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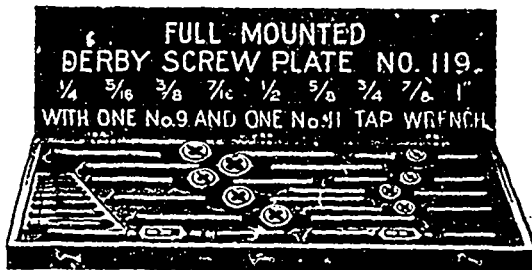
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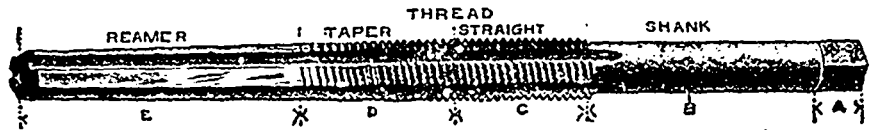
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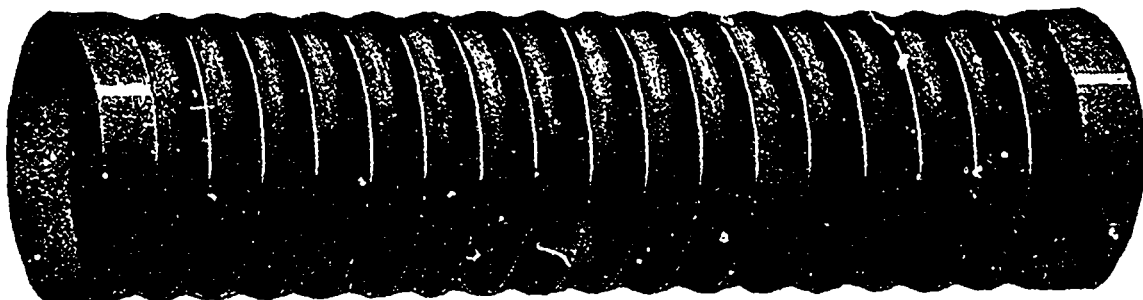


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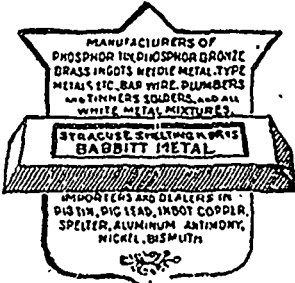
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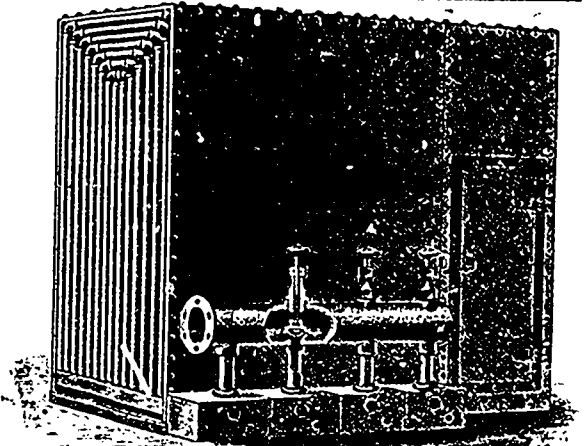
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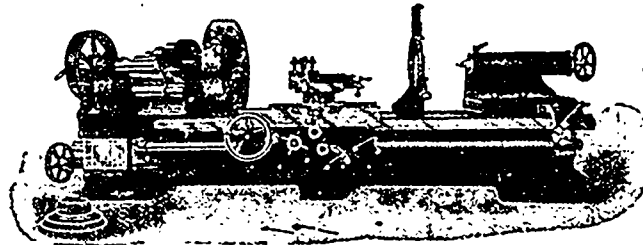
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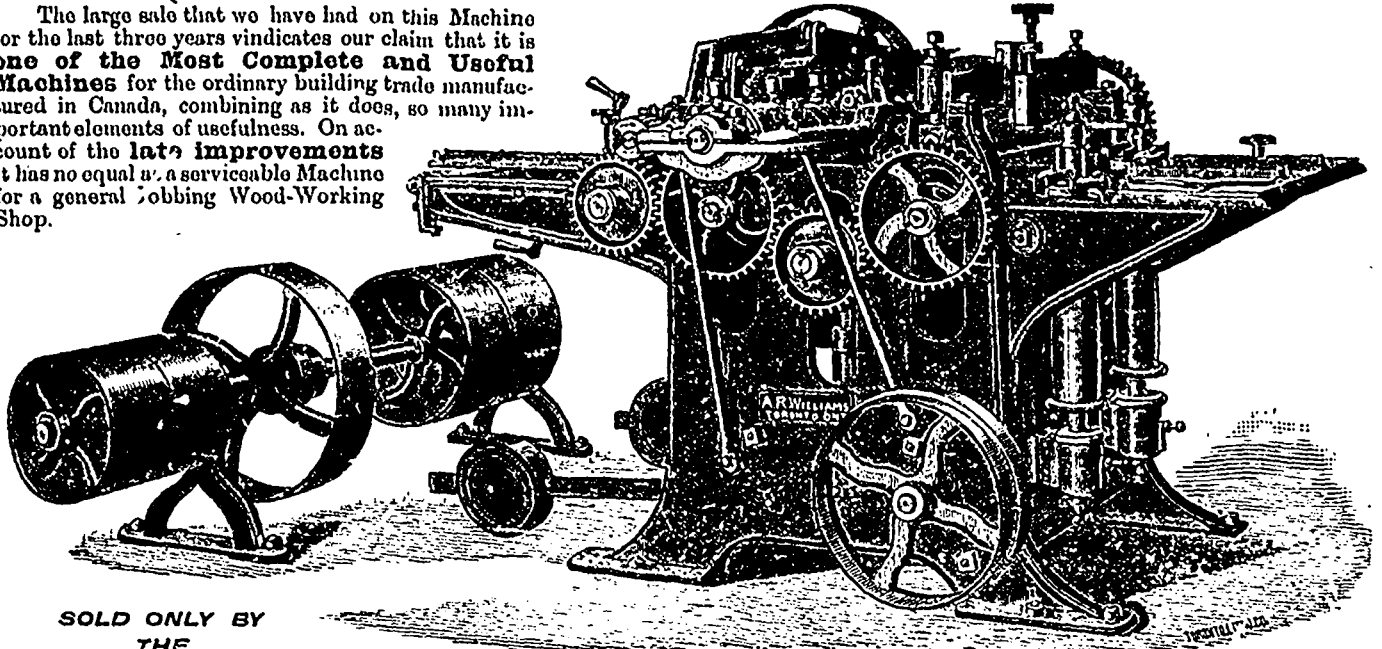
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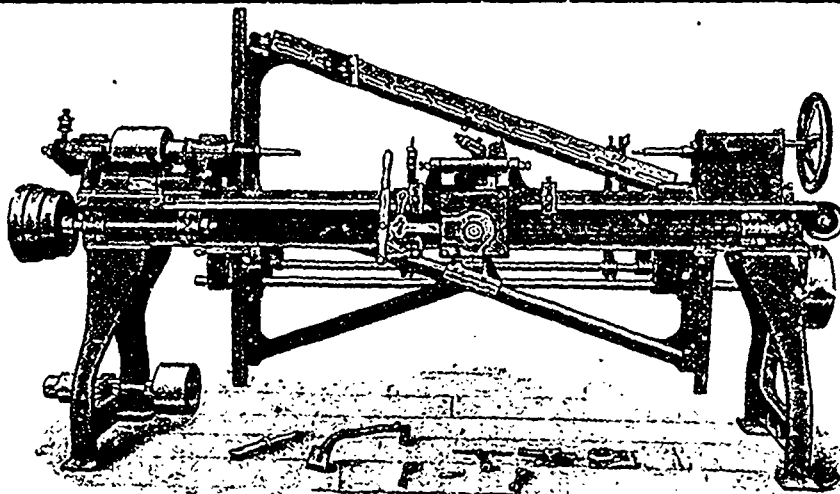
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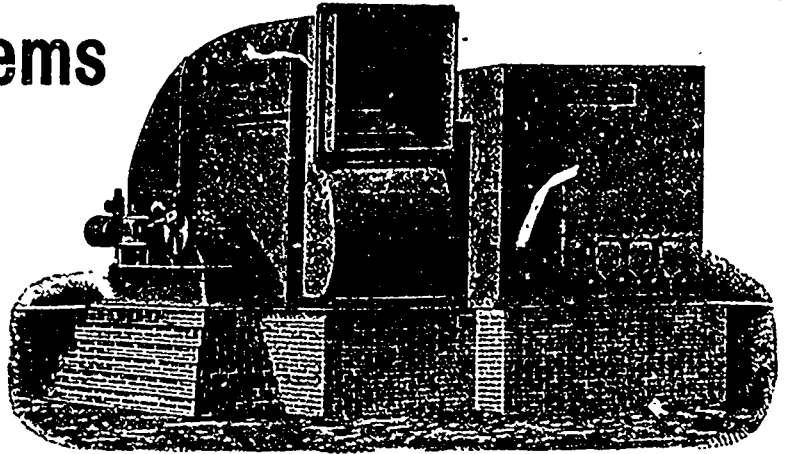
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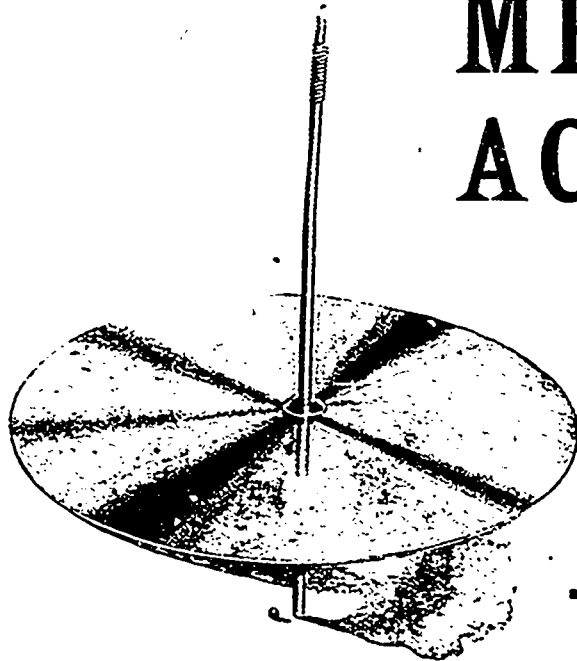
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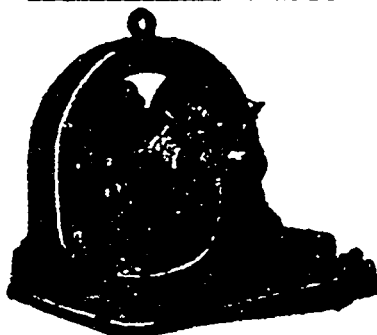
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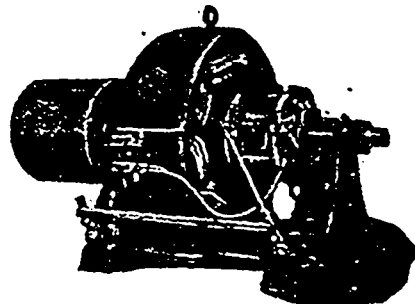
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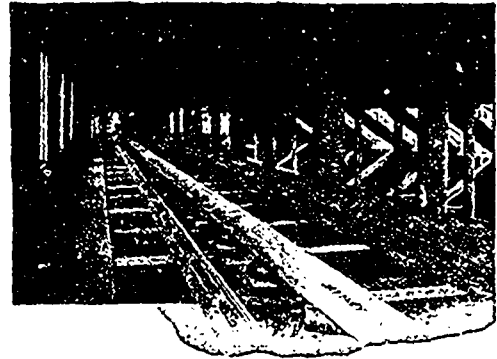
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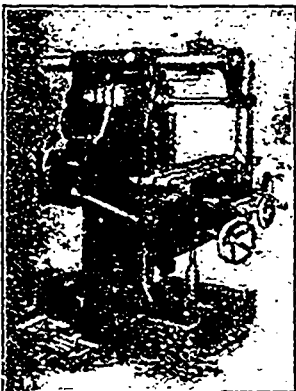
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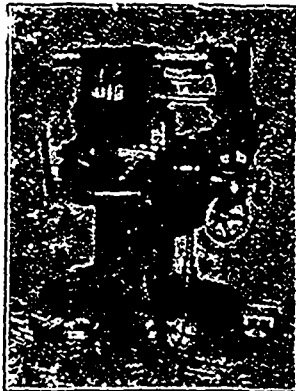
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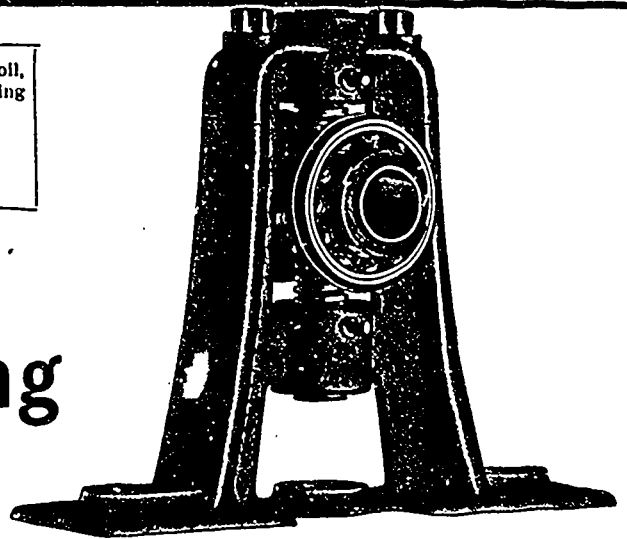
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J. J. CASSIDY, Editor and Manager

Classified IndexPage 42

Index to AdvertisersPage 49

THE TARIFF COMMISSION.

Canadian manufacturers, and consumers also, are interested in the question as to what the Government are going to do about the tariff. A demand oft repeated is for a revision which will give our manufacturers greater control of the home market, or, as frequently expressed, keep out the flood of American goods, as that feature of our foreign trade seems to be uppermost in the minds of many who consider that the question should receive more attention at the hands of the Government than it does. The Minister of Finance, at the time when recent changes in the tariff were announced, stated that it was the purpose of the Government to investigate the question thoroughly by a commission before laying any further scheme of revision before Parliament; and the Premier has promised the same thing; but who are to constitute the commission, and when it is to be constituted are questions at present unknown to the public. Perhaps the matter will receive the attention it deserves when the unfortunate discussion of the autonomy of the new provinces is ended.

It may be that the composition of the proposed commission will be essentially the same as that of 1897, and that the method of procedure will be the same.

Of that Commission the Finance Minister was chairman, and the Minister of Customs and the Minister of Trade and Commerce were members. It was composed solely of Ministers. It visited the various industrial centres and received all depositions that had any recommendations or petitions to present. A large mass of opinion was in this way collected. Unquestionably the balance of the testimony was over-whelmingly on the side of protection, but the Ministers had too recently been engaged in a campaign against protection to yield readily to the consideration urged on that side. The result of the Commission's inquiries was the tariff of 1897, which was something of the nature of a straddle. To meet the wishes of free traders several raw materials were placed on the free list, many specific duties were replaced by ad valorem duties, and sundry reductions were made. To suit the advocates of closer commercial relations with Great Britain the British

THE SPIRIT OF INQUIRY.

Advertising is one of the greatest of educational forces. Education means rousing the spirit of inquiry. The easy and the sensible way to rouse this spirit in any human being is to tell him of something which he does not know and which it will be clearly to his advantage to know. The man with something good to sell is therefore in a position to increase the sum of human comfort and happiness—and the more he benefits himself, the more does he increase that sum.

A few years ago advertising was in a very crude state; it is still not quite the exact science it is going to be. For an exact science it must be—just as any other form of teaching.

Commerce is the great civilizer; advertising is to commerce what the teacher is to learning.

preference was granted. To please the protectionists the duties on manufactured articles were kept above a revenue basis in most cases and the bounties were retained.

It has been urged by some that the commission should include men interested in some of the commercial pursuits of the country—in manufacturing, in transportation, in merchandising, in agriculture and in both internal and external commerce—men who would have the welfare of the country entirely at heart, and who could raise themselves above mere political party influences.

If this latter composition were ignored, as it would most probably be, and the other observed, composed as it would be chiefly by Cabinet Ministers; or if included in it were men of both political parties, there would be, of course, a preponderance of members in full accord with the Government, and whatever the majority of the commission might report would be the basis of whatever action the Government might take. It is not at all probable that the Government would pay any attention to a demand for a mixed and heterogenous commission, which, even if it should agree upon a report, which would seem impossible, would to any extent prove acceptable to the Government.

It is a pleasing delusion to think that under any circumstances whatever the tariff question is not one of politics, and that it can be lifted out of and placed above political influence. It cannot be; and it is not at all probable that as long as the present Government are in power there will be any startling changes in the tariff.

MARCONI STATIONS IN CANADA.

We have been in receipt of many enquiries regarding the number and locations of the Marconi wireless telegraph stations in Canada, and now have pleasure in giving accurate and official information regarding them.

The Marconi system in Canada is directly in charge of and under the management of the Department of Marine and Fisheries, of which Hon. Raymond Prefontaine is the Minister. The Department has six Marconi wireless stations in operation and six under construction, which, it is expected, will at an early day be ready for use.

The six now in operation are located as follows:

Fame Point, Heath Point, Belle Isle, Point Amour, Cape Ray and Cape Race.

The six under construction are at Point Rich, Cape Whittle, Sable Island, Cape Sable Island, Camperdown and St. John, N.B.

All these stations are or will be operated by the Marconi wireless system.

The connections from the different stations is by the land wires of either the Great North Western Telegraph Company, the Canadian Pacific Railway Company, the Western Union Telegraph Company, or the Dominion Government telegraph lines.

There are two kinds of stations—low power and high power. The range of the low power stations is 150 miles, and of the high power stations from 250 to 300 miles. All the stations are high power with the exception of those at Belle Isle, Point Amour and Cape Race, which are low power.

The Canadian Government own and control each and every of these stations. They were constructed under contract by the Government with the Marconi Wireless Telegraph Company; and every station already constructed or which may be hereafter constructed is provided for by Order-in Council.

LEX TALIONIS.

It is said that "virtue brings its own reward" although in many instances the realization of the reward is a long time in reaching its destination. The same may also be said of injustice and petty meanness, such as has been practised for so many years of officials of the American Government at Buffalo and other places along the frontier of that country contiguous to Canada. Canada has no desire to unload any of her objectionable citizens upon her neighbors, and they are clearly within their rights to deport such characters: but, considering the friendly relations that should be observed between the two countries, the fact that should a Canadian workman with his kit of tools attempt to pass over into American territory, he is met by Mr. Du Bary and those under him, and immediately punished for his temerity, is, to say the least, an unfriendly act which, in the nature of things, bring about a system of retaliation, fraught, of course, with unpleasant results.

It was not the impulse of a moment that caused the Canadian Government to enact laws precisely akin to American laws bearing upon the passage of citizens of one country into the other—seeking for work. The American law has been in force a long time, and the unfair enforcement of it has worked hardship and injustice that has been brought to the attention of the American Government on frequent occasions; but nothing has ever been done to mitigate the harshness of manner of deporting officials, though, we are pleased to observe, there are such officials at some frontier points, who are not of the Du Bary type. If the American Government desired to mitigate the harshness of some of their over-zealous officials, an intimation from Washington would have the desired effect; but no such intimation has apparently ever been made,

and the long suffering of Canada, having ceased to be a virtue, has retaliated by the enactment of a law which calls for the deportation of American workmen under certain circumstances.

Time was, and that not many years ago, when there was a flow of population from Canada into the United States, but there is now a regurgitation of Americans hitherward. Many of these immigrants are skilled workmen in many branches of industry. There is also a larger inflow of American capital and American investors into Canada; and, as might be readily and reasonably supposed, these concerns desire to hold in their employ the workmen who are already accustomed to the methods and manners of their employers. Canada, however, is not a pauper in such skilled labor, and considering the Du Baryism that has for so many years prevailed in the United States, it is not surprising that Canadian skilled labor, which is now quite plentiful, should object to the presence of American labor which occupies the places which they might hold.

It is unfortunate that this question should be so violently thrust upon the attention of Canada at this time, growing out of an order of deportation of a number of employes of an American railroad which has an extension into Canada; but if Du Baryism is a good thing as applied to Canadian workmen going into the United States, it should also be good as applied to American workmen coming into Canada. It is a mistake, however, for the officials of the American railroad to appeal to Ottawa for a change of the law—they should go to Washington.

BARB WIRE.

A Canadian correspondent of an American journal, discussing the prospects of trade in the Canadian West, suggests that the demand of barb wire there be taken as an indication of the prosperity of the country, the demands of which are, to a very large extent, being supplied by American goods. He says:

A commodity whose increased use may be taken as a rough measure of the rising economic and social conditions in the West is barbed wire. At no former season in the history of the country did the imports of that material ever approach those of last autumn. Usually the fall deliveries at Fort William, sent forward by boat from Cleveland, amount to 2,000 or 2,500 tons. Before navigation closed there were rushed forward upward of 12,000 tons. It was all shipped to the order of Western merchants to firms for the most part in Winnipeg. So great was the accumulation at Fort William that the freight sheds could not accommodate all the wire, and large quantities were stacked under tarpaulins in all corners of the yards and on the docks. Low prices no doubt had a part in swelling out the trade to such proportions. A desire to escape anti-dumping duties unquestionably hastened and probably multiplied deliveries in the early autumn or late summer, before the duties came into full effect. But the chief cause was the need for the wire.

One of the ridiculous anomalies of the Canadian tariff is, that while barb wire is on the free list, machinery for the manufacture of the article is dutiable at the rate of 30 per cent. ad valorem, the American Steel Trust controls the output of wire, and the price also, and when it finds it to its advantage to do so, can very successfully

suppress competition by Canadian wire mills, and for that reason the home industry suffers. If adequate protection were given the industry — if a low duty were imposed upon wire and were the duty lowered or removed from wire making machinery, Canadian factories would be abundantly able to supply the demand for barb wire, now grown to such large volume, particularly in the West.

CANADIAN GOLD COINAGE.

The Shareholder does not favor the establishment of a Canadian Mint. It says:

The establishment and operation of a branch in Canada of the Royal Mint to coin, for the use of the people, gold and other coins will be an expensive undertaking. Whether the gold thus coined will have the effect of displacing the bank notes now in circulation remains to be seen, but we believe that the notes will be preferred, as they are lighter and more easily carried around than will be the gold coins which it is proposed to put in circulation. One serious objection will be the difficulty in distinguishing the gold five dollar and ten dollar coins from those of twenty-five cent and fifty cent silver coins. * * * The liability to make a mistake will make the holders of gold coins anxious to get rid of them. The result will, therefore, be that when these coins are put into circulation here they will soon find their way to the banks where their accumulation will force the banks to export them, in order that the amount of Dominion notes required to be held by the Bank Act may not be unduly or unnecessarily raised to too high an amount. The banks are now required to hold their cash reserves in specie and Dominion notes, of which 40 per cent. of the total amount must be in the latter.

No one supposes that gold coin "Made in Canada" or any where else will have the effect of displacing the notes of Canadian banks. Canadian gold coin, when made, would be of precisely the same value as American gold coin of similar denomination—no more—no less. American gold coin is a legal tender in Canada to any amount, the same as Canadian gold coin would be. American gold coin circulates freely in Canada at par value, and can be obtained at any time at any Canadian bank in exchange for the notes of that bank. Gold coin gravitates naturally to banks of deposit, bank notes being preferred because they are lighter to carry and more easy to handle. Canadian gold coins would therefore, when put in circulation, soon find their way to the banks, but their accumulation there would have no more tendency to force the banks to export them than to export American gold. Canadian gold coin would be worth its weight in gold anywhere in the world, the same as American gold coin or British sovereigns. The commercial necessities of the country require to a certain extent the presence of gold coin. Weight for weight, the gold coinage of any country is of precisely the same intrinsic value anywhere else in the world. A pound avoirdupois of German, French, Russian, Japanese, or Chinese gold coin of standard fineness, is worth the same as a pound avoirdupois of British or American gold coin—no more—no less. For export purposes a pound of gold in coin of standard fineness of any country, is accepted without discount in any other country—it is accepted at its bullion value. The law requires that the banks shall hold their cash reserves in specie, i.e., gold—not coin, foreign gold coin, or bullion, or even nuggets and

dust from the mine answering the purpose, the preference for coin being that the monetary value thereof is more easily ascertained.

The Shareholder entertains, or would entertain serious objections to the presence of Canadian gold coin because of the difficulty in distinguishing the gold five dollar and ten dollar coins from those of twenty-five cent and fifty-cent silver coins, but why such objection should prevail against Canadian gold coin and not against American gold coin we do not understand. The liability to make a mistake would, in the opinion of our contemporary, make the holder of gold coins anxious to get rid of them. The average citizen is, usually, quite as willing to accept gold coin in payment of debt as Canadian bank notes; and we have certain knowledge that Canadian gold coin, when they appear, or American gold coin, or English sovereigns, or Canadian bank notes, would receive impartial acceptance in payment for subscriptions for and advertising in *THE CANADIAN MANUFACTURER*.

FUTURE OF NIAGARA FALLS.

Renewing his prophecy that the waters of Lake Erie will yet find their outlet in the gulf, while Lake Ontario alone of the chain will send its overflow through the St. Lawrence, Niagara ceasing to be a river, Prof. G. K. Gilbert of the United States Geological Survey, recently discussed before the National Geographical Society, the present struggle for the retention of the great cataract as a piece of nature's beauty. He argued that a vigorous campaign of education is necessary if the Falls are to be retained. Great Britain and the United States must join in a treaty, and before they would do this, Canada and New York respectively must request such action. Those who want to utilize the power are in possession of the field; the precedents are with them; the burden of proof has now been thrown to the shoulders of those who would protect the Falls, and their task is an up-hill one.

The present diversion from the Falls, while computable, is not visible. But charters already granted, and franchises not yet fully availed of, but on their way to realization, will so detract from the volume of the river as to leave the American Falls dry. Less than one-eighth of the water comes on this side. The professor declared that there is room for legitimate differences of opinion regarding the ultimate fate of the Falls, although his audience applauded wholly the points made for its preservation. Other rivers permit a utilization of their minimum flow only for water power, while Niagara, with Lake Erie as a regulating basin behind it, mechanically permits the utilization of its mean flow.

The theoretical power of Niagara is 8,500,000 h.p., but practically about 4,000,000 is the maximum which can be employed. This would do the work of one fortieth of all the coal mined in the United States. It represents one-fifteenth of all the power used to operate the railroad trains of the United States. Water power is practically permanent, while all fuels will give out. Our descendants a few generations hence will have to depend on something else for their supply of energy. Niagara, while not an

overshadowing element in the industrial situation, is still a highly important one.

Professor Gilbert discussed the relation of nature's economic gifts to civilization, arguing that mankind, because richer economically through the gift of this tremendous power, could do other things for æsthetics. He thought the argument not wholly one-sided, even from the æsthetic standpoint.

GRAND TRUNK PACIFIC CONSTRUCTION.

The first report of the transcontinental railway commission has been presented to Parliament. This commission has the building of the road from Moncton to Winnipeg under its charge. From Winnipeg to the Pacific Coast it will be contracted by the Grand Trunk Pacific Co. The report shows that the commission paid \$289,863 for the survey work done by the Grand Trunk Pacific on the eastern division. The preliminary surveys in districts A, from Moncton to the boundary between New Brunswick and Quebec, and B, from the boundary line between New Brunswick and Quebec to Clear Lake, have been completed, and the parties withdrawn from the field. The commission is now possessed of sufficient information to enable a decision to be arrived at as to whether the line via Fredericton and the Saint John River Valley or the one across the center of the province of New Brunswick shall be adopted. As to whether the line should run north or south of Lake Abitibi in Ontario, it will be some time before the commission will have sufficient data to decide. It is proposed to begin location surveys in districts A and B as soon as local conditions permit, and it is expected that tenders for this stretch from Moncton to Clear Lake in Quebec, as well as for F. from Winnipeg to Lake Nipigon, will be completed, as that tender may be invited in the early autumn.

It had been asserted that there were almost insuperable physical difficulties in the way of constructing a direct line between Moncton and Lewis, but the route, as the surveys show, runs all the way through a valuable country, part of which is settled, and the remainder most desirable for settlement. The opening up of this stretch will be a great advantage to the country. The probable length of this part of the line, if the cross-country route in New Brunswick is adopted, will be shorter than the Intercolonial but how much shorter the commission cannot say until the location surveys are completed. Using the same grades as the Intercolonial, a saving of at least 90 miles would be effected, and nearly as much by the St. Lawrence river route. The same motive power that will haul 660 tons on the Intercolonial will, by the new line, haul 1,260 tons going east and 900 tons going west. Taking the workings of the two railroads, and supposing that ten daily Intercolonial freight trains are run each way in 313 working days on the Intercolonial, there will be 4,131,660 pay tons of freight carried, costing \$3,160,711. On the transcontinental the same business would be done for \$1,782,513; in other words, the commission claims that the saving by means of the transcontinental, with its lower grades and curves, would be \$1,237,192, which, capitalized at four per cent. per year, would be equivalent to over \$30,000,000.

Giving the transcontinental ten fully loaded trains per day (of its own), the saving capitalized would represent \$54,000,000, and, if the grades are increased to the Intercolonial of one per cent. standard, the distance will be reduced on the transcontinental to 403 miles from Moncton to Levis, Que. These calculations are all made on the line through the center of New Brunswick. With the distance reduced to 403 miles there will be a saving of \$443,937 per year, as against the Intercolonial, which, capitalized, would represent \$13,723,438. It had been suggested that the Intercolonial should be utilized for the eastern section of the line, but in the judgment of the commission, from the information obtainable, if it were attempted to lower the grades of the Intercolonial to the standard secured for the transcontinental the distance from Levis to Moncton would be increased by considerably over 100 miles, and a large section of valuable country would be left unopened. There are two points on the stretch from Levis to Moncton where it may be found desirable to put in pu grades of one per cent. If this is decided on, further shortening of 25 miles can be secured. The cost of the proposed line from Moncton to Chaudiere (Levis) will not exceed \$33,000 per mile. The commission asks for \$3,000,000 to be voted by Parliament.

Speaking of the region between Clear Lake, Quebec, and the Ontario boundary, Chief Engineer Lumsden says that the country is dotted with numerous lakes, the lands being timbered with spruce, cypress, birch, poplar, small tamarac and cedar. It will be some time before it can be decided whether the line north or south of Lake Abitibi will prove the more advantageous. The reports so far indicate that the north line will be found the more advantageous as to the cost of construction, the nature of the country traversed and its suitability for settlement. The country north of Winnipeg and Lake Nipigon contains enough timber to supply the whole of this section and, in addition, the branch to Lake Superior. It consists principally of rocky knolls intersected by numerous lakes.

EDITORIAL NOTES.

In the current weekly report of the Department of Trade and Commerce is the following important announcement:

Arrangements have been made whereby Canadian commercial agents in foreign countries will undertake to translate, without charge, into the English language, when necessary, or into the foreign tongue, any correspondence which Canadian firms may desire to hold with foreign firms. Such correspondence will be translated by an official interpreter employed in the office of the commercial agent and, of course, will be held strictly confidential.

In the Canadian North-West expansion is proceeding at a rate that surpasses any record of progress ever made in this country before. Canada has never been remarkable for "booms," and the few it has had have been of a very partial character, being restricted to some one department of enterprise—such as manufacturing in the earlier days of the national policy—or to some single locality, as at Sydney, in Cape Breton; Sault Ste. Marie, in North-

western Ontario, or some of the mining towns of British Columbia. Substantial development the country has had, and that appears to be what Manitoba and the Territories are having to-day, only in higher degree than any other part of the Dominion ever experienced. In every dimension the West is growing, and growing fast. Its people are spreading over the prairie, its settlements are becoming denser, its production is becoming less simple, its wants have increased with the same velocity and volume as its wealth, and it has now, in its railways, elevators, organized markets, etc., a quasi-public apparatus of very high efficiency for commercial purposes. Population, tilled area, aggregate yield, diversity of production, quantity and quality of demand, railway mileage, railway traffic, clearing house transactions, money circulation, bank deposits, exports and imports all show progress.

The Deputy Minister of Trade and Commerce has written a statement to the Toronto Board of Trade to the effect that Canada must stick to the terms of its treaty with France. Requests had been made for a modification of the present treaty under which Canadian goods must be sent direct to France for preferential treatment, whereas French goods may enter Canada via the United States. Canadian trade has suffered from this, for American firms who have perhaps overstocked or find unfashionable or unseasonable goods on their hands can dump them on the Canadian market.

Navigation on the Yukon River will reopen about the 1st of June, and all classes of mail matter can therefore be accepted now for transmission to Dawson and all other points in the Yukon Territory.

Hon. Mr. Emmerson has approved location plans for the Grand Trunk Pacific terminus at Kaiwan Island, southwest of Port Simpson, B.C., which is part of the Indian reserve. The Minister however, thinks the Government would not be justified in granting the company more land than they actually need for railway purposes, as considerable settlement will undoubtedly spring up on the island. He has asked the Justice Department for an opinion, and received reply that application for expropriation rights must be made through the Railway Commission. The company will, therefore, apply to the Railway Commission for the right to expropriate lands required for terminal purposes on the Pacific coast and at Fort William, Ont., as well.

Mr. O. P. Austin, Chief of the United States Bureau of Statistics, states that he had calculated that the internal trade of the United States, taking only into account, so far as possible, primary exchanges, far exceeded the total international commerce of the whole world.

At a church temperance meeting held in Toronto a few days ago, at which a number of women were present, and over which Mr. G. F. Marter presided, one of the speakers, Rev. B. H. Spence, as reported in the daily papers, stated that the liquor traffic "holds out its threatening hand

over the newspapers, and prevents them from speaking out, though they would like to do so." He also said that the same influence was potent as regards about every other respectable element in society. It was not reported that Mr. Marter, who is connected with several very respectable elements of Canadian society, raised his voice in protest against the lying assertions of the blatherskite clergyman.

Changes have been made in the customs regulations concerning automobiles brought into Canada by tourists, and instructions have been issued to collectors of customs at the various ports that a deposit of \$25 and a bond for double the estimated duties is required. Formerly it was necessary to deposit with the collector at the port of entry an amount equal to 35 per cent. of the value of the machine. Examination and appraisal is to be made at the port of entry and the particulars filed on duplicate forms, one of which, together with a receipt for the deposit and a permit, shall be given the tourist. These permits are for three months from the date of the bond. The deposit shall be refunded by the collector on return of the permit with proof of the exportation of the automobile within three months from date of bond. In default of the exportation with proof thereof to the satisfaction of the collector within three months from the date of entry, the deposit is to be entered as customs duty and the provisions of the bond enforced. Collectors are given power to use discretion in waiving the requirement for cash deposit when satisfied that the automobile is to be used only within the limits and vicinity of the place where the machine is brought in. One of the conditions regarding the permit issued for tourist cars is that automobiles shall not be used in Canada for gain or hire.

The proposition made recently by the Chamber of Commerce at Hamburg that the Governments forming the International Postal Union should agree upon and issue a series of international stamps good for foreign postage in any country belonging to that organization merits the favorable attention of postal authorities and business men the world over. The practical difficulties in the way of carrying out such a plan do not appear to be serious, nor is it probable that action by congresses, parliaments or other legislative bodies will be required to put it into operation. A mutual agreement between the different post office departments will suffice, it is believed, to at least give such a plan a trial. The advantages of an international stamp to business men engaged in foreign trade are so numerous and so great as hardly to require enumeration. As a medium for prepaying postage for reply in cases where it is undesirable to request the recipient of a letter to pay for such reply himself, as a means for making trifling remittances, and in a number of other ways, such a stamp would be useful. Every business man in any part of the world, who feels that this plan will benefit him, should induce his local chamber of commerce or board of trade to urge its endorsement upon the post office officials of his country.

MACHINERY AND ENGINEERING.

"MADE IN CANADA" ELECTRICAL MACHINERY.

The new "School of Mining and Chemistry" building used in connection with the School of Practical Science of the Toronto University, marks a decided advance step in the teaching of scientific subjects to the coming generation. It is equipped with most up-to-date appliances for demonstrating modern methods as well as for experimental and research operations. It may be inferred that an institution of this character which is sending out as it graduates the engineers, who will take a prominent part in the development of the mining and power re-

this company should have supplied the machinery as the managing director, Mr. E. I. Sifton, is one of the earlier graduates of the School of Practical Science in Electrical Engineering.

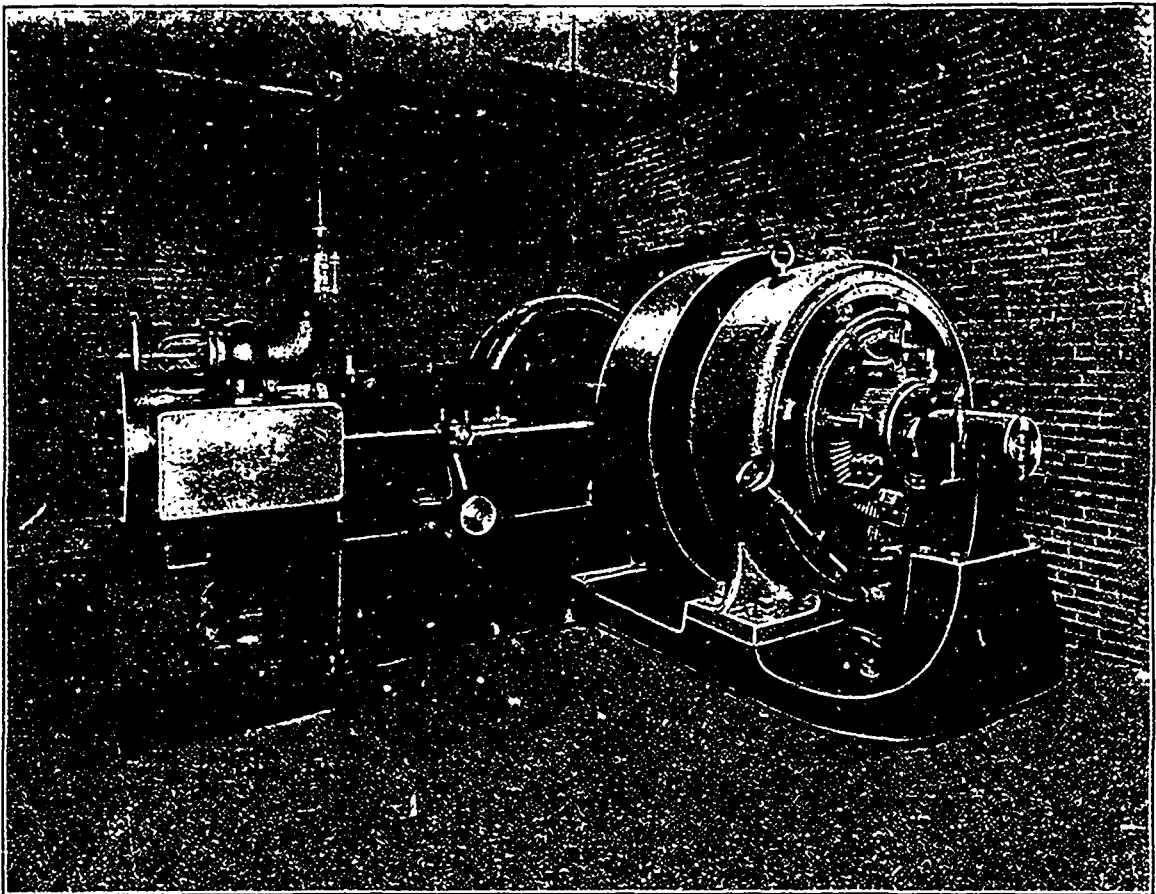
The fact that the contract was completed to the entire satisfaction of the engineers in charge is attested to by Messrs. Ross & Holgate shows that the experience obtained by the students of the School of Practical Science is of a high order when it enables one of them to design and manufacture apparatus of this kind.

The entire plant upon completion was subject to a severe test under the supervision of the consulting engineers,

overload, and after proving satisfactory on this test was operated during an eighteen hour run at full load.

The generators showed during the test that they could be operated from "No Load" to 25 per cent. over load without shifting off the brushes or employing any non automatic device for any purpose whatever, thus showing the care which had been used in designing the generators so that they would regulate themselves under the varying conditions to which they are to be subjected. Notwithstanding the severe test there were absolutely no changes required or improvements suggested.

The plant itself is unique, consisting of



ENGINE AND DYNAMOS.

sources of our country, should teach thoroughly the latest methods of production and application of electricity. With that end in view, it was decided to install in the building a plant which would produce the current necessary for light and power and also afford facilities to the students for obtaining practical knowledge of the construction of the machinery, and the production, handling and distributing of power.

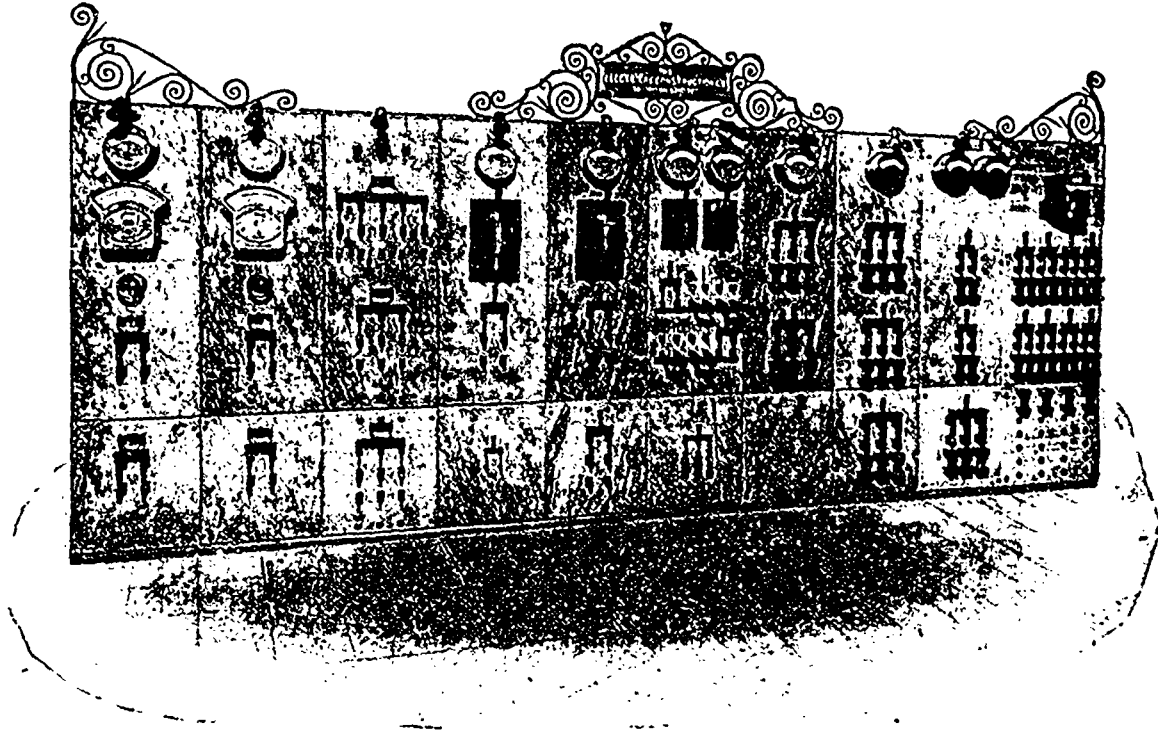
The contract for this installation was given to the Electrical Construction Co., of London, Ont., one of the younger companies manufacturing electrical machinery. It seems appropriate that

Messrs. Ross & Holgate, Montreal, in conjunction with the Professors in the Electrical and Mechanical Branches of the School. The test comprised thorough inspection of all mechanical details and materials together with operating the plant at various percentages of load ranging, from friction load to nearly 50 per cent. overload, taking readings and making calculations to show the efficiency, temperatures, regulation, overload capacity and general capability of the plant to perform the various duties, which may be required of it. It was further tested to a full load run of ten hours immediately followed by two hours run of 25 per cent.

two dynamos each of 75 kilowatts capacity connected direct to one engine having a capacity of 300 h.p.

The main switchboard consisting of ten marble panels, each with its recording instruments, in probably one of the most complicated switchboards in use in Canada. In addition to the main switchboards there are three panels, each controlling a motor operating an exhaust fan in connection with the ventilating system of the building. Four other panels are also used, fitted with instruments to automatically control the temperature of each room throughout the building.

The reproduction of photos of engine,



MAIN SWITCHBOARD.

dynamos and main switch-board, which are here given, together with a description of the use of each panel, will show how completely the plant is designed to obtain the results required of it.

Panels, 1 and 2 control and indicate the total output of machines respectively. Voltmeter, to indicate the pressure of the current.

Illuminated Dial, Ammeter, to indicate the quantity of current being consumed. Rheostat, to regulate the voltage.

Main Switch, 600 Amp. capacity, to connect dynamo service lines to their respective bus bars.

600 Amp. Switch, to connect the Bus bars to the five pole switch described under panel 3.

Panel 3. Ground Detector.

To test and ascertain if at any time any of the conducting wires either of the dynamo or lighting or power distribution services should become defective in insulation, showing contact with piping or other conducting material giving connection to the ground.

Five Pole Double throw, six hundred Ampere Switch, which when thrown in one position connects the two dynamos in "Parallel," and when thrown in the other direction connects the dynamo in "Series" for the operation of three wire service. Two other three pole double throw switches, on this panel, supply to the lighting distribution Bus bars from either "Series" or "Parallel" connection, and also allow connection with the City lighting service.

Panels 4 and 5. Control each a 600 ampere service and deliver the current to the mining department of the school, where it is used in electrical furnaces and other experimental work. Each panel is provided with an ammeter, a circuit breaker which automatically breaks the circuit if at any time carrying more current than the capacity for which it is

set; also double throw switches allowing either panel to take the current from either dynamo or from both. One switch on this panel controls the current to Pilot Lamps, illuminating each panel of the board; and another connects motors through the building to the power service supplied from either the dynamos or the City circuit.

Panel 6. Controls distribution of two services of three hundred Amp. each to panel 10. Two ammeters indicate amount of current from each service, and six interlocking switches allow each service to be supplied from either or both dynamos or from City service. The interlocking device protects either service from being supplied by more than one

ROSS & HOLGATE
CONSULTING AND SUPERVISING ENGINEERS

4001 AVENUE "ABRARD"
TELEPHONE MONTREAL 4112

ROSS & HOLGATE
CONSULTING AND SUPERVISING ENGINEERS,
60 ST. JAMES STREET

MONTREAL, March 8th, 1905

Messrs
Electrical Construction Company,
London, Ont.

Dear Sirs:-

We beg to state that you have installed under our supervision in the Chemistry & Mining Building of the School of Practical Science, Toronto, Ont., an electric plant consisting of 2 - 75 K.W. D.C. generators, attached to 1 - 300 H.P. engine and the switchboard consisting of 13 panels, and we are glad to be able to congratulate you upon the work you have done in connection with this switchboard, which was the most complicated one we have ever dealt with. The work and finish thereon being thoroughly good and entirely satisfactory to us.

The generators which you have designed especially for this plant have been tested and are up to requirements and thoroughly satisfactory.

Yours very truly,

ROSS & HOLGATE'S LETTER.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

service at any time. Each service is also protected by an automatic overload circuit breaker. A three pole switch on this panel forms the connection between City service and special distribution boards in the building.

Panels 7 and 8. Five special three pole fusible single throw switches supply all the lighting service throughout the building, including the milling and engineering buildings. An ammeter on each panel indicates the amount of light being used.

Panel 9. Controls through two double pole fused switches. Two special service lines to the Engineering building, the current used being indicated by two ammeters. A three pole fusible switch controls a three wire service for the Engineering building.

Panel 10. Consists of eight fusible 300 amp. single throw double pole switches connected to various departments for special testing, demonstrating and laboratory work. These switches are supplied with current through a system of interchangeable flexible lead plug switches from three different sources through two service lines from the interlocking switches (panel 6) thus making a most flexible service capable of being obtained from many different sources through different channels. A glass case recording Wattmeter on this panel registers the amount of current which has been consumed from a source of supply other than the generating plant.

The entire switchboard of ten panels is surmounted by a neat iron grill work in which is set a panel bearing the name of the manufacturer. "The Electrical Construction Co., of London Limited."

Three other panels control the operation of motors in the building, each panel having thereon an ammeter, automatic overload circuit breaker, and automatic speed controller.

All metal parts of instruments are furnished in black oxydized copper, the board itself being polished and bevelled "Blue Vermont" marble, two inches in thickness.

Although the papers are full of illustrations and descriptions of small and medium sized electric generating sets, it is surprising how few manufacturers build both the engine and the generator. Among these few is to be numbered the B. F. Sturtevant Co., Boston, Mass., which have, with painstaking care, during a period of fifteen years gradually perfected a line in which the engine and the generator have been designed, the one for the other. The engines are entirely enclosed, with forced lubrication, large bearing surfaces and watershed partitions between cylinder and frame; while the generators are designed to meet the most exacting conditions of continuous operation. The result is a unit possessing the maximum of mechanical and electrical efficiency. These sets are built in a full line of sizes in both the vertical and horizontal types, ranging from 3 to 250 k.w. output. The smaller sizes are compacted upon a single bed plate, ready for immediate shipment as individual units.

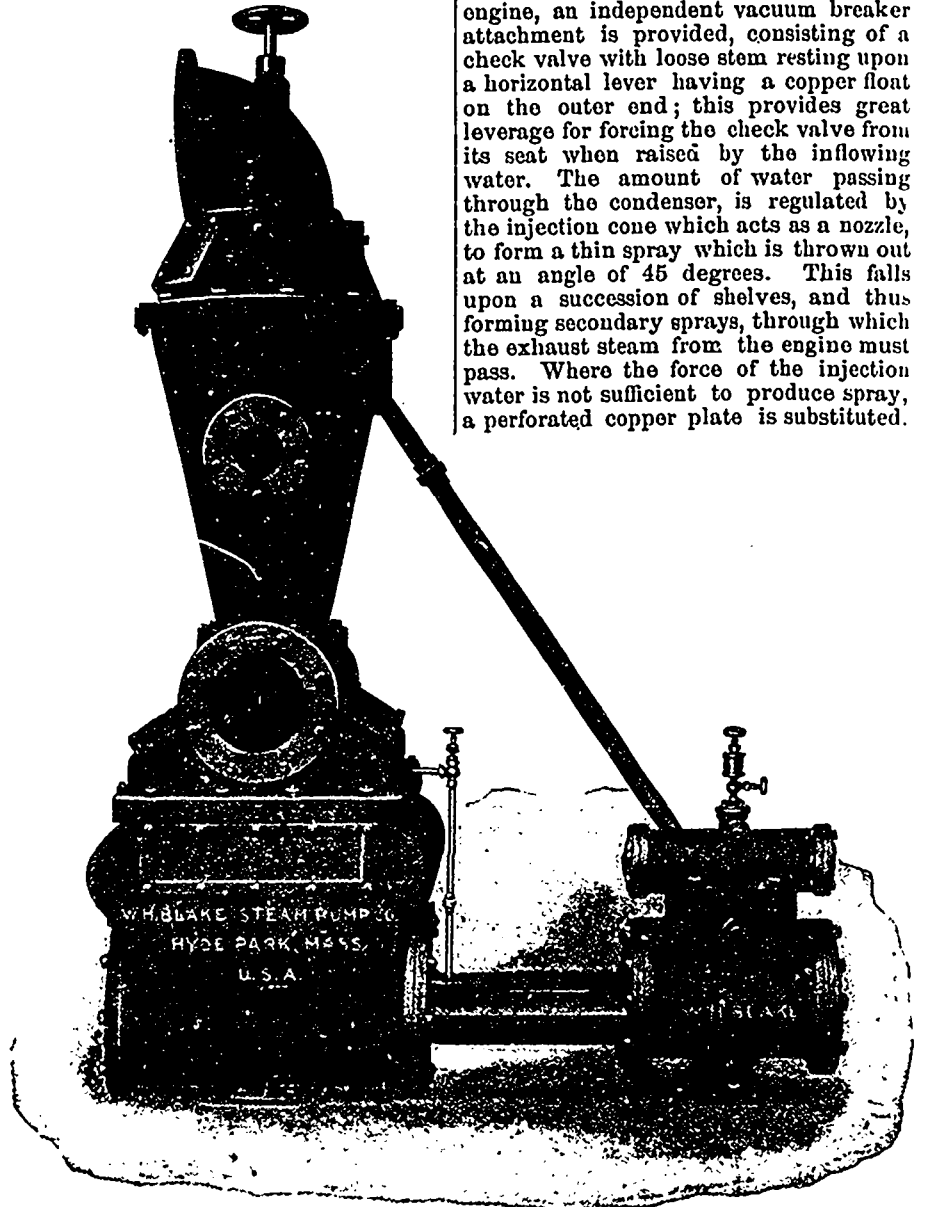
THE W. H. BLAKE CONDENSER.

The advent of the independent air pump and condenser has had much to do with the practical development of the compound engine in medium and small sizes, for with this combination there are now obtainable economic results which not long since were expected only from the large compound engine with direct connected air pump. It is seldom that a non-condensing plant can be found where an increase of 20 or 30 per cent. in the output cannot be obtained coincidentally with a reduction of 15 to 25 per cent. in the steam consumed. The convenience of application and operation of the separate condenser are appreciated by every engineer. That the jet and the surface type have their respective fields is clearly recognized. Both designs in a full line of sizes are now being manufactured by the W. H. Blake Steam Pump Co., Hyde Park, Mass. They range in capacity from 600 to 40,000 pounds of steam con-

densed per hour with injection water at 70 degrees F. One type is illustrated herewith.

In its simplest form of horizontal air pump and jet condenser, here exemplified, the injection water is so sprayed into the exhaust steam as to secure the most intimate mixture and produce instantaneous condensation. This may be done in this make of condenser with from 1 to 1½ gallons of water per horse power per minute. The utmost economy of operation is secured by the action of the special steam actuated valve motion, by means of which a full and even stroke is maintained under all conditions of duty. The waste room of an uncompleted stroke is reduced to the least possible amount for proper cushioning. This design holds its own in the matter of economy with the best engine construction.

The injection stem and cone of the condenser are of composition, access to same being had through hand holes on either side. To prevent flooding the engine, an independent vacuum breaker attachment is provided, consisting of a check valve with loose stem resting upon a horizontal lever having a copper float on the outer end; this provides great leverage for forcing the check valve from its seat when raised by the inflowing water. The amount of water passing through the condenser, is regulated by the injection cone which acts as a nozzle, to form a thin spray which is thrown out at an angle of 45 degrees. This falls upon a succession of shelves, and thus forming secondary sprays, through which the exhaust steam from the engine must pass. Where the force of the injection water is not sufficient to produce spray, a perforated copper plate is substituted.



Following are details regarding the Blake Condenser here shown:—Steam cylinder, 10 inches; air cylinder, 14 inches; stroke, 12 inches; injection inlet, 5 inches; discharge pipe, 8 inches; capacity, 6,500 pounds of steam condensed per hour with injection water at 70 degrees F.

The combined volume of injection water and condensed steam, passes by gravity down through the bottom of the condenser and into the pump. When the water reaches the level of the float chamber, the float is raised forcing the check valve from its seat, allowing an inrush of air and breaking the vacuum, thus preventing a further suction of water into condenser and consequent flooding of the engine. The construction of this machine is exceedingly simple, access to all working parts being made easy; it is very compact, requiring very little floor space, and is operated by the Blake Patent Automatic Valve Motion, without complicated mechanical adjustments.

THE ST. MAURICE FORGES.

A few days ago The Toronto Globe contained a paragraph relating to the St. Maurice forges, in the province of Quebec, with a statement by Dr. W. H. Drummond, that they are the oldest in North America. A full historical account of these forges is contained in a paper contributed by F. C. Wurtele, librarian of the Quebec Literary and Historical Society, to the Royal Society of Canada, and published in their transactions of 1886. A copy of this paper is to be found in one of the bound volumes of Canadian pamphlets in the Ontario Parliamentary Library.

Mr. Wurtele's paper contains extracts from two descriptions of the forges, one by Prof. Peter Kalm, who, in travelling through New France, stopped at Three Rivers in August, 1749, and described the forges in his travels in North America, published in London, in 1771; the other in the Haldimand collection, being replies by Col. R. Burton to questions transmitted to General Murray by the Lords of the Board of Trade and Plantation, in London, when they required information on the resources of Canada. These replies were published in 1762, and were in answer to enquiries as to the number of forges in the Province, what iron was made, and in what form and quality.

At the time of the conquest the forges fell into the hands of King George III., and were worked under the direction of the military authorities for five years, at a profit, but were then transferred to the civil government of Three Rivers. They were afterwards leased to a company for sixteen years, at the rate of £25 a year. When Montgomery made his ill-fated expedition against Quebec, he passed through Three Rivers and Pellissier, the manager, who was not very loyal, ordered a quantity of shot and shell to be cast for Montgomery in his attack on Quebec. The works thereafter passed through various vicissitudes, till 1883, when they were finally closed, the ore and wood in the neighborhood having become exhausted.

"Here's a lot ob you fine women folks," said an old negro preacher at Excelsior Springs one Sunday, "dat comes to chu'ch an' sees every hat in de congregashum—every hat but one, and dat one de Lohd passes right undah yoh nose fo' help in His cause an' to sabe yoh black souls."

CAPTAINS OF INDUSTRY.

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

The Vegetable Gelatine Co., Windsor, Ont., have been incorporated with a capital of \$40,000, to manufacture gelatine products, and to acquire the business of A. L. Martin. The provisional directors include A. L. Martin, Walkerville, Ont., S. A. Seamens, Pontiac, Mich., and J. F. Smythe, Windsor.

The Canadian Ladder Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture ladders, fire escapes, etc., and to acquire the business of the Dominion Ladder Co. The provisional directors include Robt. Robertson, J. M. Turner and J. J. Ward, Toronto.

The Gutteridge-Sullivan Co., Sarnia, Ont., have been incorporated with a capital of \$40,000, to manufacture brick machinery, dies, stamps, etc. The provisional directors include Thos. P. Bradley, S. A. Armstrong and James Sullivan, Sarnia.

The Canadian Womans Magazine Publishing Co., Toronto, have been incorporated with a capital of \$40,000, to carry on a printing, lithographing and publishing business. The provisional directors include M. G. Ferguson, H. McE. Ferguson and E. J. Guy, Toronto.

The Crescent Watch Case Co., Toronto, have been incorporated with a capital of \$20,000, to manufacture watch cases, etc. The provisional directors include Wm. Worthington, W. M. Wallace and W. A. Nisbet, Toronto.

The Imperial Cement Co., Owen Sound, Ont., have increased their capital from \$250,000, to \$300,000.

The Fleischmann Co., a United States incorporation, have been licensed to manufacture compressed yeast, vinegar, whiskey, etc., in Ontario, with a capital of \$40,000. H. E. Trent, Toronto, is their attorney.

Messrs. Selby & Youlden, Limited, Kingston, Ont., have been incorporated with a capital of \$50,000, to manufacture boilers, engines, machinery, etc. The provisional directors include Chas. Selby, Henry Youlden and M. F. Thompson, Kingston.

The Canadian Gas Meter Co., Windsor, Ont., will remove their plant to Hamilton, Ont.

The portion of the works of the Standard Chemical Co., of Toronto, which was burned at Longford, near Orillia, Ont., last February, has been rebuilt, and is now in operation.

The Elliott & Son Co., Toronto, manufacturers of wall papers, etc., have changed their name to Elliott & Son, Limited.

Apartments, Limited, Toronto, have increased their capital from \$200,000 to \$250,000.

Messrs. Penniman & McGuire, Providence, R.I., have commenced work on the

large dam of the Koochiching Power Co., at Fort Francis, Ont. It is estimated that the works will consume 100,000 barrels of cement, and that the total expenditure will exceed \$3,000,000.

The Mason & Risch Piano Co., Toronto, are enlarging their factory.

The Merchants' Rubber Co., Berlin, Ont., will erect an addition to their factory.

The R. McKie Buggy Co., Plattsville, Ont., will erect a reinforced concrete building in Hamilton, Ont., at a cost of \$10,000.

The steamer United Empire of the Northern Navigation Co.'s fleet has been remodeled during the winter at the plant of the Collingwood Ship Building Co., Collingwood, Ont., and in keeping with the company's policy to have the names of all its vessels end in "ic" has been rechristened Saronic. The fleet now consists of the Britanic, Germanic, Huronic and Saronic. The Saronic is now one of the strongest vessels on the lakes. Her frames, keelsons and planking are all of the heaviest and best white oak. In addition she is strengthened by steel arches. On the main deck forward improved crew's quarters have been built and also a cold storage plant installed with capacity for two cargoes of perishable freight. The after part of the main deck has been fitted up with very superior accommodations for second-class passengers. These consist of state rooms of three single berths each. The steamer's saloons have been refitted and decorated. They are reached from the main deck by a new stairway leading from the passenger entrance. New hallways have been made from the saloon to the outer deck. The entire steward department has been located on the forward part of this deck, but so completely shut off from the dining saloon that no odors can penetrate. The outer appearance of the steamer has been greatly changed by the construction of a turtle deck forward to accommodate the various changes enumerated above. On the promenade deck a large music room has been built, finished in quartered oak.—Marine Review.

Among the important sales of Crocker-Wheeler apparatus, made by the Packard Electric Co., St. Catharines, Ont., recently, was that of two 2,000 k. w. generators, to the Huronian Co., Turbine, Ont.

The Canadian Prairie Lands Co., Toronto, have been incorporated with a capital of \$5,000,000, to develop and improve lands, and to erect buildings, etc. The provisional directors include J. S. Lovell, Robert Gowans and W. F. Ralph, Toronto.

The Canadian Fence Mfg. Co., Woodstock, Ont., have been incorporated with a capital of \$250,000, to manufacture

wire fences, steel and iron posts, gates, etc. The provisional directors include C. A. Brink, Noah Stickney and Geo. Bragg, West Oxford, Ont.

The McLeod Milling Co., Stratford, Ont., have been incorporated with a capital of \$100,000, to manufacture flour, etc., and to acquire the business of The Hodd & Cullen Milling Co. The provisional directors include A. C. McLeod, W. J. Mooney, Stratford, and M. L. Leitch, London, Ont.

The Northern Varnish Co., Owen Sound, Ont., have been incorporated with a capital of \$40,000, to manufacture varnish, asphalts, cement, chemicals, etc. The provisional directors include J. S. Parmenter, Angus McDonald and W. J. Camsell, Owen Sound.

The Riverside Lumber Co., Huntsville, Ont., have been incorporated with a capital of \$18,000, to erect sawmills and manufacture lumber, shingles, etc. The provisional directors include John Whiteside, C. L. Dinsmore and Wm. Bouser, Huntsville.

The Blackford Oil & Gas Co., Windsor, Ont., have been incorporated with a capital of \$30,000, to produce oil, gas, etc. The provisional directors include F. B. Preston, W. F. McCorkle and J. H. Brogan, Detroit, Mich.

Messrs. Peebles, Hobson & Co., Hamilton, Ont., have been incorporated with a capital of \$40,000, to manufacture foods, liquors, meats, etc. The provisional directors include C. E. Peebles, W. J. Hobson and A. A. Harding, Hamilton.

The Empire Gas & Oil Co., Windsor, Ont., have been incorporated with a capital of \$40,000, to produce oil, gas, etc. The provisional directors include V. C. Fry, A. G. Guldon and F. D. Andrus, Detroit, Mich.

The Canadian Shovel & Tool Co., Hamilton, Ont., have been incorporated with a capital of \$150,000, to manufacture shovels, spades, tools, etc. The provisional directors include J. C. McCarty, New York City, C. H. Holton, Easton, Pa., and W. A. Holton, Hamilton.

The New Liskeard & Northern Ontario Mining & Developing Co., New Liskeard, Ont., have been incorporated with a capital of \$25,000, to carry on a mining, milling and reduction business. The provisional directors include John Cox, J. H. O'Brien and J. O. Margueratt, New Liskeard.

The Maple Leaf Automobile & Electrical Mfg. Co., London, Ont., have been incorporated with a capital of \$50,000, to manufacture electrical appliances, dynamos, motors, engines, etc. The provisional directors include J. O. Weldon, Donald Ferguson and G. H. Rapson, London.

The Pease Heating Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture metal work, heating, plumbing and steam-fitting apparatus, etc. The provisional directors include David Miller, J. M. Bell and F. W. Johnson, Toronto.

The Gurney Oxford Stove & Furnace Co., Limited, Toronto, have been

incorporated with a capital of \$40,000, to manufacture metals, stoves, etc., and to acquire the business of the Gurney Oxford Stove & Furnace Co. The provisional directors include Edward Gurney, W. C. Gurney and E. H. Gurney, Toronto.

The Rexall Co., Limited, Toronto, have been incorporated with a capital of \$40,000, to acquire the business of the Rexall Chemical Co., and to manufacture aniline dyes, chemicals, compounds, etc. The provisional directors include Nelson Burgess, W. H. Hall and W. R. Grundy, Toronto.

The Neibergall Stave & Lumber Co.'s mills at Staples, Ont., were damaged by a boiler explosion May 22.

The boiler of the Bonnell Bros. sawmill at Hoath Head, near Owen Sound, Ont., exploded May 22.

A hot water boiler exploded in the basement of St. Michael's Hospital, Toronto, May 23, and caused about \$2,000 damage.

Messrs. Scholey Bros. planing mill at Toronto, was damaged by fire May 15. Loss about \$5,000.

Messrs. Cockburn & Sons' sawmill at Sturgeon Falls, Ont., was destroyed by fire May 25.

J. C. Cober & Son's carriage factory and R. K. Ross' grist mill at Brussels, Ont., were destroyed by fire May 25. Loss about \$40,000.

The Gananoque Inn, at Gananoque, Ont., was destroyed by fire May 20. Loss about \$3,000. It will be rebuilt at once.

The planing mill and box factory of the Dyment-Baker Lumber Co., and part of the London Machine Tool Co.'s plant, at London, Ont., were destroyed by fire May 25. Loss about \$75,000.

John Eastwood's block at Carleton Place, Ont., was destroyed by fire May 24. Loss about \$15,000.

The Globe Paint Works, Toronto, were damaged by fire May 30. Loss about \$700.

The proposed Michigan Central tunnel under the Detroit River will be two miles in length. Twin tubes will be laid beneath the river in the one subway. Electric traction will be the motive power used. An extensive power station will be erected on the Detroit side. The locomotives used will be about 7,500 h.p. each. Each tube will have a single track, using the third rail electric system. The entire work of construction will be done from the Windsor side, the offices of the company being located there. The supposed cost of the tunnel is about \$7,500,000.

It is reported that during the present season at least 100,000 tons Brotherton-Yale and New Era ore will be shipped from Ashland, Wis., to the Algoma Steel Co. at the Canadian Soo. Considerable ore will also go to the Canadian Furnace Co., at Midland, Ont. The quality of ore being sent to the Canadian furnaces is of the very best grade Bessemer, valued at \$4 per ton.

The Minister of Railways and Canals, Ottawa, asks for \$388,000, for the pur-

chase of rolling stock for the Intercolonial Railway. The items to be purchased are twelve passenger engines and freight engines, twenty first-class day coaches, four second-class coaches, four parlor cars, two dining cars, ten baggage cars and 150 box cars.

The old Fensom elevator works property at Toronto has been sold to the Capewell Horse Nail Co. for \$40,000.

The Raymond Gas & Engine Co. will locate their works at Port Arthur, Ont., and will give employment to about 200 men.

The Sturgeon Creek Cheese & Butter Co. is being organized at Barwick, Ont., where they will erect a large butter and cheese factory.

The Ottawa Board of Works have awarded the contract for a ten-ton steam roller to Julian Scholl & Co., New York City, at a cost of \$2,700.

The Roman Catholics of Port Arthur, Ont., will erect a new church building.

A Canadian company, consisting of Lord Alverstone of England, Messrs. W. K. McNaught, W. G. George, E. P. Pearson and F. McMahon, Toronto, and others, has been formed for the purpose of producing medicinal alcohol from sawdust.

The Henderson Roller Bearing Co., Toronto, are considering establishing a branch industry at Port Arthur, Ont.

The Ontario Government have appropriated \$465,000, to be expended on necessary buildings in connection with the University of Toronto, including a new General Hospital, a physics building, a convocation hall and a museum for the science building, etc.

The Keewatin Flour Mills Co., Keewatin, Ont., have commenced work on their new mill, which will have a capacity of 3,000 barrels per day, and provision will be made to increase the capacity to 5,000 barrels. In addition to this the company will erect storage elevators with a capacity of half a million bushels, and will also build small elevators throughout the West for the purpose of wheat buying. Officers of the company include D. L. Mather, Rat Portage, Ont., and John Coates, Ottawa.

The Chatham, Wallacaburg & Lake Erie Electric Railway Co. have commenced work on the erection of their new offices, car barns and engine house at Chatham, Ont.

The Toronto Builders' Exchange will erect a large office building.

A new Y.M.C.A. building will be erected at Owen Sound, Ont., at a cost of \$21,000.

The ratepayers of Ingersoll, Ont., have voted favorably on a by-law granting a loan of \$20,000 to the Ingersoll Nut Co., who will erect a factory there.

The new steamer Geneva was launched at Orillia, Ont., a few days ago. She is 32 feet over all, with 16 feet 4 inches beam. The machinery was built by the Bertram Engine Works, Toronto. The engine is 100 h.p. The boiler is substantially built, and stood a pressure of 234 pounds to the square inch

without a leak when tested. The hull was built in Orillia by the Davis Dry Dock Co., of Kingston, Ont.

The Department of Marine and Fisheries will rebuild the steamer Scout, recently burned in a gas explosion. The hull and up to the deck will be rebuilt at Kingston, Ont., the upper works to be added at Prescott, Ont.

The Y.W.C.A., at Brantford, Ont., will enlarge their building.

T. Crow, Toronto, will erect a three story carriage factory and blacksmith shop at a cost of \$15,000.

The D. Conboy Carriage Co., Toronto, have purchased 150,000 square feet of ground upon which they will erect a factory at a cost of \$75,000, and will give employment to 200 hands.

The Toronto Gas & Gasoline Engine Co., Toronto, will erect a one story concrete machine shop at a cost of \$17,000.

The Owen Sound Iron Works, Owen Sound, Ont., have completed three coal hoppers for the Shallow Lake Cement Works. They also have ready for shipment to Lakefield, Ont., a rotary cooler and pump, three elevators, three coal hoppers and smokestack for the cement works there.

The Y.M.C.A. will erect a new building in Collingwood, Ont. Tenders will be invited shortly.

The John W. Cowan Co., Toronto, will erect a four story warehouse at a cost of \$30,000.

The ratepayers of Orillia, Ont., have voted favorably on a by-law granting the James Bay Railway Co. the right of way and \$30,000, when the line is open for traffic between Toronto and Parry Sound, Ont.

The Ogilvie Flour Mills Co. have awarded the contract for the erection of their mill at Fort William, Ont., which will be completed by September 1. The dimensions of the mill are 130x50 feet, seven stories high, with a warehouse 182x85 feet, five stories. The barrel factory will be 85x50 feet, five stories; the power house 85x74 feet, and the docks will be 800 feet long.

The East Toronto Council will grant a free site, free water, and a loan of \$10,000 to the Maestro Piano Co., in consideration of the company erecting a factory at a cost of \$30,000.

The Algoma Steel Plant, at Sault Ste. Marie, Ont., have completed an order for 80-pound rails for the Canadian Pacific Railway and are now engaged in turning out 100-pound rails for use on the Michigan Central's lines in Canada. These are the first 100-pound rails made by the Algoma Co.

The congregation of the Barton Street Methodist Church at Hamilton, Ont., will erect a new church building at a cost of \$25,000.

Messrs. Getty & Scott, boot and shoe manufacturers at Galt, Ont., will erect an addition 40 feet long, two stories high, to their present factory.

Mr. Wm. Blackwell, architect, Peterborough, Ont., has prepared plans

for the erection of the new Burleigh Falls Hotel. The building will be 70x40 feet, three stories high. For further information apply to Thos. Darcy, Peterborough.

The Canadian Tin Plate & Sheet Steel Co., who are establishing a large plant at Morrisburg, Ont., will give employment to 200 expert plate and sheet iron workers to be brought from Wales.

The American Chicle Co., Toronto, will erect a three story factory building at a cost of \$35,000.

The Imperial Steel & Wire Co., Collingwood, Ont., will double the capacity of their plant, which will be 50 tons minimum of finished wire products daily. Additional machinery, engines, boilers, etc., will be ordered at once.

The Canadian Steel Goods Co., of which A. H. Hatch, of Toronto, is general manager, will erect a large factory for the manufacture of hardware in Hamilton, Ont. The company was formed recently by the combination of a number of leading Canadian hardware manufacturing concerns.

The Davis' block at Windsor, Ont., was damaged by fire May 29. Loss \$1,000.

The Dominion Government are considering placing an ice crusher at Port Arthur, Ont.

The Ryall Screw & Specialty Co., Montreal, have recently installed a 26 h.p. Campbell gas engine, and suction gas producer.

Work will be begun shortly on the new plant which the Simplex Railway Appliance Co. of Canada, will erect at Lachine, Que. The new plant will be more than double the size of the present structure at St. Henri. The machinery in use at St. Henri will be moved to Lachine, and the company will shortly be in the market for considerable equipment in the way of machine tools. All contracts will be placed by the mechanical department at St. James and Rose De Lima Streets, Montreal. The Simplex bolsters, side bearings, break beams and structural steel used in the construction of steel cars will be manufactured in the new plant.

Prof. F. H. Norman, will erect a music hall in Montreal, at a cost of about \$50,000. Mr. M. Roden, that city, is the architect.

The citizens of Ste. Genevieve, Que., will rebuild the convent recently destroyed by fire.

The Bell Telephone Co., Montreal, will erect a new building 114x56 feet, two stories high, in which they will install a 10,000-line switchboard.

The Grand Trunk Railway Co. have let a contract to the E. R. Baker Co., Chicago, Ill., and Midland, Ont., for the erection at Midland of a grain elevator, to have a capacity of a million bushels.

The Dominion Government will install a wireless telegraph station in the Quebec post-office building.

P. E. Bourassa & Son's furniture factory at Montreal was destroyed by fire May 16. Loss about \$30,000.

The J. E. White Co., New York City, manufacturers of electrical machinery, have organized a Canadian company with a capital of \$1,000,000. They will erect a large plant in Montreal.

The Richelieu & Ontario Navigation Co.'s new steamer Montreal made her first trip between Sorel, Que., and Montreal on May 19. Her dimensions are — Length, 340 feet; width of hull, 44 feet; width over guards, 75 feet 6 inches; moulded depth, 15 feet. Her engines are triple expansion, of 3,000 h.p., with stroke of 6 feet 5 inches. She has side wheels fitted with feathering curved steel buckles. Steam is supplied by six Scotch cylindrical boilers of 11 feet diameter and 12 feet length, with working pressure of 185 pounds. An electric light plant will furnish power for 1,200 sixteen-candle power lamps. The hull, engines and boilers were built by the Bertram Engine Works Co., Toronto. The steamer is the first of her class to be turned out of the Richelieu and Ontario yards at Sorel. The Montreal will ply between Montreal and Quebec.

The Hon. Raymond Prefontaine, Minister of Marine and Fisheries, stated that it was probable that a Government dry dock would be built at Montreal and a marine railway at Sorel, Que.

The Hamilton property at Montreal, purchased by Hon. Senator Cox and others of Toronto, will be used for an office building for the Bank of Commerce, the Canada Life and the National Trust Co.

The Turner Lumber & Pulp Wood Co., Quebec City, have been incorporated with a capital of \$100,000, to manufacture lumber, pulp wood, paper, etc. The provisional directors include Richard Turner, R. E. W. Turner, and Archibald Miller, Quebec City.

The Pointe Claire Lighting Co., Pointe Claire, Que., have been incorporated with a capital of \$20,000, to manufacture gas for light and power purposes, etc. The provisional directors include Jas. M. Robertson, Frederick Bacon and G. A. Savage, Montreal.

The Parisian Fur Dyeing Works, Montreal, have been incorporated with a capital of \$10,000, to carry on a fur dyeing business, etc. The provisional directors include H. R. Gutheil, H. W. Gutheil and Adam Valkert, Montreal.

The Imperial Laundry Co., Ltd., Montreal, have been incorporated with a capital of \$20,000, to acquire the business of the Imperial Laundry Co., and to carry on a laundrying, cleaning, and dyeing business. The provisional directors include C. W. Fatt, Neil Beaton, Toronto, and R. P. Reinhardt, Montreal.

The Montreal Furniture Co., Montreal, have been incorporated with a capital of \$20,000, to manufacture furniture, sewing machines, etc. The provisional directors include Gustave Audet, Rosario Cote and Alfred Leard, Montreal.

The Canadian White Co., Montreal, have been incorporated with a capital of \$1,000,000, to carry on the business of

mechanical and civil engineers, and to produce electricity for power purposes, etc. The provisional directors include W. G. Ross, R. C. Smith and R. C. Grant.

The Duncan Electrical Co., Montreal, have been incorporated with a capital of \$90,000, to manufacture electrical supplies, machinery, hardware, etc. The provisional directors include Chas. Duncan, W. P. Baird and Wm. King, Montreal.

The Drummondville Shoe Co., Drummondville, Que., have been incorporated with a capital of \$20,000, to manufacture boots, shoes, leather, etc. The provisional directors include J. A. Viau, J. B. Charbonneau and Napoleon Turner, Drummondville.

The John Morrow Machine Screw Co., Ingersoll, Ont., have been licensed to do business in Quebec. Mr. Frederick Bacon, 377 St. Paul Street, Montreal, is their agent.

The Morris & Gilman Co., Montreal, have been incorporated with a capital of \$20,000, to manufacture leather goods, etc. The provisional directors include Hon. F. E. Gilman, C. L. Morris and F. M. Gilman, Montreal.

Le Syndicat du Monument National, Sherbrooke, Que., have been incorporated with a capital of \$15,000, to erect a monument to the French Canadian nationality of Sherbrooke, and to erect a lecture hall. The provisional directors include E. C. Tanguay, J. A. Castonguay, and E. A. Dugal, Sherbrooke.

The Gananoque Spring & Axle Co., Gananoque, Ont., have been authorized to do business in Quebec, and have appointed Mr. Frederick Bacon, Montreal, to be their agent.

The Canadian Rubber Co., of Montreal, Ltd., Montreal, have been incorporated with a capital of \$2,000,000, to manufacture rubber boots, shoes, etc. The provisional directors include Sir H. M. Allan, J. B. Learmont and H. A. Allan, Montreal.

The J. W. Harris Co., Ltd., Montreal, have been incorporated with a capital of \$150,000, to acquire the contracting business of J. W. Harris, and to erect and operate mills, elevators, etc. The provisional directors include J. W. Harris, W. B. Powell and F. D. Monk, Montreal.

The North American Cotton Co., Montreal, have been incorporated with a capital of \$3,000,000, to erect cotton and woolen manufacturing, to manufacture cottons, woolens, shoddy, etc. The provisional directors include J. H. Webb, J. A. Fish and N. G. Hampshire, Montreal.

The J. H. Maiden Co., Ltd., Montreal, have been incorporated with a capital of \$20,000, to acquire the business of The Eagle Mfg. Co., and to manufacture druggists' sundries, chemicals, etc. The provisional directors include R. T. Heneker, A. H. Duff and J. J. Robson, Montreal.

The Kensington Brandon Land & Development Co., Montreal, have been incorporated with a capital of \$100,000, to erect buildings and improve and develop

lands, produce electricity, etc. The provisional directors include G. A. Forbes, G. H. Bisset, Montreal, and Jas. Curry, Toronto.

The Paul Automatic Gas Co., Montreal, have been incorporated with a capital of \$145,000, to acquire the patents of invention granted to Francis Paul, jr., of Sorel, Que., for improvements in gasoline making machines, and to manufacture such machines. The provisional directors include Francis Paul, jr., Francis Paul, sr., and Olivier Dupuis, Sorel, Que.

The Maison Fournier-Fournier, Ltd., St. Hyacinthe, Que., have been incorporated with a capital of \$45,000, to manufacture vinegar, wines, liquors, etc. The provisional directors include Paul Fournier, St. Hyacinthe, John Fournier, and F. F. Lemonde, Ste. Rosalie, Que.

The Union Screen Plate Co. of Canada, Lennoxville, Que., have been incorporated with a capital of \$20,000, to manufacture machinery and supplies for paper and pulp mills, etc. The provisional directors include E. Crocker, Fitchburg, Mass., H. W. S. Downs and Frank Gadette, Lennoxville.

Messrs. Price Bros. Co.'s lumber mills, at Amqui, Que., were destroyed by fire May 26. Loss about \$25,000.

The gas works of the Montreal Light, Heat & Power Co., Montreal, were damaged by fire May 26.

The Dominion government has fitted up submarine bells at the lightships at Red Island, White Island reef, and off the mouth of the Saguenay river, on the St. Lawrence river. During foggy weather the bell will strike the number of the lightship, viz: 3, 5, or 7, as the case may be, with two seconds interval between each strike, and ten seconds interval between each time of striking. Vessels fitted with the receiving apparatus should hear the bell at five miles, and vessels not so equipped at about two miles.

The Robb Engineering Co., Amherst, N.S., have received an order from the Windsor & Tecumseh Electric Railway Co., Walkerville, Ont., for a 450 h.p. Robb-Armstrong Corliss engine, and two 200 h.p. Robb-Mumford boilers, also for a large steel smoke stack, condenser and all piping complete.

David Rowley's furniture warehouse at Sydney, N.S., was destroyed by fire May 27. Loss about \$1,500.

Wm. Ramsay's portable steam sawmill at Tupperville, N.S., was destroyed by fire recently.

The American Furniture Co., Oxford, N.S., will rebuild their mills, which were recently destroyed by fire.

The Boston & Nova Scotia Steamship Co., have been organized with a capital of \$100,000. The plans of the new company are to inaugurate semi-weekly service between Boston, Mass., and Halifax, N.S.

The Imperial Wine & Spirit Co., St. John, N.B., have been incorporated with a capital of \$25,000, to manufacture wines, spirits, cigars, tobaccos, etc. The

provisional directors include D. A. McLeod, W. A. Cathers and Wm. White, St. John.

James Pender & Co., Ltd., the well-known wire and nail manufacturers of St. John, N.B., have purchased a complete wire nail plant from the Turner, Vaughn & Taylor Co., Guyahoga Falls, Ohio.

Messrs. Stetson & Cutler, have leased the Mispic Pulp Mill at St. John, N.B., and will greatly increase the capacity of same.

Messrs. Snow & Co.'s undertaking establishment at Halifax, N.S., was destroyed by fire May 25.

H. A. Richardson will establish a peat-making industry at Winnipeg, Man., having purchased the necessary excavating and compressing machinery. Mr. Richardson estimates that peat fuel produced by his patented process can be supplied to Winnipeg consumers at \$5.50 per ton, and will compare favorably with anthracite. The expense to which peat companies have hitherto been put in draining the bog before operating is avoided. The machine is built on a scow; the peat is taken in at the end from the bog by a series of buckets on endless chains, dumped into a hopper and in from 28 to 45 minutes comes out at the other end in the form of perfected briquettes. It is claimed that by avoiding the air-drying process some of the best elements usually lost are retained in the peat. Each machine can take 500 tons of peat from the bog daily and turn it into 100 tons of briquettes.

The town of Calgary, N.W.T., has just awarded to Allis-Chalmers-Bullock, Ltd., Montreal, the contract for a complete civic lighting plant. The current will be generated by a 260 k. w. alternating current generator of the Bullock engine type, of slow speed. The contract includes, besides the generator, a switchboard, three 35-light 6 6-10 ampere arc light circuits and all the wiring necessary for the commercial circuits, thirty lighting transformers, pole line, etc. The work will be begun at once.

St. Peter's Church, Winnipeg, Man., will be enlarged at a cost of \$7,000. For further information apply to Rev. S. Fea, Winnipeg.

J. M. Lyle, Winnipeg, Man., has prepared plans for the Caven memorial library, to be 160x38 feet, to cost \$30,000.

The Alberta Railway & Irrigation Co., Lethbridge, Alberta, have ordered a 175 h.p. Robb-Mumford boiler, from the Robb Engineering Co., Amherst, N.S. This makes eight boilers of this type that company have purchased during the past few years.

The Massey-Harris Co., will erect a factory building at Kamsack, N.W.T.

The Owen Sound Portland Cement Co., Owen Sound, Ont., have been awarded the contract for supplying to the city of Winnipeg, Man., about 30,000 barrels of cement.

The Manitoba Hardware Co., Winnipeg, Man., will erect a factory at Reston, Man.

The Manitoba Iron Works Co., Winnipeg, Man., have installed a complete electric lighting plant in the T. A. Garland Co.'s departmental store, at Portage la Prairie, Man.

A. W. Reidle, Winnipeg, Man., will erect a brewery at Regina, Assa., at a cost of \$40,000.

H. W. White, will erect a large office building at Moosomin, N.W.T.

The T. Eaton Co., will install four 250 h.p. boilers and two engines in their new departmental store in Winnipeg, Man.

The Commonwealth Trading Co., are building a large warehouse at Warwick, Sask.

Messrs. Turner & McMichael will erect a 100 barrel flour mill at Melfort, Sask.

The Winnipeg Supply Co., Winnipeg, Man., have purchased from Allis-Chalmers-Bullock, Ltd., Montreal, a complete crushing plant for their Stonewall works. It includes a No. 4 "K" Gates Crusher, screens, elevators, etc.

Five business blocks and the Coleman hotel, at Coleman, N.W.T., were destroyed by fire recently.

The town of Dauphin, Man., have voted favorably on a by-law to raise \$35,000, for a fire hall and an electric light plant.

Messrs. Bulman Bros., Winnipeg, Man., will erect a new block seven stories high at a cost of about \$80,000.

The citizens of St. Boniface, Man., will ask the City Council to erect a new town hall instead of the proposed extension of the present building.

The Lake Huron & Manitoba Milling Co., Goderich, Ont., and the Alexander Kelly Milling Co., Brandon, Man., will unite in the erection of a large flour mill at Winnipeg, Man.

A company has recently been formed at Vancouver, B.C., to manufacture a teredo-proof pile covering, an invention of a resident of British Columbia. A pile covered with this material was placed in a very exposed position on the water front three years ago, and remains now as perfect as when it was first driven, while the piles that have not been treated, and which surround it, are honeycombed by the teredo's work. It is said that the coating is not subject to corrosion like copper covering and costs about one-third as much. It cannot be diluted or washed out by sea water, as invariably happens with paints and carbolic washes. The company will also manufacture a solution for the prevention of dry rot in sills, joists, posts, and bridge and tie timber.

The Vancouver Warehouses, Ltd., Vancouver, B.C., have been incorporated with a capital of \$100,000, to carry on the business of warehousemen, etc.

The Albright Extension Ladder Co., have been incorporated at Victoria, B.C., with a capital of \$20,000, to manufacture extension ladders, lifts, etc.

The Western Fish Co., have been incorporated at Victoria, B.C., with a capital of \$30,000, to carry on a fish packing, curing, and drying business.

The British Columbia Construction & Distribution Co., have been incorporated at Victoria, B.C., with a capital of \$25,000, to produce electricity for light, heat, and power purposes, etc.

The Taylor Pattison Mill Co., have been incorporated at Victoria, B.C., with a capital of \$50,000, to manufacture doors, sashes, furniture, etc.

The Britannia Smelting Co., Crofton, B.C., have been incorporated with a capital of \$625,000, to carry on a smelting, milling and refining business, etc.

The Western Pacific Clay & Investment Co., have been incorporated at Victoria, B.C., with a capital of \$500,000, to manufacture clays, brick, pottery, etc.

The St. Eugenie Consolidated Mining Co., at Moyie, B.C., have ordered from the Canadian Rand Drill Co., Montreal, a 30-drill air compressor. The new engine will have a capacity of about 3,000 cubic feet of free air per minute. A 60x60 foot building, to house this machine, is being erected. More steam boilers, of a total capacity of about 500 h.p., have also been ordered; when these shall have been installed the total boiler capacity will be 330 h.p.

The Mogul Logging Co., Whatoom, Washington, have been licensed to manufacture shingles, lumber, etc., in British Columbia, with a capital of \$3,000. W. M. Griffin, Vancouver, B.C., is their attorney.

The Pierce-Pement Logging Co., have been incorporated at Victoria, B.C., with a capital of \$25,000, to acquire the business of Pierce & Pement, and to manufacture lumber, etc.

J. O'Brien, Revelstoke, B.C., will erect a large brewery and malting plant at Vernon, B.C., at a cost of about \$50,000.

The Imperial Oil Co., will erect a storage warehouse, 60x20 feet, at Fernie, B.C.

Messrs. Smith & Sherbourne, Victoria, B.C., have been awarded the contract for the erection of the new Canadian Pacific Railway station at Revelstoke, B.C., at a cost of about \$25,000.

The Braim Patent Switch Co., Vancouver, B.C., have been incorporated with a capital of \$50,000, to manufacture a device for operating street railway switches from an approaching car, and to acquire the patents for same from W. H. Braim, Vancouver.

The Southeast Kootenay Coal & Petroleum Co., Rossland, B.C., have been licensed to carry on mining, milling and development business in British Columbia with a capital of \$250,000. G. W. Kerr, Rossland, is their attorney.

The following business houses and hotels were destroyed by fire at White Horse, Yukon Territory, May 23:—Taylor & Drury, clothiers, \$20,000; Seward's grocery, \$12,500; G. McLennan, hardware, \$15,000; Bennett book store, \$10,000; Windsor Hotel, \$25,060; jewellery store in Windsor block, \$10,000; Whitney & Pedler, general store, \$50,000;

White Horse Hotel, \$20,000; Capt. P. Martin's grocery, \$10,000; Dominion Hotel, \$20,000; Unsworth's hardware store, \$9,000; Hotel Grand, John West, \$15,000; P. Burns' shop and cold storage plant, \$25,000. Total loss about \$250,000. Nearly all the above firms will rebuild at once.

Messrs. Kelly, Douglas & Co., wholesale grocers, Vancouver, B.C., will erect an eight story warehouse building at a cost of about \$80,000.

Robert Kelly and F. Burnett, Vancouver, B.C., will erect an eight story building at a cost of about \$50,000.

A by-law will be submitted to the rate-payers of Fernie, B.C., to raise \$100,000 for a new waterworks system.

A Boston syndicate have prepared plans for the erection of a large cedar mill on Quatsino Sound, Vancouver Island.

H. T. Knott, Victoria, B.C., has been awarded the contract for the erection of the Melrose block in that city at a cost of \$10,500.

Messrs. E. G. Prior & Co., Victoria, B.C., have been awarded the contract for the supply of steel for the new Canadian Pacific Hotel being erected in that city.

ELECTRICITY.

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

Messrs. J. Y. Griffin & Co., Winnipeg, Man., have asked for a franchise to supply electric light and power to the village of Louise Bridge, Man.

The British Columbia Telephone Co. are rebuilding their line from Cascade to Phoenix, B.C.

The Canadian General Electric Co., Toronto, have supplied the machinery for the electric light plant now being installed at Bankhead, Alta., for the purpose of lighting that place and Banff, Alta.

The Board of Commissioners of the Temiskaming and Northern Ontario Railway Co., have decided to inaugurate a government owned telephone system for the entire length of their railway.

The Golden Light, Power & Water Co., Golden, B.C., have been incorporated.

A power house will be erected in connection with the Canadian Pacific Railway Co.'s hotel now under construction at Victoria, B.C. An ice-making plant and a high pressure pumping plant will be installed.

The Campbell Electric Co., Edmonton, Alta., has been acquired by the Northwest Electric Co.

The electric lighting plant at Windsor, Ont., will be remodeled and enlarged at a cost of \$30,000.

The Ingersoll, Ont., Waterworks Co., will substitute electric for steam power at the pumping house, the current to be obtained from the Ingersoll Electric Light & Power Co.

The Bell Telephone Co. are placing their wires underground in the city of London, Ont.

Mr. J. H. Boyes is negotiating for the installation of an electric light plant at Carberry, Man.

The Canadian General Electric Co., Toronto, are installing a new marble switchboard, with instruments and apparatus, necessary for 2,200 volt operation, and also an 800 gallon per minute turbine pump direct connected to an 80 h.p. induction motor in the Sudbury, Ont., electric lighting plant and water-works.

The McLeod Electric Light & Power Co., McLeod, N.W.T., have installed an electric plant at Coleman, Alta.

The ratepayers of Ottawa have voted favorably on a by-law to raise \$200,000, to purchase the plant of the Consumers Electric Co., that city.

The Mexican Light & Power Co., City of Mexico, are negotiating for the purchase of the two lighting companies in that city, viz., the San Ildefonso Co., and the Gibb Co.

A portable wireless telegraph apparatus has been brought out in Germany. It weighs only 445 pounds if the necessary electricity is supplied by a dynamo and generating apparatus resembling a stationary bicycle, or 510 pounds if accumulators are used for supplying the current. Only ten men are required in the first case, only eleven in the second. The total equipment may be carried on three horses, the first carrying the telescopic masts, the second the transmitting and receiving instruments, and the third the dynamo or storage battery. A distance of about 15½ miles of flat country can be telegraphed across. Further developments may make this extremely valuable for war purposes, for example, between the advanced wings of an encircling force.

The city of St. Thomas, Ont., have acquired the gas and electric light works.

The Toronto Street Railway Co. will erect a one story building for electrical purposes at a cost of \$22,000.

The Canadian General Electric Co. have turned out, from their Peterborough, Ont., works, one of the largest electrical generators ever constructed. It is of 12,000 h.p., the first of a series being constructed for the plant of the Ontario Electrical Development Co. The previous largest generator was of 10,000 h.p., built by the Westinghouse Electric & Mfg. Co., Pittsburg, Pa.

The sale of Portland cement in Canada last year increased 28 per cent. over the preceding year. There was at the same time a very marked decline in the use of Natural cement similar to that experienced in the United States. While there was still imported into Canada three-quarters of a million barrels of Portland cement, in the very nature of things, this may be expected to rapidly decline until domestic cement will be almost universally used. The raw material for the manufacture of cement is plentiful in Canada, and deposited at points accessible to market.

He who first counts the cost, without considering possible results, is defeated before he begins.

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 Westmoreland Coal Co., have purchased control of the Penn Gas Coal Co., and thus becomes one of the largest gas-coal producing company in Pennsylvania. With the Penn Co.'s 5,000 acres, the Westmoreland organization controls more than 20,000 acres of gas-producing coal lands in Westmoreland County, Pa.

The Standard Coal & Railway Co., are stated to have struck a large seam of coal on their property at Half-Way River, Cumberland County, N.S., at a depth of 2,350 feet, the thickness is from eight to ten feet.

The Colchester Coal & Railway Co., Colchester, N.S., have asked the municipality for exemption from taxation and for a small grant towards the purchase of a right of way for railway from the Inter-colonial line to their mines.

It is stated that the Dominion Coal Co. have decided upon the adoption of shearing machines in their mines at Glace Bay, N.S. With these appliances coal can be mined with the use of less powder than is required to blow down coal cut by ordinary mining machines, with the result that a larger percentage of the product reaches the surface in lump form.

Fifteen students of the department of mining and engineering of McGill University, Montreal, recently visited anthracite collieries in the vicinity of Scranton, Pa., for the purpose of gaining a practical knowledge of how coal mining operations are conducted. They also visited iron mines and steel plants in Pennsylvania and other States. The party was accompanied by several professors of mining and geology.

Mr. E. C. Berghofer, representing the Link-Belt Machinery Co., Chicago, Ill., well-known manufacturers of coal-handling plant and machinery, recently visited Fernie, B.C., to obtain particulars of the 880-foot steel trestle, tippie and other plant the Crow's Nest Pass Coal Co. are about to put in to replace that recently destroyed by fire at their Coal Creek colliery.

E. F. Stephenson, Inspector of Crown Timber and Mines, has returned to Winnipeg, Man., from an official trip through the West, and reports a rapid development of the coal-mining industry in Alberta and south-eastern British Columbia, especially in the Crow's Nest Pass and at Banff. Mines are also being worked on the Knee Hill Creek to the north-east of Calgary, the product there being a good quality of coal, resembling the English Cannel coal, between a high-grade lignite and anthracite. It burns well in stoves and furnaces, and can be bought by settlers at \$1.50 per ton at the mines, and much of it is also disposed of in Calgary.

If we put some powdered coal into the

bowl of a common clay pipe, plaster over the opening with clay, and then insert the bowl in a fire, allowing the stem to project from between the grate bars, we will have commenced the process of destructive distillation. In a few minutes a stream of gas will issue from the stem. On applying a light it will burn with a bright flame, and we have made coal gas on a small scale.

The contract of supplying the Consumers Gas Co., Toronto, with three-quarter lump gas coal for the coming year was awarded to the Pittsburgh Coal Co. The tonnage is estimated at approximately 85,000 tons, and is for all-rail shipment.

During the winter the coal men experienced a great deal of trouble with the railroads owing to the demurrage rule now in force. Two days only are given in which to unload a car, over that time there is a charge of a dollar per day imposed by the railroads on each car overdue. But our railroads here, particularly the Grand Trunk, have such high-handed methods of enforcing the rule that the fairness of it becomes questionable. They let their freight lie for weeks between Toronto and Buffalo, and instead of bringing it in moderately and at a uniform rate to each dealer, they will one day bring along one or two cars, and the very next day, perhaps, rush in a whole train of 60 or 80 cars, all consigned to the one man, and expect him to unload them in 48 hours, and this will happen right in the middle of the busiest season.—Toronto Correspondent of the Coal Trade Journal.

The contract for the soft coal supply for the Toronto city waterworks, has been awarded to Messrs. J. H. Milnes & Co., Toronto, and the contract for other coal and wood for civic purposes went to the Standard Fuel Co., Toronto.

All bituminous coal will produce gas, but, generally speaking, the gas coals of the United States are those containing from 30 to 40 per cent. of volatile matters,—that is, hydrogen, nitrogen, and oxygen. The excess of hydrogen in these coals renders them particularly suitable for the production of carburetted hydrogen, or, as it is commonly called, "gas." Hence the term now commonly used, "gas coals."

Dodge & Day, engineers and architects, Philadelphia, Pa., made a preliminary examination a short time since of the plant of the Link Belt Machinery Co., Chicago, Ill. As a result, they have been further commissioned to make a thorough examination of the mechanical and electrical features with a view of making a layout that will accomplish in the most economical and efficient manner the scheme of changes and improvements contemplated by the management. It is probable the power plant will be enlarged, and considerable additional electrical equipment installed, as well as some new machine tools. This, however, will not be determined until the engineers have made their report.

Everything comes to the man who goes after the things some other fellow is waiting for.

OPPORTUNITIES.

Manufacturers and others in need of machinery, supplies, etc., of any kind are requested to consult our advertising columns, and if they cannot find just what they want, if they will send us particulars we will make their wants known free of cost, and in this way secure the attention of those who may be able to supply them. No charge for publishing what is wanted nor for giving information. When writing to enquirers kindly mention *The Canadian Manufacturer*.

Is there any concern in Canada who make mechanics' tools, such as steel squares, rules, etc.? We have an enquiry from abroad for names and address of such manufacturers, if such there be, who knows?

There are many concerns who are on the lookout for advantageously located factory sites in Ontario, and to such their attention is directed to an advertisement on another page in which a machine shop and foundry are offered for sale. The site is conveniently located on the line of the Grand Trunk Railway, east of Toronto, in a thriving town where plenty of water power is available, and the works have capacity to operate about a hundred hands.

Thos. Morris, secretary Board of Water Commissioners, Oshawa, Ont., will receive tenders for laying a 12-inch cast iron submerged intake pipe, about 1,130 feet in length, for the Oshawa waterworks system.

S. E. Wright, secretary-treasurer, Sudbury, Ont., will receive tenders for the erection of an eight-roomed brick school building in that town.

J. Smithers, secretary-treasurer, Moosomin, N.W.T., will receive tenders for the erection of a town hall and fire station.

J. C. Starr, Qu'Appelle, Assa., will receive tenders for the erection of a brick school building in that town.

Wm. Finland, architect, Winnipeg, Man., is inviting tenders for the erection of an apartment block in that city.

Tenders are being called for the erection of a two-story business block, to cost \$20,000, for Sam Kee, in Vancouver, B.C. Emil Guenther is the architect.

A. Ford, Esterhazy, N.W.T., will receive tenders for the erection of a brick school building there.

Ernest Marceau, superintending engineer, Department of Canals, Montreal, will receive tenders for the supply of timber, lumber, cast and wrought iron, hardware, tools, oils, cement, coal, etc., required on the following canals: Lacbinc, Beauharnois, Soulanges, Chambly, St. Ours, Ste. Anne, Carillon and Grenville.

John McCrinnon, M.D., Chairman of the High School Committee at Kincardine, Ont., is inviting tenders for the erection of an addition to the Kincardine High School.

Tenders for the purchase of debentures amounting to \$35,000, for the town of Dauphin, Man., for electric light plant, erecting power house and for completion

of town and fire hall, will be received by Wm. Pintoul, secretary-treasurer at Dauphin.

D. Quinlan, Barrie, Ont., will receive tenders for the erection of a reinforced concrete arch bridge over the Mad River at Glen Huron, Ont., also for a bridge with stone abutments and steel superstructure with reinforced concrete floor at the same place.

The Department of Public Works, Ottawa, is inviting tenders for the erection of a post office building at Vancouver, B.C.

Tenders for lighting the streets of the town of Meaford, Ont., by electric light, will be received by J. G. Clarke, Meaford.

Tenders for construction of Rifle Range, Hamilton, Ont., are invited by the Department of Militia and Defence, Ottawa.

Tenders for the construction of an extension to the wharf at New Carlisle, Que., will be received by the Department of Public Works, Ottawa.

W. N. Adsit, Medicine Hat, N.W.T., is inviting tenders for the sale of municipal debentures as follows:—Natural gas, \$12,000; water-works, \$10,000; municipal building, \$30,000, and \$2,600 for purchase of New Edinburgh natural gas well, gas and water plant.

Chairman of the Fire, Water and Light Committee at Winnipeg, Man., will receive tenders for the supply of 1,500 one-half inch water meters; 200 three-quarter inch meters, and 50 one-inch meters; also, for the supply of water pipe and specials of various sizes for high pressure fire service.

C. J. Brown, city clerk, Winnipeg, Man., is inviting tenders for the supply of 1,500 cords of cedar.

R. Rogers, Minister of Public Works, Winnipeg, Man., will receive tenders for the erection of a dairy and science building and a power house in that city.

Tenders for the construction of a creosoted pile wharf at Pictou, N.S., will be received by D. Pottinger, Moncton, N.B.

The Department of Railways and Canals at Ottawa is inviting tenders for the supply of stone and the placing of stone protection along portions of the Summit level of the Welland canal, between Thorold and Port Colborne, Ont.

The owners of the Princess Royal gold mine, situated on the island of that name, 450 miles north of Vancouver, B.C., and near the steamer landing at Surf Inlet, will install electric or compressed air drills and other mining equipment this spring. The power will be derived from a waterfall capable of developing 2,000 h.p., about six miles distant from the mines. The superintendent of the mines is F. M. Tweedle.

Robert Wilson, Winnipeg, Man., is inviting tenders for the erection of a building for the Union Bank at Indian Head, N.W.T.

Tenders for the construction at Winnipeg, Man., of a covered concrete reservoir to hold 600,000 imperial gallons will be received by C. J. Brown, city clerk, Winnipeg.

PUBLICATIONS.

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

The Cassella Color Co., 182 Front St., New York City, have sent us Bulletin No. 108, relating to Ago Navy Blue 3 B and B, Pat. and Acid Navy Blue A. wool dyestuffs.

The John Watson Mfg. Co., Ayr, Ont., have issued a truck catalogue which describes and illustrates all kinds of trucks manufactured by them.

"Ideal Elevators for All Services" is the title of a handsome brochure sent us by the Parkin Elevator Co., Hamilton, Ont. It contains valuable information, regarding freight elevators specially adapted for factory and warehouse service.

The Canadian Casualty & Boiler Insurance Co., Toronto, have issued a booklet containing articles on subjects of interest to steam power users. "Boiler Feed Water" by A.M. Wickens, C. E.; "Purifying Water for Engines" by S. M. Davidson, engineer and chemist, and "Boiler Scale and Boiler Feed" by Harry Spurrier, analytic chemist.

The annual statistical report of the American Iron & Steel Association, of which Mr. James M. Swank is general manager, is now going through the press and will be issued in a few days. It will contain full Canadian statistics relating to iron and steel.

The Standard Steel Works, Philadelphia, Pa., have issued several new catalogues showing the advantages of their products for various purposes including forged and rolled steel car wheels, vehicle wheels, etc.

The May number of "Power and Transmission," published by the Dodge Mfg. Co., of Mishawaka, Ind., has just been issued.

D. K. McLaren, Montreal and Toronto has issued a new price list on genuine oak tanned leather belting, and other lines of belting and supplies.

The Electric Controller & Supply Co., Cleveland, Ohio, have just issued a catalogue, showing their line of Lifting Magnets, which are adapted to lifting all kinds of metals, ores, etc.

"Air Power" is the name of a new monthly journal being published by the Rand Drill Co., New York city, and the Canadian Rand Drill Co., Montreal.

A fine map of the cobalt-nickel-arsenic-silver area in the Temiskaming region has been prepared under the direction of the Bureau of Mines, to accompany the report of Prof. Miller, the Provincial geologist, in his section of the bureau's annual report. The map is in colors, to show the formation of the district, and has valuable marginal notes.

The Canadian Westinghouse Co., Hamilton, Ont., have sent us circular No.

1109 relating to the Single Phase Railway System. Circular No. 1110 is also to hand which describes and illustrates The Westinghouse Catenary Line Construction.

"Air and Gas Compressors," is the title of a handsome catalogue issued by the Worthington Pump Co., London, E.C., England, who are represented in Canada by John McDougall Caledonian Iron Works Co., Montreal.

The Westinghouse Electric & Mfg. Co., Pittsburgh, Pa., have sent us circular No. 1102, describing and illustrating the Westinghouse direct current arc lamp, and circular No. 1104, relating to Westinghouse portable instruments.

The Dominion Geological Survey has issued a series of fourteen special bulletins containing information up to date regarding the known deposits of Canada's chief economic minerals. These bulletins give in convenient form the information contained in the regular publications of the survey. During the past sixty years the survey has issued publications which contain upwards of six hundred reports regarding the economic minerals of Canada. For convenient reference the bulletins have been compiled from these reports, each important mineral being the subject of a special publication. Coal, our most important economic mineral, was dealt with at considerable length in the annual report of the Section of Mines for 1902, and the bulletin is largely a reprint of this article. A number of special articles have appeared from time to time in the reports of the mines section issued annually since 1897. In these the aim has been to meet the demand for accurate descriptions and to give the general public clear ideas of the importance of various mineral districts and mineral-producing industries. The available literature on the subject has also been referred to, that the reports might assist those desirous of studying any subject in greater detail. Several of the new bulletins are reprints of special articles from the reports. Those dealing with zinc, manganese, salt, and infusorial earth are from the reports for 1902. The other bulletins of the series deal with molybdenum and tungsten, copper in the Provinces of Nova Scotia, New Brunswick, and Quebec, platinum, mica, peat, apatite, graphite, and asbestos. These publications will make the information collected by the survey more readily accessible, and will give the general public a clearer and better idea of the mineral resources of the Dominion.

PACIFIC COAST EXCURSIONS.

During June, July, August and September the Chicago & North-Western Railway will sell from Chicago round trip excursion tickets to San Francisco, Los Angeles, Portland, Ore., (Lewis & Clarke Exposition), Seattle, Victoria and Vancouver at very low rates. Correspondingly cheap fares from all points in Canada. Choice of routes, best of train service, favorable stop-overs and liberal return limits. Rates, folders and full information can be obtained from B. H. Bennett, General Agent, 2 East King Street, Toronto, Ont.

PERSONALS.

The friends of Mr. Walter M. McFarland, acting vice-president of the Westinghouse Electric & Mfg. Co., Pittsburgh, Pa., will regret to learn of the death of his mother, Mrs. Sarah J. McFarland, which took place at Pittsburgh on May 11, 1905, in her 74th year.

We are indebted to the president and trustees, and the associate committee of women, for an invitation to attend the Commencement Exercises of the Pennsylvania Museum and School of Industrial Art, which occurred at the Academy of Music, Philadelphia on May 31, and to attend a reception and private view of the work of the students of that institution on the same day after the conclusion of the Commencement exercises. The rooms of the school will be open to the public until June 10.

Mr. H. H. Henshaw has been appointed General Manager of Allis-Chalmers-Bullock, Limited, Montreal. Born in St. Hyacinthe, Que., in 1865, he first entered the office of Mr. Walker, chief accountant of the Grand Trunk, in 1880. He remained there until 1886, when he was appointed secretary-treasurer of the Royal Electric Co., Montreal. During the next four years when that company carried on its manufacturing department Mr. Henshaw came into contact with manufacturers, electricians and engineers all over the country, and after it disposed of its manufacturing interests he not only retained his relations with them but made many new acquaintances in the business world. He remained as secretary-treasurer of the company until its absorption in the Montreal Light, Heat & Power Co., of which he also became secretary-treasurer and remained in that position until the present appointment.

Dodge & Day, engineers and architects, Philadelphia, Pa., have been commissioned by the Electric-Dynamic Co., to make a thorough examination of the existing methods in their shops at Bayonne, N.J., and submit report thereon as a basis for changes and improvements contemplated by the management. Business of the Dynamic Co., has increased to such an extent that it has become an urgent necessity of speeding up the shop, or else providing some adequate facilities, or both. Some years ago the Link Belt Engineering Co. were running their shops night and day, yet were unable to keep up with their orders. Extensive additions were contemplated to their buildings, but before carrying out their idea they called in Dodge & Day. As a result, 25 per cent. greater business is being done to-day on the same floor area and night work is entirely suspended. Improved methods throughout, and the introduction of the Taylor system are entirely responsible for this. The Electric-Dynamic Co. hope to accomplish the same results.

Mr. C. W. Vaughn of the Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio, manufacturers of wire, nail, brick and sewer pipe machinery was in Toronto and Montreal last week

D. K. McLaren, manufacturer of leather belting, Montreal, has made arrangements with the Threshers' Supply Co., Winnipeg, to represent him in Manitoba and the Territories.

The Pedlar People, Oshawa, Ont., the well-known manufacturers of art and architectural sheet metal products, have opened Toronto offices and salesrooms at 50 Yonge Street, where they have a fine display of their goods. The office is in charge of Mr. F. M. Johnson. Mr. Geo. H. Pedlar, Jr., is also in Toronto frequently and keeps in close touch with the growing business of the company in this section.

The next annual convention of the National Association of Agricultural Implement and Vehicle Manufacturers will be held at Niagara Falls, Ont., Sept. 27, 28 and 29.

Mr. Joshua Peters, general manager of the Record Foundry & Machine Co., Moncton, N.B., has recently returned home after an extended trip over the Western Provinces.

Mr. F. B. Wade, chairman of the National Transcontinental Railway Commission, died at Ottawa, May 23.

The offices of the Toronto Exhibition Association have been removed from King Street East to the City Hall.

Major Henry A. Gray, M.I.C.E., engineer in charge of the Toronto department of public works, died May 23.

Mr. G. B. Damon, recently manager of the New York office of the Wellman-Seaver-Morgan Co., Cleveland, Ohio, has been transferred to an important position in connection with the engineering and sales department at Cleveland. Mr. W. A. Stadelman recently manager of the Brown Hoisting Machinery Co., has become manager of the general eastern office of the Wellman-Seaver-Morgan Co., with offices at 42 Broadway, New York City.

Mr. S. C. De Witt has been appointed sales agent for Allis-Chalmers-Bullock, Ltd., Montreal, for the Maritime Provinces with headquarters at Halifax. He is a graduate in electrical engineering of Lehigh University, Pennsylvania, and has had considerable experience in different lines of electrical work. For the past three years he was Manager of the De Witt Electric Co., with places of business at Sydney, Glace Bay, Pictou, Truro, N.S. and Fredericton, N.B., and, being a native of the Province and well acquainted with the business in the East, will no doubt prove a valuable acquisition to the staff of the company.

THE WESTINGHOUSE MACHINE CO.

Westinghouse-Machine Co. have recently announced substantial extensions in their sales organization. These extensions are the result of the rapidly increasing business, making necessary the more thorough covering of southern and western territories.

In addition to the original New York, Boston, Pittsburgh and Chicago offices, new branches have been established at Cincinnati, Denver, San Francisco,

Charlotte, N.C., and Atlanta, Ga. With these added facilities and extensive mining territory of the West and cotton industries of the South may receive more active attentions.

The steam turbine and gas engine business of the company has increased rapidly during the last few years, and the prevailing activity in this branch of power development augurs well for the future.

The representative officers of the company are now as follows:—Mr. L. L. Brinsmade, 10 Bridge St., New York; Mr. E. L. Clarke, 131 State St., Boston; Mr. William Bradford, Westinghouse Building, Pittsburg; Mr. John B. Allau, 171 La Salle St., Chicago; Mr. A. A. Brown, 1111 Traction Building, Cincinnati; Mr. C. C. Chappelle, 512 McPhee Building, Denver; Mr. Stuart W. Cramer, S. Tryon St., Charlotte, N.C.; Mr. Stuart W. Cramer, Equitable Building, Atlanta, Ga.; M. R. Muckle, Jr. & Co., Stephen Girard Building, Philadelphia; Hunt, Mirk & Co., 614 Mission Street, San Francisco.

ATLANTIC STEAM SHOVEL.

The Canadian Pacific Railway Co., have just purchased four powerful steam shovels from the Locomotive & Machine Co. of Montreal. These machines are of the new Robinson Wire-Rope type, designed by A. W. Robinson, of 14 Phillips Square, Montreal. The first machine was placed in service some weeks ago on trial at Montreal Junction, and on the strength

of its successful performance the company through Mr. W. R. Baker have ordered three more. It has been subjected to most exhaustive tests and on comparing its performance with that of a Bucyrus shovel on the same work it was found to have excavated 50 per cent. more material in the same working time, and to have consumed only three-fourths of the fuel. Mr. Robinson is also the designer of the Bucyrus machine which is so well and favorably known, about a 1,000 of them being in service, but in this latest production he has made a most remarkable advance in speed, power and efficiency. Some idea of the power of this gigantic machine may be gained from the fact that it can dig a cutting 60 feet wide and 25 feet deep at one time, loading the material on a train of cars alongside. It loads standard cars 34 feet long in 13 minutes each, scooping up five tons at a time with its immense steel dipper. Although so large and powerful it is handled with greater ease and rapidity than the old style, and seems almost human in its motions. It is a matter of satisfaction that these machines are now built in Canada as heretofore they have all been imported from the United States. Not only that but this Canadian design is being largely used in the United States where it is being introduced by the American Locomotive Co., and bids fair to supersede the old style by reason of its superior speed and efficiency. One of these shovels has recently been sold to the Canadian Copper Co., for digging heavy ore.

GEORGIAN BAY POWER CO.

Georgian Bay Power Co., Limited, recently formed to develop and operate the water power at Eugenia Falls, in the county of Grey, Ont., and to supply electrical power to manufacturers and others in the territory tributary thereto, have engaged Mr. Chas. H. Vogel, the well-known hydraulic engineer of Ottawa, as chief engineer. The company owns this water power, which consists of one principal fall of 70 feet and a series of smaller falls, making altogether a head of over 300 feet, one of the highest heads in Canada. The falls are seven miles from Flesherton station on the Owen Sound branch of the Canadian Pacific Railway, and about 30 miles from the town of Owen Sound.

It is intended to develop 3,000 h.p. at the outstart. The plan of development is simple, consisting essentially of a dam across the river, from which the water will be conveyed along the river bank nearly on the level to a bulkhead at a point on the bank above the power house, which will be situated in the gorge below. From the bulkhead a pipe will carry the water on an incline down to the wheels. It is a well-known fact that the higher the head the cheaper the cost of hydraulic and electrical machinery required, due to the greater spouting velocity of the water. The town of Owen Sound has given the company permission to use the poles owned by the town for carrying the company's wires, and to erect such other poles as may be required. Wm. P. Tel-

TO THE VARNISH BUYER

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

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

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

BERRY BROTHERS, Limited

VARNISH MANUFACTURERS

WALKERVILLE, ONT.

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

ford, M.P., is president of the company, B. F. Reesor managing-director, and Thos. McLaughlin secretary and treasurer. The head offices are at 16 King Street West, Toronto.

QUEEN'S RUN FIRE BRICK CO.

During the past year the Queen's Run Fire Brick Co., Lock Haven, Pa., one of the oldest fire brick manufacturers in the country, have entirely rebuilt their plant and about trebled the output. The new plant is unique, in that the clay is handled automatically from the time it leaves the cars in which it is shipped from the mines until it is moulded into the brick. From the cars the clay is dumped into a chute leading into a crusher, thence a 70-foot elevator delivers it to a 90-foot belt conveyor, from which it is distributed as desired into eight storage bins of 175 tons capacity each. These are hopper bottomed and through spouts with automatic gates the clay is delivered to the pans. The charging and mixing are under the control of one operator for each pan and are regulated by four levers. By a device of the company's own patent the pans

are emptied automatically into steel cars running on a narrow guage track, which extends the entire length of the drying floor, and thus tempered clay is delivered to the moulders. A steel building 30x90 feet with concrete foundation four feet thick over the entire surface, accommodates all the machinery, storage bins, etc. The drying floor is 75x400 feet and has no posts or obstructions of any kind in this area, a great desideratum in the drying of brick. The machinery includes one No. 5 Champion crusher, three 7½-foot Clearfield wet pans, one 9-foot Clearfield dry pan and four mould special Boyd brick press with screens, elevators, conveyors, etc. The boiler and engine house is a separate fireproof building 48x56 feet, and is equipped with one 200 h.p. Corliss engine, three 125 h.p. boilers and one 25 h.p. engine and dynamo. Twenty kilns of 40,000 capacity each, a large detached pattern storage building, carpenter shop, blacksmith shop and storage sheds for burned brick complete the equipment of this thoroughly modern plant.

Learn to laugh a good laugh is better than medicine.


FACTORY LOCATIONS.

The following Canadian municipalities are offering inducements to secure manufacturing establishments. Inquiries should be addressed to the Mayor, Town Clerk or Board of Trade of the respective cities:

- Barrie, Ont.
- Brantford, Ont.
- Fort William, Ont.
- Halifax, N.S.
- Hamilton, Ont.
- Lindsay, Ont.
- Orillia, Ont.
- Peterborough, Ont.
- Regina, N.W.T.
- Sherbrooke, Que.
- Toronto, Ont.


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Limited
 94 Adelaide St. West, TORONTO, CAN.
 Consulting and Contracting Electrical Engineers.
 Complete Power Plants Designed and Equipped.
 National Electric Code Standard Wiring.
 Advisory Reports. Repairs, Alterations, Etc.
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Capacity—heats—price—all in favor of McCullough-Dalzell Crucibles. Send us your next order.

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DRILLS AND LATHES

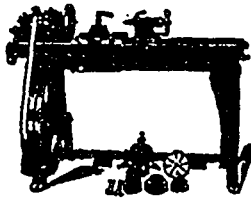


14" DRILL.

We build a full line of Upright Drills from 12 inch to 31 inch.

All sizes furnished in Gangs when so required.

Our Screw Cutting Lathes are built in both power and foot power styles.



11" FOOT POWER LATHE.

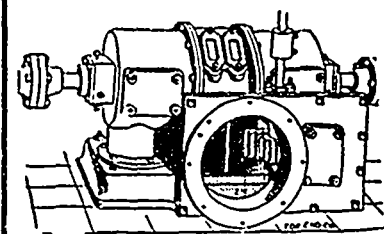
We also build a very practical Wet Tool Grinder for general shop use.

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Ontario Agent—
 H. W. PETRIE, TORONTO, ONT.

ROCKFORD, ILL.



Horizontal Type.

HORIZONTAL AND VERTICAL. BUILT IN 44 SIZES.

We guarantee a higher percentage of power from water used than any other wheel on the market.

Water Wheel Governors, Machine Dressed Gearing, Pulleys, Shafting and Bearings.

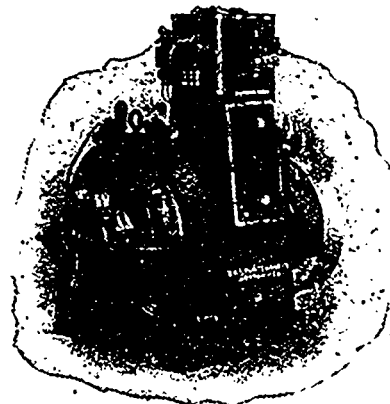
Catalogue and Gear List mailed on application. Correspondence Solicited.

J. C. WILSON & CO., Glenora, Ont.

"LITTLE GIANT" Turbine

FOR ALL PURPOSES

A STURTEVANT ENGINE and a STURTEVANT GENERATOR



Designed and constructed the one for the other, forming a compact and efficient

STURTEVANT GENERATING SET

Improved method of lubrication gives highest mechanical efficiency to the engine. All running parts enclosed, yet accessible. The generator is conservatively rated; has heavy overload capacity, low temperature rise and improved ventilation.

Send for Bulletin 63.

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 New York. Philadelphia. Chicago. London.

Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fans, Blowers and Exhausters; Steam Engines, Electric Motors and Generating Sets; Fuel Economizers, Forgers, Exhaust Heads, Steam Traps, etc.

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NOTICE—Mr. Fleming having resigned the Agency for the sale of our Manufactures in Canada, we are arranging Agencies at TORONTO and ST. JOHN, N.B., for the prompt supply of

CAMEL HAIR BELTING
CAMEL BRAND BELTING
CANVAS HOSE
PAPER MAKERS' FELTS
PRINTING PADS

ADDRESSES of AGENCIES will be published as soon as possible.

Meanwhile all enquiries will receive prompt attention if addressed to

F. REDDAWAY & COMPANY
LIMITED

PENDLETON,
Manchester, England

"I would say to Steam Users—'If you want to save coal, if you want to save repair bills, if you want to prevent shut-downs, if you want to lengthen the life of your boilers, if you want to increase their efficiency—then Scale Formation must be prevented.'"

Tri-Sodium Phosphate keeps boilers clean and free from scale.

For complete information about **T.S.P.** write to

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Telegraphic Address: "PHENOLATE."

51 Lime St., LONDON, E.C., ENG.

Blagden, Waugh & Co.

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THE DOMINION TAR & CHEMICAL CO., Limited
Works at Sydney, Cape Breton, CANADA.

Manufacturers of Pitch (Roofing and Target); Creosote (Dead Oil); Carbolic, Naptha, Disinfectants, Refined Tar.

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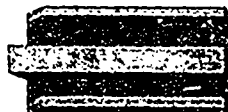
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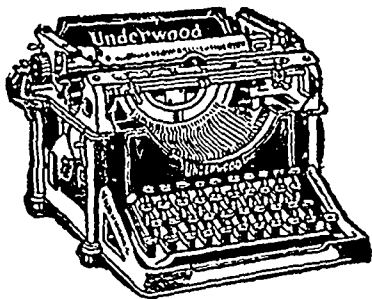
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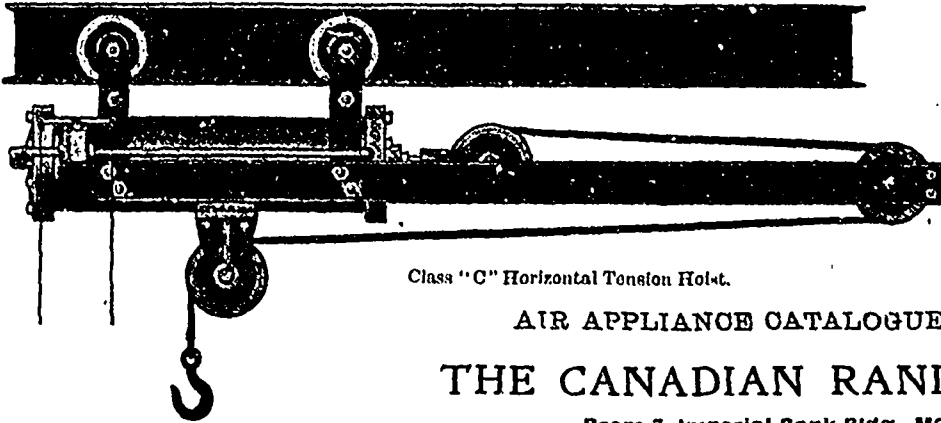
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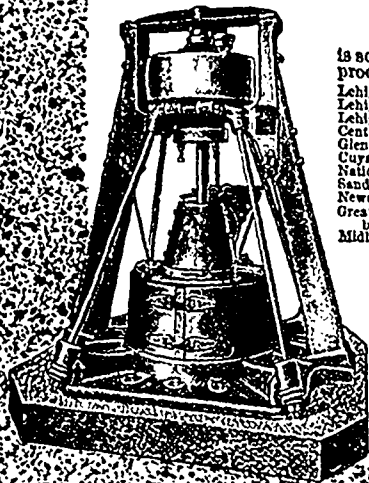
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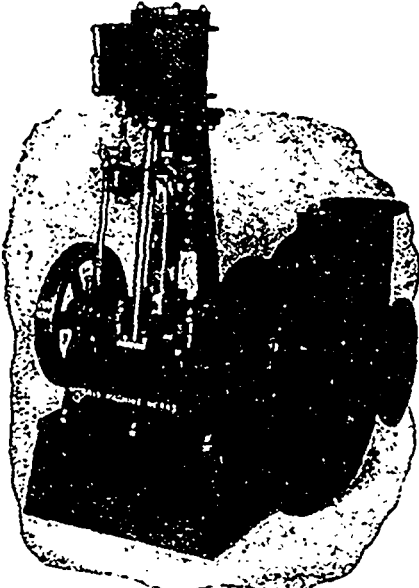
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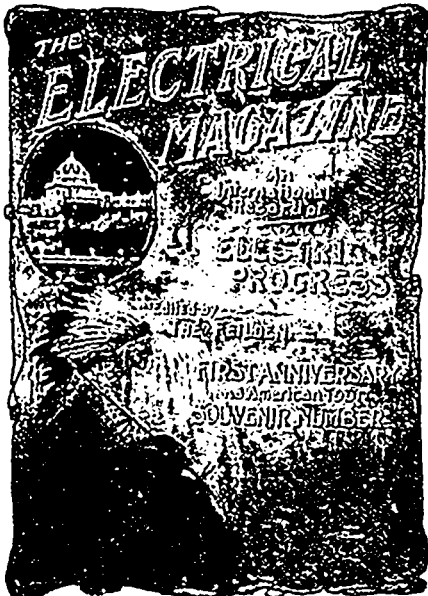
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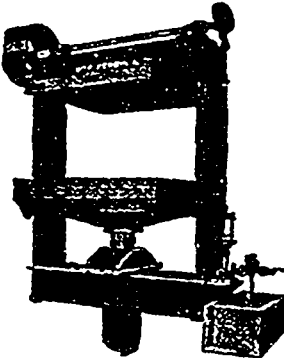
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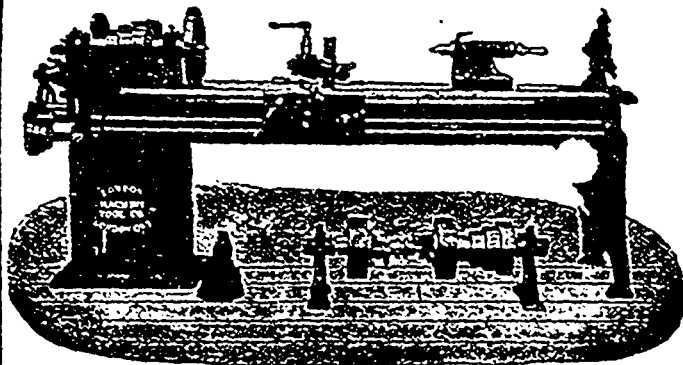
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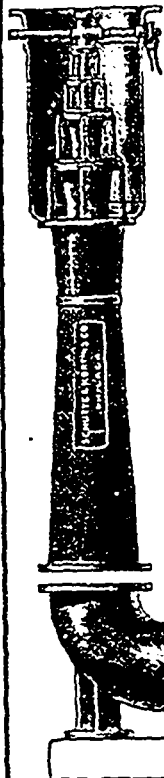
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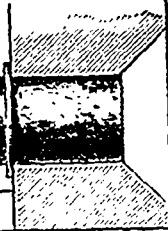
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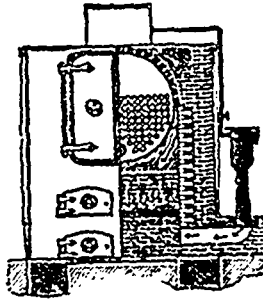


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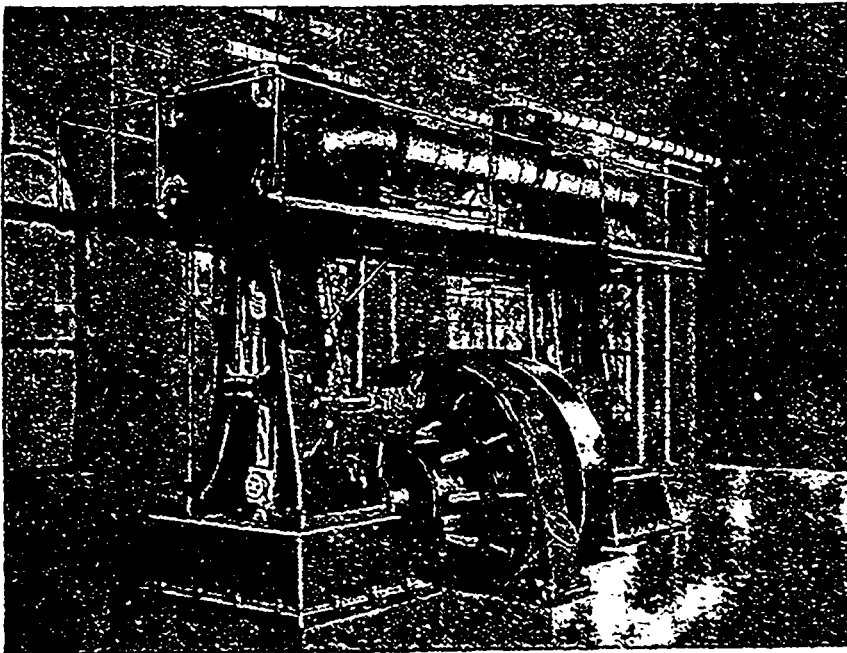
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Savage Mountain Fire Brick Co., Frostburg, Md.
Stowe-Fuller Co., Cleveland, Ohio.

Building Iron and Steel

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Expanded Metal & Fireproofing Co., Toronto.
Fedar People, Oshawa, Ont.

Builders' Materials

Albert Mfg. Co., Hillsboro, Ont.
Canada Foundry Co., Toronto.
Expanded Metal & Fireproofing Co., Toronto.
Garshore, John J., Toronto.
Hopkins, F. H. & Co., Montreal.
Meadows, Geo. B. Wire, Iron & Brass Works, Toronto.
Metallic Roofing Co., Toronto.
Otis-Fensom Elevator Co., Toronto.
Fedar People, Oshawa, Ont.
Sheldon & Sheldon, Galt, Ont.

Cables

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

Canada Plates

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

Canoes

Peterborough Canoe Co., Peterborough, Ont.

Caps

McCallough-Dalsell Crucible Co., Pittsburg, Pa.

Card Clothing

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

Cast Iron Pipe

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

Castings (Grey Iron, Malleable Iron and Brass)

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

Cement Machinery

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

Centrifugal Pumping Machinery

Morris Machine Works, Baldwinsville, N. Y.

Chain Making Machinery (Welded Coil Chain)

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

Channels

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

Charcoal Pig Iron

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

Chemicals

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

Chemists

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

Clay Working Machinery

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

Coal and Coke

Bourne-Fuller Co., Cleveland, Ohio.
Ferguson, J. D., Hamilton, Ont.
Milnes, James H. & Co., Toronto.
Myles' Sons, Hamilton, Ont.
Old Colony Coal & Coke Co., Pittsburgh, Pa.
Pittsburgh Coal Co., Pittsburgh, Pa.
Shawmut Coal & Coke Co., St. Mary's, Pa.
Sawyer, Edward T., Columbus, Ohio.
Skac, E. A., Detroit, Mich.
Wick, H. K. & Co., Buffalo, N.Y.
Wilson, H. T. Coal Co., Detroit, Mich.

Coal Cutting Machines

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

Coal Triples

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

Coil Chains

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

Coke Oven Brick

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

Collection Agency

Petrie, H. D., Hamilton, Ont.

Concrete Mixers

Hopkins, F. H. & Co., Montreal

Contractors' Machinery

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

Contractor's Plants

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

Conveying Machinery

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

Copper Materials

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

Dominion Oil Cloth Co.

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CLASSIFIED INDEX.

(CONTINUED).

Corundum Wheels

Canadian Corundum Wheel Co., Hamilton, Ont.

Cotton Banding and Rope

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

Cover

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

Crayons

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

Crucibles

Dixon, Joseph, Crucible Co., Jersey City, N.Y.
McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.
Syracuse Smelting Works, Montreal.

Crucible Caps

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

Crucible Covers

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

Cutter Grinding Machines

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

Deep Well Engines

American Steam Pump Co., Battle Creek, Mich.

Detective Agency

Dewar Detective Agency, St. Louis, Mo.

Dies (Socket, Sewer Pipe and Tile)

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

Directories

Kelly's Directories, Limited, Toronto.

Draw Benches (Wire)

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

Drilling & Fishing Tools

National Supply Co., Leamington, Ont.
Oil Well Supply Co., Pittsburgh, Pa.

Drilling Machines (Portable)

National Supply Co., Leamington, Ont.
Oil Well Supply Co., Pittsburgh, Pa.

Drills

Allis-Chalmers-Bullock, Limited, Montreal.
Barnes, B. F. Co., Rockford, Ill.
Canada Machinery Co., Sarnia, Ont.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
London Machine Tool Co., London, Ont.
Petrie, H. W., Toronto.

Drills (Pneumatic and Rock)

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

Drop Forgings

Globe Machine & Stamping Co., Cleveland, Ohio.

Drop Forging Dies

Canada Machinery Co., Sarnia, Ont.
Globe Machine & Stamping Co., Cleveland, Ohio.

Dry Kiln Apparatus

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

Dust and Shavings Separators

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

Dye Stuffs and Chemicals

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

DYNAMOS (See Motors and Dynamos)

Electric Meters and Transformers

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

Electric Mine Locomotives

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

Electrical Repairs

Keystone Engineering Co., Toronto.

Electrical Supplies

Allis-Chalmers-Bullock, Limited, Montreal.
Bristol Co., Waterbury, Conn.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jones & Moore Electric Co., Toronto.
Keystone Engineering Co., Toronto.
Packard Electric Co., St. Catharines, Ont.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Worth & Martin, Toronto.

Elevators and Conveyors

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

Elevator Insurance

Canadian Casualty & Boiler Insurance Co., Toronto.

Emery and Emery Wheels

Canadian Corundum Wheel Co., Hamilton, Ont.
Forman, John, Montreal.
Petrie, H. W., Toronto.

Engineers (Chemical)

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

Engineers (Civil)

DeLano-Osborn Engineering Co., Toronto.
Parke, R. J., Toronto.
Vogel C. H., Ottawa.

Engineers (Consulting)

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

Engineers (Contracting)

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

Engineers (Electrical)

Aitken, K. L., Toronto.
Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Cresker-Wheeler Co., St. Catharines, Ont.
DeLano-Osborn Engineering Co., Toronto.
Electrical Construction Co., London, Ont.
Jones & Moore Electric Co., Toronto.
Keystone Engineering Co., Toronto, Ont.
Marion & Marion, Montreal.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Worth & Martin, Toronto.

Engineers (Mechanical)

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

Engineers (Mill and Hydraulic)

DeLano-Osborn Engineering Co., Toronto.
Hawksworth, Alfred, Montreal.
Vogel, C. H., Ottawa.

Engineers (Mining)

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

Engineers (Municipal)

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

Engineers and Contractors

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

Engines and Boilers

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Bertram Engine Works Co., Toronto.
Canada Foundry Co., Toronto.
Canadian Heine Safety Boiler Co., Toronto.
Corbett, R. B., Brooklyn, N.Y.
Goldie & McCulloch Co., Galt, Ont.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER

CLASSIFIED INDEX.

(CONTINUED).

Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hopkins, F. H. & Co., Montreal.
Jencks Machine Co., Sherbrooke, Que.
Morris Machine Works, Baldwinville, N. Y.
McDougall, John, Caledonian Iron Works Co., Montreal.
McEachren Heating & Ventilating Co., Galt, Ont.
National Supply Co., Leamington, Ont.
Oil Well Supply Co., Pittsburgh, Pa.
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.

Exhausters

Schutte & Koerting Co., Philadelphia, Pa.
Explorer and Geologist
Evans, Horace F. Ashcroft B.C.

Factory Sites

(See Factory Locations, page 34).
Central Ontario Power Co., Peterboro, Ont.
Hutcheson, S. M., Paisley, Ont.

Feed Water Heaters

Babecock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Robb Engineering Co., Amherst, N.S.
Schutte & Koerting Co., Philadelphia, Pa.

Files

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

Fillet (Pattern)

McLaren, J. C. Belting Co., Montreal.
Sadler & Haworth, Montreal and Toronto.

Filters (Oil)

Babecock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Perrin William R. & Co. Limited, Toronto.

Filters and Filtering Systems (Water)

Babecock & Wilcox, Limited, Montreal.
Jencks Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.

Financial

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

Fire Brick and Clay

Dover Fire Brick Co., Cleveland, Ohio.
Dunbar Fire Brick Co., Pittsburgh, Pa.
Hamilton Facing Mill Co., Hamilton, Ont.
Pennsylvania Fire Brick Co., Lock Haven.
Queen's Run Fire Brick Co., Lock Haven, Pa.
Reese-Hammond Fire Brick Co., Holiver, Pa.
Savage Mountain Fire Brick Co., Frostburg, Md.
Stowe-Fuller Co., Cleveland, Ohio.

Fire Escapes

Darling Bros., Montreal.
Meadows, Geo. B., Wire, Iron & Brass Works, Toronto.

Flour Mill Machinery

Goldie & McCulloch Co., Galt, Ont.

Forges and Blowers

Canada Foundry Co., Toronto.
McEachren Heating & Ventilating Co., Galt, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Founders

Canada Foundry Co., Toronto.
Canada Machinery Co., Sarnia, Ont.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jencks Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.
Robb Engineering Co., Amherst, N.S.

Foundry Facings and Supplies

Hamilton Facing Mill Co., Hamilton, Ont.

Fuel Economizers

Babecock & Wilcox, Limited, Montreal.
Schutte & Koerting Co., Philadelphia, Pa.
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

Goldie & McCulloch Co., Galt, Ont.
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)

Babecock & Wilcox, Limited, Montreal.
Penberthy Injector Co., Windsor, Ont.

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, Ont.

Gloves, Mittens and Moccasins

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

Glue Heaters

Advance Machinery Co., Toledo, Ohio.

Glue Room Equipment

Advance Machinery Co., Toledo, Ohio.

Government Notices

Factory Inspectors.
Minister of Agriculture.

Graphite

Dixon, Jos., Crucible Co., Jersey City, N.J.
McCulloch-Dalsell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Grease Cups

Penberthy Injector Co., Windsor, Ont.

Grinding Machinery

Canadian Crundum Wheel Co., Hamilton, 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.
McEachren Heating & Ventilating Co., Galt, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Hoisting Engines

Bertram Engine Works Co., Toronto.
Jencks 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.
Sadler & Haworth, Montreal and Toronto.

Hotel

Gallatin Hotel, New York City.

Hydrants

Kerr Engine Co., Walkerville, Ont.
Jencks Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.

Hydraulic Accumulators

Jencks Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.

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.
Jencks Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.

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

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CANADIAN MANUFACTURER,
TORONTO, Canada.

CLASSIFIED INDEX.

(CONTINUED).

Insulated Wires and Cables

Phillips, Eugene F., Electrical Works, Montreal.
Wire & Cable Co., Montreal.

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.
Meadows, Geo. B., Wire, Iron & Brass Works Co., Toronto.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Petrie, H. W., Toronto.

Injectors

Canada Foundry Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Penberthy Injector Co., Windsor, Ont.
Schutte & Koerting Co., Philadelphia, Pa.
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.
Sunbeam Incandescent Lamp Co., Toronto and St. Catharines Ont.

Lathes

Barnes, B. F. Co., Rockford, Ill.
Canada Machinery Co., Sarnia, Ont.
Cowdrey, C. H. Machine Works, Fitchburg, Mass.
London Machine Tool Co., London, Ont.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Lather (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

Bertram Engine Works Co., Toronto.
Canada Machinery Co., Sarnia, Ont.
Goldie & McCulloch Co., Galt, Ont.
London Machine Tool Co., London, Ont.
Robb Engineering Co., Amherst, N.S.
Worth & Martin, Toronto.

Machinists' Supplies

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

Machine Tools

Barnes, B. F. Co., Rockford, Ill.
Becker-Brainard Milling Machine Co., Hyde Park, Mass.
Canada Machinery Co., Sarnia, Ont.
Cowdrey, C. H. Machine Works, Fitchburg, Mass.
Darling Bros., Montreal.
London Machine Tool Co., London, Ont.
Petrie, H. W., Toronto.

Machinery Repairs

Bertram Engine Works Co., Toronto
Canada Machinery Co., Sarnia, Ont.

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.
Bertram Engine Works Co., Toronto.
Jenckes Machine Co., Sherbrooke, Que.

Mechanical Draft

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

Metal Stamping

Globe Machine & Stamping Co., Cleveland, Ohio.
Pedlar People, Oshawa, Ont.

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.
Fleming, W. A. & Co., 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.
Hawkesworth, Alfred, Montreal.
Hay, Peter Knife Co., Galt, Ont.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
London Machine Tool Co., London, Ont.
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., Manchester, England.
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.
Anton, John & Son, Monongahela, Pa.

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.
Schutte & Koerting Co., Philadelphia, Pa.
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.
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.
Meadows, Geo. B., Wire, Iron & Brass Works Co., Toronto.

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.

Oil Well Supplies

National Supply Co., Leamington, Ont.
Oil Well Supply Co., Pittsburgh, Pa.

Paints and Colors

Berry Bros., Walkerville, Ont.
Gely, Aniline & Extract Co., New York City.
McArthur, Cornelle & Co., Montreal.

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(CONTINUED).

Paper Manufacturers

Barber, Wm., & Bros., Georgetown, Ont.
Toronto Paper Mfg. Co., Cornwall, Ont.

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-Dalsell 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 Line Supplies

National Supply Co., Leamington, Ont.
Oil Well Supply Co., Pittsburg, Pa.

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.
National Supply Co., Leamington, Ont.
Oil Well Supply Co., Pittsburg, Pa.

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

Pneumatic Tools

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Hand 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.
Armstrong, Herbert J., Toronto.
Babcock & Wilcox, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Corbett, R. B., Brooklyn, N.Y.
Darling Bros., Montreal.
DeLano-Osborn Engineering Co., Toronto.
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, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

Packard Electric Co., St. Catharines, Ont.
Perrin, William 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)

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

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., Downsville, Pa.
Goldie & McCulloch Co., Galt, Ont.
Jenokes 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.
Schutte & Koerting Co., Philadelphia, Pa.

Punches and Shears

Canada Machinery Co., Sarnia, Ont.
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 & 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 Pulveriser Co., Boston, Mass.

Rolling Mill Engineers

Bourne-Fuller Co., Cleveland, Ohio.

Roofing

Bourne-Fuller Co., Cleveland, Ohio.
Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Rubber Goods

Gutta Percha & Rubber Mfg. Co., Toronto.

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.

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.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
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.
Lyssaght, John, Limited, Bristol, England and Montreal.

Sheet Metal Goods

Globe Machine & Stamping Co., Cleveland, Ohio.
Pedlar People, Oshawa, Ont.

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(CONTINUED).

Sheet Metal Stamping
Globe Machine & Stamping Co., Cleveland, Ohio.
L'edlar People, Oshawa, Ont.

Ship Builders
Bertram Engine Works Co., Toronto.

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.
Canada Machinery Co., Sarnia, Ont.
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
Babeock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McEachren Heating & Ventilating Co., Galt, Ont.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.

Steam Specialties
Darling Bros., Montreal.
McEachren Heating & Ventilating Co., Galt, Ont.
Penberthy Injector Co., Windsor, Ont.
Schutte & Koerting Co., Philadelphia, Pa.
Sheldon & Sheldon, Galt, Ont.

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

Steel and Composite Ships
Bertram Engine Works Co., Toronto.

Steel Balls
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.
Lealie, A. O. & Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Wilson, J. O. & Co., Glenora, Ont.

Stocks and Dies
Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rook Island, Que.
Petrie, H. W., Toronto.
Worth & Martin, Toronto.

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

Structural Steel
Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Hopkins, F. H. & Co., Montreal.

Sulphate of Alumina
Nichols Chemical Co. of Canada, Montreal.

Sulphur Furnace
Schutte & Koerting Co., Philadelphia, Pa.

Suspension Furnaces
Continental Iron Works Co., New York City.

Tanks (Oil and Water)
Canada Foundry Co., Toronto.
Corbett, R. B., Brooklyn, N.Y.
Goldie & McCulloch Co., Galt, Ont.

Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.
Ontario Wind Engine & Pump Co., Toronto.

Taps and Dies
Butterfield & Co., Rook Island, Que.
Globe Machine & Stamping Co., Cleveland, Ohio.

Tees
Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.

Textile Manufacturers
Dominion Oil Cloth Co., Montreal.
Smith Mfg. Co., Toronto.
Storey, W. H. & Sons, Acton, Ont.

Textile Supplies
McLaren, J. O. Bolting Co., Montreal and Toronto.

Thermometers (Recording)
Bristol Co., Waterbury, Conn.

Tin
Lealie, A. C. & Co., Montreal.
Syracuse Smelting Works, Montreal.

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

Tool Steel
Bourne-Fuller Co., Cleveland, Ohio.
Hopkins, F. H. & Co., Montreal.
Lealie, A. C. & Co., Montreal.

Trucks
Corbett, R. B., Brooklyn, N.Y.
Hopkins, F. H. & Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Sheldon & Sheldon, Galt, Ont.

Trucks (Railway)
Canada Foundry Co., Toronto.

Trucks (Wire Mill Supplies)
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Tubs (Cleaning and Coating Wire)
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Tugs
Bertram Engine Works Co., Toronto.

Tumbling Barrels
Globe Machine & Stamping Co., Cleveland, Ohio.

Turbines
Canada Foundry Co., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jenckes Machine Co., Sherbrooke, Que.
Wilson, J. C. & Co., Glenora, Ont.

Typewriters and Supplies
United Typewriter Co., Toronto.

Valves
American Steam Pump Co., Battle Creek, Mich.
Babeock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Kerr Engine Co., Walkerville, Ont.
Petrie, H. W., Toronto.
Schutte & Koerting Co., Philadelphia, Pa.
Williams, A. R. Machinery Co., Toronto.

Valves (Rubber)
Gutta Percha & Rubber Mfg. Co. Toronto.

Varnishes
Berry Bros., Walkerville, Ont.

Ventilators
Darling Bros., Montreal.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Wagon and Carriage Wood Work
Hore, F. W. & Son, Hamilton, Ont.

Washers or Hollenders (Cleaning Rubber)
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Watchman's Clocks
Eco Magneto Clock Co., Boston, Mass.

Water Power Development
Vogel, C. H., Ottawa.

Water Purifying Chemicals
Canada Chemical Mfg. Co., London, Ont.

Windmills
Ontario Wind Engine & Pump Co., Toronto.

Wire Mill Supplies
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Wire and Wire Rope
Dominion Wire Rope Co., Montreal.
Greening, B. Wire Co., Hamilton, Ont.
Lealie, A. C. & Co., Montreal.
Phillips, Eugene F. Electrical Works, Montreal.
Wire & Cable Co., Montreal.

Wire Rope Fittings
Dominion Wire Rope Co., Montreal.

Wire Cloth
Greening, B. Wire Co., Hamilton, Ont.

Wire Drawing Machinery
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Wire Specialties
Meadows, Geo. B. Wire, Iron & Brass Works Co., Toronto.

Wood-Working Machinery
Advance Machinery Co., Toledo, Ohio.
Canada Machinery Co., Sarnia, Ont.
Cordroy, C. H., Machine Works, Fitchburg, Mass.
Goldie & McCulloch Co., Galt, Ont.
London Machine Tool Co., London, Ont.
Petrie, H. W., Toronto.
Sheldon & Sheldon, Galt, Ont.
Williams, A. R. Machinery Co., Toronto.

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Bertram Engine Works Co., Toronto.

Zinc
Lealie, A. C. & Co., Montreal.
Syracuse Smelting Works, Montreal.

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