some judicial authorities hold that the river is not navigable. Owing to conflict of judicial opinion the highest legal tribunal in Canada will be asked for a decision. If necessary the case will be taken to the Judicial Committee of the Privy Council.

The Toronto World a few days ago published the following special despatch from Ottawa:—The announcement in The World recently that a new carbide company, with large capital, was to be formed in Canada, with works in British Columbia, Ontario and Quebec, has brought to notice an allegation that Canada gets the worst of it in the carbide business, as the government pays \$65 per ton to the same firm for the same product which is said to be shipped to Australia at \$40 f.o.b. Ottawa, and this is supposed to be the reason the new company is being formed. Hon. Mr. Prefontaine and the late Hon. James Sutherland were interested in the carbide companies in Ottawa. The government contract was given without tender at \$65, which is the price wholesalers pay to the Willson Ottawa Carbide Co., who supply the government. Retail price is only \$70. Some Ontario parties tendered, but were notified that arrangements had been already made for the carbide supply. The report in the face of this is that the Ottawa company ship all their surplus stock to Australia at \$40 a ton.

Hon. Frank Cochrane, Ontario Minister of Mines and Lands, made an important announcement a few days ago. It was to the effect that he hoped to introduce legislation at the forthcoming session of the legislature which would result in the nickel mined in this province being refined here as well, and instead of Canadian nickel, which supplied 60 per cent. of the total output of the world, being sold as United States nickel, it would thereafter be sold as Canadian nickel.

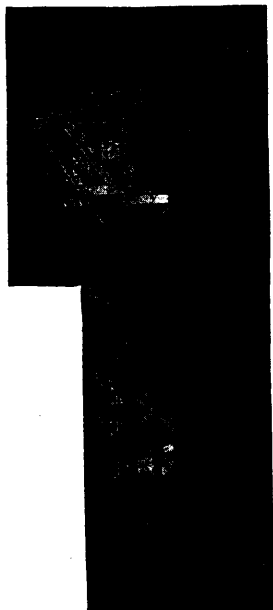
MACHINERY AND ENGINEERING.

MAIL HANDLING MACHINERY AT THE NEW CHICAGO POST OFFICE.

The new Chicago, Ill., post office has been equipped with the latest and most up-to-date mail handling conveying system ever installed in any postal station of the entire world.

The machinery, consisting of conveyors and elevators was designed and installed by the Jeffrey Mfg. Co., the machinery being built in their shops at Columbus, Ohio.

On the sidewalk along Dearborn Street thirteen ornamental iron mail boxes have been erected under which are hung steel weigh hoppers, in the basement of the building, each having a capacity of one ton of mail.



MAIL HANDLING MACHINERY—ELEVATOR.

The process of handling the mail on this side of the building is as follows:

Wagons containing the mail in bags, sacks and pouches back up to the mail boxes, the doors of which are opened from below upon a signal from the driver, which rings a bell and lights an electric lamp at the hopper to be weighed.

The bags are thrown through the street door of the box into the weigh hoppers. The weight of the mail is recorded by a recording beam scale and the sacks are then dumped on a horizontal 36-inch belt conveyer running under the line of the mail boxes.

This conveyer delivers the bags to an inclined belt conveyer running at a high speed, which separates the mail sacks and delivers them into a 48-inch belt conveyer traveling at a right angle to the 36-inch conveyers.

The 48-inch conveyer carries the bags to the foot end of the elevator and discharges automatically into the elevator boot.

The elevators consist of buckets 40 inches wide by 4 feet 6 inches long hung on a double strand of 24-inch pitch roller chain, running at a speed of 60 feet per minute.

These elevators take the mail bags and pouches as well as carriers' satchels up to the second floor of the building and discharge same on floor, where they are picked up by the trucks and delivered to the different sorting points of the distributing floor, going directly to the various "States."

All belt conveyers of this system are running on ball bearing rolls and are driven by chains from direct current electric motors.

The elevators are geared directly to their motors.

There are three independent conveyer systems as described above on the east side of the building, each consisting of three belt conveyers and one elevator.

On the other side of the building the conveying system consists of four bucket elevators, which are loaded by hand from the mailing platform in the basement driveway of the building.

Two of these elevators discharge on the first floor, while the other two discharge the mail on the second floor. These elevators consist of steel buckets 39 inches wide by four feet six inches long, hung on double strand of 24-inch pitch roller chain and are spaced four feet apart.

From the Tunnel System of the city which will bring the mail from all of the depots, and also a large part of the newspaper and commercial mail, a separate conveyer set is now being installed.

This consists of a belt conveyer, running between two tracks of the underground tunnel system for 140 feet, then rising to a chamber over the tunnel system and under the driveway of the post office. In this chamber the bags of mail are automatically reloaded onto a five-foot belt conveyer, which discharges

must discharge at some hours of the day 300 bags per minute. This would make a pile as big as a cottage in five minutes.

Another conveying system running from the first floor to the second floor consists of two inclined belt conveyers with steel pans riveted to the belt, discharging loose



MAIL HANDLING MACHINERY—INCLINED CONVEYOR.

letters directly to a sorting table. These conveyers receive all the loose mail, packages and pouches delivered by the public through the letter drops and windows of the city division and discharge the mail on tables on the second floor, where it is sorted and distributed in the proper state subdivisions.

The money order division has also been provided with a belt conveying system to carry money order applications from the clerks' windows to the cashier's desk.



MAIL HANDLING MACHINERY—HORIZONTAL CONVEYOR.

the mail onto the receiving floor of the post office. The enormous amount of mail coming into the post office by the underground tunnels will be appreciated when the capacity of these conveyers is considered—this system

This conveyer consists of a rubber belt with longitudinal corrugations to prevent the sheets of paper sticking to the belt; the machinery is concealed under the counter on which the money orders are made out.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

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.

A conspicuous departure in the lighting of canals is that of the Welland Canal near St. Catharines, Ont. Over 600 A.C. series arc lamps have been provided by the Canadian Westinghouse Co., and these have been in operation for the past few months and have given splendid service. This installation as a whole redounds great credit to the Ontario Government, as well as to the consulting engineer, Mr. R. J. Parker, under whose direction the complete plant was installed.

The Terrill Cobalt Mining Co., Sault Marie, Ont., have been incorporated with a capital of \$100,000, to carry on a mining, milling and reduction business. The provisional directors include W. E. Gimby, A. G. Terrill, Sault Ste. Marie, Ont.; R. H. Schultz, Toronto, and H. H. Taylor, Sault Ste. Marie, Mich.

The Siche Gas Co., Toronto, have been incorporated with a capital of \$100,000, to manufacture gas apparatus and supplies. The provisional directors include F. L. H. Sims, J. H. Chewett and R. G. Hunter, Toronto.

It is stated that the Canada Chemical Mfg. Co., London, Ont., have decided to erect a large new chemical works. Building operations will probably be started early in the summer. The company have recently secured some valuable mining properties, and it is for the purpose of utilizing their ores that the acid works will be operated. The proposed location is in a central Ontario point, north-east of Toronto, which will be convenient to the source of ore supply. Sulphuric acid and similar acids and chemicals will be produced by the most recent and advantageous patent processes. In addition to the new acid works, it is understood the company will continue to operate the present plant in London and their distributing warehouses at Toronto and other points.

The Atikokan Iron Co., Port Arthur, Ont., are erecting a blast furnace near the new iron and coal dock, which will have a capacity of 200 tons of pig iron a day, the cost being about \$1,000,000. The dock, which is said will be the largest in the upper lakes, is expected to be ready for the loading and unloading of lake vessels when navigation opens in the spring. It covers 85 acres of water and will have a storage capacity for 500,000 tons of mineral freight and an equipment capable of handling 1,000 tons an hour.

An option on the Tip-top copper mine, owned by Lieut.-Col. Ray of Port Arthur, Ont., and Folger Bros., Kingston, Ont., has been given a United States syndicate for \$150,000, and it is believed that the ore on the dump has been sold outright for \$38,000. The mine is located on the Canadian Northern Railway, close to Kashoboine, and 80 miles west of Port Arthur. The high price of copper, which is selling at 19 cents, has caused the activity in copper-mining interests.

The Dominion Automobile Co., Toronto, have been incorporated with a capital of \$100,000. Messrs. Mackenzie & Mann, E. S. Clouston, Montreal, and W. H. Beardmore, Toronto, are interested in the company, who will have branches in Montreal and Winnipeg, Man. Mr. W. A. Power, manager of the Winnipeg branch of the Canada Cycle & Motor Co., has been appointed manager of the new company for that district.

The Grand Trunk Railway Co. are prepared to pay \$200,500 for lands they require for the new union station to be built in Toronto.

The Simonds Mfg. Co., Fitchburg, Mass., and Chicago, Ill., saw and knife manufacturers, have, it is said, taken over the business of the Canada Saw Co., of Montreal St. John, N.B., Ottawa and Toronto. The new company will be known as the Simonds-Canada Saw Co. More than \$250,000 is involved in the merger.

The Peterborough Shovel & Tool Co., Peterborough, Ont., have increased their capital stock from \$50,000 to \$100,000.

N. A. Timmons, head of the Larose Mines, Cobalt, Ont., has made the statement that his company would establish a smelter at a cost of about \$250,000.

The saw and chopping mill of Albert Berry, Verschoyle, near Woodstock, Ont., was destroyed by fire January 12. Loss about \$2,000.

Messrs. Lumsden Bros., Toronto, have placed an order with the Smart-Turner Machine Co., Hamilton, Ont., for one of their duplex pumps.

The Eagle Spinning Mills Co., Hamilton, Ont., will erect a large plant in that city.

The Richelieu & Ontario Navigation Co., will add three steamers to their fleet, at an aggregate cost of about \$1,000,000. The steamer for the Montreal-Quebec line will probably be 400 feet long and 80 feet over-guards, and have about 350 staterooms. The boat for service between Brockville and Montreal, running all the St. Lawrence rapids, will be full canal size, which is about 245 feet long, 44 feet beam and six feet draught. The boat of the Hamilton-Montreal freight and passenger route will also be full canal size and will have about 100 staterooms, and carry about 1,000 tons of freight.

Cement is divided into two classes, slag and natural cement. In the manufacture of natural cement the rock is taken from the quarry or mines and burnt in a kiln. It is then run through a conical crusher, or between rolls and ground into a powder, after which it is conveyed to screens which separate the cement which is fine enough to be packed. The coarser particles then go to fine grinding machines which are ordinary mill stones, or emery faced stones. Considerable power is required in these cement plants and electricity is coming into general use. Either the alternating or direct current system is adapted to this work, the choice depending on local conditions. The plant of the Iola

Portland Cement Works at Dallas, Texas, is equipped with Westinghouse type S direct current motors, and a contract just closed with the Santa Cruz Portland Cement Co., San Francisco, Cal., gives a good idea of the size of some of these plants. This order calls for one 800 h.p. type C motor, ten 250 h.p., fifteen 150 h.p., one 75 h.p., and one 30 h.p. type CCL motors. These are all alternating current motors of the induction type and aggregate a total 5,655 h.p.

The Vermillion River Iron Ore Co., Toronto, have been incorporated with a capital of \$80,000, to carry on a mining, milling and reduction business. The provisional directors include Frank Denton and J. W. McDonald, Toronto.

The Thorold Natural Gas Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture gas, electricity, etc. The provisional directors include C. A. Moss, William Gilchrist and J. A. Thompson, Toronto.

Messrs. C. Parsons & Son, Limited, Toronto, have been incorporated with a capital of \$150,000, to carry on a business of tanners, etc., and to acquire business now carried on by Charles Parsons & Sons. The provisional directors include Charles Parsons, W. G. Parsons and J. E. Boswell.

The Smart-Turner Machine Co., Hamilton, Ont., have recently supplied Messrs. Pennington & Brian, Windsor, Ont., with one of their automatic feed pumps and receivers.

J. L. Spink, Limited, Toronto, have been incorporated with a capital of \$100,000, to carry on a milling and elevator business, etc. The provisional directors include J. L. Spink, D. M. Spink, Toronto, and W. P. Spink, Chicago, Ill.

The Wendigo Progressive Mining & Development Co., New Liskeard, Ont., have been incorporated with a capital of \$40,000, to carry on a mining, milling and reduction business. The provisional directors include John Cox and S. D. Eplett, New Liskeard.

The Dymond Development Co., Ottawa, have been incorporated with a capital of \$250,000, to carry on a mining, milling and reduction business. The provisional directors include C. W. F. Gorrell, A. T. Shillington, Ottawa, and B. J. Arnold, Chicago, Ill.

The International Acheson Graphite Co., who have recently installed a plant at Niagara Falls, Ont., have it now in operation. The demand for manufactured graphite is continually on the increase, and it is expected the plant will grow rapidly.

The Ontario Silver Co., Niagara Falls, Ont., have been making extensive and important improvements to their plant at that place.

The Pure Milk Corporation have placed an order with the Smart-Turner Machine Co., Hamilton, Ont., for one of their duplex pumps.

Canada for the fiscal year ending June 30, 1905, realized \$55,492 profit on silver coinage, and \$22,728 profit on copper coinage. The printing of notes cost the country \$134,972.

The ratepayers of Barrie, Ont., have voted favorably on a by-law to raise \$8,500 for streets and sidewalks, and another to provide \$1,500 for an electric fire alarm system.

The Smart-Turner Machine Co., Hamilton, Ont., have received an order from the Ingersoll Nut Co., for a tumbling barrel, to be installed in their works at Ingersoll, Ont.

Southampton, Ont., have voted favorably on a by-law fixing the assessment of the Grand Trunk Railway Co., at \$6,500 for ten years, in consideration of the railway company erecting a depot to cost \$8,000.

The ratepayers of Bobcaygeon, Ont., have voted favorably on a by-law to purchase the water power of the M. Boyd Co., and to establish an electric plant.

Messrs. Keenan Bros., Owen Sound, Ont., manufacturers of lumber, etc., have been granted a loan of \$25,000 to assist them in increasing the plant of their factory.

The ratepayers of Picton, Ont., have voted to raise \$15,000 for a new street lighting system.

The work of rebuilding the cottage of the Mimico Asylum, Mimico, Ont., which was destroyed by fire recently, will be commenced immediately. The building will cost about \$12,000.

Grant's Spring Brewing Co. have ordered a brewer's air pump from the Smart-Turner Machine Co., Hamilton, Ont.

The Felt Roofing Co. will erect a factory in Brantford, Ont., in the spring.

The Pickering College for Boys, Pickering, Ont., which was destroyed by fire recently, at a loss of about \$50,000, will be rebuilt shortly.

Building permits in Toronto for the year past totalled in number 2,674 and in value \$10,347,910, as against for 1904, number 1,816, value \$5,896,120.

A by-law to raise \$10,000 to improve the waterworks system has been favorably voted on by the ratepayers of Aurora, Ont.

The John Harrison & Sons Co. have ordered a standard duplex pump from the Smart-Turner Machine Co., Hamilton, Ont.

The ratepayers of Brantford, Ont., have voted favorably on a by-law to raise \$45,000 for school improvements.

Hamilton, Ont., will spend \$20,000 to build a storm water sewerage system and \$35,000 to complete the improvements to the hospital.

Peterborough, Ont., will expend \$25,000 for better fire protection.

The Home Bank, Toronto, will erect a large branch banking office at the corner of Queen and Bathurst streets, that city, to cost about \$15,000.

The ratepayers of Dresden, Ont., will vote on a by-law to provide \$25,000 towards a factory to manufacture flax cord twine. A. H. Turner, Toronto, is the representative of the company and has said a factory will be erected at a cost of about \$60,000 to employ 60 hands at the start.

The Smart-Turner Machine Co., Hamilton, Ont., have installed one of their standard duplex pumps in the works of Andrew Langton, Granton, Ont.

Application will be made for an act to empower the Toronto & York Radial Railway Co., Toronto, to operate the Toronto & St. Catharines Electric Railway, Light &

Power Co., the Toronto & Mimico Electric Railway & Light Co., and the Metropolitan Railway Co., and conferring on the Radial Railway Co. all the powers under the separate acts of the other concerns mentioned. The company also ask authority to construct and operate branches to a point on the James Bay Railway, to Stouffville and to the towns of Whitby, Bowmanville and Cobourg, Ont.

The Smart-Turner Machine Co., Hamilton, Ont., have received an order from Messrs. A. Davis & Sons, Kingston, Ont., for one of their duplex power pumps.

The Peterborough Cereal Co., Peterborough Ont., have installed a gas plant in their works, put in by the Gas Supplies & Construction Co., Toronto. The generator installed is built along different lines from the ordinary gas generator. This style of generator is in use largely in Europe, but very few are in operation in Canada and the United States. The new system of procuring heat and power is known as "Producer Gas" and it is claimed that a great deal more energy is derived from the coal than by the ordinary methods. Producer gas is made in a generator which allows no escape of the products of the coal from which the coal is generated. Steam which is made from the waste heat from the generator is automatically injected through the heated coal, which is decomposed into the form of hydrogen gas and the smoke and gases which are lost with direct firing are combined in the producer gas and form a part thereof.

The saw and shingle mill of the White Co., Lakefield, Ont., was destroyed by fire January 6.

The schoolhouse of the Mimico Industrial School, Mimico, Ont., was destroyed by fire January 8. Loss about \$12,000.

According to press telegrams there seems little doubt that the United States Steel Co. will complete the purchase of property in Sandwich, Ont., they have under option, and will erect a steel plant to cost about \$10,000,000.

The Northumberland Paper & Electric Co. have recently ordered a standard duplex pump from the Smart-Turner Machine Co., Hamilton, Ont.

The Farrar Transportation Co. have placed a contract with the Collingwood Shipbuilding Co., Collingwood, Ont., for a 9,000-ton steamer.

The executive committee of the Toronto Industrial Exhibition Association have awarded the contract for the construction of the new Process of Manufacturing and Implement Building to C. R. S. Dinnick, Toronto, the price being \$81,000. The building is to be completed by the end of June, 1906.

The Grand Trunk Railway Co., Montreal, have issued the following statement, giving details of the work decided on in order to supply electrical energy at St. Clair Tunnel: The contract has been awarded to the Westinghouse Electric & Mfg. Co. The work is to be started at once, and brought to completion as quickly as possible. The system that will be adopted is known as the alternating current system, with overhead conductors, the conductors in the interior of the tunnel being placed upon the walls, and in the railway yards they will be sup-

ported by steel bridges. The rails will be operated by alternating current. Locomotives capable of hauling a passenger train on the grade at the rate of 20 to 25 miles an hour, and a freight train of 10,000 tons at the rate of 10 miles an hour will be used. The interior of the tunnel and the yards on both the United States and Canadian sides of the St. Clair will be lighted by electricity from the power generated in the extensive powerhouse that it will be necessary to erect. The length of the tunnel proper is 6,025 feet, and of the open portal approaches 5,603 feet additional, or more than two miles in all, making it one of the longest submarine tunnels in the world.

The total grain storage capacity of the Canadian head of the lakes, with all houses completed and no more in contemplation for early construction, is as follows:

Canadian Pacific Railway, House A.....	1,250,000
Canadian Pacific Railway, House B.....	2,500,000
Canadian Pacific Railway, House C.....	1,500,000
Canadian Pacific Railway, House D.....	3,500,000
Canadian Pacific Railway, House E.....	1,000,000
Canadian Northern Railway, House No. 1.....	6,500,000
Empire Elevator Co.....	1,500,000
Ogilvie Milling Co.....	600,000
J. C. King Elevator Co.....	1,250,000

19,600,000

All of this capacity, aside from the 7,750,000 bushels of the Canadian Northern Railway and the King House, is at Fort William, Ont. At Duluth-Superior there is a total capacity of 34,000,000 and at Washburn 1,500,000 bushels, making a total of 55,100,000 bushels storage capacity at the western end of Lake Superior.

The Canada Glue Co., Brantford, Ont., who are putting in one of the most up-to-date glue factories in America, have placed their order with the Smart-Turner Machine Co., Hamilton, Ont., for their full equipment of pumps.

The Canadian Consolidated Mines, Limited, Toronto, have been incorporated with a capital of \$5,500,000, to carry on a mining, milling and reduction business and to acquire the business now carried on by the St. Eugene Consolidated Mining Co., Centre Star Mining Co., Trail Smelter and the Rossland Power Co. The charter members include H. S. Osler W. B. Raymond and Britton Osler, Toronto.

McLaren's, Limited, Hamilton, Ont., have been incorporated with a capital of \$200,000, to manufacture spices, extracts, baking powder, etc. The provisional directors include W. H. McLaren, J. I. McLaren, and Campbell Leckie, Hamilton, Ont.

The Dwyer Mining Co., Toronto, have been incorporated with a capital of \$100,000, to carry on a mining, milling and reduction business. The provisional directors include D. R. Dwyer, Seattle, Wash.; J. B. LeRoy and J. R. Humphreys, Toronto.

The Forwell Foundry Co., Berlin, Ont., have recently ordered a hand power traveling crane from the Smart-Turner Machine Co., Hamilton, Ont.

The Conboy Carriage Co., Toronto, have been incorporated with a capital of \$100,000, to manufacture wagons, carriages, sleighs, automobiles, etc. The provisional directors include Daniel Conboy, W. C. Conboy, and Robert Webster, Toronto.

The Weller-Sills Co., Belleville, Ont., have been incorporated with a capital of \$20,000, to manufacture lumber, timber, etc. The provisional directors include J. B. Weller, J. H. Sills and R. D. Weller, Belleville, Ont.

Messrs. Fiddes & Hogarth, Limited, Toronto, have been incorporated with a capital of \$40,000, to carry on a business of plumbers, steam and gas fitters, etc. The provisional directors include Henry Hogarth, J. A. Doidge and F. J. Hogarth, Jr., Toronto.

The Sudbury Machine Shop & Foundry Co., Sudbury, Ont., have been incorporated with a capital of \$40,000, to carry on a business of mechanical engineers, machinists, etc. The provisional directors include D. H. Haight, Copper Cliff, Ont.; A. B. Gordon, and Lawrence O'Connor, Sudbury, Ont.

The Smart-Turner Machine Co., Hamilton, Ont., have recently received an order from the Sudbury Building Supply Co., Sudbury, Ont., for one of their automatic receivers.

The Campbell & Tough Stock Scale Co., Arnprior, Ont., have been incorporated with a capital of \$50,000, to manufacture weighing machines, refrigerators, etc. The provisional directors include D. J. Campbell, Arnprior, Ont.; R. J. Tough, Toronto, and David Craig, Renfrew, Ont.

The Otis-Fensom Elevator Co., Hamilton, Ont., have received the contract from the William Grace Co., for the elevators to be used in the Bank of Hamilton building, Hamilton, Ont. The elevators will be of high speed, with the latest up-to-date improvements, including flash light signals and pneumatic door devices, etc.

The New York & Canadian Mining Co., Toronto, have been incorporated with a capital of \$40,000, to carry on a mining, milling and reduction business. The provisional directors include G. R. Geary, F. D. Byers and O. F. Taylor, Toronto.

The Murray Printing Co., Toronto, have been incorporated with a capital of \$150,000, to carry on a business of printers, publishers, etc. The provisional directors include James Murray, D. S. Murray and J. A. Murray, Toronto.

The Jenckes Machine Co., Sherbrooke, Que., have recently ordered an independent jet condenser, from the Smart-Turner Machine Co., Hamilton, Ont.

The Windsor Hotel, Montreal, was destroyed by fire January 12. Loss about \$250,000.

The new Atlantic steamer of the Canadian Pacific Railway Co., the Empress of Ireland, of 14,500 tons and 18,000 h.p. will be launched from the Fairfield Co.'s yards on the Clyde on January 27. It is expected she will cross from port to port inside the week.

The warehouse of A. E. Vallerand, Quebec City, Que., glassware, oils, etc., was destroyed by fire January 10. Loss about \$8,000.

The Dominion Brazing Co., Montreal, have

been incorporated with a capital of \$100,000, to braze, weld, temper and refine iron and other metals, etc. The charter members include Alexander Hendery, Montreal; H. L. Dinning, Lachine, Que., and Charles Ralph, Longueuil, Que.

The Howard Smith Paper Co., Montreal, have been incorporated with a capital of \$49,000, to manufacture pulp, paper, etc. The charter members include C. H. Smith, E. M. Smith and W. R. Stavelly, Montreal.

Messrs. Philip Morris & Co., Montreal, have been incorporated with a capital of \$20,000, to manufacture tobacco, cigars, cigarettes, etc. The charter members include Henry Miles, Henry Keeler and T. J. Coulter, Montreal.

The Grand Trunk Railway Co., Montreal, have decided to spend over a million dollars for motive power. The orders are as follows: Ten ten-wheel passenger engines with the Locomotive & Machine Co., Montreal; ten ten-wheel passenger engines with the Locomotive Co., New York; 15 Richmond compound consolidated engines, Locomotive & Machine Co., Montreal; six Richmond compound consolidated engines, Canada Foundry Co., Toronto; 40 Richmond compound consolidated engines, Locomotive & Machine Co., Montreal, making in all 81 locomotives, 20 of which are passenger, and 61 freight engines.

Messrs. L. O. Grothe & Co., Montreal, cigar manufacturers, will erect a factory and warehouse at a cost of about \$200,000.

Messrs. Mackenzie & Mann, Montreal, have placed orders for railway equipment to cost about \$2,600,000. The order includes 1,000 box cars, 400 flat cars, 50 stock cars, 30 first-class day coaches, 16 baggage, mail and express cars; five sleepers, two diners and 44 high-class freight and passenger locomotives.

The Excelsior Babbitt & Car Bearing Co., Moncton, N.B., have applied for incorporation with a capital of \$190,000, to manufacture babbitt and anti-friction metals, alloys, compounds, etc. The applicants include J. R. Stratton, R. A. Borden, Moncton, N.B., and E. N. Simpson, St. John, N.B.

The S. H. White Co., Sussex, N.B., have applied for incorporation with a capital of \$298,000, to manufacture lumber, etc., and to acquire the business of the Alma Lumber & Shipbuilding Co. The applicants include S. H. White, W. J. Mills, Sussex, N.B., and J. E. Moore, St. John, N.B.

The Grand Manan Telephone Co., Grand Harbor, N.B., have applied for incorporation with a capital of \$2,000, to establish a telephone system. The applicants include Frank Ingersoll, North Head, N.B.; W. A. Fraser, Woodward's Cove, N.B., and J. W. Wooster, Seal Cove, N.B.

The Home Paper Box Co., St. Stephen, N.B., have applied for incorporation with a capital of \$5,000, to manufacture paper, paper boxes, etc. The applicants include G. N. Ganong, A. D. Ganong, St. Stephen, N.B., and H. L. McPhail, Boston, Mass.

The Treasury Board of St. John, N.B., have recommended that \$400 be placed at the disposal of an expert hydraulic engineer to investigate the subject of development of power at the Reversible Falls. It is estimated that 20,000 h.p. now wasted could be developed.

The Murray Bay Lumber & Pulp Co., St. Etienne de la Malbaie, Que., have been incorporated with a capital of \$500,000, to manufacture lumber, etc., and to acquire business now carried on by the Laferriere Lumber Co. The charter members include Rodolphe Forget, G. B. Burand, Montreal, and Thomas Prefontaine, Valleyfield, Que.

The Hotel Cecil, Sydney, N.S., was destroyed by fire January 5. Loss about \$13,000.

The warehouse of the Dominion Coal Co., Caledonia, N.S., was destroyed by fire January 9. Loss about \$6,000.

The Middleton Clay Working Co., Middleton, N.S., have been incorporated with a capital of \$10,000, to manufacture sand moulded bricks, wire cut bricks, drainage tiles, etc.

The Dyson Vinegar Co., Winnipeg, Man., have been incorporated with a capital of \$50,000, to manufacture vinegar, etc. The incorporators include D. J. Dyson, T. H. Lock and G. N. Jackson, Winnipeg.

The Canadian Pacific Railway Co. will construct another trunk line through from Winnipeg, Man., to Edmonton, Alta. The construction work will be done during the coming year and will cost about \$7,000,000.

The St. Paul Industrial School, Middlechurch, near Winnipeg, Man., was destroyed by fire January 4. Loss about \$25,000.

The Manitoba Hotel, Portage la Prairie, Man., was destroyed by fire January 6. Loss about \$12,000.

The Edmonton Lumber Co., Edmonton, Alta., have been incorporated with a capital of \$60,000, to manufacture lumber, etc. They will erect a mill, which will have a capacity of 60,000 feet per day. A. H. Clark, Edmonton, Alta., is one of the incorporators.

The Sturtevant system of roundhouse heating is to be installed at the 20-stall Edmonton roundhouse of the Canadian Northern Railway, Edmonton, Alta.

The Sawyer-Massey Co., Hamilton, Ont., will erect a large warehouse in Saskatoon, Sask.

The building of the Ymir Gold Mines Co., Ymir, B.C., was destroyed by fire January 4. Loss about \$12,000.

The Canadian Pacific Railway Co. will place their turbine passenger steamer Maheno, of 5,000 tons, on the Canadian-Australian service, sailing from Sydney, N.S.W., April 16 and from Vancouver, B.C., on May 25.

An important order recently secured by the Canadian Westinghouse Co. was obtained from the Vancouver Power Co., Vancouver, B.C. This order included a 1,500 h.p., 2,200 volt revolving field engine type generator, which will be direct connected to a Pelton water wheel. This is a duplicate of the generators now in operation in the power plant of this company and will operate in multiple therewith. The order includes switch boards, air blast transformers of 550 k.w. capacity. There is also included in the order a 1,000 k.w. 60-cycle rotary converter to operate 550 volts. This converter will furnish power for railway work and will be controlled direct from the switch-board.

ELECTRICITY.

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

Electricity is doing damage to the Toronto city waterworks and the Consumers' Gas Co.'s mains. City Engineer Rust makes this interesting report to the Works Committee, and recommends that if it is found to be the fault of the Toronto Railway Co. action be taken to prevent further electrolytic damage. He says that any damage that has already occurred should be borne by the company. Mr. Rust recommends the appointment of a competent engineer to examine the mains affected. Mr. Rust says in his report: Upon examination of some of the water mains upon Front Street, and in the neighborhood of the Toronto Railway Co.'s power house, marked indications of electrolysis have been found. The Consumers' Gas Co. who are laying a 48-inch main on the south side of Front Street, east of Parliament Street, found it necessary to remove a part of the 12-inch water main during the laying of this pipe, and the water pipe was found to be so much affected by electrolytic action that it has been considered inadvisable to relay the same. The 6-inch main near the corner of George and Front Streets was recently found to be so eaten through and had become so soft that it could be cut with a knife. The Consumers' Gas Co., I understand, have found a number of gas mains affected in the same manner.

NEW YORK AUTOMOBILE EXHIBITION.

The Westinghouse Companies have engaged space at the Sixth Annual Automobile Exhibition of the Automobile Club of America, being held in the Sixty-ninth Regiment Armory, beginning January 13 and continuing until January 20. Mr. E. H. Heinrichs has been in attendance at the Exhibition and will cheerfully give any information that may be required regarding their exhibit.

The space to be occupied by the exhibit is Space "F" on the basement floor.

The company have on exhibition the following apparatus:

1st.—Westinghouse-Schmid touring car, which has a capacity of 24 h.p. This automobile is built in France by the Societe Anonyme Westinghouse, Havre, and the one on exhibition was shipped from the Havre factory the latter part of December, 1905.

2nd.—Cooper Hewitt Electric Converter.

3rd.—Cooper Hewitt Mercury Vapor Lamps.

4th.—Westinghouse D1 Air Compressor, and for use in connection with this a Morgan & Wright automobile tire to give demonstrations of the utility of the compressor for filling tires with compressed air.

5th.—Westinghouse Storage Battery Receptacle.

The space occupied by this exhibit was erroneously marked on the diagram as "British Westinghouse Electric & Mfg. Co., Ltd." instead of the exhibit of "The Westinghouse Companies."

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 COAL TRADE OF NOVA SCOTIA.

Hon. Robert Drummond, in his review of the coal trade of Nova Scotia in 1905, says: "There should be each year what may be called a natural increase of 10 per cent. in sales. This increase has not been forthcoming the past two years. The shipments for 1904 went some 30,000 tons behind those of 1903, and 1905 will not show more of an increase over 1904 than 100,000 tons, or, say 2½ per cent. only. And yet after all this is said, it can be claimed for 1905 that it shows the biggest shipments on record. The two companies that did well are the Dominion Coal Co., and the Nova Scotia Steel & Coal Co. Of the latter company, indeed, it may be said it did exceedingly well. The Port Hood Coal Co. shows the most notable decrease, and the decreases of the Intercolonial and of the Inverness Coal Companies are also as surprising as unexpected. Were the operators asked 'How are profits for the year?' the likely answer in a majority of cases would be, 'Oh, fair, but not as good as they should be.' And when one considers the very unfavorable weather early in the year, and the lateness of the opening of water shipments it is not surprising if profits fall short of expectations. The first months of the year were decidedly of the lean kind. More than one company, I venture to say, did not make profit sufficient in 1905 to pay fixed charges, and yet there are those who speak of a combine which is keeping up the price of coal.

"The trade prospects for 1906 are good, the operators have no misgivings; indeed, they incline to be cheerful over the outlook. Nearly all of the companies have development work well ahead, which means that they are prepared for increased outputs should occasion demand.

"The great activity in the iron industry is guarantee of activity in the coal trade. The Nova Scotia Steel & Coal Co. are very busy in all departments. At no previous time was the company so well supplied with orders. The steel works have sufficient orders booked now to keep them as busy as they possibly can be for the next few months, and they will have all they can do to supply all the foundry iron already sold. And at Sydney a like state of affairs prevails. As soon as the other furnace is started in Sydney the Dominion Coal Co. will supply coal to the Dominion Iron & Steel Co. at the rate of 65,000 tons per month. I am not far astray in saying the Nova Scotia Steel & Coal Co.'s wages bill for 1905 reaches \$1,750,000. This one item of itself shows how great importance to Nova Scotia are its coal and steel industries."

We never know how good we are going to be until the opportunity has passed.

When we hear of other people's troubles it reconciles us to our own.

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.

Allis-Chalmers-Bullock, Limited, Montreal, have sent us the first of a series of monthly calendars which they propose issuing during the current year. The one now in hand for January is a beautiful production, size 3½x6 inches, entitled "Ontario," and contains the coat of arms of the province, done in gold and appropriate colors, a bird's eye view of the company's extensive works at Montreal appearing in the reverse side. In view of the addition of two new members of the Dominion Confederacy, Alberta and Saskatchewan, and the quick and remarkable growth of national sentiment, it occurs to the company, so they inform us, that the coats of arms of the different provinces would prove an acceptable offering.

The second number Bulletin 126, entitled "Gas Boosters" in the Sturtevant Engineering Series has just been issued by the B. F. Sturtevant Co., Boston, Mass. The Gas Booster is a special form of Sturtevant gas exhauster employed for locally increasing the pressure of gas to meet special requirements. This simple and absolutely reliable device may be readily introduced wherever needed, and at an expense which is but a mere fraction of that necessary to secure increased pressure by any other means. The light obtained with any style of burner is perfectly steady, even if connected close to the outlet of the exhauster. In fact, it is impossible to distinguish any difference between a light so connected and one fed from the pipes at regular holder pressure. This method of pressure boosting is almost invaluable in localities where the consumption has outgrown the capacity of the pipes, or in hilly towns where low lying districts fail to get sufficient pressure. It will readily overcome the resistance imposed by frost in the pipes. In large buildings or manufacturing plants the pressure may be increased to overcome the effect of small pipes or to supply gas furnaces, brazing tools, laundry mangles and the like. In the laboratory as well as in the shop it simplifies the problem of employing gas as a fuel, which is ever widening its field of usefulness.

The Gartshore-Thomson Pipe & Foundry Co., Hamilton, Ont., have sent us their calendar for 1906. The scene "Canal near Dordrecht," is from a painting by W. C. Hartson.

Fans, blowers and exhausters for heating and ventilating, mechanical draft and other purposes are described in a booklet issued by the Green Fuel Economizer Co., Matteawan, N.Y. This company have for many years installed fans and exhausters for mechanical draft in connection with the Green fuel economizer and have long been aware that important improvements could be introduced in air-moving apparatus. The amount of power required for driving is often considerable, as some fan builders, under the stress of competition, have frequently offered small, inefficient high-speed fans where

true economy for the purchaser would have indicated larger, slower-moving fans. The Green Fuel Economizer Co. do not contract for the engineering of plants, nor for the installation of heating and ventilating plants in competition with the heating and ventilating contractors. They have recently added large shops to their plant at Matteawan to handle this branch of the business.

The Westinghouse Electric & Mfg. Co., Pittsburg, Pa., have sent us a very handsome pocket diary for 1906. It contains much useful information about electrical equipments, power transmission, steam engines and boilers, machine tools, etc., as well as postal information, weights and measures, foreign coin values, etc.

The American Steam Pump Co., Battle Creek, Mich., have sent us a pamphlet illustrating and describing the Marsh deep well engines and pump cylinders, manufactured by them.

The Packard Electric Co., St. Catharines, Ont., have sent us a folder having reference to the Jandus interchangeable arc lamps, which they handle.

The Canada Foundry Co., Toronto, have sent us Bulletin 33, in which cast iron pipe and specials are dealt with.

The Westinghouse Electric & Mfg. Co., Pittsburg, Pa., have sent us some very useful Calendar blotters, containing information about their electric fans.

We have received a very handsome illustrated catalogue, number 14C from the Pedlar People, Oshawa, Ont., showing the wall and ceiling panels and friezes, etc., manufactured by them. They also manufacture steel roofing, corrugated iron, steel shingles, metal shutters, evertroughs, finials sky lights, etc.

The Canadian General Electric Co., Toronto, have sent us a copy of their supply catalogue, section 5, which has to do with incandescent supplies, which include socket bushings and rings, cord adjusters, wire lamp guards, canopy insulators, carbon brushes, wall brackets, meridian cluster fixtures, electroliers, etc.

The Pedlar People, Oshawa, Ont., have sent us their catalogue number 14R, illustrating the different tiles they manufacture, also brick and stone sidings, galvanized steel window caps, corrugated siding, etc.

The London Rolling Mill Co., London Ont., have sent us a thermometer mounted on a tin sheet on which is printed their name and products and to which there is a calendar attached.

The Canada Paper Co., Windsor Mills, Que., have sent us a diary for 1906, the pages of which show the different kinds of paper manufactured by them.

The Pennsylvania Fire Brick Co., Beech Creek, Pa., have sent us a most useful desk pad. This concern are manufacturers of fire bricks and they say their strongest point is longer runs obtained from their roof and bung brick for use in rolling mills and malleable works.

The Jeffrey Mfg. Co., Columbus, Ohio, have sent us their 1906 calendar, illustrating some of their mining machinery.

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

manufacturers of railway, mining and contractors' supplies, have sent us their calendar for 1906 in which is illustrated their different products.

PERSONALS.

Mr. C. F. Sise, of the Bell Telephone Co., Montreal, will retire from the active management of the business, but will still retain the position of president of the company. Mr. L. B. Macfarlane has been appointed general manager and Mr. C. F. Sise, Jr., has been appointed general superintendent.

Mr. A. A. Logan, a strong supporter of the tin plate and sheet steel industry, about to be located at Morrisburg, Ont., was elected Reeve of that town for 1906 by acclamation.

PATENTS.

Messrs. Marion & Marion, patent attorneys, Montreal and Washington, D.C., have obtained the following Canadian patents:

Frank E. Piper, Red Deer, Alta., brick edging machine; Paul Gallimard, Montreal, turbine; Patrick J. O'Brien, Mobile, Nfld., non-refillable bottle.

Messrs. Fetherstonhaugh & Co., patent solicitors, Toronto, Ottawa and Washington, D.C., send us the following list of patents recently granted Canadian inventors:

C. S. Ferry, Montreal, fire grates; J. Anson, Bannockburn, Ont., car couplers; J. McLean, Montreal, acetylene gas machines; J. O. Parker, Toronto, bouting machines; H. W. Parker, Toronto, bouting machines; A. H. Diver, Trenton, Ont., doors; W. A. Francis and H. Widdifield, Aylmer, Ont., concrete block making machines; E. G. Hoss, Hamilton, Ont., ornamental stands; D. Tolton, Guelph, Ont., hangers for overhead tracks; G. J. & R. F. Ollman, Hamilton, Ont., brick kilns and heating for same; R. B. Foley, Stratford, Ont., saw filing machines; M. J. Haney, Toronto, double interlocking concrete slab cribs; T. Kiddie, Ladysmith, B.C., hot air systems for blast furnaces; J. A. Gagnon, Chambly Canton, Que., boiler stands; O. M. Hudson, Toronto, carburetted air burners; C. R. Salmon, Montreal, automatic car couplings; R. Sylvester, Lindsay, Ont., seed disc drills; O. S. Hammond, Guelph, Ont., wheels for shafting including pulley gears and other wheels; W. W. Conover, Toronto, pneumatic cleaners; W. Rowbotham, Toronto, turbine engines.

The Westinghouse Electric & Mfg. Co., Pittsburg, Pa., have recently renewed an annual contract covering the requirements of the Moline Elevator Co., Moline, Ill., so far as their motor needs are concerned. The renewing of this contract is due to the highly satisfactory performance of Westinghouse elevator motors under the most trying conditions, their design and construction rendering them peculiarly adapted to the requirements of the severest elevator work.

Don't forget that the wisest owl occasionally hoots at the wrong time.

Misery loves company, but company does not reciprocate.

COBALT ORES.

As a result of the recent visit of Hon. A. J. Matheson, the Provincial Treasurer, to England, it is possible that a new and permanent market for Ontario Cobalt ores may be found. This possible new purchaser is the banking house of the Rothschilds, who are also among the largest refiners of precious metals in the world. Already a sample shipment of ores has been sent to England, and a cable received by Mr. Matheson a few days ago acknowledged its safe arrival.

When the Provincial Treasurer went to England he carried with him a number of samples from the mines of the Cobalt district. At about that time Baron Rothschild was making enquiries at the London branch of the Canadian Bank of Commerce regarding that district. The manager directed him to Mr. Matheson.

"I told him of the richness of the mines," said the latter, "saying that the ore often yielded 1,000 to 2,000 ounces of silver to the ton, and averaged 1,350. He seemed surprised, and asked me to leave the specimens to be analyzed by the assayers of the Bank of England."

As a result of the test one sample proved to contain silver in the proportion of 11,180 ounces to the ton, 1,090 ounces of cobalt, and 170 ounces of nickel. Another assayed 8,050 ounces of silver and two others 4,333 and 4,294 ounces, respectively. The fifth had only 24 ounces of silver and ten per cent. of cobalt, but showed the "traces of gold," which are becoming frequent in the district where it was mined.

When Baron Rothschild received this information he asked to see Mr. Matheson and wished to obtain a shipment of about ten tons of the ore for experimental purposes, saying, "I think we can refine that ore."

He was asked regarding the establishment of a refinery in Canada, but did not seem very favorably impressed with the idea. However, on the return of Mr. Matheson the Government arranged through Hon. Frank Cochrane, the Minister of Lands and Mines, for a shipment of 20 tons. The value of this will be remitted to its owners from England.

The Government has had numerous plans submitted to it for the erection of a provincial smelting establishment owned by the province. It has also the question of refining nickel under consideration. Should anything be done it is said it will take the form of a Government sampling works. This would cost a considerable sum of money, but would pay, it is said, for itself. At it miners could obtain a correct assay of the ores they sell, by paying a small fee.

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.

TORONTO BUILDING ENTERPRISES.

The progress and prosperity of the city of Toronto during the year 1905 is shown by the building permits issued, by the deeds registered in the city registry offices, by the records of the Land Titles offices and the report of the Assessment Commissioner. The permits, showing the values of buildings in 1904 were \$5,896,120 and in 1905, \$10,347,910, an increase of \$4,451,790.

The number of permits issued for 1905 was 2,674, as against 1,725 for 1904. The number of separate buildings in 1905 was 3,065, against 1,930 in 1904. A further idea of the enormous growth of the city as compared even with 1904 may be realized by the fact that the permits issued in 1901 numbered 710, and represented \$3,568,883 in values. In 1902 the figures were 1,100 permits and \$3,854,903 in values, and in 1903 permits numbered 1,480 and the values reached \$4,356,457. From these figures it will be observed that building permits for 1905 exceeded in value those of 1904 by over \$4,000,000, and that the values of last year exceed the joint values of 1904 and 1903 by more than \$90,000.

In the permits issued in 1905 just over 2,400 houses are represented, and more than one-half of these cost less than \$2,500. Whilst the permits numbered 2,674, the total buildings are more, because frequently two, three and even as many as a dozen houses when being erected in a row or by one party are all included in one permit. The building of new schools, churches, banks, warehouses, factories and workshops has added largely to the values, the Traders

Bank head offices alone representing \$600,000. The total buildings other than dwelling houses represent more than half the values of the permits issued.

THE ST. LAWRENCE ROUTE.

Despite the publicity given during the past season to marine disasters on the St. Lawrence route, the various accidents have not during the season caused the loss of a single life, and only in one case the possible loss of a valuable steamship. During the past season there were three cases of ships grounding while leaving the port of Montreal, and three minor collisions, for none of which could the ship channel be blamed.

The three serious accidents of the season were to the Allan Line Victorian, the Leyland Line Virginian and the Bavarian.

The Victorian accident occurred in a narrow part of the channel, where vessels are warned by a semaphore that the channel is too narrow for two large ships to pass, but a sudden wave of fog caused the collier Cape Breton to slow down, leaving the Victorian the alternative of colliding or grounding, and she naturally took the latter. To avoid a repetition of this singular accident, a block system of telegraph stations has been established communicating with Montreal and Quebec, so that in the event of fog waves over any section, vessels may be held up by telegraph at safe sidings. A similar system is in use on the Suez Canal.

In the case of the Virginian, which grounded below Quebec, the pilot testified that the accident was not due to the channel, but to

the fact that the boat did not answer her helm well, and got outside the channel. Much work will be done near Crane Island to complete the channel to the minimum, 30 feet depth at low water, and 1,000 feet wide, which the Marine Department has set as the standard for the whole channel.

In the case of the Bavarian, the pilot was found responsible because, instead of following the beacon lights, he trusted to local phenomena and ran his ship aground, with the result that at a special enquiry he was suspended for eighteen months. This latter was by far the most serious accident of the year, but it affects the pilot service more than the channel.

As a matter of fact a modern steamer entering the St. Lawrence is much in the position of a railway train. Exact data are possessed of the width and depth of every mile of the channel at every stage of the tide; every dangerous point is chartered and lighted; permanent landmarks or beacons furnish data for the chart, and the accidents on the river—like those on the rails—can almost invariably be traced to carelessness or incompetence, even though such phenomena as fog or smoke interfere with the safety of the channel.

The office building of Factory "E" International Silver Co., Meriden, Conn., is to be equipped with hot blast heating apparatus, by the B. F. Sturtevant Co., Boston, Mass. This apparatus, consisting of fan blower and heater, is designed to furnish air under positive pressure to all individual rooms throughout the building.

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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.

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VARNISH MANUFACTURERS

WALKERVILLE, ONT.

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

THE TORONTO RAILWAY CO.

As its share of the amount which passengers on the Toronto Railway Co. during 1905 dropped in the conductors' fare-boxes, the city of Toronto received \$292,706. This is not all the city received from the company. The rental paid by the company for its tracks, for instance, amounted to about \$75,000, which made the actual revenue from the company \$367,706, or a little over one thousand dollars per day towards the cost of governing the city. The company collected in fares during the month of December nearly a quarter of a million dollars, which is a record for traffic in any month. Owing to the sliding scale upon which the city's percentage is based the city has had its revenue from the receipts of fares alone doubled in five years. In 1901 the percentage was only \$145,207.

December.	Gross receipts	Per cent.
1905.....	\$243,764	\$19,501
1904.....	214,521	17,161
1903.....	191,967	15,357
1902.....	170,082	13,606
1901.....	146,615	11,729
1900.....	129,910	10,392

The revenue derived by the city from the receipts of the company for the different years was:

Year.	Total per cent.
1905.....	\$292,706
1904.....	249,511
1903.....	206,932
1902.....	165,172
1901.....	145,209
1900.....	127,128

THE ONTARIO BUREAU OF MINES.

Parts I. and II. of the fourteenth report of the Ontario Bureau of Mines have been published. Part I. contains the statistics of mineral production for 1904 in considerable detail for the various products. The total output for the year is given as \$11,572,647. The occurrence of platinum and palladium in the nickel-copper mattes of the Sudbury district is noted, 4,621 ounces of platinum and 8,540 ounces of palladium, having a value of \$90,109 and \$166,530, respectively, having been produced during the years 1902, 1903 and 1904. This volume contains the reports of Inspectors Carter and Corkill on the mines of eastern and western Ontario, respectively, on account of recent developments in the petroleum and natural gas fields of the Province by E. T. Corkill, and a review of the cement industry of Ontario by P. Gillespie. The geological features and agricultural resources of the Abitibi region are described by J. G. McMillan and Archibald Henderson, and the iron ranges of Michipicoten west, with their geological relationships, form the subject of a paper by J. M. Bell. W. N. Smith describes the iron-bearing district of Loon Lake, east of Port Arthur, and Prof. W. G. Miller, Provincial Geologist, has a short paper on the Boston township iron range. Accompanying the report, which is profusely illustrated, is a geologically colored map of the iron ranges of Michipicoten west of the Magpie River.


Part II. of the report consists of an account of the cobalt, nickel, arsenides and silver deposits of Lake Temiskaming, by Professor Miller, Provincial Geologist. Part

III. is now going through the press. It is a monograph on the Sudbury nickel field by Dr. A. P. Coleman, and will be accompanied by a map showing the northern and southern nickel ranges.

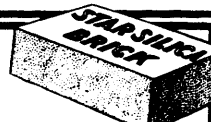
Germany, which 15 years ago led the world in its cement manufacture, occupies at the present time a similar pre-eminent position in cement wares. With the exception of the concrete building blocks America is far behind Europe in the utilization of cement products, omitting, of course, concrete structural work. According to Cement and Engineering News, there are in Germany 100 factories producing woven wire for reinforcing cement pipe and round and egg-shaped sewer sections. The clay roofing tile industry has now a competitor in the cement tiles, while building stone is being rapidly displaced by cement substitutes made up into caps, sills, steps, bridge materials, carriage blocks, hitching posts, newel posts, balusters, water troughs, relief ornaments and numerous other similar products.

In a well printed and profusely illustrated pamphlet of over 100 pages the John A. Roebling's Sons Co., Trenton, N.J., give a great deal of valuable information concerning the building and use of the cableways, tramways, suspension bridges, inclined planes, and cable railways which the company have built or equipped. It has a very complete index.

Never appear to be something more than you are.



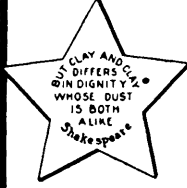
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We have "cornered" the brick market—so far as **quality** is concerned. It's an interesting story, but we have only space to outline it here:

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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.


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





The Westinghouse Electric & Mfg. Co., Pittsburg, Pa., are finding an extensive field for their motor equipments in the marble finishing industry. They lately completed the equipment of a large marble yard in the South. The operation of this plant by means of electric drive has been eminently satisfactory, resulting in a marked increase in the product and a decrease in the operating cost. The electrification of the plant has further eliminated the many objectionable features of belting and shafting, which were very much in evidence under the old conditions.

The Missouri River Power Transmission Co., operating in the vicinity of Helena, Montana, and notable as being one of the highest voltage transmissions in the world, have begun the erection of a steam turbine power plant to operate as a reserve to their present water power plant. A large part of the output of the Missouri River system is transmitted to the city of Butte, and the Anaconda district mining properties, and the service has grown to such an extent as to warrant the erection of a reserve plant as a protection against serious fluctuations in the

available water power. Turbines of the Westinghouse-Parsons type will be installed, the initial equipment consisting of two units of 2,000 k.w. capacity each, operating at 1,200 r.p.m., with 150 pounds steam pressure, 28 inches vacuum, 100 degrees superheat. They will be capable of delivering continuous overload of at least 50 per cent. condensing, or full load without the assistance of a condenser. The generators will be of the revolving field type, and completely enclosed, with forced ventilation. This feature will entirely eliminate the peculiar hum of the high speed turbine generator of the open type. The generators will operate at 1,200 r.p.m. and deliver 60 cycle, 3-phase current at 2,400 volts. The motor-generator exciting and complete switchboard equipment accompanies the turbine plant. The Westinghouse Machine Co., East Pittsburg, Pa., builders of the turbines, will also equip the boiler plant with their mechanical stokers.

The total sales of the Dominion Coal Co., Sydney, N.S., for the past year reached the record quantity of 3,300,000 tons, of which 1,118,000 tons went up the St. Lawrence.

The increasing business of the Westinghouse Electric & Mfg. Co. in the territory covered by their Columbus, Ohio, office, has necessitated their moving into larger quarters located in Room 923 Columbus Savings and Trust Building.

Dr. L. E. Wilson, a wealthy young physician, was awakened one stormy night by a man who declared the doctor's services were wanted three miles out in the country. Just before the doctor called up the stable for his horse, the visitor asked what the charge would be, "Three dollars," was the reply. When the house containing the supposed patient was reached, the man alighted first, and, handing the doctor \$3, remarked: "That will be all, doctor. I couldn't find a hackman who would do it for less than \$6."

The new machine shop of the National Tube Co., McKeesport, Pa., containing over a million cubic feet of space, is to be heated and ventilated by the Sturtevant hot blast system, installed by the B. F. Sturtevant Co., Boston, Mass.



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GALT - - ONTARIO

SILVER ORE AT COBALT. ONT.

Many interesting facts respecting the discovery and development of the Cobalt district, the richest depository of mineral wealth in Canada, are contained in a letter by Frank G. Carpenter to the Chicago Record-Herald, and other newspapers in the United States. Three years ago, he states, the rough barren land around Cobalt, would not have sold for ten cents an acre. To-day some of it would bring \$100 a square inch. Many forty-acre tracts on this rocky and swampy wilderness are valued at over \$1,000,000.

"I have visited the chief silver regions of the world," he continues, "but nowhere have I seen silver which crops out of the top of the ground as it does here at Cobalt." Beneath a shallow surface soil lies one vast rock which rises to the surface frequently and

on this rock are found narrow irregular veins of almost pure silver. Three or four million dollars' worth of this ore has already been shipped and car loads on their way to New York are worth \$25,000 to \$30,000 a car. A car of the best picked specimens from a particular mine sold for \$90,000.

These veins run for hundreds of feet across the country and everywhere they show upon the surface. The rock has been found smooth by glaciers and when cleaned it looks much like a flagged sidewalk. In the Timmons mine the veins of almost pure silver are so rich that you can see the metal shine as though the rock was plated with it. "Indeed," he says, "it makes me think of melted silver spoons mixed with a little sand poured down in the crevice of the rock. I walked over the silver street for hundreds of feet scouring the precious metal with my shoes."

The miners claim that the cost of getting out this ore is about the lowest known. It can be taken from the mines for eight per cent. of the value of the product, an outlay of \$2,000 bringing forth \$25,000 or \$30,000 worth of ore. So far it does not pay to ship anything that will yield less than \$200 a ton.

"I came here three or four months ago," said one of the proprietors of the Glendenning mine to Mr. Carpenter, "with a gang of men and discovered a property. We have been working the mine since and have just shipped out our first car of ore which will bring us at least \$30,000. Our total expenses all told have been \$2,700, so that we are now more than \$27,000 to the good and have just begun to ship."

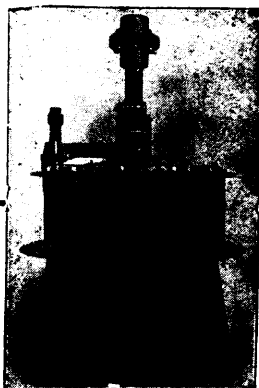
A newly-invented English motor tire has a rim which is made of wood resting upon a pneumatic cushion. According to a London newspaper, the wood used is seasoned and hardened by a new process, one of the details of which consists in rolling it much as steel plates are rolled. By this rolling the wood is reduced to two-thirds of its original weight and to one-twentieth of its original dimensions. It is then impregnated with parffin wax so as to be absolutely impermeable and inexpandable. Round the surface of the tire run two narrow grooves, filled with the softest known wood. The effect of this is that the soft wood picks up the fine grit of the road, and gradually spreads it over the surface of the tire until the whole tire has a granite-like surface, upon which a file has practically no effect.



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FILTER PRESSES**

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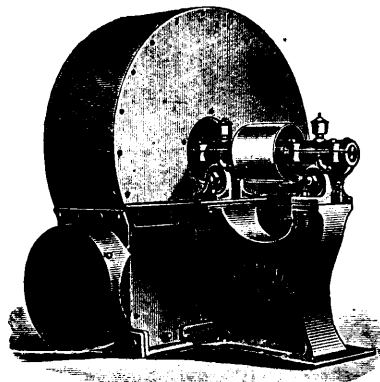
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power enough in a single year to pay the full cost of putting in a new fan of larger size in place of one that is already overloaded. It's only necessary to reduce the speed of any fan by 20 per cent. to save half the power.



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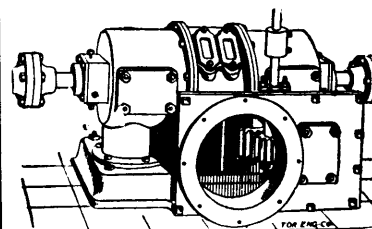
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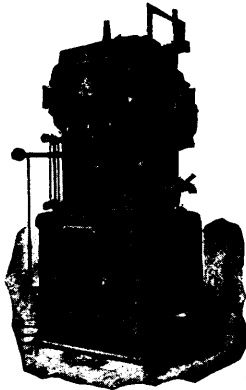
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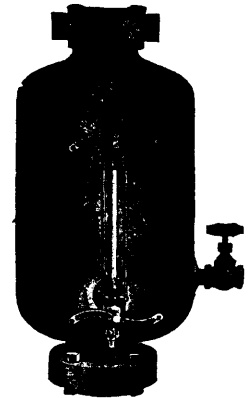
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Type Open Heater

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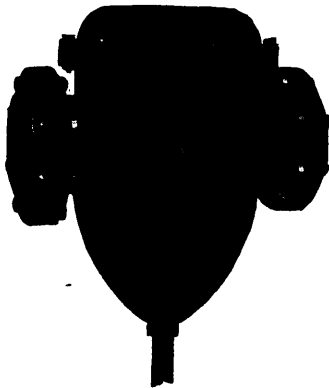
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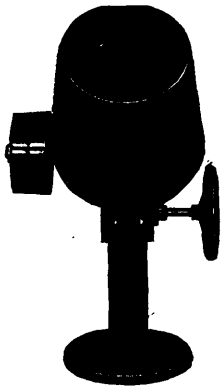
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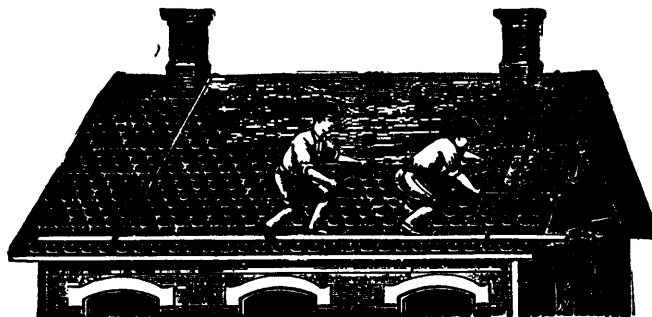
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Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

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Williams, A. R. Machinery Co., Toronto.

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McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Reddaway, F. & Co., Montreal.
Sadler & Haworth, Montreal and Toronto.

Belting (Leather)

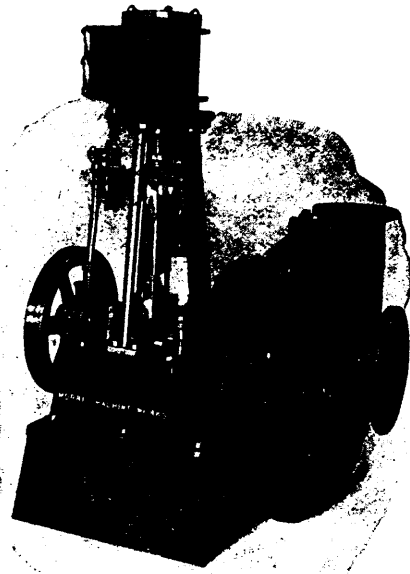
Montreal Belting Co., Montreal.
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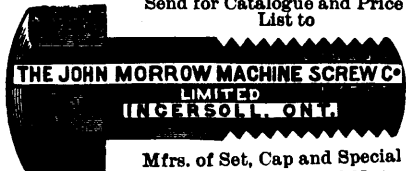
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McLaren, J. C., Belting Co., Montreal.
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Jeffrey Mfg. Co., Columbus, Ohio.
Montreal Belting Co., Montreal.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C., Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Reddaway, F. & Co., Montreal.
Sadler & Haworth, Montreal and Toronto.
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Hamilton Facing Mill Co., Hamilton, Ont.
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Queen's Run Fire Brick Co., Lock Haven, Pa.
Reese-Hammond Fire Brick Co., Bolivar, Pa.
Stowe-Fuller Co., Cleveland, Ohio.

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

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Greening, B. Wire Co., Hamilton, Ont.
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Nichols Chemical Co. of Canada, Montreal

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Heys, Thomas & Son, Toronto.

Clay Working Machinery

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

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Phillips, Eugene F. Electrical Works, Montreal.
Syrause Smelting Works, Montreal.

CLASSIFIED INDEX.

(CONTINUED).

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Pittsburg Crucible Works, Pittsburg, Pa.

Crayons
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Crucibles
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McCullough-Dalsell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.
Syracuse Smelting Works, Montreal.

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Pittsburg Crucible Works, Pittsburg, Pa.

Crucible Covers
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Pittsburg Crucible Works, Pittsburg, Pa.

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Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.

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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.

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Darling Bros., Montreal.
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Jenckes Machine Co., Sherbrooke, Que.
Link-Belt Engineering Co., Philadelphia, Pa.

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Petrie, H. W., Toronto.

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

Engineers (Civil)

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

Engineers (Consulting)

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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.

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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.

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Allis-Chalmers-Bullock, Limited, Montreal.
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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.
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Darling Bros., Montreal.
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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.

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Vogel, C. H., Ottawa.

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Mills, S. D., Toronto.

Engineers (Municipal)

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

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

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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

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)

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.
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.
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 Equipmen'

Advance Machinery Co., Toledo, Ohio.

Government Notices

Factory Inspectors.
Minister of Agriculture.

Graphite

Dixon, Jos. Crucible Co., Jersey City, N.J.
McCullough-Dalzell Crucible Co., Pittsburgh, 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.

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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.
 Penberthy Injector Co., Windsor, 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

Barnes, B. F. Co., Rockford, Ill.
 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

Penberthy Injector Co., Windsor, 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

Barnes, B. F. Co., Rockford, Ill.
 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.
 Penberthy Injector Co., Windsor, Ont.
 Petrie, H. W., Toronto.
 Reddaway, F. & Co., Montreal.
 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.
 Corbett, R. B., Brooklyn, N.Y.
 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.
 Corbett, R. B., Brooklyn, N.Y.
 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.

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.
 Pittsburg Crucible Works, Pittsburg, Pa.

Office and Bank Fittings

Canadian Office & School Furniture Co., Preston, Ont.

Oils and Lubricants

Dixon, Jos. Crucible Co., Jersey City, N.J.
 Imperial Oil Co., Petrolia, Ont.
 Queen City Oil Co., Toronto.

Oil Cloth

Dominion Oil Cloth Co., Montreal.

Oil Cups

Penberthy Injector Co., Windsor, Ont.

Paints and Colors

Berry Bros., Walkerville, Ont.
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Patents

Budden, Hanbury A., Montreal.
Fetherstonhaugh & Co., Toronto.
Marion & Marion, Montreal.

Perforated Metals

Globe Machine & Stamping Co., Cleveland, Ohio
Greening, B. Wire Co., Hamilton, Ont.

Personal Accident

Canadian Casualty & Boiler Insurance Co., Toronto.

Phosphorizers

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

Pig Iron

Bourne-Fuller Co., Cleveland, Ohio.
Canada Iron Furnace Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Syracuse Smelting Works, Montreal.

Pipe (Riveted, Iron and Steel)

Babcock & Wilcox, Limited, Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.

Pipe Threading Machines

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Petrie, H. W., Toronto.

Pipes and Tubes

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Corbett, R. B., Brooklyn, N.Y.
Montreal Pipe Foundry Co., Montreal.

Plaster

Albert Mfg. Co., Hillsborough, N.B.

Plates

Bourne-Fuller Co., Cleveland, Ohio.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Plumbago

Hamilton Facing Mills Co., Hamilton, Ont.
McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Pneumatic Tools

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.

Pointer Rolls (For Rods and Wire)

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

Power Plants—Equipments

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Corbett, R. B., Brooklyn, N.Y.
Darling Bros., Montreal.
Electrical Construction Co., London, Ont.
Goldie & McCulloch, Galt, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Keystone Engineering Co., Toronto.
McDougall, John, Caledonian Iron Works Co., Montreal.

Packard Electric Co., St. Catharines, Ont.
Perrin, Wm. R. & Co., Limited, Toronto.
Petrie, H. W., Toronto.

Phillips, Eugene F., Electrical Works, Montreal.
Robb Engineering Co., Amherst, N.S.
Sturtevant, B. F. Co., Boston, Mass.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Wilson, J. C. & Co., Glenora, Ont.

Presses (Tile, Sewer Pipe, Nozzles and Sleeves)

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Pulleys

Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
McDougall, John, Caledonian Iron Works Co., Montreal.
McLaren, J. C., Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Wilson, J. C. & Co., Glenora, Ont.

Pumps and Pumping Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
American Steam Pump Co., Battle Creek, Mich.
Canada Foundry Co., Toronto.
Corbett, R. B., Brooklyn, N.Y.
Darling Bros., Montreal.
Downie Pump Co., Downieville, Pa.
Goldie & McCulloch Co., Galt, Ont.
Jenckes Machine Co., Sherbrooke, Que.
Kerr Engine Co., Walkerville, Ont.
Morris Machine Works, Baldwinsville, N.Y.
McDougall, John, Caledonian Iron Works Co., Montreal.
Ontario Wind Engine & Pump Co., Toronto.
Petrie, H. W., Toronto.

Punches and Shears

Globe Machine & Stamping Co., Cleveland, Ohio.
Petrie, H. W., Toronto.

Purifiers

Babcock & Wilcox, Limited, Montreal.
Goldie & McCulloch Co., Galt, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

Purifying and Softening Systems (Water)

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.

Railroads

Chicago & North-Western Ry., Toronto and St. Paul, Minn.

Railway Supplies

Algoma Steel Co., Sault Ste. Marie, Ont.
Allis-Chalmers-Bullock, Limited, Montreal.
Gartshore, John J., Toronto.
Greening, B. Wire Co., Hamilton, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hopkins, F. H. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Phillips, Eugene F., Electrical Works, Montreal.

Reamers

Butterfield & Co., Rock Island, Que.

Rivets

Bourne-Fuller Co., Cleveland, Ohio.
London Rolling Mills, London, Ont.

Rock and Ore Crushers

Allis-Chalmers-Bullock, Limited, Montreal.
Bradley Pulverizer Co., Boston, Mass.

Rolling Mill Engineers

Bourne-Fuller Co., Cleveland, Ohio.

Roofing

Bourne-Fuller Co., Cleveland, Ohio.

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Rubber Packing

Gutta Percha & Rubber Mfg. Co., Toronto.

Rubber Washing Tubs

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

Rural Mail Boxes

Globe Machine & Stamping Co., Cleveland, Ohio.

Safes and Vaults

Goldie & McCulloch Co., Galt, Ont.

Saw Mill Machinery

Allis-Chalmers-Bullock, Limited, Montreal.

Screws

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

Screw Plates

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.

Shafting

Allis-Chalmers-Bullock, Limited, Montreal.
Bourne-Fuller Co., Cleveland, Ohio.
Goldie & McCulloch Co., Galt, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
McDougall, John, Caledonian Iron Works Co., Montreal.
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Petrie, H. W., Toronto.

Shapers and Carvers

Advance Machinery Co., Toledo, Ohio.

Shear Knives

Hay, Peter Knife Co., Galt, Ont.

Sheets (Iron and Steel)

Bourne-Fuller Co., Cleveland, Ohio.
Leslie, A. C. & Co., Montreal.
Lysaght, John, Limited, Bristol, England, and Montreal.

Sheet Metal Goods

Globe Machine & Stamping Co., Cleveland, Ohio.

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Sheet Metal Stamping

Globe Machine & Stamping Co., Cleveland, Ohio.

Smoke Stacks

Hamilton, Wm. Mfg. Co., Peterborough, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
Robb Engineering Co., Amherst, N.S.

Solder

Globe Machine & Stamping Co., Cleveland, Ohio.
Syracuse Smelting Co., Montreal.

Special Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Globe Machine & Stamping Co., Cleveland, Ohio.

Speed Recorders

Bristol Co., Waterbury, Conn.

Sprinkler Insurance

Canadian Casualty & Boiler Insurance Co., Toronto

Stamps and Stencils

Globe Machine & Stamping Co., Cleveland, Ohio.

Steam Pumps

Allis-Chalmers-Bullock, Limited, Montreal.
American Steam Pump Co., Battle Creek, Mich.
Canada Foundry Co., Toronto.
Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Steam Separators

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.

Steam Shovels

Allis-Chalmers-Bullock, Limited, Montreal.

Steam Specialties

Darling Bros., Montreal.
Penberthy Injector Co., Windsor, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Hyde Park, Mass.

Steam Valves

American Steam Pump Co., Battle Creek, Mich.
Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
Kerr Engine Co., Walkerville, Ont.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Steel Rails

Algoma Steel Co., Sault Ste. Marie, Ont.
Drummond, McCall & Co., Montreal and Toronto.
Gartshore, John J., Toronto.
Hopkins, F. H. & Co., Montreal.

Steel Shafting

Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
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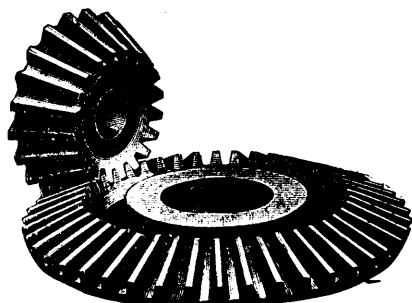
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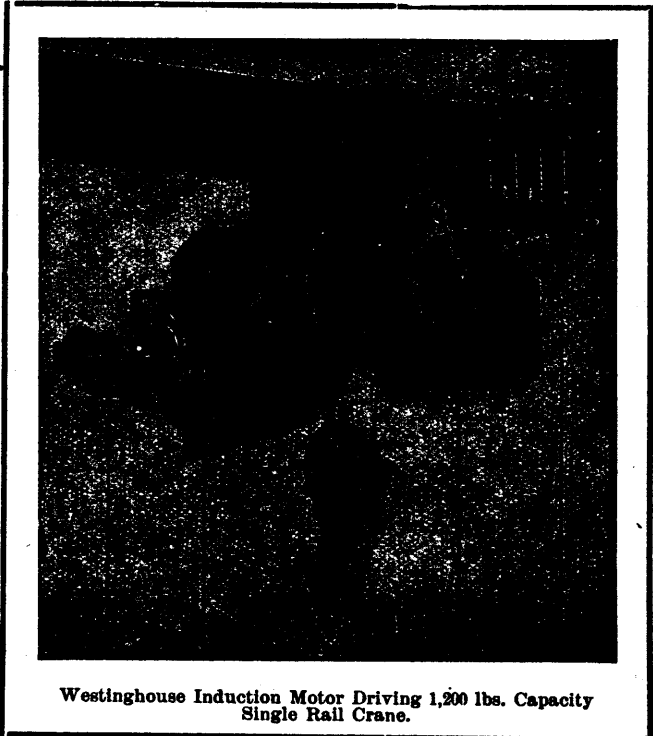
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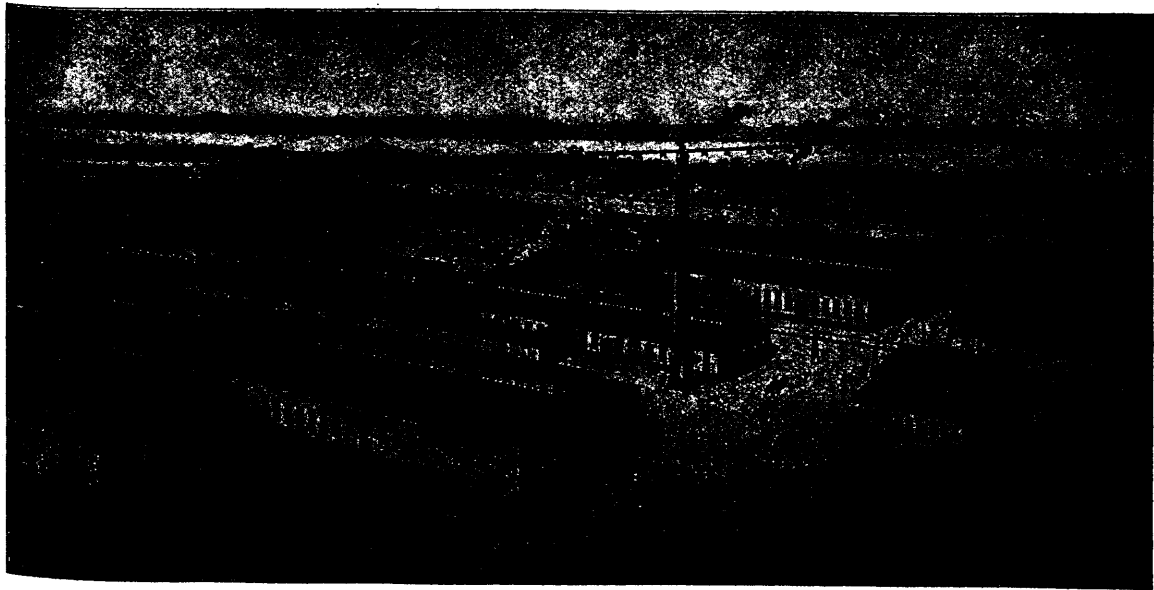
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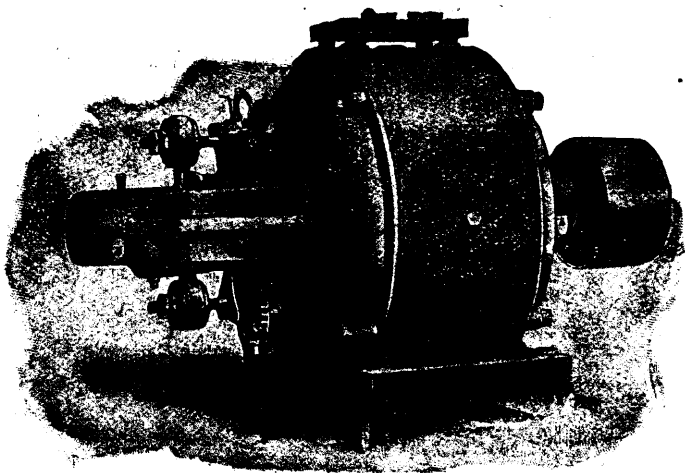
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